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On the Toothbrush in Pre-Modern China

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ABSTRACT

This article examines the history of the toothbrush in China to reveal the way the custom of tooth-wood and terms related to its use were introduced, adapted, and integrated into the Chinese context from Buddhism. The history of this seemingly trivial tool in pre-modern China is actually a complex topic that involves issues in linguistics, translation studies, ethnography, and other fields. As an object, some evidence of early toothbrushes has been found in archaeological research, but current identifications and theories of the “earliest toothbrush” remain speculative due to the fact that bristle toothbrushes can hardly be distinguished from bristle brushes for other purposes. Moving beyond the material aspects of the object, the last part of this article three poems that treat the toothbrush as a literary theme and discuss how toothbrushes were integrated into the world of the imagination and Chinese literary tradition.

Keywords: Toothbrush, pre-modern China, Buddhist tooth-wood, toothbrush in traditional poetry

INTRODUCTION

The toothbrush is one of the most familiar implements of our daily lives nowadays, but this was not always the case. Compared to many other daily tools like combs and brooms, the toothbrush is a relatively late invention. Even within the field of oral cleaning, toothpicks and mouthwash far predated toothbrushes. The story of toothbrushes is surprisingly complex and interesting, and this article aims to delineate parts of its story as it took place in pre-modern China.

The toothbrushes discussed in this article are mainly bristle toothbrushes. Given their significance in oral health, this topic first drew the attention of dental experts with an interest in history, and some of the findings of Chinese researchers have been integrated into the record of world dental history. The integration of these findings, however, is rarely calibrated with sufficient consideration of the reasoning processes through which the conclusions were reached, resulting, for example, in contradictory accounts of when and how the first bristle toothbrush was created. Dental history is an interdisciplinary study, and the portrayal of the story of toothbrushes in pre-modern China will benefit from discussions incorporating knowledge from multiple fields aside from dentistry, including historical linguistics, religious studies, archaeology, and literature. Although most sinologists are not dental experts, they still have much to contribute to the discourse on this theme. This study represents but one such effort.

The body of this article consists of three parts. The first part will review textual evidence related to the birth of the toothbrush and delineate the intricate relationship between the conception of the toothbrush and the Buddhist 'tooth-wood'. The second part will consider the physical traits of the toothbrush as an object and investigate the challenges of its identification in archaeological discoveries and visual materials. The last part will shift from the empirical to the interpretative, embarking on an exploration of the literary representation of the toothbrush via a close reading of three poems.

THE TOOTHBRUSH AS A PRODUCT OF CULTURAL EXCHANGE AND ADAPTATION

China has some of the world's earliest evidence of stomatological observations (that is, those addressing medical considerations of the mouth), which are represented in the oldest Chinese script on oracle bones dating back to over three thousand years ago.¹ Together with this long history of documentation of dental diseases, we also find records showing the development of curative and preventive measures for oral health. Of measures for day-to-day maintenance of personal oral hygiene, the most notable practices include mouth-washing (*shukou* 漱口), tooth-picking (*tiya* 剔牙), tooth-rubbing (*kaichi* 揩齒), tongue-scraping (*guashe* 刮舌), and tooth-brushing (*shuaya* 刷牙). These practices, done with or without dentifrices, have been found in history across different cultures, but for pre-modern China, the toothbrush represents a particularly intriguing case of cultural exchange and adaptation.

The idea of conducting general cleaning of one's teeth with a hand-held, fringe-ended tool was introduced into China during the second century as a Buddhist purification tool and rendered as *yangzhi* 楊枝 (willow/poplar branch, Old Chinese: **laŋ* **ke*, Middle Chinese: *yang tsye*).² Some may consider this a 'mistranslation', for *yangzhi* represents neither the phonetic nor semantic value of the original Sanskrit term *dantakāṣṭha* (reading 'tooth-wood'). As early as the fifth century, Buddhist

¹ For a survey on material of dental interest on oracle bones, see Zhou Dacheng 周大成, *Zhongguo kouqiang yixueshi kao* 中國口腔醫學史考 (Beijing: Renmin weisheng chubanshe, 1991), pp. 28–33.

² See *Foshuo neizang baibao jing* 佛說內藏百寶經 (T807), translated by Lokaksema (fl. second century) and *Foshuo wenshi xiyu zhongceng jing* 佛說溫室洗浴眾僧經 (T701) translated by An Shigao 安世高 (fl. second century). In modern botanical terminology, *yang* 楊 is assigned to the genus *Populus*, whereas willow (genus *Salix*) corresponds to *liu* 柳, but in pre-modern Chinese material and popular nomenclature, these two terms are often (but not always) interchangeable and both can refer to willows. In a Buddhist context, *yangzhi* more often reads 'willow branch'. References to Buddhist sources in this article are based on the *Taishō shinshū daizōkyō* 大正新修大藏經 edition (digitalisation at the online reader of the Chinese Buddhist Electronic Texts Association, CBETA Online, version 2025 R1: <https://cbetaonline.dila.edu.tw/>); citations of passages are given in the following format: T [volume number], no. [text number], page numbers followed immediately by register and line number. Chinese phonetic reconstructions follow the Baxter-Sagart system.

translators were aware of this problem and began to render the Sanskrit term as *chimu* 齒木 (tooth-wood) instead, although *yangzhi* remained the preferred choice.³

Yijing 義淨 (635–713) was the first to elaborate on this topic. Drawing on his personal observations in Sumatra and India, he gave the first detailed manual of the ‘tooth-wood’ in Chinese, covering its size, choices of material, benefits, how to chew an end of the stick until soft, brush the teeth with the fringed end, and then scrape one’s tongue after bending the soft end, as well as how to dispose of the used stick appropriately.⁴ His account also addresses cultural aspects involved in the translation of the term:

牙疼西國迥無，良為嚼其齒木。豈容不識齒木名作楊枝？西國柳樹全稀，譯者輒傳斯號。佛齒木樹實非楊柳，那爛陀寺目自親觀。既不取信於他，聞者亦無勞致惑。檢《涅槃經》梵本云“嚼齒木時矣。”亦有用細柳條，或五或六全嚼口內不解漱除，或有吞汁將為殄病，求清潔而返穢、冀去疾而招痼。或有斯亦不知，非在論限。然五天法，俗嚼齒木自是恒事，三歲童子咸即教為，聖教俗流，俱通利益。既申臧否，行捨隨心。⁵

Tooth pain is hardly known in the western land [i.e. India], to which chewing tooth-wood makes a real contribution. How is it acceptable to be ignorant of tooth-wood and call it ‘willow branch’? Willow trees seldom grow in the western land, yet translators ended up spreading such a term. The Buddha’s tooth-wood is actually not willow: I have personally seen [it] in the Nalanda monastery. Once they [i.e., other translators] are not taken into confidence, those who learn [about tooth-wood] need not be confused. Upon inspection, the Sanskrit text of the *Nirvāṇa Sūtra* reads, ‘It is time to chew tooth-wood.’

3 A simple keyword search in CBETA Online returns over fifty results for *chimu* by the fifth century, with most occurrences found in *Shisonglü* 十誦律 (T1435), translated by Puṇyatāra (fl. late fourth to early fifth century) and Kumārajīva (344–413), and *Moke sengqilü* 摩訶僧祇律 (T1425), translated by Buddhābhadda (359–429) and Faxian 法顯 (337–422). The word *yangzhi* brings about four times as many results.

4 See Faxian, *Nanhai ji gui neifa zhuan* 南海寄歸內法傳, T54, no. 2125, pp. 208c1–26.

5 Ibid., T54, no. 2125, pp. 208c26–209a7.

Some [in China] take five or six thin willow branches and chew them all up without rinsing [them] out; some swallow the sap in the hope of curing an illness. [These people] seek purification but get stained instead; [they] wish to eradicate a disease but [end up] inviting sickness. There are still others who are not even aware of these [misguided attempts], which falls outside the purview of my discussion. However, it is very common to chew tooth-wood in the Five Regions [of India]. [Even] three-year-old children are taught to do it. Its benefits are shared by [the believers] of the sacred religion and commoners alike. [Now that] the rights and wrongs [about this custom] have been explained, one may choose what to believe as one wishes.⁶

Whereas Yijing makes a strong case for rendering *dantakāṣṭha* as *chimu*, this passage also sheds light on why some of his predecessors had opted for ‘willow branch’: ‘tooth-wood’ reflects a custom that grows in foreign soil, something completely new to the Chinese, from its material to its usage. In fact, chewing sticks have been widely used as teeth-cleaning tools for thousands of years across the Indian peninsula, Central Asia, and the Arabic world. The custom is shared by people of diverse backgrounds, not just Buddhists. The *miswak* that is still popular in Muslim-inhabited areas is a living example. In other words, this is a typical case in which people make use of local resources available in their natural environment to fulfil a specific need. When introduced into China, ‘tooth wood’ was stripped of its original natural and cultural contexts. Facing the difficulty of transplanting an entirely new practice, the earliest Buddhist translators chose to use an approximation more accessible for their target audience. Willows have been cultivated in China for over two thousand years.⁷ Moreover, they take root easily from

6 Note that Yijing clearly uses *yang*, *liu*, and *yangliu* as interchangeable names for the same tree. An alternative translation can be found in Takakusu Junjirō 高楠順次郎 (1866–1945), *A Record of the Buddhist Religion as Practised in India and the Malay Archipelago* (Oxford: The Clarendon Press, 1896), pp. 33–35.

