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## Memorable arts: The mnemonics of painting and calligraphy in Late Imperial China

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**PART I**  
Remembering in Imperial China

## Chapter 1

### Locating Memory

The recollection of memories is often triggered by objects or images we encounter in the world that surrounds us. The memories, however, remain unique and accessible only to the individual. One might thus wonder, where are these memories stored? In Western culture, memory has long been associated with the brain. As Draaisma describes, the understanding that memories were stored in the brain cavities, or ventricles, as proposed by the Greco-Roman physician Galen (d. 210), “remained unchallenged for over fifteen hundred years.”<sup>37</sup> Later, as western theories about memory developed, the brain continued to be the seat of memory. The central role conferred on the brain in the process of remembering, however, should not be taken as self-evident.

In imperial China, up to the sixteenth century, the seat of memory was unanimously believed to be the heart. Common terms to discuss memory revolved around the ideas of “recording” (*ji* 記 and *zai* 載), “storing” (*cang* 藏) or “collecting” (*ji* 集) things within the heart (*yu xin* 於心) or within the breast (*xiong* 胸). Another character that refers to the acts of “recollecting” and “remembering” (*yi* 憶), also has the identifying component (*bushou* 部首) for heart 心. The heart, often translated as “heart-mind” due to its connection to both intellectual and emotional faculties, was the repository of imaginary records.<sup>38</sup> Accordingly, the breast was sometimes referred to as a container, such as a “bamboo basket,”<sup>39</sup> and the act of memorizing was described as recording something “in the dark” (*an* 暗) or “in silence” (*mo* 默). Thus, like in the West, there was a parallel between memory and writing.<sup>40</sup> Both cultures held that memories could be stored within an organ and retrieved when searched for by the individual.

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<sup>37</sup> Draaisma. 2000. *Metaphors of Memory*, 26. Carruthers has also discussed graphic depictions of the brain and the “place” of memory. Carruthers. 2008. “Mechanisms for the Transmission of Culture: The Role of “Place” in the Arts of Memory.”

<sup>38</sup> Since the location of memory in the body is not central to the accounts discussed in this study, the seat of memory is referred to as “mind” whenever the character for heart-mind (*xin* 心) is used.

<sup>39</sup> One example is translated in the third section of this chapter. For another example refer to Lu’s article on the transition from “recitation” to “lecturing” during the Qing dynasty. 2018. “Cong ‘jìsong’ dao ‘jiàngshou’?” 108.

<sup>40</sup> Draaisma discusses the early notion of memory as a wax tablet. 2000. *Metaphors of Memory*, 24-25.

There are no extant Chinese sources from before the sixteenth century that explain the workings of memory or the process of remembering. A debate about the physiology of remembering was only initiated when the idea of the heart as the storage site for memories was challenged after the introduction of Western knowledge. Jesuits visiting China, such as Matteo Ricci (1552-1610), began to discuss the location of the soul in the human body, also touching upon the conception of memory as being stored in the brain.<sup>41</sup> This issue became the topic of heated debates among Chinese scholars and Jesuits. Li Shizhen 李時珍 (1518-1593) was one of the first physicians to discuss the brain as the governing center of the body.<sup>42</sup> His arguments were taken up by later scholars, such as the physician Wang Qingren 王清任 (1768-1831), who claimed that the brain was the seat of memory. He undertook the task of revising “mistakes” contained in ancient Chinese medical texts, also basing himself of Western sources, and specifically addressed the location of memory. Wang’s account is the first known Chinese record to address the production of memories based on sensorial input. In his arguments in favor of the brain as the repository for memories, he describes the physiological process of remembering as the result of the flow of *qi* 氣 from within the organs to the brain.

Qi, exiting and entering, passes through the heart. Thus, the heart is the pathway of the exiting and entering of qi. How could it engender the spirit mechanism and store memory? [The] spirit mechanism and memory are in the brain. [...]

The two ears connect to the brain and the sounds which they hear merge into the brain. [...] The two eyes are engendered by brain juice, and the two eyes are tied like a thread and grow from the brain. Things which are seen merge into the brain. [...] The nose connects to the brain. The fragrance and fetor [the nose smells] merges into the brain.<sup>43</sup>

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<sup>41</sup> The complex debate about the functions of the heart and the brain is addressed in Chu. 2016. “Fangcun zhi jian.” Zhu focuses on the influence of Jesuits on the debate, and describes how the traditional views of the heart as controlling center of the body were merged with Western conceptions of the brain as storage for memory. Matteo Ricci discusses memory as stored in the brain in his treatise on mnemonic technique, the *Western Art of Memory (Xiguo Jifa 西國記法)*. See Lackner. 1986. *Das Vergessene Gedächtnis*, 20-21. Ricci’s treatise was not well received and did not circulate broadly.

<sup>42</sup> Chu. 2016. “Fangcun zhi jian,” 147. For further comment on this debate in the field of medicine, see Wang, Chung, Oving, and Becker. 2007.

<sup>43</sup> Wang et al. 2007. *Yi lin gai cuo: Correcting the errors in the forest of medicine*, 46.

His explanation of this process, he argues, is supported by the observable development of children, who build up their brain as they grow, and thus acquire skills and the ability to remember:

Arriving at the age of three or four, the brain marrow of children is gradually filled, the fontanel has grown complete, the ears are able to hear, the eyes have spirit and liveliness, the nose is able to detect fragrance and fetor, and language is spoken in complete sentences. Therefore, in children who do not have memory, the brain marrow is not yet full. In the aged who do not have memory, the brain marrow is gradually emptying.<sup>44</sup>

Wang thus explains that brain marrow is built up through the production of essence juice from the intake of food and drink. When the marrow is deficient, such as in the very young and the elderly, it leads to the inability to remember. Yet, despite the far-reaching influence of foreign knowledge, Wang remained an exception and the majority of people, who were not involved in medical or religious debates, still viewed the heart as the seat of memory.<sup>45</sup> The “heart” and the “breast” continued to shape verbal expressions related to memorization even during the Qing dynasty (1644-1911). Discussions involving memory from the imperial period show continuity in the focus on the effects and processes for strengthening memory. It was the social value of remembering and the content of what should be remembered that pervaded Chinese accounts from the 3<sup>rd</sup> to the 19<sup>th</sup> century. This chapter will address the commonalities these accounts shared, while changes in perception of specific mnemonic aids are addressed in the following chapters.

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<sup>44</sup> Wang et al. 2007. *Yi lin gai cuo: Correcting the errors in the forest of medicine*, 47.

<sup>45</sup> Even scholars who engaged in medical debates, such as Yu Zhengxie (1775-1840), argued that the Chinese body was too different from the Western body, and their Western knowledge of anatomy could thus not be trusted. Wang et al. 2007. *Yi lin gai cuo: Correcting the errors in the forest of medicine*, IX. Dikötter lists some of the physical discrepancies Yu listed after studying Western anatomical treatises. 2015. *The Discourse of Race in Modern China*, 28.

## The Importance of Remembering

Although no treatises on techniques for memorization have been transmitted from imperial times,<sup>46</sup> anecdotes and descriptions of memorization methods allow us to draw a picture of the role memory played in society and education. The memory of an individual—a person’s ability to remember things—was not only perceived as useful for that person to retain and retrieve information; it was also socially relevant. In biographical accounts, the character and accomplishments of exemplary individuals were often associated with a good memory, while having a bad memory was described as a cause for embarrassment. Thus, training the ability to remember became a social concern.

Four biographical accounts of individuals who followed different career paths provide a glimpse into how important the ability to remember was in the Chinese empire across time and classes. Regardless of the existence and availability of printed books, memorizing information and canonical works was portrayed as an essential step in the education of all four men. Repeated recitation of texts was not only essential in acquiring literacy, but also provided them the tools to develop additional skills, such as essay composition and calligraphy. These individuals, a general of the Cao state of Wei 魏 (220-265), an Executive of the Secretariat of the northern Qi 北齊 (550-577), a teacher of the Tang dynasty 唐 (618-907), and an Investigating Censor of the Ming dynasty 明 (1368-1644), were all praised for their ability to memorize and to recall, and future generations remembered them for these skills which helped them to become great men.

In the *Records of the Three Kingdoms*, Zhong Hui 鍾會 (225-264) is described as an ambitious general of the state of Wei. His biography provides evidence that his good memory and education were key factors in his successful career. The detailed description of Zhong’s educational process highlights how quickly he made progress. It was common for older family members to instruct children at home by having them recite texts back to their instructor. Oral transmission was the most common method for teaching children up to the Ming dynasty, while the written character was mostly disregarded at the initial stages of reading training. In the biography we read how his mother tutored him during his childhood. She was a woman

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<sup>46</sup> No text containing a description of an art of memory has been handed down to the present day, and no mention of a treatise for memorization is made in bibliographies or catalogues.

of prudent and stern character, who understood how to educate and teach. Although her son Hui was still a little child, she was attentive to advise and instruct him. When he was four *sui*,<sup>47</sup> she taught him the *Classic of Filial Piety*; at age seven, he recited the *Analects* by heart; at the age of eight, he recited the *Book of Songs*; at the age of ten, he recited the *Venerable Documents*; at the age of eleven, he recited the *Book of Changes*; at the age of twelve, he recited the *Spring and Autumn Annals*, the *Zuo Commentary* and the *Discourses of the States*; at the age of thirteen, he recited the *Rites of Zhou* and the *Record of Rites*; at the age of fourteen, he recited his father's *Record on the Classic of Changes*; at the age of fifteen, he was sent to the imperial academy to look into the different teachings in the remarkable works from all four directions. His mother then said to him: 'When that which one learns seems base, one becomes weary; when someone is weary, his mind becomes idle. I am afraid your mind has become idle. Thus, it would be deceiving to continue teaching you. From now on, you are to study on your own'.

夫人性矜嚴，明於教訓，會雖童稚，勤見規誨。年四歲授《孝經》，七歲誦《論語》，八歲誦《詩》，十歲誦《尚書》，十一誦《易》，十二誦《春秋》、《左氏傳》、《國語》，十三誦《周禮》、《禮記》，十四誦成侯《易記》，十五使入太學問四方奇文異訓。謂會曰：「學猥則倦，倦則意怠；吾懼汝之意怠，故以漸訓汝，今可以獨學矣。」<sup>48</sup>

According to the anecdote, Zhong was exceptionally gifted.<sup>49</sup> Zhong received his basic instruction from his mother by means of oral transmission. He learned the classics and historical records by heart and thus became 'ripe' for higher schooling.<sup>50</sup> He stood out at the age of four and his aptitude for memorization was directly connected to his development into an adult of

<sup>47</sup> According to Chinese counting, children are one *sui* 歲 at birth, meaning that Zhong was 3 years old in Western understanding.

<sup>48</sup> Chen. [1194?] *Sanguo zhi* 28, 29b.

<sup>49</sup> Nugent provides more examples of extraordinary memories, including women, from Han to the Tang dynasty. 2010. *Manifest in Words*, 76 -88. Bai discusses recitation in school and as part of primers, from the Song to the Qing. *Shaping the Ideal Child*. Yu discusses the process of reciting as part of a pedagogical process in imperial China. Yu. 2004. "Learning to Read in Late Imperial China."

<sup>50</sup> Yu. 2004. "Learning to Read in Late Imperial China," 11. Ko addresses the issue of basic education by mothers who sought to fit into Confucian standards. Learning was indispensable for "moral renewal." 1994. *Teachers of the Inner Chambers*, 165.



great talent who served at the Imperial Library.<sup>51</sup> In essence, the foundation for his career as an accomplished general was laid in his formative years.

The idea that elementary education, which relied heavily on memorization, was tied to a man's accomplishments is also illustrated in the next biography. In the *Records of the Sui*, we read that Li Delin 李德林 (died ca. 591), who held the post of Executive of the Secretariat during the northern Qi (550-577),

was very clever as a child. Counting a few years of age, he recited Zuo Si's 左思 "Rhapsody of the Capital of Shu,"<sup>52</sup> taking only a little over ten days to go through it effortlessly. Gao Long saw this and was full of awe. Informing an official, he said: "Being like this at his age, he will certainly become a great talent under heaven." The scholars of the capital of Ye all came to take a look. For the rest of the month, during daytime, chariots and horses would not stop coming by. At the age of fifteen, he recited the five classics and anthologies of ancient and current texts, daily going over more than thousand characters. Soon he was broadly knowledgeable in all the ancient classics; and of the classics on divination, there was none he was not acquainted with. He excelled at composing essays, expressing the essential with unimpeded reasoning.