7 For a survey on historical documentation and cultural significance of willows and their cultivation in China, see Guan Chuanyou 關傳友, ‘Zhongguo zhiliushi yu liu wenhua’ 中國植柳史與柳文化, *Beijing Linye Daxue xuebao shehui kexue ban* 北京林業大學學報 (社會科學版), 2006 (vol. 5, no. 4), pp. 8–15.

cuttings, making them a perfect candidate for rendering *dantakāṣṭha*, which is said to have grown to become a grove, when the Buddha stuck it in the soil after use.⁸

By the time of Yijing's analysis, almost half a millennium had passed since the idea of chewing 'willow branches' arrived in China, but evidence of the practice spreading beyond Buddhist circles is still scarce. Apart from sporadic prescriptions that associate the willow with dental treatment in medical works,⁹ chewing willow branches has a distinct Buddhist implication. When Arabic merchants travelled to the Far East towards the end of the Tang dynasty (618–907), one of their observations was that the custom of cleaning teeth with tooth-wood was prevalent in India but unknown to the Chinese.¹⁰

Even in Chinese Buddhist circles, the prevalence of the use of tooth-wood is questionable. The Mogao Caves, the treasure trove of Buddhist art located at the crossroads of the Silk Road, contain the earliest extant visual material showing teeth cleaning, dating from mid-Tang to Song times. Of the fourteen images of teeth cleaning found in the mural paintings, only two images, found in Mogao Grottoes 9 and 146, seem to depict the use of tooth-wood. The other twelve images all show people

8 This story about tooth-wood is considered a miracle in the Buddhist context and recorded in multiple sources, some of which are among the first sutras introduced into China; see, for instance, the *Xianyu jing* 賢愚經 (Damamitka-nidana-sutra, first translated into Chinese in 445), T4, no. 202, p. 362b8–10. It would appear that the place commemorating this miracle was a must-see attraction for Chinese Buddhists who travelled to the Buddha's land, see Faxian, *Foguo ji* 佛國記 (Beijing: Shangwu yinshuguan, 2016), 85; Yang Xuanzhi 楊衒之 (circa 547), *Luoyang qielan ji jiaozhu* 洛陽伽藍記, T51, no. 2092, p. 1020b1; and Xuanzang 玄奘 (602–662), *Datang Xiyu ji* 大唐西域記, T51, no. 2087, p. 875b1–3 and p. 924a22–24.

9 Even in these examples, the willow is not really used as a chewing stick for personal care. Chao Yuanfang 巢元方 (550–630), for instance, suggests 'cleaning teeth with a willow branch' (*yi shuiyangzhi xi kouchi* 以水楊枝洗口齒) as preparation for poison testing; see *Zhubing yuanhou lun jiaozhu* 諸病源候論校注 (Beijing: Renmin weisheng chubanshe, 2000), 26.737; for convenience of reference across different editions of pre-modern sources, the scroll (*juan* 卷) number, where applicable, is provided before the page number. Wang Dao 王燾 (670–755) suggests chewing willow bark to treat sore gums with its sap. In a toothpowder formula, a willow branch is to be chewed until soft and used as an instrument for applying the toothpowder; see *Waitai miyaofang jiaozhu* 外臺秘要方校注 (Beijing: Xueyuan chubanshe, 2011), 22.780 ("*shengma kaichifang*" 升麻揩齒方).

10 See *Relation de la Chine et de l'Inde, rédigée en 851*, translated and annotated by Jean Sauvaget (Paris: Belles Lettres, 1948), p. 25 and pp. 66–67 (note 6).

putting bare fingers on their teeth.¹¹ The list of everyday items and treasures that were prepared as offerings to the Buddha relics in the underground palace of the Famen temple contains a hundred pieces of cloth, not sticks of any sort, for tooth cleaning.¹²

This is not to say that the encounter with this foreign custom did not leave any significant mark on Chinese culture. On the contrary, the tooth-wood went through an interesting transformation in China that separates its practical benefits and religious significance. Despite Yijing's efforts to rectify the inaccuracy in translation, the localisation strategy of his predecessors still proved to be effective and quickly took root in Chinese soil. When the word *chimu* (tooth-wood) gradually became the standard in the textual world, the concrete and relatively familiar image of *yangzhi* (willow branch) gained significance as a symbol for purifying and regenerative powers. The most typical example is Guanyin 觀音, a household deity who is often represented visually as a bodhisattva with a jar of water in one hand and a willow branch in the other.¹³ Nowadays, it is very unlikely that a common Chinese viewer would perceive such an image as a bodhisattva holding a chewing stick and mouthwash with utmost grace, but this way of representation clearly has originated from the tradition of tooth-wood whose purifying and regenerative powers were first introduced to the Chinese audience under the 'mistranslation': willow branch.

More pertaining to this study is the practical side of tooth-wood which is probably a major source of inspiration for the birth of the toothbrush in China. Previous text-based studies on the toothbrush

¹¹ See Wang Huimin 王惠民, 'Dunhuang bihua shuayatu kaolun' 敦煌壁畫刷牙圖考論, *Dunhuang yanjiu* 敦煌研究, 1990 (4), pp. 20–23; Hu Tongqing 胡同慶, 'Shitan Dunhuang bihua zhong de Fojiao xiyu wenhua' 試探敦煌壁畫中的佛教洗浴文化, *Dunhuang yanjiu*, 2015 (3), pp. 20–21; and Wang Jinyu 王進玉, 'Images of Healing, Hygiene and the Cultivation of the Body in the Dunhuang Cave Murals', in *Imagining Chinese Medicine*, edited by Vivienne Lo and Penelope Barrett (Leiden: Brill, 2018), pp. 263–264.

¹² See 'Jiansong zhensheshi sui zhenshen gongyang daoju ji enci jinyin yiwu zhang' 監送真身使隨真身供養道具及恩賜金銀衣物帳 in Han Jinke 韓金科, *Famensi wenhuashi* 法門寺文化史 (Xi'an: Wuzhou chuanbo chubanshe, 1998 [2002 reprint]), pp. 399–401.

¹³ See, for example, the painting of Bodhisattva Avalokiteshvara (Guanyin) with vase and willow twig at the National Museum of Asian Art, Washington, https://asia.si.edu/explore-art-culture/collections/search/edanmdm:fsg_F1917.129/ (accessed 11 July 2025).

(especially the bristle toothbrush) have tried to gauge the beginning of its history by identifying the earliest terms for the toothbrush and the earliest visual or material evidence for its use. The latter approach has complex challenges and will be discussed in a dedicated section later in this article. For the former approach, scholars have focused on the term for the object itself, i.e. the noun denoting the concept 'toothbrush'.

The earliest terms for the toothbrush typically consist of the character *chi* 齒 (generic term for 'tooth') or *ya* 牙 (specifically 'molar', but also used as another generic term for 'tooth'), the character *shua* 刷 (brush), and an optional suffix. What is often cited as the earliest textual evidence of the toothbrush is, ironically, a piece of advice against using it. Wen Ge 溫革 (fl. early to mid-twelfth century) warns that using a *shuayazi* 刷牙子 may weaken the root of teeth, possibly because its bristles are made of horsetail hair, a material that is believed to 'erode the gum' (*fu chiyin* 腐齒齦) and commonly used to aid tooth extraction.¹⁴ Another piece of evidence seems much less well-known but is dated slightly earlier. Sun Mu 孫穆 (fl. early twelfth century), a Chinese envoy to Goryeo, compiled a Chinese-Korean thesaurus called *Jilin leishi* 雞林類事 in 1102.¹⁵ Among a series of entries for everyday items like combs and hairpins, we find the word *chishua* 齒刷 (toothbrush).¹⁶ More interestingly, Sun Mu transcribes the Korean word for it as *yangzhi* 養支 (MC: *yangX tsye*), a near-homophone of *yangzhi* 楊枝 (willow branch; MC: *yang tsye*), which indicates that the Korean word for the toothbrush at the time was a loan word from Chinese translations of Buddhist texts.¹⁷

¹⁴ See one of the excerpts about 'zaoqi' 早起 (getting up early) from Wen Ge's *Suosuilu* 瑣碎錄, quoted in Zhou Shouzhong 周守忠 (fl. fourteenth century), *Yangsheng leizuan* 養生類纂 (Shanghai: Shanghai Zhongyi Xueyuan chubanshe, 1989), 6.38.

¹⁵ On the dating of Sun Mu's visit to Goryeo and a survey on the *Jilin leishi*, see An Binghao 安炳浩, 'Jilin leishi ji qi yanjiu' 《雞林類事》及其研究, *Beijing Daxue xuebao (zhexue shehui kexue ban)* 北京大學學報 (哲學社會科學版), 1986 (6), pp. 121–125.

¹⁶ Sun Mu, *Jilin leishi* 雞林類事, in *Wuchao xiaoshuo* 五朝小說 (published between 1628 and 1644), vol. 42, 7a, digitalised in the Harvard-Yenching Library Chinese Rare Books Digitization Project-Collectanea: [https://iif.lib.harvard.edu/manifests/view/drs:51842163\\$27101](https://iif.lib.harvard.edu/manifests/view/drs:51842163$27101) (accessed 25 March 2025).

¹⁷ Wang Qing 王慶, 'Jiao yangzhi: lishi shang de jiechi xixu' 嚼楊枝: 歷史上的潔齒習俗, *Minsu yanjiu* 民俗研究, 2014 (1), pp. 75–79 (esp. 75–76).

Apart from looking for variants of the term ‘toothbrush’, the origin of the toothbrush can also be traced through another aspect in the evolution of the dental lexicon: the verb associated with general tooth cleaning. Let us rewind the clock and go back to Yijing’s days again. In detailing the steps to use the tooth-wood, he is also one of the earliest writers who associated the verb *shua* 刷 (brush) and *shu* 梳/疏 (comb) with teeth cleaning.¹⁸ Almost all earlier Buddhist texts only speak of *jiao yangzhi* 嚼楊枝 (chewing a willow branch) as part of purification rituals, but Yijing makes it clear that, after chewing, one will ‘brush clean’ (*shua jing* 刷淨) his teeth with the softened end of the tooth-wood. This is a point of significance because the Chinese were more accustomed to ‘rubbing’ (*kai* 揩) teeth with bare fingers or a piece of cloth. The earliest textual witness of the phrase *kaichi* 揩齒 is dated to pre-Tang,¹⁹ and *kai* was the predominant verb for cleaning teeth and applying dentifrices through the Tang-Song periods.²⁰

The other verb used by Yijing to indicate cleaning teeth, *shu* (comb), might appear peculiar, but it is not a random choice. As in English, the Chinese speak of the ‘teeth’ of a comb, and this metaphor can

¹⁸ See Yijing, *Nanhai ji gui neifa zhuan*, T54, no. 2125, p. 208c6-7 and p. 207b24.

¹⁹ Tao Hongjing 陶弘景 (456–536) mentions ‘rubbing teeth with salt’ (*yi yanmo kaichi* 以鹽末揩齒); see *Yangxing yanming lu jiaozhu* 養性延命錄校注 (Beijing: Zhonghua shuju, 2014), 2.176. Zhou Zongqi 周宗岐, a pioneer in the study of the history of Chinese stomatology, first identified a poem found in Liu Jun’s 劉峻 (462/463–521/522) *Leiyuan* 類苑 as the earliest textual witness of the word *kaichi*, and his conclusion is cited in nearly all subsequent studies. Li Xiaojun 李曉軍 points out that the poem actually comes from a *Yuhu qinghua* 玉壺清話 (dated 1078) excerpt quoted in *Shishi leiyuan* 事實類苑 (dated 1145), not Liu Jun’s *Leiyuan*, which is lost; see Zhou Zongqi, ‘Kaichi kao’, in *Zhongguo Dunhuangxue bainian wenku keji juan* 中國敦煌學百年文庫·科技卷, edited by Deng Wenkuan 鄧文寬 and Ma De 馬德 (Lanzhou: Gansu wenhua chubanshe, 1999), pp. 402–407 (esp. 402–403) and Li Xiaojun, *Yayi shihua* 牙醫史話 (Hangzhou: Zhejiang Daxue chubanshe, 2014), p. 43.

²⁰ The one-hundred-scroll collection of prescriptions, *Taiping shenghui fang* 太平聖惠方 (compiled towards the end of the tenth century), uses nearly 50 *kai* in the dentifrice section, not a single occurrence of *shua*; see Wang Huaiyin 王懷隱 (925–997), *Taiping shenghui fang* (Beijing: Renmin weisheng chubanshe, 1958), 34.1001ff. Later medical works, in contrast, do specify *shua* as the application method to be adopted or avoided from time to time. Although the application of medicine is different from day-to-day care, this change still indicates that ‘brushing’ one’s teeth may be an idea that came to be widely known or accepted later than ‘rubbing’ one’s teeth.

be traced back to the Warring States period at the latest.²¹ However, the collocation of ‘tooth’ and ‘comb’ had only appeared in the context of hairdressing until Dharmarakṣa (*circa* 229–306) used the phrase *shu chi* 梳齒 indisputably as a verbal phrase that reads ‘to comb teeth’ instead of a nominal phrase meaning ‘teeth of a comb’.²² The word *shua* joined the scene because of its association with the word *shu*, and both could refer to a certain tool for tidying hair as well as the action one does to hair with this tool.²³ In other words, *shua* shared part of the semantic range of *shu* in the context of hairdressing, probably before they were transplanted to a Buddhist context of oral cleaning. If the words were transplanted, it seems reasonable to surmise that the tools they denote were also employed in the activity described in those texts, or at least it would not take much to figure out that something like a hairbrush could also be used for cleaning teeth. Moreover, some of the brushes that have been identified as hairbrushes by archaeologists and art historians are very similar in size and design to the bristle

21 On a bamboo slip excavated in Changsha, we find a line that is transcribed as *yi chi shu* 一齒梳, which reads ‘a comb with teeth’; see Hunansheng Bowuguan 湖南省博物館 and Hunansheng Wenwu Kaogu Yanjiusuo 湖南省文物考古研究所, *Changsha Chumu* 長沙楚墓 (Beijing: Wenwu chubanshe, 2000), p. 425 (slip no. 34). Although the word *chishu* appears the same as the one glossed as *yangzhi* in *Jilin shilei* discussed above, it appears with other hairdressing tools on this bamboo slip, which strongly suggests the reading ‘a comb with teeth’ or ‘a teethed comb’ instead of ‘a teeth comb’.

22 Dharmarakṣa (*circa* 229–306), *Pusa xing wushi yuanshen jing* 菩薩行五十緣身經, T17, no. 812, p. 773c18–19.

23 Three glosses on the word *shua* 刷 can be found in early dictionaries and thesauri: 1) ‘scrape’, based on the radical 𠂔 that indicates ‘blade’; see Xu Shen 許慎 (58?–147?), *Shuowen jiezi* 說文解字 (Beijing: Zhonghua shuju, 1963), 4b.18b; 2) ‘(wipe) clean’, possibly based on the component 巾 that indicates ‘a piece of cloth’; see *Erya* 爾雅 (Beijing: Zhonghua shuju, 1985), with Guo Pu’s 郭璞 (276–324) commentary, 1.13 (“Shigu” 釋詁); 3) ‘lead’, based on the sound. The last one is most relevant here. Liu Xi’s 劉熙 (fl. 184–220) gloss reads: ‘*Shua* 刷 (OC: *[s]r[o]t) means ‘to lead’ (*shuai* 帥, OC: *s-rut-s), in the sense of leading hair, long and short, upwards. Another reading is ‘zither’ (*se* 瑟, OC: *[s.m]ri[t]); in the sense of *shua* hair to make it [neat] like [the strings of] a zither’ (帥也, 帥髮長短皆令上從也. 亦言瑟也, 刷髮令上瑟然也); see Liu Xi, *Shiming* 釋名 (Beijing: Zhonghua shuju, 2016), 4.68 (“Shi shoushi” 釋首飾). Liu Xi’s approach and conclusions may be disputable, but this passage is meaningful as the earliest known example that applies *shua* as a verb to hair. Another sixth-century passage further confirms the collocation of *shua* 刷 and *shu* 梳 in hairdressing: 頭亂, 呼梳取刷 ([His] hair getting messy, [he] called for a comb and a brush); see Xiao Yi 蕭繹 (508–555), *Jinlouzi shuzheng jiaozhu* 金樓子疏證校注 (Shanghai: Shanghai guji chubanshe, 2014), 3.563.

toothbrush as we know it today.²⁴ This also helps explain why the tooth-wood did not prevail in China: when the idea of ‘brushing teeth’ was introduced, this purpose could be fulfilled with a tool already in vanity boxes.

Compared to the origin of the toothbrush, traces of its popularisation are easier to identify. By the mid-thirteenth century, toothbrushes had been commercialised. Wu Zimu 吳自牧 (fl. thirteenth century), for instance, recalls two toothbrush shops in the city centre of Hangzhou, the capital of the Southern Song dynasty.²⁵ A more detailed account of the design and prevalence of the toothbrush is found in the *Shōbōgenzō* 正法眼藏 by the Japanese Zen master Dōgen 道元 (1200–1253). On his first visit to China in 1223, he was surprised to find that nobody knew of, let alone used, the willow branch even though it is codified as a purification tool in the Buddhist canon:

During the fourth month of the junior water year of the sheep, the sixteenth year of Jiading, when I first observed the various mountains and other monasteries of the Great Song, there was no cleric who knew of the willow twig, and the elites and commoners of court and countryside were likewise ignorant of it. Because the monks knew nothing of it, when I inquired about the use of the willow twig, they would pale and lose their composure. What a pity, to lose the pure dharmas. Those who at least do rinse out their mouths just clean their teeth with a thing made from horse tail, cut to a little more than an inch, that is implanted in a piece of ox horn of some three tenths of an inch across and six or seven inches long, of which the last two inches are planted with the bristles, rather like a horse’s mane. This is not an implement for use by a monk: it is likely an impure implement, not an implement of the buddha dharma. Even the laity in their sacrifices to the devas would have an aversion to it. This implement is used by the laity and clerics alike as implements for brushing dust off their shoes; they also use it when

²⁴ See, for example, the brush depicted in the mural painting on the northern wall of the tomb in Dishuihu 滴水壺, Balin Zuoqi 巴林左旗, Chifeng, Inner Mongolia. The similarity poses one of the major challenges to identifying the toothbrush in excavated objects; more on this in the next section.

²⁵ See Wu Zimu 吳自牧 (fl. thirteenth century), *Menglianglu* 夢梁錄 (Zhengzhou: Daxiang chubanshe, 2017), 13.220.

brushing their hair. The size may be slightly different, but it is the same thing. Even those who use this implement are but one in ten thousand. Thus, the breath of renunciants and householders alike throughout the land is extremely malodorous. When they speak, even from two or three feet away, the stink coming from their mouths is difficult to bear. Even those known as venerables in possession of the way and called teachers of humans and devas do not know that the procedures for rinsing the mouth, scraping the tongue, and chewing the willow stick even exist. Judging from this, we cannot imagine to what degree we are now witnessing the deterioration of the great way of the buddhas and ancestors.²⁶

Although Dōgen's experience in China during his formative stage left an indelible imprint on the development of his thought and career, cleaning teeth with a bristle toothbrush is obviously one of the many items on his how-not-to-do-it list.²⁷ He was deeply concerned about the religious implications of abandoning the willow branch tradition, but it would appear that the Chinese who did pay attention to oral hygiene, both within and outside Buddhist circles, settled with the pragmatic solution and did not hesitate to expand the function of a brush.²⁸ To say that only 'one in ten thousand' used a bristle toothbrush is probably an exaggeration out of astonishment and disgust, but there might also be

26 *Treasury of the True Dharma Eye: Dōgen's Shōbōgenzō*, an annotated translation by the Sōtō Zen Text Project (Tokyo: Sōtōshū Shūmichō, 2023), pp. 107–108.