幼聰敏，年數歲，誦左思《蜀都賦》，十餘日便度。高隆之見而嗟嘆，遍告朝士，云：「若假其年，必為天下偉器。」鄴京人士多就宅觀之，月餘，日中車馬不絕。年十五，誦五經及古今文集，日數千言。俄而該博墳典，陰陽緯候無不通涉。善屬文，辭核而理暢。<sup>53</sup>

Li later became an official and advisor to the throne. He drafted a dynastic history of the state of Qi, indeed becoming "a great talent," as Gao Long predicted in the story. Whether such anecdotes can be taken as a faithful description of the childhood of either man is uncertain. However, the connection between Li's good memory and Gao's prediction of his success is telling. The boy's talent for memorizing was unusual enough to attract a number of curious scholars, and the fact that he was such an intensive reader,

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<sup>51</sup> Chen. [1194?] *Sanguo zhi* 28, 28b.

<sup>52</sup> This is one of the "Rhapsodies of the Three Capitals", that were later included in the *Wen Xuan* (*Selections of Refined Literature*). The text is approximately 2000 characters long.

<sup>53</sup> Li. 1936. *Taiping yulan*, 443, *renshi* 84, *zhiren zhong*, 10a-b.

most likely retaining the written content verbatim in his mind, also provided him with the material and models to become a good essayist.

In a similar fashion, in the epitaph written for Yin Shouzhen 尹守貞 (d. 688), who worked as a teacher during the Tang dynasty and was an enthusiast of ancient learning, we read that

at the age of seven, he recited the [glossary] *Erya*, being able to understand the meaning of the glosses for the characters in the classics, and also know the names of plants and animals. At fifteen, he recited the three classics on rites [*Rites of Zhou*, *Record of Rites and Ceremonies and Rites*], gained clarity about the ways of the ruler and his followers and the father and his sons, and established the order of the offerings for celebrations and funerary affairs. At twenty, he recited the *Spring and Autumn Annals* and the *Venerable Documents*, capturing the essence of the methods of the five elements and the nine divisions, and of judging the moral integrity of the praise and blame [in the *Annals*] and of the forming of alliances. At the age of twenty-five, he recited the *Book of Odes* and the *Book of Changes* and was able to discern and rectify the origin of the eleganciae and eulogiae, exhausting the utmost of the transformations and incessant creation. He was also able to recite the old histories and the books of the hundred schools, mastering the standards of literary composition and of writing grass and clerical script.

七歲誦《爾雅》，能通書契訓詁之義，識草木鳥獸之名。十五誦三禮，能明君臣父子之道，定郊廟吉凶之制。二十誦《春秋》、《尚書》，能精五行九疇之數，斷褒貶會盟之節。二十五誦《詩》及《易》，能辯正雅頌之始，極變化生生之至。又能誦古史百家之書，善文章草隸之則。<sup>54</sup>

Just as for general Zhong and the historian Li, it is in Yin's childhood that memorization played the most significant role in his development. However, going beyond childhood, he made use of the same recitation practice as a grown man. The epitaph reveals that he was not only learning the content by heart through repetitive recitation, but that this practice helped him gain thorough knowledge of the content of the texts even at a young age. Having these texts in his memory allowed him to comprehend the

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<sup>54</sup> Excerpt from epitaph for Yin Shouzhen. Sun. 1993. *Sui Tang Wudai jiaoyu lunzhu xuan*, 215.

things and practices around him—from rituals to calligraphy – and draw connections among them.

Memory is still given a significant role in the description of an individual's achievements in a biography of a Ming official named Zhang Ji 張集, who lived during the sixteenth century. Except for the information provided in his very short biography published in a local monograph, not much about him is known:

Zhang Ji succeeded in the provincial level examinations in 1552 and held the post of Investigating Censor on the Fujian route. He had extensive factual knowledge and a remarkable memory (*boxue qiangji* 博學強記). He was skilled in composing poetry, and was good at writing calligraphy. Concerning medicine, the preparation of remedies and the principles of music and pitch, in all of these fields he reached excellence.

張集，嘉靖壬子舉人，官至福建道監察御史。博學強記，工詩文，善書，醫藥，音律，悉臻妙境。<sup>55</sup>

The term used to describe Zhang, *boxue qiangji* 博學強記, a variant for *bowen qiangji* 博聞強記, was already commonly used during the Han dynasty, and can be found in numerous biographies from the Song to the Qing. In a biography as short as Zhang's, which lacks detail and provides no insight into his character, it becomes clear that the praise of memory had become a set phrase. Yet, the formulaic quality of the biography indicates that memory was generally accepted as a skill that deserved acknowledgment and inspired social respect. Memory had become an undisputable social good.

While these four examples of men with a good memory connected the ability to recite and memorize to creative endeavors and political achievements, having a bad memory also had its social significance. An anecdote told by Lu You 陸游 (1125-1209) in his *Notes from the Hut of Learning when Old* (*Laoxue yan biji* 老學庵筆記) relates how two men, Prince Su 肅王 and Shen Yuanyong 沈元用, are lodged in a temple and have nothing to do during their leisure time. Upon finding a Tang stele with an inscription of over three thousand characters, Shen begins to recite these repeatedly in order to memorize them. Meanwhile, Su strolls about, paying him no heed. Upon returning to the lodging, Shen, with an “arrogant hope to display his

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<sup>55</sup> Lü. 1764. *Jiezhou quanzhi*, juan 9, 4b.

intelligence,” begins to write down the inscription but fails to remember fourteen characters, leaving blanks. Upon this, Su looks at it, and without a trace of arrogance, fills all the gaps one by one and corrects four or five characters Shen had remembered incorrectly. Dumbfounded, Shen acknowledges his inferiority.<sup>56</sup> Su’s superior memory thus serves as a humbling reminder to an arrogant scholar.

The anecdote of Zhang Sanlang 張三郎, who enjoyed playing the flute, provides an example of how memory was also crucial in practical matters. Zhang, however, was not as lucky as Shen, and was openly mocked for not having a good memory. One day during the year of 1312, Zhang was outside on a bridge playing the flute when an old man came over and taught him how to improve the tune he was playing, showing him how to place his fingers on the flute. Zhang was pleased by the changes and asked the old man to teach him a new tune, upon which the old man took the flute to himself and played a song that Zhang believed to “surpass vulgarity.” After inquiring about the lyrics to the song, Zhang further asked who the composer was. The old man told him it was a song by the lady Liu Miaorong 劉妙容.<sup>57</sup> Zhang further asked who had recorded the fingering score to it, upon which the old man answered that Miaorong had transmitted the song to him herself. Zhang then asked the old man to show him the order of the fingers once again. However, hearing this, the old man just laughed and got up saying: “Son, with this ordinary mind of yours that so easily forgets, how will I be able to teach you!?” (子凡心易忘，我豈能教爾耶). He left and was nowhere to be found. Later, although Zhang tried to play the tune, searching for the right keys, he could not reproduce the elegant harmony.<sup>58</sup>

The two stories, of flute-player Zhang and of the arrogant scholar Shen, highlight the embarrassing positions in which the characters find themselves due to their lack of memory. Shen is taught a moral lesson, being forced to acknowledge that his attitude does not correspond to his actual knowledge, while Zhang, although not as conceited as Shen, is turned down as a student due to his unimpressive memory. Thus, in contrast to the four examples described above, for whom a good memory during childhood opened the path for a promising future and the performance of outstanding deeds, these two

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<sup>56</sup> Lu. 1782. *Laoxue yan biji*, juan 5, 4b. In a Qing version of this anecdote in the *Chenyuan Zhiyu* 宸垣識餘, the two scholars are explicitly said to have been sent from the southern Song to serve the Jin.

<sup>57</sup> Daughter of Liu Huiming 劉惠明, dates unknown.

<sup>58</sup> Gao. 1817. *Pingjiang jishi*, 6a-b.

cases of failure illustrate how an individual's memory could taint his moral and social image, leading to his being cast aside for his lack of potential.

These biographies and anecdotes illustrate the social value of having a good memory, highlighting its importance in an individual's development and social life. It also becomes clear, however, that these men, who were naturally endowed with excellent memories, were exceptions. Many knew that memory had to be trained with proper methods. One man, Tang Biao 唐彪, who lived during the late Qing dynasty, gives a personal account that shows how having a child with a bad memory was a serious matter for parents.

Tang's son began schooling at an age of six *sui*, but was not able to recite texts from memory. Unhappy about this, Tang hired three different teachers within the following three years, but no changes could be perceived. In the fourth year, as the problem persisted, he gave up on finding a new teacher. Luckily, he happened to encounter a teacher that finally delivered him from this situation. This teacher succeeded in making his son recite texts from memory by paying close attention to each character and its meaning. This was a great relief for Tang, who proceeded to record the teacher's technique in order to help others.<sup>59</sup>

Tang was not alone in recording and transmitting techniques for memorization. The social concern with memory, which was crucial for acquiring literacy and for developing skills, provided the context for the development of numerous methods that aimed to support students in learning and in strengthening their innate ability to remember. Many knew that memory had to be trained with proper methods, and the way these methods functioned depended on what the student was supposed to remember.

### Remembering Text

In imperial Chinese society, most accounts of memorization skills and techniques refer to the acquisition of literacy and to the verbatim memorization of texts. For most of Chinese history, literacy was a central concern of civil servants and their families, while other groups, such as merchants and physicians, often mastered only the characters that were required in their trade. With the establishment of the open civil service

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<sup>59</sup> Tang included his personal story in his treatise for teaching children. Tang. [1699] 1977. *Fushi shanyoufa*, 18. This method for teaching children to read is mentioned in Yu. 2012. "Character Recognition."

examinations during the Song dynasty (960-1279), all students preparing for the examinations were expected to memorize canonical texts and model essays.<sup>60</sup> Thus, beyond its crucial role in the acquisition of literacy, training one's memory became an indirect means to garner social status, since it helped the student pass the examinations. In response to this need, the educated elite developed a variety of techniques for memorizing texts. Memory training was an essential formative process for aspiring scholars, and some even argued that memorizing texts was the only way to make daily progress in their studies.<sup>61</sup>

The training of memory began at a young age, and families used character miscellanea (*zazi* 雜字), primers and poems to instruct their young children.<sup>62</sup> The prominence of memorization and recitation of texts during childhood can be verified in primers and treatises composed for teaching children as early as the Tang.<sup>63</sup> In the preface to Li Han's 李韓 (dates unknown) *Children's Primer* (*Meng qiu* 蒙求), for example, his contemporary Li Hua 李華 (715-766) praises it for being easy to recite (*yi yu fengsong* 易於諷誦), and explains that the text's format facilitates memorization. The lines all have four characters, and each set of four lines shares the same rhyme.<sup>64</sup> In a similar vein, works that were popular for teaching children during the Tang, such as the *Thousand Character Essay* (*Qianziwen* 千字文) or the *Trimetrical Classic* (*Sanzi jing* 三字經), had phrases with a fixed number of characters and

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<sup>60</sup> Elman. 2000. *A Cultural History of Civil Examinations in Late Imperial China*, 261-270. Before the Northern Song, candidates had to be either recommended or have kinship relations to partake in the examinations. For a description of the changes that occurred in the practices for recruiting officials, see Elman. 2000. *A Cultural History of Civil Examinations in Late Imperial China*, Chapter 1.

<sup>61</sup> According to Chen Shan, for example, "studying relies solely on memorizing. Only this way can one make progress daily". 1630. *Menshi xinhua*, juan 4, 2a.

<sup>62</sup> Character miscellanea are addressed in Wu. 2007. *Ming Qing yilai minjian shenghuo zhishi de jian'gou yu chuandi*.

<sup>63</sup> Song scholars such as Cheng Yi 程頤 (1033-1107) and Zhu Xi 朱熹 (1130-1200) already emphasized the importance of training memory. They believed the tender years to be most fruitful for the development of visual, auditory and gestural memory. Gernet. 2003. "L'éducation des premières années," 38-19. Character books that were intended for scribes and adults also circulated earlier, during the Han dynasty. One of such books, the *Jiju pian* 急就篇, is addressed in chapter 3.