27 On Dōgen's mixed attitudes towards Buddhist masters and practices in China, see Steven Heine, *Did Dōgen go to China? What he wrote and when he wrote it* (New York: Oxford University Press, 2006), pp. 91–132.

28 Dōgen's strong aversion to the bristle toothbrush might even have played a part in the integration of 'willow branches' into Japanese oral cleaning routines, which makes an interesting contrast to the situation in China. Evidence in archaeology and art history suggests that wood sticks adapted to specific tasks in oral cleaning were employed in Japan from the tenth century through the nineteenth century, with numerous *ukiyo-e* depicting the use and sale of such tooth-wood, often under the name 'willow branch'. Bristle toothbrushes were not introduced by Western merchants into Japan until the Meiji Restoration towards the end of the nineteenth century; see Wu Ke 吳珂 and Sunami Sōichirō 角南聡一郎, 'Minsuxue shiye zhong de wuzhi wenhua yanjiu: yi Riben de chimu yangzhi minxu weili' 民俗學視野中的物質文化研究——以日本的齒木楊枝民俗為例, *Qinghai Minzu Daxue xuebao* 青海民族大學學報, 2024 (2), pp. 103–112 (esp. 103–107).

elements of truth in it, indicating that the prevalence of the bristle toothbrush was still limited to a very small portion of the population at the time.

Besides, physicians' various pieces of advice, scattered in medical writings, indicates their caution and skepticism regarding this relatively new method of oral cleaning. In addition to the abovementioned warning about the risk of gum damage, women are advised against scraping their tongues and brushing their teeth after labour.²⁹ Different instructions are found on when to brush teeth. Yan Yonghe's 嚴用和 (fl. 1199–1267) *Yanshi jishengfang* 嚴氏濟生方 highlights the benefits of brushing the teeth every morning.³⁰ Hu Sihui 忽思慧 (fl. fourteenth century) suggests that brushing the teeth before bedtime is more effective as part of day-to-day hygiene practices.³¹ Many prescriptions of dentifrices specify application with a toothbrush in the morning and evening.³²

In the late imperial period bristle toothbrushes became more prevalent, and the flourishing of printing technology and popular literature also makes it easier to trace the use of toothbrushes in everyday life. From commercial tax regulations to primers on everyday objects, many historical sources confirm that bristle toothbrushes were among the most common household items.³³ Toothbrushes also

²⁹ See Chen Ziming 陳自明 (1190–1270), *Furen daquan liangfang* 婦人大全良方 (Beijing: Renmin weisheng chubanshe, 1992), 18.487.

³⁰ See the excerpt quoted in *Zhongguo kouqiang yixue shi nianbiao* 中國口腔醫學史年表, edited by Li Gang 李剛, Teng Hongan 滕洪安 and Zhang Ye 張冶 (Tianjin: Tianjin kexue jishu chubanshe, 1989), p. 16.

³¹ See his *Yinshan zhengyao* 飲膳正要, in *Sibu congkan xubian* 四部叢刊續編 (Shanghai: Shangwu yinshuguan, 1934–1936), vol. 326, 1.17a.

³² See, for example, Zhang Congzheng 張從正 (1156–1228), *Rumen shiqin* 儒門事親, in *Yingyin Wenyuange Siku Quanshu* 景印文淵閣四庫全書 (Shanghai: Shanghai guji chubanshe, 1987), vol. 745, 15.21b and Luo Tianyi 羅天益 (1220–1290), *Weisheng baojian* 衛生寶鑑 (Beijing: Zhongguo yiyao keji chubanshe, 2011), 11.112.

³³ For example, during the seventeenth century, the Jinghang Waterway charged a custom duty of *yi fen er li* 一分二釐 (1.2 candareen) per thousand toothbrushes; see *Beixinguan shangshui zeli* 北新關商稅則例, in Sun Zhonghuan 孫忠煥 (ed.), *Hangzhou yunhe wenxian jicheng* 杭州運河文獻集成 (Hangzhou: Hangzhou chubanshe, 2009), vol. 1, p. 365. For a study on the toothbrush in primers from late imperial periods to the Republican period, see Zhou Anbang 周安邦, 'Yi tuwen huzheng guandian tanjiu yashua zai Zhongguo de yanbian' 以圖文互證觀點探究牙刷在中國的演變, *Xingda renwen xuebao* 興大人文學報, 2017 (no. 58), pp. 145–159 (esp. 129–171).

appear in folk songs and vernacular novels that showcase various objects and details of daily routines. For obvious reasons, characters in erotic literature tend to be meticulous about oral hygiene.³⁴

It would be interesting to investigate the Chinese reception of the first mass-produced toothbrushes mechanised by William Addis (1738–1808), but unfortunately, there is little evidence showing when and how exactly Western toothbrushes came to China. Nevertheless, it is clear that they managed to take a place in the Chinese market. Towards the end of imperial times, the reformist Zheng Guanying 鄭觀應 (1842–1922) gave a long list of imported goods and technologies that altogether cost even more than opium. ‘Foreign toothbrushes’ (*yang yashua* 洋牙刷) and ‘foreign toothpowder’ (*yang yafen* 洋牙粉) are found in his examples of daily groceries.³⁵ Republican newspapers can give us a glimpse into the situation of domestic and imported toothbrushes during the early twentieth century, but this is beyond the scope of this article.³⁶

IN SEARCH OF THE FIRST TOOTHBRUSH

Recent histories of dentistry often suggest that the earliest bristle toothbrush in the world was probably invented in China during the Tang dynasty (618–907).³⁷ This is mainly based on archaeological findings in Chengdu, Sichuan, where four horn-made handles were unearthed in 1985 and are believed to be the

34 For a list of ten relevant excerpts from Ming-Qing novels, see Song Hong 宋紅, ‘Zhongguoren shiyong yashua kao’ 中國人使用牙刷考, *Kouqiang huli yongpin gongye* 口腔護理用品工業, 2011 (vol. 21, no. 3), p. 47; Li Xiaojun adds a few examples from folk songs in *Yayi shihua*, pp. 149–150.

35 See Zheng Guanying, ‘Shangzhan’ 商戰 (Business War), in *Zheng Guanying ji* 鄭觀應集 (Shanghai: Shanghai renmin chubanshe, 1982), p. 587.

36 For a survey on the toothbrush industry in the early twentieth century (mainly based on *Shenbao* 申報), see Li Xiaojun, *Yayi shihua*, pp. 87–148 (chapters 5–6).

37 See, for example, Norman O. Harris, Franklin Garcia-Godoy, and Christine Nielsen Nathe, *Primary Preventive Dentistry*, eighth edition (Boston: Pearson, 2014), p. 147, and S. S. Hiremath. *Textbook of Preventive and Community Dentistry* (New Delhi: Elsevier, 2011), pp. 412–413.

handles of bristle toothbrushes.³⁸ Although this view converges with the proposition based on lexical analysis in the previous discussion, the approach based on excavated material involves many aspects that need to be reviewed with great care. This part of the discussion will examine the specific challenges of identifying the first toothbrush in an archaeological context, so that anyone interested in this subject can consider in what way and to what extent they wish to take these propositions into consideration.³⁹

Before looking at excavated objects, it seems necessary to first note that our perception is bound to be biased. Toothbrush bristles were mostly made of perishable material like horsetail, hog bristles,⁴⁰

38 See Chengdushi Bowuguan 成都市博物館 and Sichuan Daxue Bowuguan 四川大學博物館, 'Chengdu Zhihuijie Tang-Song yizhi fajue baogao' 成都指揮街唐宋遺址發掘報告, in *Nanfang minzu kaogu* 南方民族考古 (Chengdu: Sichuan kexue jishu chubanshe, 1989), p. 285. The excavators were cautious enough to say that the shape of the four objects *looks like* that of a toothbrush (*xing si yashua* 形似牙刷). Later on, an oft-cited study by Wu Qiupeng 伍秋鵬 collects three other similar excavated objects and five similarly shaped objects of unknown origin, suggesting that they all *are* toothbrushes from the Tang dynasty; see Wu Qiupeng, 'Tangdai zhimao yashua kao' 唐代植毛牙刷考, *Wenbo tiandi* 文博天地, 2014 (5), pp. 39–41; see also Pan Sujuan 潘素娟, 'Zhimao faming xiaokao cong Nei Menggu Bowuyuan cang zhimao yashua tanqi' 植毛牙刷發明小考——從內蒙古博物院藏植毛牙刷柄談起, *Sichou zhi lu* 絲綢之路, 2015 (18), pp. 21–24. The Museum for Traditional Culture of Traditional Chinese Medicine in Chengdu and the Toothbrush Museum in Hangji both accept this view.

39 English readers interested in this subject might also come across another story saying that the toothbrush was invented towards the end of the seventeenth century in China, which can still be found in recent academic publications, such as Andrew I. Spielman, 'History of the Toothpick, Dentifrice-Toothpaste, Mouthwash, Toothbrush, Dental Floss and Tongue scraper' in his *Illustrated Encyclopedia of the History of Dentistry*, 2023 (<https://historyofdentistryandmedicine.com/>, accessed 11 July 2025), and Rachel S. Cubitt, 'Notes and News: An Early Type of Post-medieval Toothbrush?' *Post-Medieval Archaeology* 53/3 (2019), pp. 298–301 (esp. 298). This has probably originated from the illustrated description of the toothbrush in *Sancai tuhui* 三才圖會 (1607), which is the earliest printed image of a bristle toothbrush (more on this below).

40 The toothbrush museum in Hangji, Jiangsu, reconstructed the story of their first local toothbrush brand Sanxing 三星. Its history can be traced back to 1826, when Liu Wanxing 劉萬興 made the first local toothbrush with ox bone and horsetail. He later decided to substitute horsetail with hog bristles to reduce costs and increase sales; see Xinhua 鑫華, 'Zhongguo yashua zhi du: Yangzhou Hangjizhen' 中國牙刷之都：揚州杭集鎮, *Jiaodian shijie* 焦點視界, 2018 (62), pp. 46–51, and Zhongguo Yashua Bowuguan 中國牙刷博物館, 'Yashua de yanbian guocheng' 牙刷的演變過程, *Renmin ribao haiwaiban* 人民日報海外版, 16 June 2023; http://paper.people.com.cn/rmrhwb/html/2023-06/16/content_25997826.htm (accessed 18 February 2025).

and palm fibres.⁴¹ What remains of a toothbrush from hundreds of years ago is usually little more than a handle made of bone (mostly bovine bone), with several rows of holes on one end and sometimes traces of rust from the metal wire that once fixed the bristles. However, not all toothbrushes come with a bone-made handle. When the thirteenth-century writer Cheng Duanli 程端禮 (1271–1345) adapted a toothbrush handle into a marker pen, his account of the process gives important clues about the material for a toothbrush handle:

取黑角牙刷柄，一頭作點，一頭作圈，至妙。凡金竹木及白角並剛燥不受朱，不可用也。造法：先削成光圓，如所欲點大小，磨平。圈子先以錐子鉗之，而後刮之如所欲。⁴²

Take a toothbrush handle made of black horn, using one end for making points and the other for circles: this is just marvellous. [The ones made of] gold, bamboo, wood, and white horn are all stiff and dry and do not take the cinnabar [ink], making them unsuitable for this purpose. How to make it: first carve [one end] to make a smooth, round surface in the size of the point [you want to mark] and grind it flat. For the circle marker, first drill a hole with an awl and then scrape it into the desired shape.

Cheng Duanli was a Confucian scholar who spent most of his life as a teacher around the region corresponding to present-day Zhejiang, and what we find here are probably the most notable materials for a toothbrush handle of his day. Toothbrushes with bamboo or wooden handles may be the most common options, but they usually do not survive through the centuries.⁴³ Those with more durable

⁴¹ See Gao Lian 高濂 (b. 1527), *Zunsheng bajian* 遵生八箋, 315 ("Qiju anle jian" 起居安樂箋, Pt. II).

⁴² Cheng Yuanli, *Chengshi jiashu dushu fennian richeng* 程氏家塾讀書分年日程, *Congshu jicheng chubian* 叢書集成初編 edition (Shanghai: Shangwu yinshuguan, 1936), vol. 59, 2.30.

⁴³ The wooden toothbrush found in Inner Mongolia in 1992 is an exception. It is not the remaining handle of a bristle toothbrush, but a sculpture in the shape of a bristle toothbrush carved entirely from brown hardwood, with five grooves on each side of the head to indicate bristles. This sculpture was placed in the tomb as a burial object to accompany the

horn-made handles should also be common enough so that one would not hesitate to alter them with probably untrained hands for a task that they are not made for.⁴⁴ Only a very small portion of excavated brush handles are made of the materials listed here, which is indicative of how little of reality we see in the archaeological evidence.

There is a reason why that last sentence has ‘brush handles’ instead of ‘toothbrush handles’. One of the biggest difficulties in identifying toothbrushes from excavated materials is that no method has been established to distinguish between toothbrushes and hairbrushes from their sizes and shapes. As discussed in the previous section, lexical evidence suggests that the histories of toothbrushes and hairbrushes were closely intertwined. Two tools of similar design were likely used for brushing hair and teeth during the Tang-Song periods, as mentioned in Dōgen’s observations discussed above, but it was not until the seventeenth century that we have more definitive visual evidence. In the *Sancai tuhui* 三才圖會, an illustrated encyclopaedia completed in 1607, we find the earliest print of a toothbrush (Fig. 1), presented with a hairbrush or hair smoother called *min(zi)* 抿/𪚩/皿(子).

deceased one in the netherworld, not a functional toothbrush for the living; see Nei Menggu Wenwu Kaogu Yanjiusuo 內蒙古文物考古研究所 and Liao Zhongjing Bowuguan 遼中京博物館, ‘Ningchengxian Maiwanggou Liaodai mudi fajue jianbao’ 寧城縣埋王溝遼代墓地發掘簡報, in Nei Menggu Wenwu Kaogu Yanjiusuo, *Nei Menggu kaogu wenji* 內蒙古考古文集, vol. 2 (Beijing: Zhongguo da baike chubanshe, 1997), pp. 609–30, esp. 619–20.

44 Cheng Duanli was not the only one using a toothbrush creatively. In fact, he took the idea from his teacher Shi Mengqing 史蒙卿 (1247–1306); see Cheng Duanli, *Chengshi jiashu dushu fennian richeng*, 2.30. Toothbrushes also proved to be a great helper for delicate tasks in the kitchen. The writer and gourmet Yuan Mei 袁枚 (1716–1797) suggests using a toothbrush to clean mushrooms; the physician and expert in healthy diet Gu Zhong 顧仲 (fl. nineteenth century) recommends cleaning black dates with a toothbrush before conservation; see Yuan Mei, *Suiyuan shidan* 隨園食單 (Beijing: Zhongguo shangye chubanshe, 1984), 2.72 (“Mogu wei ji” 蘑菇煨雞), Gu Zhong, *Yangxiaolu* 養小錄, 2.29 (“Zuizao” 醉棗). In *Honglongmeng* 紅樓夢, Qingwen 晴雯 uses a toothbrush to remove unwanted fluff from the newly stitched patch; Cao Xueqin 曹雪芹 (1715–1763) and Gao E 高鶚 (1758–1815), *Honglouloumeng* 紅樓夢 (Beijing: Renmin wenxue chubanshe, 1996), chapter 52, p. 716.

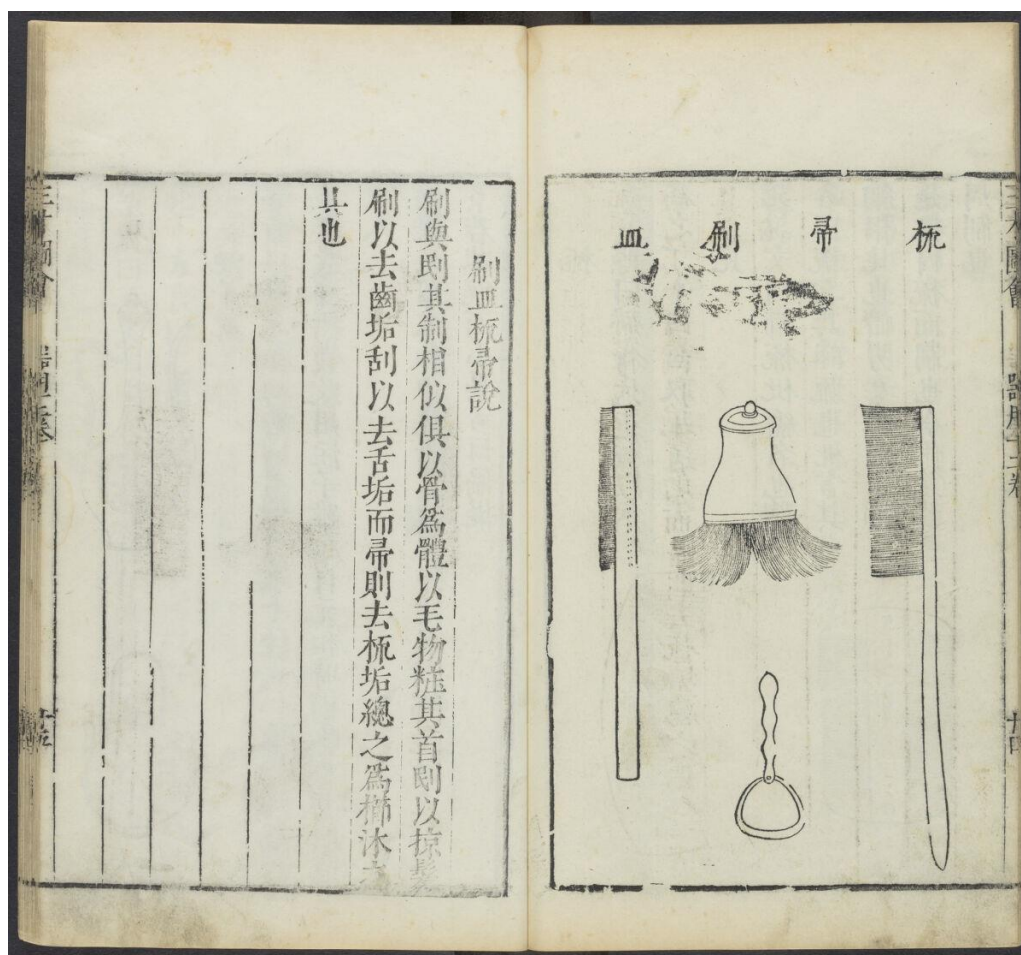


Figure 1. Illustration of various grooming tools from the *Sancai tuhui*

The explanatory passage reads:

刷與鬚，其製相似，俱以骨為體，以毛物粧其首，則以掠發，刷以去齒垢，刮以去舌垢，而鬚則去梳垢。總之為櫛沐之具也。⁴⁵

Shua (brush) and *min* (hair smoother) are similar in their construction, both having a body made of bone and a head finished with hair material. *Min* is used for wiping hair,

⁴⁵ Wang Qi 王圻 (1530–1615) and Wang Siyi 王思義 (fl. seventeenth century), *Sancai tuhui* 三才圖會, “Qiyong” 器用, 12.25a; see the 1607 edition in the Harvard-Yenching Rare Books Collection: [https://iif.lib.harvard.edu/manifests/view/drs:428499618\\$84i](https://iif.lib.harvard.edu/manifests/view/drs:428499618$84i) (accessed 19 July 2025).

shua for removing the dirt on teeth, *gua* (scraper) for removing the dirt on the tongue, and *zhou* (broom) for removing the dirt on a comb. All of them are bathing and grooming tools.