<sup>64</sup> These are based on the sequence of the *fan qie* 反切 system. The ending characters of each of the first four lines are *tong* 通, *xiong* 熊, *dong* 東 and *zhong* 忠. In some cases, as with the third set, rhyming with *he* 河, the current sound of the characters does not allow us to fully render the rhyme, but looking into dictionaries listing the *fan qie* composition of the character, one can gain a notion of the sound the character used to have: *he* 河, *ge* 歌, *duo* 多 (formally with an ending sound like in *he* 何) and *e* 訛.

rhymes.<sup>65</sup> As Xiong Cifu describes in his preface to *Teaching Children with Tang Poetry* (*Tangshi yangmeng* 唐詩養蒙), written during the Qing, the ancients based the education of children on songs and poems because these enter the mind easily, and children can thus learn effortlessly.<sup>66</sup> For this reason, Ming scholars, such as Lü Desheng 呂得勝 (fl. 1550), specifically reformulated Confucian ideals in colloquial language and set them to tunes. They believed that texts children could sing were more effective for teaching.<sup>67</sup>

After children were able to recite texts from memory, learning to write characters was the next step in a child's education, followed by learning to interpret characters in sentences, and finally learning how to write essays.<sup>68</sup> Unlike languages that use an alphabet to record the sounds of words, Chinese demanded two distinct learning steps to bridge the gap between the written and spoken language. The repetitive format and the use of rhymes made it easier to memorize the sounds of the characters and later recognize them in a text.<sup>69</sup> Memorization was the most suitable method not only for relating the sounds of familiar texts to written characters, but also for learning how to write, since it allowed the learner to collect model phrases and internalize compositional features for future use. Some of the most common primers for small children, such as the *Thousand Character Essay*, presented the content in grammatically coherent blocks to help the child internalize sentence constructions for writing.<sup>70</sup>

It was a common belief that parents should take advantage of their child's youth and encourage the memorization of as many texts and songs as

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<sup>65</sup> Zhang Zhigong discusses the earliest versions of the texts and additional sources that used these texts as base. 1992. *Chuantong yuwen jiaoyu jiaocai lun*, 13-30. Zhang Nali and Nugent compare versions of the *Thousand Character Essay* and annotations that accompanied the base text. Zhang. 2001, 2002. "Dunhuang ben 'Liuzi qianziwen' chutan xiyi." Nugent. 2018. "Structured Gaps."

<sup>66</sup> Another example is the *Liweng duiyun* 笠翁對韻, by the Ming scholar Li Yu 李漁, in which poetic terms are presented in antithetical pairs and explained in a rhyming format.

<sup>67</sup> Xiong. 1990. "Tangshi yangmeng xu," 126. For Qing developments, see Bai. 2005. *Shaping the Ideal Child*, 168-169. On Lü Desheng's son, Lü Kun, and his pedagogical approaches, see Handlin. 1983. *Action in Late Ming Thought*.

<sup>68</sup> A division of the learning process into three phases is defended in Elman. 2000. *A Cultural History of Civil Examinations in Late Imperial China*, 262.

<sup>69</sup> The continued reliance on recitation in contemporary China due to the gap between sound and visual representation of characters is addressed in Ye. 2007. "Memorisation, Learning and Cultural Cognition."

<sup>70</sup> Zhang Zhigong. 1992. *Chuantong yuwen jiaoyu jiaocai lun*, 78.

possible in the child's tender years. Lu Shiyi 陸世儀 (1611-1672) advises his reader that

Every person has memory and understanding. At the age of fifteen or younger, one is not yet influenced by the desire for material things, and the intellect is not yet blooming, thus, one relies more on memory and less on understanding. From the age of fifteen onwards, the intellect has unfolded and the interest for things begins to influence one, thus, one relies more on understanding, and less on memory. That is why when people are studying, it is always appropriate, if they are under fifteen, to let them read in order to memorize. One should not only read the four books and the five classics, but also [books concerning] astronomy, geography, history and mathematics. For every one of these [fields] there are singing formulas that must all be memorized. If the [student] is a little older than that, not only will he not be willing to recite texts [by heart], moreover, he will not be capable of reciting. Nowadays, people in private village schools instructing children all teach their students to read out lines from poems, but that really is pointless.

凡人有記性，有悟性。自十五歲以前，物欲未染，知識未開，則多記性，少悟性。自十五歲後，知識既開，物欲漸染，則多悟性，少記性。故人凡所當讀書，皆當自十五以前，使之熟讀。不但四書五經即如天文地理史學算學之類，皆有歌訣，皆須熟讀。若年稍長不惟不肯誦讀，且不能誦讀矣。今人村塾中開蒙多教子弟念詩句真是無謂。<sup>71</sup>

Lu was not the only educator to lay emphasis on two different phases of life and on the “appropriate” type of knowledge that should be conveyed to a child. As mentioned in the section above, recitation accompanied the teacher Yin in his studies for a long time. In the *Family Counsels of Mr. Yan* (*Yanshi jiaxun* 顏氏家訓), Yan Zhitui 顏之推 (531-595) supports the idea that grown men, regardless of their age, could learn by reciting. Yan's instructions served as a reference for elite families who educated their children at home for several centuries. In his chapter titled “Motivating Study” he writes:

When people are young, their minds are focused and sharp; once they are grown up, their thinking is scattered and distracted. Thus,

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<sup>71</sup> Lu. 1868. *Sibianlu jiyao*, juan 1, 2a-b.



one must teach them early, and not miss this opportunity. When I was seven, I recited the “Rhapsody on the Numinous Light Palace of the Lu [State]” and up to this day, having only repeated it once every ten years, I still have not forgotten it. From the age of twenty, after putting aside for only one month the classics and writings I had recited previously, it would all be gone. Although there may be disappointments in life, and one may experience such losses in adult life, one can still engage in study at an advanced age, and one should not give up on oneself.

人生小幼，精神專利，長成已後，思慮散逸，固須早教，勿失機也。吾七歲時，誦《靈光殿賦》，至於今日，十年一理，猶不遺忘；二十之外，所誦經書，一月廢置，便至荒蕪矣。然人有坎壈，失於盛年，猶當晚學，不可自棄。<sup>72</sup>

He continues by quoting the *Analects* and gives a few examples of men who started reciting classics at an advanced age, concluding:

All these men became great scholars. They were all confused during their youth but later found clarity. Nowadays, people get married and capped [a ritual of transition to adulthood] without having studied, upon which they say that it is already too late [to start], continuing on the same road of ignorance; this is just foolish. To study when one is young is like having the brightness of the sun. To study when one is old is like holding a candle to walk in the darkness. This is still better than closing one’s eyes and seeing nothing.

皆終成大儒，此並早迷而晚寤也。世人婚冠未學，便稱遲暮，因循面牆，亦為愚耳。幼而學者，如日出之光，老而學者，如秉燭夜行，猶賢乎瞑目而無見者也。<sup>73</sup>

Although he acknowledges that children have it easier with memorization, it was also common for adults to rely on chanting from memory as a means to learn something new. Most of the men in Yan’s examples started to recite books, such as the *Analects*, the *Classic of Filial Piety* and the *Annals*, at the age of forty or older. This is an indication that these men were illiterate and learning to recognize characters based on these classics. A similar anecdote is told about Duan Wei 段維, a man of the Tang,

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<sup>72</sup> Yan. 1919. *Yanshi jiaxun*, juan shang, 17b.

<sup>73</sup> Yan. 1919. *Yanshi jiaxun*, juan shang, 17b-18a.

who could not read or write at the age of forty. As people were unsure whether he would really be able to learn it at his age, they first tested his memory, having him recite contemporary poems. On the next day, Duan could still recite every one of them, which led him to be taken in as a student and be taught the *Classic of Filial Piety*.<sup>74</sup>

Age did not matter when the goal was to learn characters, and there was no other way to do this but by memorizing them.<sup>75</sup> Reciting texts in a loud voice was the most common technique used both for children and adults. Mister Lü of Xingyang<sup>76</sup> believed that when teaching children how to read, “every character has to be clearly pronounced separately and every sentence’s last character should be read with emphasis. By emphasizing it in reading, one can firmly remember it.”<sup>77</sup>

Two accounts by Westerners who had first-hand experience of China, Justus Doolittle (1824-1880)<sup>78</sup> and Arthur Smith (1845-1932), show that even at the end of the Qing, children were still being taught to read in this manner. According to Smith,

When the little pupil at the age of perhaps seven or eight takes his seat in the school for the first time, neither the sound nor the meaning of a single character is known to him. The teacher reads over the line, and the lad repeats the sounds, constantly corrected until he can pronounce them properly. He thus learns to associate a particular sound with a certain shape. A line or two is assigned to each scholar, and after the pronunciation of the characters has been ascertained, his "study" consists in bellowing the words in as high a key as possible. Every Chinese regards this shouting as an indispensable part of the child's education. If he is not shouting how can the teacher be sure that

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<sup>74</sup> Nugent. 2010. *Manifest in Words*, 118-119.

<sup>75</sup> Yu points out that up to the Ming, the most common way to learn to read was memorizing the sound of texts by rote, which would later be combined with the written source so the student could associate the already known sounds to the written character. She also argues that Ming scholars developed a method based on character recognition, in which the shape and composition of the individual character were presented and explained to the students before engaging full texts. Nevertheless, both methods still rely on memorization. Yu. 2012. “Character Recognition.”

<sup>76</sup> Probably Lü Xizhe 吕希哲 (1036-1114).

<sup>77</sup> Wu. 1817. *Nenggai zhai manlu*, juan 12, 2a.

<sup>78</sup> Doolittle’s account of children learning to read is interesting for his description of the term “backing the book”, or *bei shu* 背書, a term used to describe the act of memorizing, during which the pupil had to turn around with his back to the book and recite the content to his teacher, who could hold the volume in his hands to check if no characters were missing or wrong. Doolittle. 1865. *The Social Life of the Chinese I*, 377-378.

he is studying? and as studying and shouting are the same thing, when he is shouting there is nothing more to be desired.<sup>79</sup>

However, adults could also be very enthusiastic about reciting texts in a loud voice. Wu Yubi 吳與弼 (1391-1469), for example, recounts in a letter to his friend how his acquaintance Wu Derang 吳德讓 harmed his “vital energy” by being overenthusiastic in his studies and raising his voice too high while reading. He writes to his friend that Derang eventually became sick due to this study practice, and no longer had the courage to study out loud.<sup>80</sup> These examples illustrate how hearing and repeating the sound of the characters was important for memorizing. If the texts were written in rhyme, as was the case with many primers for children, the learner was given cues on how the text continued, making memorization easier.

Cues based on rhymes helped the mind link the lines of a text together. However, as most of the texts that had to be learned did not possess such features, methods based on similar principles could be used for memorizing texts in prose, as described by a certain Xing Maoxun 邢懋循 (dates unknown). Xing’s teacher relied on the linking of text passages, as well as on repetition and the establishment of a routine to instruct him as a boy. His experience is retold by later scholars:

When [Xing’s] teacher taught him to read, he used the method of “consecutive numbering”. On the first day, one would recite [the content] of a [sheet of] paper, and on the following day, again one would recite [the content of] a paper as well as that of the one recited on the first day. On the third day, [recite a sheet] again, and also that of the first day and of the following day. In this way, one would slowly add on, until one reached the eleventh day, on which one would exclude [the contents] recited on the first day. [Thus,] if one successively recites ten numbered [pages] every day, after reciting one complete round, one will have recited [each sheet of paper] ten times. So, even if a person is mediocre, there will not be one that does not master [the passages].

其師教之讀書，用連號法，初日誦一紙，次日又誦一紙，竝初日所誦誦之，三日又竝初日次日所誦誦之，如是漸增，引至十一

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<sup>79</sup> Smith. 1899. *Village Life in China*, 80.

<sup>80</sup> Gao. 1990. *Mingdai jiaoyu lunzhu xuan*, 94-95.

日，乃除去初日所誦，每日皆連誦十號，誦至一週，遂成十週。人即中下，亦無不爛熟矣。<sup>81</sup>

Thus, Xing's teacher was aware of the efficacy of repetition and chanting for memorization, but he incorporated these two methods into a ten-day routine. He divided the text to be learned into short passages that were then associated with a day. The student saw a specific slip of paper with its text for ten days in a row, but each slip of paper was placed in a specific order among the other slips. Thus, by creating a visual and temporal order for these units of text, they became associated with the neighboring slips, giving the mind the necessary cues to remember them. Movable materials for memorization, such as paper cards with characters or strokes carved out of bamboo to compose characters were often employed to aid the student.<sup>82</sup>

The visual and mobile aspect of the written characters on paper also helped Ye Yishen, who developed his own method for memorization:

In *Grass Hut's Idle Chat* it is written: Ye Yisheng from Licheng once described the *method for strengthening memory*: "Being of a very dull nature, every time when reading a book, upon encountering [a passage] that brought joy or pleased my mind, I would immediately take note of it. Once the note had been taken, I would recite it over ten times. I would stick [the notes] onto the walls [of my home] and every day there were necessarily more than ten sections [of text]; when less, it would be six or seven. Closing my book and strolling about, I would then look at the notes stuck to the walls. Usually doing this three to five times a day, I surely got intimately familiarized [with them], and not a single character was forgotten. When the wall was about to become covered with pasted [notes], I would take [down] the pasted records from the first day and stow them in a bamboo basket. Only when I had read the notes once more would I fill up the spot [it had occupied]. I was continuously taking down and filling up, and over the years, not a single day went by without [this practice]. [Thus,] in the course of a year, I would grasp [in my memory] about three thousand sections, and with the passing of the years, the bamboo basket in my breast was gradually

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<sup>81</sup> Wang. 1899. *Jiaotongzi fa*, 6a. Also in Zhang. [1853?]. *Hao'an xianhua*, 38b-39a.

<sup>82</sup> Yu describes how children should learn individual characters aided by the maids, who should show them a few of the cards on a daily basis, training the children to recognize the characters in both regular and seal script. The seal script should elucidate the origin and graphic composition of the character. 2012. "Character Recognition," 5-10. For the carved bamboo strokes, see Bauer. 1990. *Das Antlitz Chinas*, 516.

richly [filled]. Every time I met someone who strove to be broadly learned but only slightly obtained an impression and stopped at that, [I knew that] some time having passed, he would be left with an empty breast. Thus, it is better to do as I, retrieving the essential and truly seizing it.

《蒿菴閒話》曰歷城葉奕繩嘗言強記之法：「某性甚鈍，每讀一書，遇意所喜好，卽割錄之。錄訖，乃朗誦十餘遍。粘之壁間，每日必十餘段，少亦六七段，掩卷閒步，卽就壁間觀所粘錄，日三五次以為常，務期精熟，一字不遺。粘壁粘卽滿，乃取第一日所粘著收笥中，俟再讀有所錄，補粘其處，隨收隨補，歲無曠日。一年之內，約得三千段，數年之後，腹笥漸富。每見務為泛覽者，略得影響而止；稍經時日，便成枵腹，不如予之約取而實得也。」<sup>83</sup>

Ye engaged daily in this memorization routine, covering the walls of his studio with the passages he considered to hold the essence of the texts. The walls thus became the support for a collage, in which each snippet of text occupied a specific spot. He could literally stroll through the texts, knowing where to encounter each passage in the space of his studio, which could have helped him when trying to recall them.<sup>84</sup> Thus, both Ye and Xing not only recited the texts, but also looked at the paper slips repeatedly. They relied on methods that emphasized the use of shorter passages of text and that ordered them spatially among other passages.

At this point, Ye was probably at an advanced age and neither preparing for an examination nor studying the classics. He recorded passages that pleased him or brought him joy, defending his method by claiming that he could thus glean a reliable harvest of information and gain broad knowledge without the need to memorize an entire text word by word. In a similar manner, Chen Shan 陳善 (fl. 1149) recommends devoting one's attention to excerpts as it requires less material to be memorized. He recounts how Chen Jinzhi 陳晉之<sup>85</sup> only read 120 characters every day, but that there was no book he did not finish. Although his daily readings did not amount to much, what he read during one year was more than adequate.

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<sup>83</sup> Wang. 1899. *Jiaotongzi fa*, 5b-6a.

<sup>84</sup> Associating the things to be remembered to specific places was an important resource in European Arts of Memory. Although Ye's method cannot be compared to the complex use of imaginary loci in the European theories on rhetoric, his collage surely gave him visual stimulus that would help him to memorize the passages.

<sup>85</sup> Probably Chen Yang 陳暘, *jinshi* of 1094.

Chen Shan criticized his contemporaries for reciting thousands of characters every day. At first, this gave them a sense of accomplishment, but Chen maintained that all they had read was quickly forgotten. By the end of the year, if they had not even mastered 120 characters, how little had they learned in a day? He concludes by confessing that as a young lad, he was also obsessed with reading as much as possible, regardless of how well he retained the contents. The consequences of this practice still made themselves felt, and Chen perceived his breast as empty and void, disappointed to have learned about Chen Jinzhi's method only in old age.<sup>86</sup>

Zhao Shenzen 趙慎畛 (1762–1826) describes what he regarded as the three vital methods for studying difficult material in his notes. He writes that in addition to the method for visually strengthening memory and the method of consecutive numbering described in the accounts of Ye and Xing, the method with which he was taught how to memorize the classics should also be known by every young scholar. He describes his learning experience as follows:

When reading the classics, one must have a notebook to record things. This method was first used by Xu Luzhai of the Yuan, and I know that my ancestor as well as master Zhang Renzhai both used it. Every day one should get up during the fifth watch. From where one starts reading to where one stops, one must always record clearly the points that are made in each phrase. Reviewing this on another day, one must base oneself on the notes to think silently [about the passages to which they refer]. If [a passage has been] forgotten, one should return to the original passage and make a note of it, and with time one will be able to familiarize oneself with it.

看經要有手記簿，此法始於元許魯齋，余存吾前輩及張忍齋師皆踵之。每日分五起，從某處讀起，至某處止，即記明某句有幾說。他日重溫，即照所記默想。或遺忘，重翻原書記之，久久自能熟習矣。<sup>87</sup>

According to Zhao's method for remembering the classics, writing was indispensable. One summarized the original text in writing, which later served as starting point for the recollection of the exact passages. A similar opinion is

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<sup>86</sup> Chen. 1630. *Menshi xinhua*, juan 4, 2a.

<sup>87</sup> Zhao. 2001. *Yuchao zazhi*, juan xia, 184.

expressed by Li Guangdi 李光地 (1642-1718), who believes that “going over a book with one’s eyes or reading it out loud are both not as efficient as copying it, because when one moves the hand [while copying], the mind must necessarily comply. Even if you recite it twenty times, that does not require as much effort as copying excerpts one single time.”<sup>88</sup>

Even the Song scholar Su Shi 蘇軾 (1037-1101) strove to grasp the ‘essence’ of passages in writing to memorize a text *in toto*, as the following anecdote recounts:

The Chief Minister of the Court of the Imperial Granaries Zhu Zaishang had been teaching in Huanggang<sup>89</sup> for a while. When Dongpo [Su Shi] was exiled to live in the area, he did not know the Chief of Granaries yet. [One day,] one of Dongpo’s guests recited one of Zhu’s poems that read: “Idle hours at one’s post, not a thing to do; a butterfly flying up the steps.” Astonished, Dongpo said: “Whose work is this?!” The guest answered it was Zhu’s. Dongpo extolled it over and over, claiming it had deeply grasped a flair of subtle elegance. After some time, Zhu went to meet Dongpo in person and thereupon they became intimate friends. After this, Zhu repeatedly received invitations to Dongpo’s house. On one occasion, when he came to visit, according to etiquette, the guest had already been announced, but Dongpo stalled and would not come out. [Zhu was caught up in a dilemma:] If he stayed, he would [probably] have to wait until he was completely exhausted, but he could not leave, because he already had himself announced. The situation lasted quite a while, until Dongpo finally came out, explaining how embarrassed he was for keeping his guest waiting so long, adding: “I just finished my daily lesson, I got lost in inquiries...” They sat down, and when they had finished discussing other matters, Zhu asked him: “What are these daily lessons you just mentioned?” Dongpo replied: “Copying the *Book of the Han*.” Zhu said: “With your talent, you open a book and browse through, so that every fiber of your body does not forget [the content], why copy [the books] by hand?” Dongpo said: “That is not so. When I read the *Book of the Han*, I copy by hand three times. This is what I just finished doing. At first, I copied three characters for a specific event as a [summarizing] title.<sup>90</sup> The second time, I copied two characters. Today, I copied a single character”. Zhu got up and

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<sup>88</sup> Li. 1782. *Rongcun ji*, juan 21, 21a-22a.

<sup>89</sup> Located in present-day Hubei.

<sup>90</sup> Probably written down on the margin of the book, otherwise his guest would not have been able to choose a “title” from the book for Su to recite a passage.

asked yet another question: “This book that you have copied, would you be willing to give me a lesson?” Thereupon, Dongpo called an old servant to fetch one of the volumes on his desk. Zhu looked at it, but he could not understand what Dongpo meant. Dongpo said: “Sir, pick a one-character title to test me”. Zhu did as requested. As soon as he heard [the character], Dongpo immediately recited over a hundred words, not a single character was missing. For all the characters picked, it was the same. Zhu fell back into his seat, sighing for quite a while, saying: “Master, you truly are an extraordinary talent in exile!” On another day, Zhu told his son Xinzong about it and said: “If Dongpo, being this outstanding, does this, with a character of an average person, how can one not study diligently?!” Thus, Xinzong tried to instruct his son Lu with this method. This was told by Shuyang.

朱司農載上嘗分教黃岡，時東坡謫居黃，未識司農。公客有誦公之詩云：「官閑無一事，蝴蝶飛上階。」東坡愕然曰：「何人所作？」客以公對。東坡稱賞再三，以為深得幽雅之趣。異日，公往見，遂為知己。自此，時獲登門。偶一日謁至，典謁已通名，而東坡移時不出。欲留則伺候頗倦，欲去則業已達姓名。如是者久之，東坡始出，愧謝久候之意，且云：「適了些日課，失於探知。」坐定，他話畢，公請曰：「適來先生所謂日課者何？」對雲：「抄《漢書》。」公曰：「以先生天才，開卷一覽，可終身不忘，何用手抄耶？」東坡曰：「不然，某讀《漢書》，至此凡三經手抄矣。初則一段事抄三字為題，次則兩字，今則一字。」公離席復請曰：「不知先生所抄之書，肯幸教否？」東坡乃命老兵就書几上取一冊至，公視之，皆不解其義。東坡云：「足下試舉題一字。」公如其言，東坡應聲輒誦數百言，無一字差缺，凡數挑皆然。公降嘆良久，曰：「先生真謫仙才也。」他日，以語其子新仲曰：「東坡尚如此，中人之性，豈可不勤讀書耶！」新仲嘗以是誨其子輅。叔暘云。<sup>91</sup>

Su summarized the content of the book with single characters that he most likely marked on the top of the page in his own exemplar of the *Hanshu*. No mention of recitation or chanting is made, but repetition plays a role in his practice of continuous copying and condensing of information. Even though his method relies on a more intellectual manipulation of the content, in contrast to rote memorization, and on the embodiment of the text through repeated copying, the aim of this enterprise is still to reproduce the text faithfully, “without missing a single character.”

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<sup>91</sup> Chen. 1782. *Qijiu xuwen*, 1, 1a-b.



The method's efficacy is proven by his guest, who tests Su's memory upon request. Zhu is so convinced that he tells his son about it, who then teaches his own son according to this method. Thus, the practice of transmitting memorization techniques orally is described in the anecdote about Su Shi as well as in Zhao Shenzhen's account, discussed above. Zhao claimed to know for certain that the method by which he had been instructed had its origin with the Yuan master Xu Luzhai and that his own ancestor and his master Zhang Renzhai had also used it. Zhao thus describes a line of transmission of a tried and tested method. While this transmission narrative might have been used to add value to the methods being discussed, the competitive environment of the civil service examinations must have led scholars to keep such 'essential formulas' (*yao jue* 要訣) and learning methods secret, sharing them only with family, friends and students. Had Chen Gu 陳鵠 (fl. 1279) not recorded the story about Su Shi, the transmission of the technique among friends and family members would be hard to trace.