Based on this explanatory passage, *shua* and *min* refer to the two bristle brushes in the image on the right. Whereas the *Sancai tuhui* does not specify which one of the two is *shua* or *min*, the image of the brush with longer bristles is reproduced in a Japanese account of Chinese customs and comes with the caption *minzi*.⁴⁶ If we accept this identification, the one with shorter bristles in Figure 1 would be a toothbrush. To say the least, the evidence in *Sancai tuhui* confirms that two similar brushes were used in the grooming context.⁴⁷

Earlier visual evidence can be found in mural paintings, mostly of tombs from the Liao dynasty (916–1125) in Northern China. These images of brushes, however, do not come with captions or explanations as in the *Sancai tuhui*, so scholars have different views on their functions. For example, the brush depicted in the mural painting found in Dishuihu, Inner Mongolia, was once identified as a toothbrush, but the surrounding objects (especially the comb) suggest it could also be a hairbrush.⁴⁸ In fact, bristle brushes have so many possible application scenarios that other functions have also been proposed for the excavated brush handles.⁴⁹

It should be clear by now that a toothbrush cannot be identified by the object itself: context is crucial to distinguishing it from brushes used for other purposes. In 1956, Zhou Dacheng 周大成 (1910–2002), a pioneer in the study of the history of Chinese stomatology, first examined the details of the two bone (possibly ivory) brush handles found in a royal tomb dating to 959 and considered them the

46 See Nakagawa Taderu 中川忠英 (1753–1830), *Seizoku kibun* 清俗紀聞 (Gangetsudō 翫月堂, 1799), 7.2b; digitalised by Waseda University: https://www.wul.waseda.ac.jp/kotenseki/html/w007/w007_03522/index.html (accessed 11 July 2025).

47 As far as primers during the late imperial periods are concerned, there is little visual distinction between these two kinds of brushes; see Zhou Anbang, ‘Yi tuwen huzheng guandian tanjiu yashuan zai Zhongguo de yanbian’, pp. 147–148 and p. 158.

48 See Li Xiaojun, *Yayi shihua*, pp. 63–64.

49 For a literature review focusing on excavated bone brushes, see Jia Shuai 賈帥, ‘Kaogu suo jian Song Yuan gushua yanjiu’ 考古所見宋元骨刷研究 (MA thesis, Heilongjiang University, 2016), pp. 2–7.

earliest samples of bristle toothbrushes in the world. Later, Chen Mengjia 陳夢家 (1911–1966) added a short but important note supporting this proposition: the two brushes were found with a silver bowl and a ceramic basin, making them more likely to be cleaning tools instead of hairdressing tools (which are often found with bronze mirrors, combs, etc.).⁵⁰ More brush handles of similar design have been found since then, including a few attributed to the Tang period, but they were not always discovered in a meaningful context.⁵¹ The four bone handles unearthed in Zhihuijie, Chengdu, in 1985 and identified as bristle toothbrushes from the Tang dynasty, were actually found in a trash pit, as was the one found in Xi'an in 2002; two other examples were found in a well in a palace ruin dating to the tenth century.⁵² What was unearthed with these bone handles were miscellaneous daily objects or their fragments that say little about how the handles were used. Resemblance to a toothbrush handle is the only argument.

This is not to say that there is absolutely no toothbrush handle among the excavated bone handles from the Tang, but we do not have enough evidence to reconstruct their use with confidence. As a result, the two handles dating to 959 remain the most convincing samples of the earliest bristle toothbrushes so far.⁵³ A better understanding of excavated brush handles and their relation to the bristle toothbrush

⁵⁰ See Zhou Dacheng, *Zhongguo kouqiang yixueshi kao* 中國口腔醫學史考 (Beijing: Renmin weisheng chubanshe, 1991), p. 92.

⁵¹ For a list of a hundred-odd bone brushes dating to the Song-Yuan periods and excavated since the 1950s, with brief descriptions of their archaeological contexts, see Jia Shuai, 'Kaogu guojian Song Yuan gushua yanjiu', MA dissertation of Heilongjiang University (2016), Appendix 3.

⁵² See Chengdushi Bowuguan 成都市博物館 and Sichuan Daxue Bowuguan 四川大學博物館, 'Chengdu Zhihuijie Tang-Song yizhi fajue baogao' 成都指揮街唐宋遺址發掘報告, in *Nanfang minzu kaogu* 南方民族考古 (Chengdu: Sichuan kexue jishu chubanshe, 1989), p. 285; Xibei Daxue Wenbo Xueyuan Kaoguxi 西北大學文博學院考古系, 'Xi'an Tang Chang'an Taipingfang Sui Tang shiqi yiji de qingli' 西安唐長安城太平坊隋唐時期遺跡的清理, *Kaogu* 考古, 2005 (9), p. 39; Nanyue Wanggong Bowuguan Choujianchu 南越王宮博物館籌建處 and Guangzhoushi Wenwu Kaogu Yanjiusuo 廣州市文物考古研究所, *Nanyue gongyuan yizhi 1995, 1997 nian kaogu fajue baogao* 南越宮苑遺址 1995、1997 年考古發掘報告 (Beijing: Wenwu chubanshe, 2008), vol. II, p. 445.

⁵³ An attempt was made recently to push the upper limit of China's toothbrush history even further back in time. Deng Lili 鄧莉麗 and Zhang Xu 張旭 propose that the pipe-like bronze objects (or at least some of them) found in Han tombs are bristle toothbrushes; see Deng Lili and Zhang Xu, 'Handai yashua kao' 漢代牙刷考, *Meishu xuebao* 美術學報, 2021 (6), pp. 61–67. Although their study includes an analysis of the context in which these objects were found, there is no explanation

will probably require further typological studies of the excavated handles⁵⁴ and dental analyses that consider the oral health and tooth wear of the owners of the tombs where these handles were discovered.

A POETIC REPRESENTATION OF A MUNDANE TOOL

The toothbrush is one of the most inconspicuous of tools, and brushing teeth is not usually counted as a typical source of poetic inspiration. A few Chinese poets, however, were among the first in the world to explore this uncharted topic. That being said, the rarity of poetry on this topic in world literature is not the only reason for my focus on poetry in this section. A more important reason is that examples known from other literary genres only mention toothbrushes in passing and are far less elaborate than the poetic samples that treat the toothbrush as a theme and allegorical figure. In the following passages, we will examine three poems that demonstrate a poet's creativity in weaving the toothbrush into the Chinese literary tradition and analyse how these representations of a mundane activity articulate the poets' distinctive voices.

We shall start from the poem 'Guo Heng hui yashua de xue zi' 郭恒惠牙刷得雪字 ([A poem] on the *xue* rhyme upon receiving a toothbrush generously gifted by Guo Heng) written by Guo Yu 郭钰 (b. 1316), a poet who chose to live in seclusion in Jishui 吉水 (in modern Jiangxi) during the social upheaval towards the end of the Mongolian regime. This poem is often cited as one of the earliest descriptions of a bristle toothbrush, and some consider it evidence that shows how rare and expensive bristle toothbrushes were during the fourteenth century. It is clear enough that Guo Yu wrote this poem to

about the shape of the object itself. The angled head of a pipe seems an unnecessary, even inconvenient design for something to be moved around between two rows of teeth.

⁵⁴ It appears that Jia Shuai's MA thesis is the only topological study of excavated bone brushes from the Song-Yuan periods. The study offers interesting observations on how the distribution of different types of design coincides with the trajectory of regime change. However, the author surmises that a type of brush developed into the toothbrush during the Yuan dynasty simply because its shape seems to match two vague descriptions of a toothbrush from that period (p. 51), which is a suggestion that requires further scrutiny.

commemorate the special occasion of receiving a luxurious toothbrush, but this does not necessarily mean that all toothbrushes in his days were luxury items. Cheng Duanli's passage discussed in the previous section indicates that bristle toothbrushes were available in a wide range of materials—and presumably also price ranges—by the fourteenth century. From a methodological perspective, it may not be entirely satisfactory to treat this poem as factual testimony to the price and design of a bristle toothbrush, for poetry as a genre is not exactly valued as a source of historical facts. A closer look into Guo Yu's poem reveals a crafted piece of art and a mirror of the poet's perception of his reality:

- 1 老氣稜稜齒如鐵，
 曾咀奸腴噴腥血。
 倦遊十載舌空存，
 欲挽銀河漱芳潔。
- 5 南州牙刷寄來日，
 去膩滌煩一金直。
 短簪削成玳瑁輕，
 冰絲綴鎖銀驂密。
 朱唇皓齒嬌春風，
- 10 口脂面藥生顏色。
 瓊漿曉漱凝華池，
 玉塵晝談灑晴雪。
 輔車老去長相依，
 餘論於今安所惜。
- 15 但當置我近清流，
 莫遣孫郎空漱石。⁵⁵

⁵⁵ Guo Yu, *Jingsiji* 靜思集, *Yingyin Wenyuange Siku Quanshu* 景印文淵閣四庫全書 (Shanghai: Shanghai guji chubanshe, 1987) edition, vol. 1219, 3.10a–b.