Commercial publishers also noticed the value of memory aids and memorization techniques, publishing works to help students prepare for the examinations. These also made use of condensed phrases or summarizing headings to make the content easy to memorize. One work that took the essential points of an essay to create a header in the format of a short sentence is Chen Fuliang's 陳傅良 (d. 1203) *Master Yongjia's 'To the Point in All Cases'* (*Yongjia xiansheng bamian feng* 永嘉先生八面鋒).<sup>92</sup> This collection of essays had syncretic titles with eight characters that summarized the key concepts discussed in the essay. These titles helped students recall the reasoning of the essay by memorizing only the headings. Students could thus recall the content, which concerned governance and history, by going through the titles; as a result they could access ample material in their minds to write essays.<sup>93</sup>

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<sup>92</sup> For an example and translation of a heading and the administrative fields its principle could be applied in, see De Weerd. 2007. *Competition over Content*, 132-133.

<sup>93</sup> Another method for learning how to write essays is described by Xiao Maoxun. He explains that his teacher used "[a method for] expounding upon various directions of a topic, [for which one would] write [these topics] on slips, collect them in a bamboo canister and every day after eating, pick out ten slips. [One had to] explicate the general thoughts [related to the topics] and make [arguments] with a systematic order, so that when the time of writing essays came, one would not have to struggle and would have energy to spare." Wang. 1899. *Jiaotongzi fa*, 6a. Thus, he memorized the topics and the general ideas related to them in order to learn how to explicate these logically.

Another publication that summarized historical knowledge required in the examinations was the *Handy Geographical Maps Throughout the Ages* (*Lidai dili zhizhang tu* 歷代地理指掌圖).<sup>94</sup> The volume provided maps that helped students visualize their textual content, which described, for example, the successions of emperors, the different parts of Chinese territories and foreign threats. The conflation of temporal layers in the maps and the instructions that accompanied them, which required the student to ‘mark’ basic topographic and administrative features on the mapped territory, helped students grasp important historical changes. Graphs could thus be used to aid the memorization of text and content, functioning as abstract summaries of the theories discussed in the texts. They could help the reader “memorize given facts or interpretations” and serve as visual aid for correlating concepts and ideas.<sup>95</sup>

While all the anecdotes and techniques discussed so far focused on the use of vision and hearing, one account recorded by Zheng Wenbao 鄭文寶 of the Song is a rare example that illustrates how memory of content did not necessarily have to rely on eyes or ears.

Zhong Mo was by nature very clever, always memorizing passages for use in discussions. He often sent memorials with his theories to the throne and stood out during his time. (...) In a month during the height of the summer, he traveled from Zhou to Qin. Every time he saw an old stele on the side of the road, he had to stop his horse to read it, silently memorizing everything. Sometimes he would stop by a post house and order a scribe to transcribe it, thus not traveling more than a few *li* every day. On one occasion, he saw the flat front of a monumental stele, which was of massive proportions, and the inscribed message could not have counted less than a thousand characters. It lay abandoned in the middle of a vast moat, half of it was submerged in accumulated rain water, and by no means could one read the inscription. With a joyous expression the wise man loosened his clothes and swam to the middle of the moat. Using his hands, he stroked and measured, silently memorizing the writing, later recording it

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<sup>94</sup> De Weerd, who describes the volume as a study aid for aspiring officials, has studied this collection of maps extensively. De Weerd. 2011. “The Cultural Logics of Map Reading.” The maps are adapted to a rectangle shape and seem to represent the major waterways in such a way that they correspond to the major lines on the palm of the right hand. This indicates that students might have used their hands to visualize the content of the maps.

<sup>95</sup> Lackner. 2007. “Diagrams as an Architecture by Means of Words: The *Yanji tu*,” 343-344. Also refer to Lackner. 2000. “Was Millionen Wörter nicht sagen können.”

with ink on paper. Another day, when his company was returning, he passed through the same road. It had not rained for quite a few days, thus the water source that led to the submersion of the stele was no longer there. Thereupon, he spread out the contents of a bamboo basket to get his old notebook. Standing in the moat, he compared it, and there was not a single character missing or wrong.

鐘謨性聰敏，多記問，奏疏理論，穎脫時輩。(…) 盛夏之月，自周徂秦。每見道旁古碑，必駐馬歷覽，皆默識，或止郵亭，命筆繕寫。一日之行不過數里而已。又見一圭首豐碑，制度甚廣，約其詞旨不下數千餘字，臥諸荒塹之中，半為水潦所淹，無由披讀。謨欣然解衣，游泳塹中，以手捫揣，默記其文，志諸紙墨。他日徵還，重經是路，天久不雨，無復沈碑之泉，乃發笥得舊錄本，就塹較之，無一字差誤。<sup>96</sup>

As Zhong could not write anything down or even see the stele under water, he had to translate what he felt with his hands into characters in his mind, which allowed him to reconstruct the text and memorize it. Undergoing a physical or tactile experience in order to reconstruct meaning was unusual for those who focused their efforts on the verbatim memorization of texts and on the development of literacy. When it came to instructing and transmitting practical skills, however, teachers and students relied not only on text, but also on the internalization of knowledge by means of repetition and, like Zhong Mo or Su Shi, touch and bodily remembering. Practitioners, who were often illiterate and who had no aspirations to memorize canonical texts, relied heavily on the memorization of steps and procedures to access and transmit information essential to their occupations. In order to memorize actions, strategies that relied more on embodiment had to be developed.

### Remembering Actions

Several approaches to memorization in the acquisition of literacy, preparation for the civil service examinations and study of historical sources that helped scholars and officials were also in use beyond the world of the educated elite. Religious practices combined the memorization of text with the embodiment of instructions for action. Although memory itself was seldom addressed in scriptures and canonical works, texts meant to be recited

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<sup>96</sup> Zheng. 1922. *Nantang jinshi*, 2a.

and chanted repeatedly by the practitioner abound in both Buddhist and Daoist traditions.

Sanskrit terms used in the Indian Buddhist tradition to describe a process of continued attention or contemplation, such as *dhāraṇī*, are often rendered as “memory” in the West. Early Buddhist texts describe the process of recollection as relying on so-called “seeds” (*bija*) that transmit tendencies as if they were a “perfume” that continues to exist passively and can become active in a person when triggered by external conditions. This conception also made its way into China.<sup>97</sup> *Dhāraṇī* is a term that describes both the process of holding something in the mind and short textual formulas. Such formulas were concise passages or single letters that stood for an entire text or teaching. In the Chinese context, *dhāraṇī* were often Chinese transcriptions of Sanskrit sounds. Because sounds were believed to be sacred and carry magical powers, the proper pronunciation of Buddhist terms was essential even in China, where mastery of Sanskrit was rare. Thus, syllabaries for Sanskrit were among the texts that monks recited and used in meditation. Sanskrit syllabaries were even embedded within Chinese verses for meditation. The practitioner was supposed to vocalize the sounds and contemplate the meanings associated with each of the syllables, thus simultaneously engaging mouth, thought and body.<sup>98</sup> The visualization of text passages or *dhāraṇī*, sometimes combined with hand seals (*mudrā*), aided practitioners in their efforts to concentrate and internalize the teachings.<sup>99</sup> Buddhist scriptures, including their translations in Chinese, also made use of passages in verse (*gathas*) that rephrased the content of the previous block of text. Summaries of content that facilitate the rhythmic chanting of the teachings can be found, for example, in the Lotus Sutra.<sup>100</sup> Chan 禪 practitioners of the 9<sup>th</sup> and 10<sup>th</sup> centuries even composed manuals in which they compiled songs and rhymed

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<sup>97</sup> Griffiths. 1992. “Memory in Classical Indian Yogācāra,” 118-120.

<sup>98</sup> Picard’s study on Pu’an’s Incantation provides a detailed analysis of how a syllabary was embedded in a Chinese incantation and used for meditation. 2012. *L’Incantation du Patriarche Pu’an*, 27-45.

<sup>99</sup> Lackner addresses a graph composed of writing in the shape of a pagoda and similar efforts by Song scholars. 1992. “Argumentation par diagrammes,” 133. Similar patterned texts that depicted poems or riddles instead of complex teachings became very popular during the Ming dynasty. See Franke. 1987. “Chinese Patterned Texts.” On the use of hand mnemonics in the Buddhist context, see Hanson. 2017. “The Mysterious Names on the Hands and Fingers.”

<sup>100</sup> The teachings are expounded in prose and repeated in verses afterwards, woven into the narrative. There are several translations of the Lotus Sutra available, such as Burton Watson’s.

text from other Buddhist sources according to their own needs.<sup>101</sup> Thus, when it comes to format, Buddhist practices advanced strategies for memorization similar to those employed by studious scholars, such as summaries, rhymes and repetition, but within the practical and ritual context, memorization and recitation of text was only one of the steps of meditation.

Daoist practice shared many features with Buddhist meditation, especially when it came to the use of spells and embodiment through repetition of vows. For example, early Daoist scriptures appropriated Buddhist vows, which associated mundane actions with teachings, such as the act of ascending a multi-storied pavilion and the idea that “all beings shall ascend to the dharma-hall.” Within Daoist practice, the trigger of the storied building was kept, while the teaching associated with it was altered to “all shall penetratingly contemplate the ten directions and that nothing shall be concealed from them.”<sup>102</sup> Thus, in both contexts the practitioner memorized the vows and was reminded of them throughout the day.

A syncretic tendency among Daoists to include and absorb Buddhist concepts and practices was already well under way by the end of the 4<sup>th</sup> century.<sup>103</sup> This does not mean, however, that Daoist practitioners did not have their own practices that relied on memory. Aside from the recitation of texts, Daoist practitioners often also relayed instructions in the form of rhymes or graphs for a variety of purposes, such as alchemical recipes, gymnastics or divination.<sup>104</sup> Rhymes had been central to the transmission of medical knowledge since the former Han dynasty (202 BC-9 AD), and were also used in texts that were later incorporated into the Daoist canon.<sup>105</sup> The frequent use of verse in canonical texts has made the study of rhyme patterns central to dating early Daoist texts.<sup>106</sup> Besides the rhymed format, instructions were often provided as recipes or steps, guiding the practitioner through a

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<sup>101</sup> Sørensen. 1989. “Observations on the Characteristics of the Chinese Chan manuscripts from Dunhuang,” 131-134.

<sup>102</sup> Bokenkamp. 1983. “The Ling-Pao Scriptures,” 470.

<sup>103</sup> Bokenkamp. 1983. “The Ling-Pao Scriptures,” 461.

<sup>104</sup> Verellen discusses the various uses of graphs in Daoist texts. 2006. “The Dynamic Design,” 160-163.

<sup>105</sup> A representative medical text with substantial portions in verse that is believed to have been composed in large part during the Han dynasty is *The Yellow Emperor's Classic of Internal Medicine* (*Huangdi neijing* 黃帝內經). On the composition and origin of the text, see Tessenow and Unschuld. 2011. *Huang Di Nei Jing Su Wen*, 1, 11-12. It is suggested that the Tang scholar Wang Bing, who had a strong Daoist background, may have altered parts of the text. 2011. *Huang Di Nei Jing Su Wen*, 1, 29 n8.

<sup>106</sup> Ho. 2007. *Explorations in Daoism*, 19-24.

process that had to be memorized and enacted. Even private practices intended for couples in the bedchamber were described in steps that guided the couple through a series of visualizations and movements.<sup>107</sup>

Religious practices shared many formal similarities with manuals for other practical activities and crafts. When it came to the instruction and transmission of skills, practitioners relied not only on text, but also on the internalization of practical knowledge by means of repetition, touch and bodily remembering. Rhymes and sequencing played a central role in the transmission of practical knowledge. Although many practice-oriented formulas have surely been lost because craftsmen had little motivation to disseminate them and the elite considered them too commonplace to be recorded, there are still many that have survived in encyclopedias and collections of notes. Innumerable ‘formulas’ for memorization circulated in imperial China for a variety of practical fields, such as mathematics, astrology, mechanics and even for law.<sup>108</sup> Oral formulas for daily use, such as songs for calendric calculations, which were useful regardless of an individual’s profession, were widely used and also disseminated in writing. One such “ancient song” (*gu ge* 古歌) addressed the need to determine the name of the month according to the cycle of the “earthly branches” (*dizhi* 地支).<sup>109</sup> The Song which helped determine the “earthly branch” of the first month according to the year, is recorded in the *Comprehensive Compilation on the Three Fates* (*Sanming tonghui* 三命通會) edited by Wan Minying 萬民英 (ca. 1521-1603):

For *Jia* and *Ji* years, first comes *Bing*,  
In years of *Yi* or *Geng*, *Wu* will be heading.  
*Bing* or *Xin* years continue after *Geng*,  
For *Ding* and *Ren*, *Ren* you will be following.

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<sup>107</sup> Kalinowski translates steps contained in a Six Dynasties (220–589) work that relies on the visualization of the “nine-palaces.” 1985. “Le Dispositif des Neuf Palais,” 785-794.

<sup>108</sup> See Needham, Ho and Lu. 1980. *Science and Civilisation in China* 5, 253; 261. Bréard has addressed the use of rhymes in mathematical treatises and in daily-use encyclopedias. 2014. “On the Transmission of Mathematical Knowledge in Versified Form in China”; 2010. “Knowledge and Practice of Mathematics in Late-Ming Daily-life Encyclopedias.” Liu Tianzhang, who has studied the use of songs in popular encyclopedias, provides an example of a song that describes common crimes and serves to admonish common people. Liu. 2006. *Mingdai tongshu leishu yanjiu*, 144.

<sup>109</sup> The Chinese calendar was based on a cycle of sixty years. Each year was named according to the combination of one of the ten “heavenly stems” and one of the twelve “earthly branches.” These same combinations were also used to determine the name of the months in a cyclical fashion, repeated every five years.

And when one has *Wu* or *Gui*, where does one start?  
Upon *Jia* and *Yin*. These are most fitting.

甲己之年丙作首，乙庚之歲戊為頭。  
丙辛之歲尋庚上，丁壬壬位順行流。  
更有戊癸何處起，甲寅之上好追求。<sup>110</sup>

The song, which also appears in a Song dynasty notebook,<sup>111</sup> gives a list of the “heavenly stems” (*tiangan* 天干) for the years, indicating the branch one would use to start counting the first month, according to the lunar calendar. Every second line ends in a rhyme and its content is clear and straightforward. Another example of a didactic song that helped people to remember how to calculate the calendar is the “Song for Teaching the Essential Method of [Counting] Time and the Calendar.” This song, with paired rhymes for every second verse, emphasizes general qualities of the calendar, such as the cyclic repetition every nine years, and the calendar’s divisions in 12 months and 24 solar terms, while also emphasizing the importance of the leap month:

When teaching the method of [counting] time and the calendar, you  
must know,  
the lunar calendar is counted with nine years.  
Whether a long or a short month is counted from the first day of the  
month,  
Pay attention to the first day’s heavenly stem and earthly branch.  
Long months count 5 heavenly stems and 9 branches,  
Short months match 4 branches to 8 stems.  
If a month is long, you have 30 days, without exception,  
If a month is short, it is clearly divided into only 29 days.  
The solar terms of the year are just as in the calendar from nine years  
ago,  
All the 24 divisions really do repeat this way.  
Counting 3 heavenly stems you will count 7 earthly branches,  
This is to be firmly remembered in one’s mind, and it must be done  
clearly.

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<sup>110</sup> Wan. 1782. *Sanming tonghui*, juan 2, 57.

<sup>111</sup> The song is the same, but it is mentioned in combination with the changes of the cycle of the five elements (*wu xing* 五行). It is not attributed to a specific author, and interwoven into the text as if it were something every reader should be able to identify. Hong. 1934. *Rongzhai suibi*, juan 10, 6b.

Establish the 24 solar terms when counting a year,  
So when the time of each eight major solar term arrives,<sup>112</sup> you won't  
have to think it over.  
If you use this method to count the second half of the months,  
You will be aware of all the obscure points regarding the counting of the  
lunar calendar.  
The leap month does not have the second half,  
It is not necessary to go to great lengths planning this [to know].  
The people who are fully acquainted with this art of the immortals,  
They are no longer fools, but men.

授時曆法君要知，但以九年舊曆推。  
月大月小起初一，看其初一天地支。  
大月天干五支九，小月天四地八耦。  
月大三十日無差，月小分明只廿九。  
節氣只恁九年曆，二十四氣真端的。  
天干三數地支七，熟記心中須歷歷。  
定時二十四年取，逢時遇八君無慮。  
若依此法個中推，方省陰陽玄奧處。  
閏月本來中氣無，何勞物外更它圖。  
世人諳得神仙術，不是愚氓是丈夫。<sup>113</sup>

The rhyme shows that complex and intricate information, such as calculations that require several steps, could also be transmitted through formulas with ease because the content was presented in segments of a specific length that could be easily connected in the mind due to the rhymes.<sup>114</sup>

In the field of carpentry, one rhyme that presents several steps to achieve the desired proportions for a perfectly round column has been transmitted. The rhyme, titled “Oral Formula of Eight Trigrams,” relies only on relative proportions and ignores specific measurements, allowing its content to be adapted to any size of wood:

At eight sides, a proportion of four to six,  
Between the double lines two-tenths are contained.

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<sup>112</sup> The eight solar terms mark beginnings and central points of the four seasons.

<sup>113</sup> Tao. [n.d]. *Chuogeng lu*, juan 5, 4a-b.

<sup>114</sup> Carruthers describes the segmentation of “units” and the importance of an order that can easily be reconstructed as basic qualities that ease memorization. 1990. *The Book of Memory*, 7.



[The next line] is at three times six from the double lines,  
And the remainder is divided into three.<sup>115</sup>

The rhyme, according to Ruitenbeek's reading, provides consecutive steps of division to achieve a sixteen-sided polygon that can be planed off and will result in a round column.<sup>116</sup> The rhyme thus lists, in a condensed format, very specific practical procedures, and once it was memorized, it could aid the craftsman on site.<sup>117</sup>

In the transmission of practical knowledge, Chinese practitioners not only explored the textual formats that facilitated memorization, such as rhymes, but often also relied on visual triggers to help the student to remember processes and actions. Important matters and procedures were recalled by means of visual or tactile input. One account that provides an example of a very simple visual reference concerns the Tang dynasty chancellor Zhang Yue 張說 (667-730). According to one anecdote, during the Kaiyuan 開元 era (713-741),

someone presented him a pearl. It was of a dark violet color and possessed a shimmer. It was called "Pearl of remembering matters." If something were to slip one's mind, one should hold this pearl in the hand and play with it. Soon the mind would awaken and the spirit would become aware. All matters—be they great or small—would be restored in one's understanding, and none would be forgotten. Yue kept the pearl a secret and treasured it.

有人惠說一珠，紺色，有光。名曰「記事珠」。或有闕忘之事，則以手持弄此珠，便覺心神開悟，事無巨細，渙然明曉，一無所忘。說祕而寶也。<sup>118</sup>

The anecdote refers to an object that prompted him to remember an important matter or task. This process of recollection relied on the visual or

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<sup>115</sup> Ruitenbeek. 1996. *Carpentry and Building in Late Imperial China*, 65.

<sup>116</sup> Ruitenbeek. 1996. *Carpentry and Building in Late Imperial China*, 67.

<sup>117</sup> Contemporary rhymes for carpentry used in the region of Yunnan have been collected in Bin and Yan. 2011. "Research on Mnemonic Rhymes for Building Dali Bai Traditional Houses." The authors underscore the importance of local pronunciation.

<sup>118</sup> Wang. [16<sup>th</sup> c.] *Kaiyuan Tianbao yishi*, juan shang, 3b.

tactile qualities of the pearl. It resembles a ribbon tied around the finger, which also functions as a visual trigger to recall.<sup>119</sup>

Graphs and charts were especially important to relay information that could not be easily described in writing, such as the positions of pieces in a game of Chinese chess (*weiqi* 圍棋). The centrality of remembering consecutive moves is highlighted in the early anecdote about Wang Can 王粲 (died c. 217):<sup>120</sup>

Wang Can was watching people playing chess. When the board was overturned, Wang set the board up again, but the players did not believe [that it was the setting of the game before the board had been turned over], so they covered his set-up board with a cloth, and used another board to set it up themselves. Using their board to compare it to Can's setting, [they saw that] not a single piece [on Wang's board] was placed wrong.

王粲觀人圍棋，局壞，粲復為之，棋者不信，以袍蓋局，使更以他局為之，用相比校，不誤一道。<sup>121</sup>

Wang seems to have memorized the entire series of moves that preceded the accident and was thus able to reconstruct the setting with ease. Specific moves and scenarios for playing chess also became the focus of later manuals for the game.

Manuals published during the Ming dynasty relied on pictures to represent each move, which is much easier to understand than a game's setting described in prose. What is remarkable about the individual representations in the manuals was that each move received a name by which it could be recalled [Fig. 1.1]. The nomenclature relied on the peculiarities of the moves and the pieces involved, providing verbal summaries or shortcuts to help players recollect actions. Similar descriptions of movements were also present in manuals for playing the Chinese zither (*qin* 琴). Hand gestures and

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<sup>119</sup> This practice is discussed in a treatise by John Wills, reproduced and annotated in Engel, Loughnane and Williams. 2016. *The Memory Arts in Renaissance England*, 77.

<sup>120</sup> This anecdote is mentioned in most studies that discuss the issue of memory in China, first cited in Spence. 1984. *The Memory Palace of Matteo Ricci*, 157.

<sup>121</sup> Chen. [1194?] *Sanguo zhi*, Wei zhi, juan 29, 2b-3a.

postures connected to specific finger techniques were described through colorful imagery, such as “a wild goose carrying a reed stalk in its bill.”<sup>122</sup>

When it came to transmitting knowledge, pairing images with rhyming formulas made the content of books accessible to the illiterate, allowing useful information for daily and professional life to be disseminated quickly and easily.<sup>123</sup> One foreign account attests to the reliance on imagery and visual aids to transmit valuable lessons. In his *Abhandlung über die Geburtshülfe - Aus dem Chinesischen*, the German physician Heinrich von Martius (1781-1831), describes how Chinese midwives were instructed orally in order to memorize the crucial procedures of their trade. Von Martius remarks how there was no canonical work for the training of midwives but that several treatises circulated simultaneously around 1810.<sup>124</sup> He describes the process of knowledge acquisition as follows:

The teachings in such books on midwifery are usually formulated in the form of catechisms, which means, as questions and answers, and to ease understanding, these were accompanied by rather coarse illustrations. I have had the opportunity to see Chinese treatises in this manner for several doctrines. It is most likely that the midwives are not able to read these educational books on their own; instead, they probably retain the content in their memory after having it read to them repeatedly, referring to the accompanying illustrations in their practice. I have also been assured that Chinese midwives are trained for their craft by doctors that specialize in matters of childbirth by making use of movable anatomical figures.<sup>125</sup>

Von Martius points to the issue of illiteracy, which even during the late Qing prevented commoners from accessing textual knowledge. This obstacle, however, could be overcome by having literate individuals read the content of the treatises out loud for the audience to memorize. The use of illustrations in such works, as well as the employment of visual models, was meant to help

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<sup>122</sup> Van Gulik. 1940. “The Lore of the Chinese Lute. An Essay in Ch'in Ideology,” 128. Van Gulik conducted a thorough study on zither (or lute) manuals, devoting his fifth chapter to the analysis of the symbolism of hand postures.

<sup>123</sup> In a paper presented at Leiden University in 2019 on “Songs of Jingdezhen Ceramics and Porcelain Production” Huang Yijun 黃義軍 discussed the creation of rhymes that describe the production steps of porcelain production and the later addition of images to accompany these.

<sup>124</sup> The work was published in 1820, but, as commented in the preface, it was based on his previous work from 1810 that was lost.

<sup>125</sup> Von Martius. 1820. *Abhandlung über die Geburtshülfe*, 28-29.

the illiterate in recalling the instructions. The format in which knowledge was codified, be it as questions and answers, rhymed formulas or songs, was thus decisive for a student to remember the information transmitted by demonstration.

Medical works often provided doctors with mnemonic singing formulas and “palm formulas” (*zhang jue* 掌訣) to memorize procedures. The “palm formula” was often printed in the manuals and introduced to the reader in the first pages. It was accompanied by a graph of a hand that, once memorized, helped a physician to make a diagnosis. Both tools aided doctors in identifying diseases and determining the treatment for a patient.<sup>126</sup>

Mnemonic techniques that took the hand as a support to follow a specific sequence were not uncommon in other fields. The *Finger and Palm Formula Chart for Rhymes* (*Qieyun zhizhang tu* 切韻指掌圖), attributed to Sima Guang 司馬光 (1019-1086), is a rhyme table based on the *fanqie* system 反切 that aided people in determining the pronunciation and rhyme of a character. It made use of a similar hand chart to place the thirty-six model initials used to find characters in the table.<sup>127</sup> According to the type of sound (such as dental or lingual), the model initials would be projected onto the hand as if in a column, almost an exact transference of the paper chart of the thirty-six initials onto the palm of the hand [Fig. 1.2]. Once one had memorized the position of these model characters, it was relatively easy to go through the table and locate the desired character.