- 1 An old, sturdy spirit, with iron-like teeth
 That once chewed on the fat of evil and spurted reeking blood.
 [My] tongue survived, pointlessly, a tiring decade of voyages;
 [I only] wish for a scoop of the Milky Way to rinse [my mouth] fresh and clean.
- 5 Since the day this toothbrush arrived from the southern land,
 [It has] removed grease and washed away annoyance: worthy of a piece of gold indeed!
 [Like] a short hairpin is [it] carved from hawksbill turtle shell and light,
 With threads of ice tying fast thick silvery horse mane.
 Vermilion lips and gleaming teeth charm more than a spring breeze;
- 10 Lip balm and facial cream bring radiance to the complexion.
 [With] alabaster syrup in the rinse of dawn joining the Pool of Florescence,
 The jade chowry of daylong discourse sprinkles sunlit snow.
 When side-supports and the chariot grow old, [it] remains close by still,
 [But] who cares now about [its] thoughts yet to be uttered?
- 15 All I ask is to put me next to clear streams
 And never leave a Gentleman Sun just rinsing [his teeth] with rocks.

The first four lines of this ancient-style poem (*gutishi* 古體詩) hint at the poet's experience of fleeing war in the 1350s. He was a Yuan loyalist who never held an official position and spent most of his life as a common civilian in his native region in present-day Jiangxi, one of the areas that suffered the most from the chaos during the change of dynasties.⁵⁶ Guo Yu wrote a few accounts as a witness to tragedies and disasters, but no evidence shows that he engaged personally in a battle, so line 2 may be largely taken as a figurative expression of his rage against the blood-shedding powers. Whereas positive evidence of a precise date is absent, the 'tiring decade of voyages' and the sentiment of lamenting the past glory of his teeth suggest that the poem was probably written in his later days.

The next four lines (5–8) are the depiction of a bristle toothbrush often cited, revealing its

⁵⁶ For an outline of Guo Yu's life and work, see the bibliographical note at the beginning of the *Siku quanshu* edition of his *Jingsiji* and Zhang Xin 張欣, 'Yuanmo Mingchu Jiangxi shiren Guo Yu jiqi *Jingsiji*' 元末明初江西詩人郭鈺及其《靜思集》, *Tushuguan yanjiu* 圖書館研究, 2013 (1), pp. 122–125.

provenance, benefits, price (or perhaps notional value), the shape and material of its handle and bristles. Not only is the hawksbill turtle shell a rare choice for handle material, but the evocative wording of his depiction of the bristles and fastening threads also gives an impression of preciousness and sophistication. In addition to the choice of word, attention has been paid to the choice of character too. Guo Yu uses the character *zong* 鬃 (mane) even though the word has a more common variant 鬃. His intention seems clear: the graph 鬃 contains the radical 馬 that directly associates it with horses, whereas 鬃 uses the radical 鬃 that suggests more broadly 'mane' or 'mane-related'.

Following the close-up of the new toothbrush is a poetic representation of the benefits of grooming, putting tooth-brushing into a wider context (lines 9–10). The 'Pool of Florescence' (*huachi* 華池) is a Daoist metaphor for the mouth (line 11), which resonates with the poet's decision to live away from society and with the Daoist accessory 'jade chowry' (line 12). One may also observe a gender contrast as the poet moves in these four lines from imagery typically associated with a woman's appearance to activities undertaken by men. The chowry was a popular accessory of eloquent gentlemen who engaged in metaphysical discussion, especially from the third to the fifth centuries.⁵⁷ It was not so fashionable as an accessory in the following centuries, but its symbolic significance and association with profound thinking and a sophisticated style carried on in literary tradition. The context and allusion here also give the 'sunlit snow' (*qingxue* 晴雪) two layers of meaning: it can be interpreted as the inspiring thoughts expressed by a gentleman; it may also indicate that the toothbrush ('jade chowry') is applying a powdery or foaming dentifrice.

In evoking, as a metonym, the image of a gentleman, the chowry also helps create a smooth transition from the description of the toothbrush from an observer's perspective to a direct expression of innermost thoughts in which the voice of the toothbrush merges with that of the poet. The absence of a grammatical subject facilitates the dual layers of meaning. Apart from the interpretation presented in the translation above, lines 13–14 strongly suggest a second reading layer: 'When side-supports and the chariot grew old, *I* remain here still, / But who would now care about *my* thoughts yet to be uttered?'

⁵⁷ Several examples can be found in the *Shishuo xinyu* 世說新語; see Liu Yiqing 劉義慶 (403–444), *Shishuo xinyu jiaojian* 世說新語校箋 (Shanghai: Zhonghua shuju, 1984), annotated by Xu Zheng'e 徐震鶚, 1.62 (entry 52 of "Yanyu" 言語), 1.110, 1.115, 1.119 (entries 16, 21, and 41 of "Wenxue" 文學), 2.250 (entry 59 of "Shangyu" 賞譽), 3.335 (entry 8 of "Rongzhi" 容止), 3.351 (entry 10 of "Shangshi" 傷逝).

The expression ‘side-supports and the chariot’ (*fuche* 輔車) is a classic metaphor for cheeks and gums that bear teeth like a chariot.⁵⁸ Their ageing mirrors the ageing of the poet, or perhaps hints at the declining Mongolian regime to which the poet pledged loyalty and which gave him one disappointment after another.

With the explicit pronoun *wo* 我 (I), the last two lines show even more clearly how the poet identifies himself with the toothbrush. The key to interpretation lies in the anecdote about the recluse Sun Chu 孫楚 (d. 293). When speaking about his intention to retire from society, Sun Chu, in a slip of the tongue, says ‘I’ll rest my head on running streams and rinse my mouth with rocks’ (*zhen liu shu shi* 枕流漱石) instead of ‘rest my head on rocks and rinse my mouth with running streams’ (*zhen shi shu liu* 枕石漱流), as intended. He was, however, sharp enough to come up with an explanation immediately, claiming that he meant to rinse his ears with running streams where he rests his head and hone his teeth with rocks.⁵⁹ Of course, contriving an explanation quickly is not enough to make it impressive. The reason Sun Chu’s response is greatly admired is that ‘rinsing one’s ears’ immediately recalls the legendary recluse Xu You 許由 who is said to rinse his ears, ‘contaminated’ as they were by talks about current affairs.⁶⁰ In other words, Sun Chu is appreciated for being able to cover his verbal slip quickly and in a way that echoes the tradition to which he aspires. Thanks to his quick wit, the verbal slip itself and the two actions it denotes have also become symbols of reclusion. Coming back to Guo Yu’s poem with this in mind, we will see how the last two lines represent a playful take on Sun Chu’s story based on a plain fact: clear water is indispensable for completing the pair of actions that marks a respectable recluse, just as it is for brushing teeth. Nonetheless, this ending note also contains a hint of bitterness. The expression *qingliu* 清流 (clear stream) is a common metaphor for upright men who refuse to cooperate with the corrupted ones in power, so staying close to clear streams may also

⁵⁸ This metaphor can be traced back to a proverb recorded in the *Zuozhuan* 左傳; see *Chunqiu Zuozhuan zhengyi* 春秋左傳正義, in Ruan Yuan 阮元 (1764–1849) (ed.), *Shisanjing zhushu* 十三經注疏 (Taipei: Yiwen yinshuguan, 2001), vol. 6, Xi 5, 12.22a.

⁵⁹ See Liu Yiqing, *Shishuo xinyu jiaojian*, 3.419 (entry 6 of “Paitiao” 排調). By the way, the Japanese writer Natsume Sōseki 夏目漱石 (1867–1916) took his pen name from Sun Chu’s verbal slip.

⁶⁰ See Huangfu Mi 皇甫謐 (215–282), *Gaoshi zhuan* 高士傳, *Congshu jicheng chubian* 叢書集成初編 edition, vol. 3396, 1.12–14.

represent a recluse's deep desire for honourable company. Considering the heroic mood at the beginning of the poem and the anxiety about not being heard and valued (line 14), it would appear that reclusion is but a compromise, and the playful tone at the end a manner of self-mockery.

A similar sentiment can be found in a later poem in regulated verse: 'Yong yashua' 咏牙刷 (In celebration of the toothbrush) by Mei Zengliang 梅曾亮 (1786–1856):

1 轟轟君牙幕府高，
此中容爾擅揮毫。
拔豪自詡經三伐，
滕口何應誤一遭。
5 漸喜交親增馬齒，
漫將身世感牛毛。
枕流漱石原非計，
那便相捐等弁髦。⁶¹

1 Sheer and high stands the tent-headquarters of ruling teeth,
Where you, sirrah, are permitted to wield your brush hair.
Having uprooted titans, [you] boast of experience in campaigns thrice;
To a babbling mouth, how could [you] possibly fall [even] once?
5 Gradually [I've] grown fond of close bonds as horse teeth increase;
Casually [I] review [my] life, with sentiments [as many as] a cow's hair.
To rest [my] head on running streams and rinse [my] teeth with rocks is surely not the way out,
Yet how can [I] discard [you] like the tresses in the capping [ceremony]?

This poem begins with a comical personification, addressing the toothbrush directly. The phrase *huihao* 揮毫 (wield the brush hair) refers to the use of a brush pen and often implies writing whatever your inspiration offers you. Here the 'hair' (*hao* 毫) clearly puns on the bristles of the toothbrush, and the

61 Mei Zengliang 梅曾亮, *Baijian shanfang shiwenji* 柏硯山房詩文集 (Shanghai: Shanghai guji chubanshe, 2005), 10.624.

first two lines represent how the toothbrush moves freely along the rows of teeth. But a closer look into the poet's life suggests a triple quibble with this explication. For about a decade of his career, Mei Zengliang offered intermittent secretarial and advisory services under several influential politicians. This somewhat vague occupational status is often described as working in a politician's 'tent-headquarters' (*mufu* 幕府 as in line 1) as a 'tent-associate' (*muliao* 幕僚). According to the poet's note, this poem was written when he escaped from the summer heat in the Bajiantang 八簾堂 (Hall of Eight Admonitions) in the Anhui Government Office. This most likely refers to the summer of 1827 when he worked for Deng Tingzhen 鄧廷楨 (1776–1846), then Governor of Anhui.⁶² 'Wielding the brush hair' can be understood as part of Mei Zengliang's work routine as a tent-associate and also fits another aspect of his identity: official career aside, he was a widely acclaimed writer and one of the most eminent students of Yao Nai 姚鼐 (1732–1815), a master of the Tongcheng School 桐城派.⁶³ That is to say, although the beginning of the poem presents itself as a speech to the toothbrush, the poet projects his perspective as a tent-associate and a writer onto the toothbrush.