Detailed descriptions in prose of the basic hand mnemonic, however, were rare. In most manuals that relied on this system to discuss different topics, these instructions were omitted, most likely because it was regarded as common knowledge. A passage from the novel *Flowers in the Mirror* (*Jinghua yuan* 鏡花緣), published by Li Ruzhen 李汝珍 around 1818, provides a rare detailed account on how to proceed. The author introduces the basic concept for counting things on the hands, for which the practitioner has to place the twelve earthly branches along the sections of the fingers, so that they will form a square. One begins with the mound below the little finger and moves upwards to the tip, moving across the tip of the ring, middle and index fingers, and moving back down along the sections of the index finger. The square is then closed by moving leftward over the mounds of the palm below the fingers. This basic sequence served as the foundation for several activities,

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<sup>126</sup> Hanson. 2008. “Hand Mnemonics in Classical Chinese Medicine.”

<sup>127</sup> 36 characters that were selected to represent the 36 possible initial sounds of all characters. See Sima. 1986. *Songben qieyun zhizhang tu*.

such as calculating the date by determining the heavenly stems and earthly branches, or performing astrological divination.<sup>128</sup> In Li Ruzhen’s novel, *Fragrance Returns* (*Zaifang* 再芳),<sup>129</sup> one of the young girls who will be participating in the imperial examinations for women asks her friend what the “Earth board” is. This was the basic setting for astrological divination according to the *Da liuren* 大六壬 practice, similar to the palm mnemonics just discussed. Her friend writes out the following characters in a square in order to explain it to her, adding that she must memorize this well:

巳	午	未	申
辰			酉
卯			戌
寅	丑	子	亥

The passage is followed by an indented commentary from the narrator, which is directed at the reader:

For this “Earth board” model, one can take the left hand or the right hand. If one takes the left hand, when starting with the fourth section of the ring finger for *zi* 子; the fourth section of the middle finger stands for *chou* 丑; the fourth section of the index finger stands for *yin* 寅, its third section *mao* 卯, the second *chen* 辰, and the first *si* 巳; the first section of the middle finger stands for *wu* 午; the first section of the ring finger for *wei* 未; the first section of the little finger stands for *shen* 申, the second for *you* 酉, the third for *xu* 戌, and the fourth for *hai* 亥. If one takes the right hand, when starting with the fourth section of the middle finger standing for *zi* 子; the fourth section of the ring finger stands for *chou* 丑; the fourth section of the little finger for *yin* 寅, the third for *mao* 卯. One continues along the order described before, finishing with the index finger’s fourth section for *hai* 亥. This pattern must be imitated with much attention, and the position in the square on which each of the twelve time divisions is located must each be thoroughly remembered. Only then should the “Heaven board” be explained. If one is not yet fully familiarized with the “Earth board” and one begins to discuss the “Heaven board,” the tendency will inevitably be that both will be jumbled together and be indiscernible, only bringing

<sup>128</sup> There were also other forms of divination that relied on mnemonics. Bréard addresses mathematical calculation with rhymes for making prognoses. 2019. *Nine Chapters on Mathematical Modernity*, chapter 6.

<sup>129</sup> The English name has been taken from the existing translation of *Flowers in the Mirror* by Lin Tai-yi, published 1965, so her identification is made easier.

disorder to peoples' minds. The "Earth board" will not move for thousands of years, while the "Heaven board" revolves according to time. If one immediately adds the wheel that revolves according to time on top of the wheel that will not move for thousands of years, unless one has memorized them clearly, how can one discern them?!

So, if you take the five fingers of your right hand and place them on top of the five fingers of my right hand, you may ask me which of your own fingers is on top of my thumb, and I have to say, it is the little finger; On top of the index finger, it is your ring finger; The ten fingers on the top and bottom, once gone over in one's breast until one is familiarized with them, should allow one to comprehend them even without looking. If the girl wishes to understand the "Heaven board," she must only memorize it well and she will be able to truly gasp it.

此地盤式，有從左手起的，有以右手起的。以左手而論：於無名指第四節起子時；中指第四節丑；食指第四節寅，第三節卯，第二節辰，第一節巳；中指第一節午；無名指第一節未；禁指第一節申，第二節酉，第三節戌，第四節亥。以右手而論：於中指第四節起子時；名指第四節丑；禁指第四節寅，第三節卯。照前順排，至食指第四節為亥時。此式必須細心摹擬，須將地盤十二時所列方位個個記得爛熟，然後再講天盤。若地盤未熟，即講天盤，勢必上下不分，徒亂人意。蓋地盤千載不移，天盤隨時流轉，今以隨時流轉之盤，加於千載不移盤上，若不記清，何能上下分得明白？即如你以右手五指，合於我之右手五指之上，你右問我大指之上，是汝何指，我必說是禁指；食指之上，是你無名指。蓋上下十指，是胸中滾熟的，所以不看亦能了然。姊姊要明天地盤，只須記熟，就能領會了。<sup>130</sup>

As the narrator explains, the "Earth board" arranges the earthly branches on the hand and dictates an order to be followed, which is the base for *Da liuren* divination.<sup>131</sup> In the novel, the description of the method continues with the "Heaven board", which circulates according to the date,

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<sup>130</sup> Li. 1955. *Jinghua yuan*, 557-558.

<sup>131</sup> The use of hand divination based on the *Liuren* system is described in the Ming novel *Romance of the Three Kingdoms* (*Sanguo yanyi* 三國演義), in which general Zhuge Liang 諸葛亮 makes use of the method to make a prognosis of matters concerning the war. However, no evidence of such practices during the period of the Three Kingdoms has been found. Although there are earlier descriptions on the use of *Liuren* in times of war, from ca. 795, no indication of the use of the hand is made in these. On the complexities of the *Liuren* method, see Yoke. 2003. *Chinese mathematical Astrology*, 135-136. Chapter five addresses the *liu ren* method.

and later describes how to compute the “Four prognostications” (*si ke* 四課), the first step in the divination process. The importance of memorizing the basic setting of the “Earth board” on the hand is emphasized in the novel, since it is the starting point for more complex movements that appear later and rely on the internalization of the initial schemata.

Similar graphs of hands can also be found in the field of music, where they were used to memorize different pitches of the musical scale. The sequence defining the order of these pitches, also numbering twelve, made use of the same starting point and direction as described in Li Ruzhen’s novel. This practice was also described in a French volume dedicated to the study of Chinese music. The chart reproduced in *Mémoire sur la musique des Chinois*, published in Paris in 1779, is most likely based on Zhu Zaiyu’s 朱載堉 (1536-1610) *Essential Principles of the Pitch Pipes* (*Lülü jingyi* 律呂精義) [Figs. 1.3 and 1.4]. The French description accompanying the chart of the “harmonic hand” reveals that the Chinese were accustomed to computing matters on their palms by following a circular order along the sections of the fingers, something they already “learned during their childhood.”<sup>132</sup>

Hand mnemonics became very widespread during the Ming, and were also transmitted to Japan during the period.<sup>133</sup> The image of a hand with earthly branches defining the specific points on the fingers was published in many daily-use encyclopedias as a basic chart to be used in a number of fields presented in the compilations, including, for example, mathematics. Anyone familiar with the standard positions of the earthly branches could solve mathematical problems, such as converting measures, with ease.

An exercise for making such a “conversion chart” on the hand, also called “Palm Formula for Determining Positions and Multiplying” (*zhangzhong dingwei yincheng jue* 掌中定位因乘訣), is presented below:

Suppose there is a field of 312 acres (*mu* 畝), and one can obtain 2 measures (*sheng* 升) of grain for each *mu*. To calculate this, one will start on the position of *yin* 寅, for 100 *mu*, thus having 10 *mu* on *mao* 卯 and obtaining 1 *mu* on the position of *chen* 辰. On this position, *mu* can be converted to *sheng*, and one can then return to *mao* to obtain the amount of *dou* 斗, and on *yin*, obtain *shi* 石.

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<sup>132</sup> Amiot. 1779. *Mémoire sur la musique des Chinois*, 123.

<sup>133</sup> See Hayek. 2018. “Correlating time within one’s hand.”

假如有田三百一十二畝，每畝科糧二升。乘畢莫動先從寅上起百畝，以卯得十畝，以辰得一畝。就以畝變升，復回卯上得斗，以寅為石。<sup>134</sup>

This exercise, which is based on measures that progress by going up a decimal place (10 *sheng* 升 = 1 *dou* 斗, 10 *dou* 斗 = 1 *shi* 石), takes the palm with the positions determined by the earthly branches as a model for multiplying or dividing, as illustrated in [Fig. 1.5]. The person was thus quickly able to tell, also in larger measures, how much he could expect to harvest from his fields.

Using the hand to move up and down measures was surely useful for someone who had business to conduct at the market, such as selling grain. Thus, the method was also referred to as having “gold in the sleeve” (*xiuli jin* 袖裏金), a precious calculating tool that could be hidden within the sleeves of one’s robe and used discretely.<sup>135</sup> By relying on such mnemonic methods, one could do without paper or writing and quickly reach the desired goal.

Regardless of whether scholars memorized text or practitioners and merchants memorized sequences and procedures by enacting them, having things “stored within one’s breast” or, as Su Shi claimed, imprinted on “every fiber of the body,” allowed them to adapt their knowledge to new situations. Memory was just as central for composing essays as it was for conducting calendric calculations or delivering a baby.

## Conclusion

The examples provided in this chapter show that the verbal, visual and tactile memorization techniques developed in China often took existing textual sources as a starting point or relied on graphic representations to reach broader audiences. The storage of “chunks”<sup>136</sup> of information and steps, such as chess movements, calculation procedures, or parts of rhyming compositions in the long-term memory was usually achieved by means of repetition. Information was summarized in rhymed formulas to facilitate memorization and often disseminated in print for literate audiences or

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<sup>134</sup> *Xinke quanbu shimin beilan bianyong wenlin huijin wanshu yuanhai*. 1610. Juan 29, 4b-5a. The numbers provided for the exercise vary in other encyclopedias of the period.

<sup>135</sup> *Xinke quanbu shimin beilan bianyong wenlin huijin wanshu yuanhai*. 1610. Juan 29, 4b.

<sup>136</sup> Busse Berger provides an example for ‘chunking’ of information by chess players. 2005. *Medieval Music and the Art of Memory*, 199.



transmitted orally to illiterate audiences. Thus, the “art of memory” in China does not correspond to the European tradition of creating highly personal “palaces” or “theatres” within the trained mind of the individual, or to the later undertakings to organize knowledge that developed from the medieval “art.”<sup>137</sup> Memory in China was regarded as a natural skill or quality, and memorization practices were repetitive in nature and relied on previously written compositions. Yet, this does not mean historians should underestimate their use or their impact in imperial Chinese society. These cultural differences serve to highlight the connection of mnemonic techniques to the unique functions of knowledge in each tradition. Unlike the well-studied “art of memory,” which was primarily practiced by small monastic communities and later marketed as a “secret” technique to members of the aristocracy in Europe, mnemonic formulas and rhymes pervaded all fields of knowledge in China.<sup>138</sup> It is important to note, however, that each field adapted the techniques to its specific needs. Chinese memory aids are thus unmistakably interwoven with the content they sought to promote.

Practitioners and educated individuals strove to develop the external features of texts and graphs in order to ease memorization. Printed books and visual representations allowed new ways of committing knowledge to memory to be explored. What remains to be addressed is how mnemonics circulated—whether memory aids were meant to circulate within a small group, such as the family or a workshop, or to become broadly accessible through print—and how their circulation led to alterations in content. As will be discussed in the following chapters, what makes the Chinese endeavor to remember unique is the prescriptive nature of the mnemonics and the creative process involved in their creation and constant refashioning. Thus, although similar mnemonic techniques were employed for various practical activities, the specificities of Chinese memory are located within each individual field and tied to creative individuals.

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<sup>137</sup> Rossi discusses several schemata of renaissance scholars with “encyclopedic” aspirations to order and categorize all knowledge. Rossi. 2000. *Logic and the Art of Memory*. Yates also addresses the new role of the “art of memory” in the last chapter of her work. 1966. *The Art of Memory*.

<sup>138</sup> Studies that address the issue of memory in practical fields, such as the monograph by Busse Berger on mnemonic practices in the field of music, or the short study by Carpo on the substitution of memory for charts in the field of architecture, make an invaluable contribution to the understanding of memory practices in society. Busse Berger. 2005. *Medieval Music and the Art of Memory*. Carpo. 2009. “Architecture: The Rise of Technical Design and the Fall of Technical Memory in the Renaissance.”

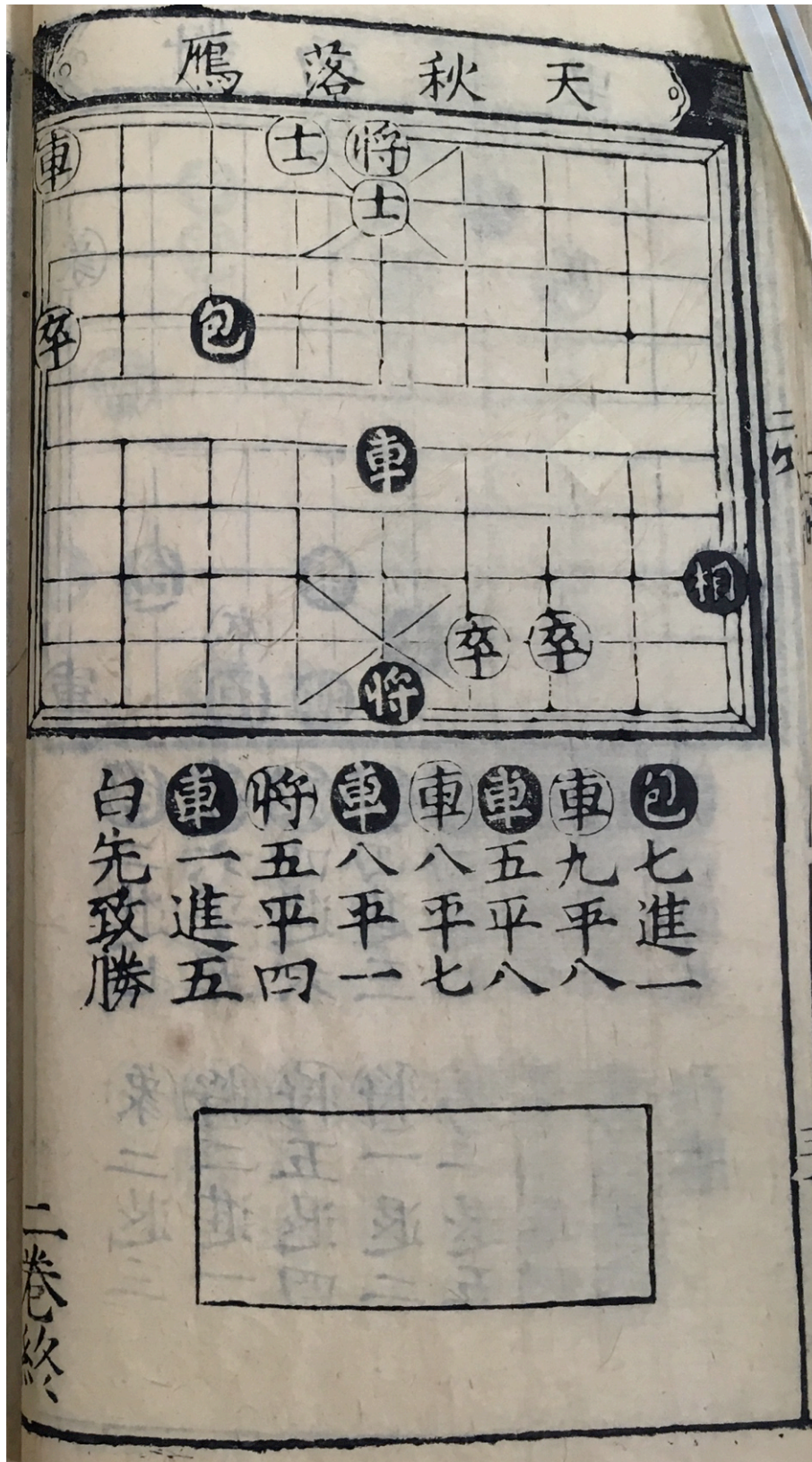


Fig. 1.1 The “Goose soaring down from an autumnal sky” move in Ming dynasty chess manual. Source: *Xinke shoutan miju sipu zhenjue* 新刻手譚秘局四譜真訣. 1609. Juan 2, 30b. Photo by author.



Fig. 1.2 Palm mnemonics in the *Finger and Palm Formula Chart for Rhymes* (*Qieyun zhizhang tu* 切韻指掌圖). Source: Sima. 1986. *Songben qieyun zhizhang tu*, 22.

*Main harmonique sur laquelle on trouve la circulation du Son  
fondamental par chacun des douze Lu.*

*Le*  
Pien-koung  
porte aussi  
le nom de Ho,  
qui signifie  
Modérateur.  
C'est nôtre  
Mi.

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*Le*  
Pien-tché  
porte aussi  
le nom de  
Tchoung,  
qui signifie  
Médiateur.  
C'est nôtre  
Si.

*Figure II.*

I.<sup>re</sup> Mode,  
Koung.  
Fa

II.<sup>re</sup> Mode,  
Tché.  
Ut

III.<sup>re</sup> Mode,  
Chang.  
Sol

IV.<sup>re</sup> Mode,  
Yu.  
Re

V.<sup>re</sup> Mode,  
Kio.  
La

VI.<sup>re</sup> Mode,  
Ho.  
Mi

VII.<sup>re</sup> Mode,  
Tchoung.  
Si

12.	11.	10.	9.	8.	7.	6.	5.	4.	3.	2.	1.	
Yng- tchoung.	Ou- -y.	Nan- -lu.	Y- -tsé.	Lin- -tchoung.	Joui- -pin.	Tchoung -lu.	Kou- -si.	Kia- tchoung	Tay- -tsou.	Ta- -lu.	Hoang- tchoung.	I.
Joui- -pin.	Tchoung- -lu.	Kou- -si.	Kia- tchoung	Tay- -tsou.	Ta- -lu.	Hoang- tchoung	Yng- tchoung	Ou- -y.	Nan- -lu.	Y- -tsé.	Lin- -tchoung	II.
Ta- -lu.	Hoang- tchoung	Yng- tchoung	Ou- -y.	Nan- -lu.	Y- -tsé.	Lin- -tchoung	Joui- -pin.	Tchoung -lu.	Kou- -si.	Kia- tchoung	Tay- -tsou.	III.
Y- -tsé.	Lin- -tchoung	Joui- -pin.	Tchoung -lu.	Kou- -si.	Kia- tchoung	Tay- -tsou.	Ta- -lu.	Hoang- tchoung	Yng- tchoung	Ou- -y.	Nan- -lu.	IV.
Kia- tchoung	Tay- -tsou.	Ta- -lu.	Hoang- tchoung	Yng- tchoung	Ou- -y.	Nan- -lu.	Y- -tsé.	Lin- -tchoung	Joui- -pin.	Tchoung -lu.	Kou- -si.	V.
Ou- -y.	Nan- -lu.	Y- -tsé.	Lin- -tchoung	Joui- -pin.	Tchoung -lu.	Kou- -si.	Kia- tchoung	Tay- -tsou.	Ta- -lu.	Hoang- tchoung	Yng- tchoung	VI.
Tchoung -lu.	Kou- -si.	Kia- tchoung	Tay- -tsou.	Ta- -lu.	Hoang- tchoung	Yng- tchoung	Ou- -y.	Nan- -lu.	Y- -tsé.	Lin- -tchoung	Joui- -pin.	VII.

Fig. 1.3 The "harmonic hand": Reproduction of Chinese palm mnemonics chart for musical scale in *Mémoire sur la musique des Chinois*. Source: Amiot. 1779. *Mémoire sur la musique des Chinois*, appendix, 14, plate XVII. Image source: gallica.bnf.fr / Bibliothèque nationale de France.



Fig. 1.4 Palm mnemonics for musical scale in the *Essential Principles of the Pitch Pipes* (*Lülü jingyi* 律呂精義). Souce: Zhu. [between 1573-1620]. *Lülü jingyi*, waipian, juan 5, 37a. Image source: Harvard College Library, Harvard-Yenching Library.

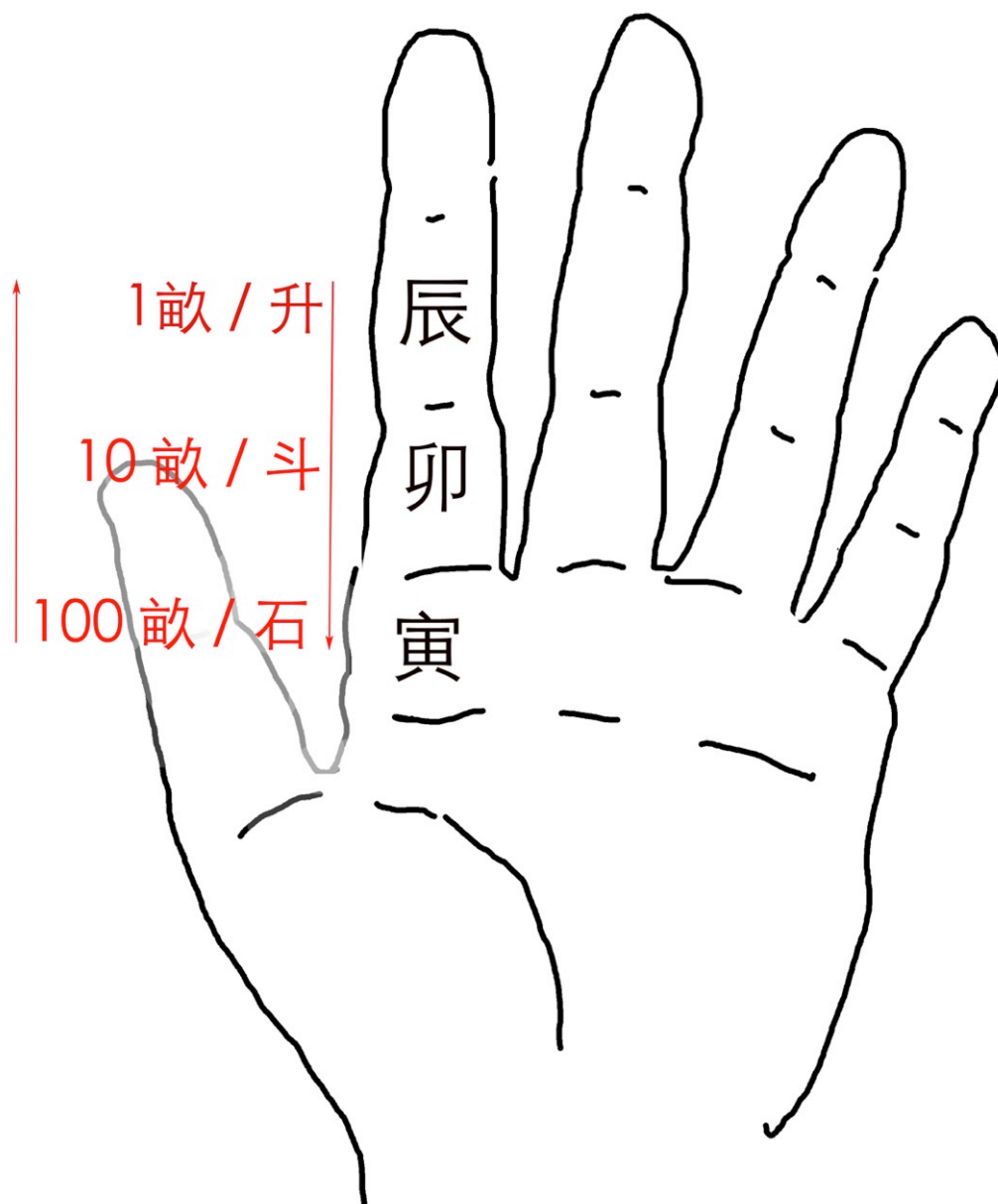


Fig. 1.5 Palm with earthly branches as reference for multiplication and division. Equivalence of units according to decimal place. Graph by author.