The next two lines are the most puzzling part of the poem, especially the phrase *san fa* 三伐 (three/numerous punitive expeditions, or three/numerous cutting blows). If the poem was indeed written in 1827, when Mei Zengliang was 42, there is nothing in his life up to this point that may help interpret this phrase. Another possibility is that line 3 applies to the toothbrush in the sense that its raw material has undergone many cutting blows or a multi-staged production process as ruthless as war. Then the phrase *bahao* 拔豪 (uproot titans) probably reflects the preparation of large chunks of raw material (e.g., wood logs, big bones, etc.). Following this line of reasoning, line 3 may suggest that the toothbrush is proud to have masses of raw material prepared for its production and of the rigorous processing steps that give it its final shape. Having gone through all this, the toothbrush is more than equipped for its mission in the mouth. Aligning with the glorified wording in line 3, line 4 uses the

62 Mei Zengliang arrived in Anhui in the ninth month of 1826 and left for Liuhe, Jiangsu, sometime during the following year; see Wu Changdao 吳常燾, 'Mei Langzhong nianpu' 梅郎中年譜 in *Baijian shanfang shiwenji* 柏枧山房詩文集 (Shanghai: Shanghai guji chubanshe, 2005), 675.

63 For an introductory overview of the Tongcheng school, see Yu Ying-Shih, 'T'ung-ch'eng p'ai' in William H. Nienhauser (ed.), *The Indiana Companion to Traditional Chinese Literature* (Bloomington & Indianapolis: Indiana University Press, 1986) vol.1, 837–839.

archaic phrase *tengkou* 滕口 ('babbling mouth', also written as 騰口) originating from the *Zhouyi* 周易 (Book of Changes)⁶⁴ and thereby draws on the canonical power of a classical reference to create an exaggerated portrayal of the mouth as a seemingly formidable place filled with challenges.

Despite the satirical tone in this grandiose depiction, the poet expresses his warm sympathy as he shifts the focus to his relationship with the toothbrush. The growth and wear of horse teeth (line 5) often allude to ageing or the passage of time, and 'a cow's hair' (line 6) is a common metaphor for a large number.⁶⁵ Both are fitting images in a poem on the toothbrush, a tool that often takes its material from horses and oxen. The 'close bonds' (line 5) that the poet grew to appreciate probably also hints at the close contact between the toothbrush and its user. Finally, the poet's sentiments about life are resolved into the reluctance to discard the toothbrush towards the end of the poem. As a tool for oral cleaning, the toothbrush recalls again Sun Chu's verbal slip and, by extension, detachment from society. The expression *bianhao* 弁毫 (tresses in the capping [ceremony]) in the last line is a metaphor for insignificant or superfluous things that one would not hesitate to abandon. Originally, this refers to the loose tresses that are cut off and discarded at the end of the capping ceremony, marking the end of boyhood and the beginning of manhood. In other words, while the poet does not consider reclusion an ideal path to pursue, the toothbrush, a tool associated with reclusion, is more than a little gadget that he would dispose of without sympathy.

Seclusion and solitude are not the only prospects that a toothbrush offers. A more lighthearted take on its significance in oral hygiene can be found in Xu Ke's 徐珂 (1869–1928) collection *Qing bai leichao* 清稗類鈔. In the category 'sarcasm' (*jifenglei* 譏諷類), there is an entry for inscriptions dedicated to daily objects such as brush pen holders, brooms, and toothbrushes. An 'inscription' (*ming* 銘) in verse often features a solemn mood delivered in a steady rhythm, for the text is typically engraved on stone to commemorate a place or a deceased person. As with the other inscriptions in the same entry, the inscription on the toothbrush plays with the incongruity between the mundane subject matter and the elevated language and poetic form:

64 See *Zhouyi zhengyi* 周易正義, in Ruan Yuan (ed.), *Shisanjing zhushu*, vol. 1, 4.3b (hexagram "Xian" 咸).

65 The usage can be traced back to the *Chunqiu Guliangzhuan* 春秋穀梁傳; see *Chunqiu Guliang zhuan zhushu* 春秋穀梁傳注疏, in Ruan Yuan (ed.), *Shisanjing zhushu*, vol. 7, Xi 2, 10.9b.

惟口啟羞，
 亦復含垢。
 積垢毀齒，
 大開狗竇。
 有物拭之，
 晨興之候。
 短小精悍，
 誓殲群醜。⁶⁶

A fount of shame is the mouth
 And also harbours filth
 That accrues and lays waste to teeth,
 Opening wide the portals of hounds.
 Here's a thing wiping them clean
 At the first light of dawn,
 So very small yet mighty,
 Sworn to annihilate all things unsightly.

Unlike the previous two poems, where the poets exhibit a more intricate relationship with their depictions of the toothbrush, this inscription delivers a simpler message that brushing teeth in the morning keeps the mouth clean and prevents tooth decay (represented humorously as *goudou* 狗竇, i.e., dog holes in the wall). Its simple message aside, the literary traits of this inscription actually resonate with some of the most ancient Chinese texts. It is written in tetrasyllabic lines, a poetic form illustrated most notably by the oldest collection of Chinese poetry, *Shijing* 詩經 (*Book of Songs*). Tetrasyllabic lines in Chinese poetry typically have a caesura in the middle and represent a more balanced rhythmic structure than other common metres with more varied tonal and rhythmic schemes such as

66 Xu Ke, *Qing bai leichao* 清稗類鈔 (Beijing: Zhonghua shuju, 2010), vol. 4, 1642.

pentasyllabic and heptasyllabic metres. For this reason, tetrasyllabic lines are preferred on solemn occasions that call for a sense of seriousness and a ceremonial atmosphere.

This awe-inspiring setting is enhanced by the phrasing of the first line, with the archaic initial particle *wei* 惟 anticipating the announcement of a universal truth. More importantly, the phrase itself is extracted from Fu Yue's 傳說 speech in the chapter 'Yue ming zhong' 說命中 (The Charge to Yue, Part II) of the *Shangshu* 尚書 (Book of Documents). After the king of Shang appoints him as the head of the court, Fu Yue advises the king to be prudent with his order, for a reckless mouth may bring about disgrace.⁶⁷ In contrast to the individualised expression in the previous two poems, this inscription features a universal appeal: any student of Confucian classics will immediately recognise the signals in its form and phrasing and find amusement in this playful take on the classics.

CONCLUSION

After a journey through three interrelated but very different landscapes, we may now have a clearer understanding of the toothbrush in pre-modern China. The concept of brushing teeth with a hand-held, fringe-ended tool is most likely to have come to China with the introduction of Buddhism during the second century. For a long time, the Buddhist purification practice of using tooth-wood for oral cleaning was presented in the Chinese world as 'chewing willow branches'. However, there are two reasons the use of tooth-wood was prevented from prevailing in China, even within Chinese Buddhist circles. First of all, China has different vegetation species from India, and the details of this foreign custom probably remained obscure until Yijing elaborated on this topic based on his first-hand experience in India. But before his rectification could be taken seriously, another aspect of Chinese customs had already made it unnecessary to figure out the mystery of 'chewing willow branches' or explore local tree species suitable for making tooth-wood. When the tooth-wood was introduced, there already existed an implement in the Chinese grooming quarters for performing the task of cleaning one's teeth as tooth-wood can. Lexical evidence indicates how the story of early toothbrushes may have intertwined with

⁶⁷ See *Shangshu zhengyi* 尚書正義, in Ruan Yuan (ed.), *Shisanjing zhushu*, vol. 1, 10.4b.

that of hairbrushes and that the application of a brush was likely extended to oral cleaning before the earliest textual witnesses of known terms for ‘toothbrush’.

Although hairbrushes may have allowed Chinese people to quickly develop a localised way to access the hygiene benefits of tooth-wood, the identification of toothbrushes in archaeological and art historical material is also complicated by the presence of hairbrushes. The two types of brushes can hardly be distinguished from each other by analysing their appearance in murals and book illustrations. In most cases in the archaeological context, the only extant material evidence consists of bone-made brush handles, which poses significant challenges to establishing methods of differentiating brush handles for various functions. Among the existing claims about the earliest bristle toothbrush, only the brush handle unearthed from a prince’s tomb dating to 959 has supporting evidence from objects that accompanied the handle. Although it is most likely that the first bristle toothbrush predated 959, there is little evidence, except for resemblance to a toothbrush, that strongly suggests the alleged Tang dynasty toothbrush handles are indeed toothbrush handles.

A literary quest may compensate to some degree the disappointment in the search for physical evidence of the toothbrush. The three poems analysed in the last part present the vivid imagination that the toothbrush evoked in a creative mind. Be it an amusing caricature of a self-glorified character, a disguised self-portrait of the poet himself, or an expression of sentiments about retirement from society, these poems not only illustrate how different poets infuse their personalities into the shared theme, but also demonstrate some distinctive ways in which a humble everyday utensil like a toothbrush is woven into the Chinese literary tradition.

The toothbrush may not seem a subject of compelling importance, but this does not make it easy to reconstruct its history from scattered textual and physical evidence that varies in nature and is processed through different analytical frameworks. The aim of this article is not to provide a definitive account of the toothbrush in pre-modern China, but in this attempt to synthesise various aspects of the story, we may catch a glimpse into how different factors interact and shape our narrative.

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