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Knowledge Building on Nature and Body: Hot Springs in Premodern Chinese Sources. An Overview

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Abstract

Knowledge about hot springs can be a key way of understanding how the interrelationship between nature and the human body operates both locally and globally. Based on the historical records from epistemological, geographical, ritual, medical, and literary perspectives, and in the global context of early modern Sino-Western exchanges, this article elaborates on some of the ways in which hot springs have been imagined and reconfigured within China and beyond. Each of these perspectives provides some hints of how knowledge about hot springs has been shaped, transmitted, circulated, and translated through encounters between highly structured forms of knowledge and bodily knowledge articulated by both intellectual elites and non-elite groups locally and globally. These multiple fields of knowledge concerning nature and the human body serve as an important but subtle undercurrent to understandings of customs, health, and pleasure within the everyday life of premodern Chinese society and its environment.

Key words

hot springs, collective bathing, knowledge of nature, bodily knowledge, public bathhouses, medical bathing, early modern Sino-Western exchanges.

Introduction

The exploration of hot springs by people seeking physical and spiritual purification and their various daily usage date back to the very earliest historical times. Belief in the power of this natural water source is ubiquitous, and in this respect China is no exception. Nevertheless, so far coherent research on the history of hot springs in China remains rare in current scholarly literature.¹ This article provides an overview of knowledge building related to hot springs in

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1 The few exceptions are Schafer 1956; Chen 1985; Gong 1996; and He 2013.

the premodern Chinese sources. From the early imperial period (c. 3rd century BC–3rd century AD) on, knowledge of hot springs appeared in disparate ways over a wide geographical area. The data on springs is quite scattered yet firmly intertwined with the contents of various sources including the classics, records of philosophical debates, geographical records, medicine treatises, and texts on ritual practices, as well as numerous poems, travelogues, literature, legends, and recorded hearsay.² Individual cases of each type of source cannot be provided in this overview, but I will argue that in addition to being interesting in their own right, the records of hot springs deserve to be considered an important part of the heterogeneous yet interconnected Chinese knowledge systems that refer to – among other things – nature and the human body.

By taking the knowledge building on hot springs as an example, the purpose of this article is to examine how and why knowledge of nature and the human body circulated among the different branches of learning over the long term. As we shall see, the process of circulation, dissemination, and translation of the knowledge of hot springs can be traced among the different historical stages and various sources. In the search for knowledge about the human-nature interactions in China's historical periods, it must be recognized that most of the records consist of literary-based knowledge that has been consciously articulated or cognized as part of the classical written traditions of intellectual and aesthetic life. Such documents inform the majority of this article too. Nevertheless, I attempt to draw some attention to the role of bodily knowledge in informing the written traditions, in addition to its existence as an independent system of knowledge. People also develop specific forms of bodily knowledge by actively doing, imitating, and repeating actions through participation in social activities and association in networks. Such knowledge is not necessarily recorded anywhere with precision but can still be passed down for generations.³ With respect to hot springs, forms of bodily knowledge include actions related to drinking from the springs, as well as how to immerse the body in them with the right timing for ritual practices, spiritual enjoyment, or physical treatments. Even when bodily knowledge is not recorded comprehensively, it can interact with and be partly retained within the highly structured knowledge produced by learned men.

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- 2 In general, the English terms “hot springs” and “thermal springs” correspond to “warm springs” (*wenquan* 溫泉) in Chinese. There are other classical Chinese terms such as “lukewarm water/springs” (*wentang* 溫湯), “hot springs” (*requan* 熱泉), and “boiling springs” (*tangquan* 湯泉). For convenience, I use the term “hot springs” in this article in general, giving a more specific explanation when deemed necessary.
 - 3 Examples of such knowledge include the systematic techniques of artisans at work, as well as farmers' skills related to planting and harvesting by hand. For an early contribution to the anthropological analysis of bodily practices, see Mauss 1935; Mauss 1979, 95–135. For examples of applying such “bodily knowledge” to the contexts of environment and nature, see, for instance, Ingold 2011; Smith 2004; and Ellen 2003. For an introduction to an approach to the history of knowledge, see Secord, 2004.

Apart from the abstract philosophical debates and the acquisition of theoretical knowledge, we could also observe a great upward surge in the systematic compilation of practical and empirical knowledge about water, including hot springs, and its application in everyday uses in personal body care and in nature from the early imperial times on. All these records relate how people defined, maintained, consumed, and imagined hot springs in the contexts of the natural world and the human body. The compilation of such knowledge increased in later imperial times. On many occasions, scholar-literati invariably found themselves in a predicament when they encountered the vigorously “uninhibited” lifestyle, sensory experiences, and daily practices of commoners at hot springs. Through their eyes, even with the limitations imposed by fragmentation and a certain judgement or prejudice on their part, we can gain some perspectives on various type of indirect bodily knowledge that had been transmitted across centuries, and would continue to evolve in further transmission.

This article therefore attempts to show how some key elements of knowledge about hot springs in premodern Chinese sources – both theoretical and practical – have been transmitted and shaped by different life experiences and social forces over time. In the following sections, I introduce and examine hot springs based on various sources, looking at them – in conceptual order – from epistemological, geographical, ritual, medical, and literary perspectives, and finally viewing them in the global context of early modern Sino-Western exchanges.⁴ It must be stated from the outset that the categories of knowledge put forth here did not exist, as such, in the miscellaneous premodern discussions. These categories reflect later consensus about patterns of circulation and cross-reference, as well as my own classifications for the purpose of elaborating on several aspects of this subject for a contemporary audience. Additionally, the general terms that I use in this article such as “traditional Chinese knowledge”, “scholar-literati”, “medicine scholar and physicians”, “nature”, etc, are also quite complex and should never be considered to refer to a single homogeneous group or concept. Each writer and their records on hot springs were confined within a certain literary conventional format and bear the marks of various cultural and social contexts, which is especially evident here considering the long-term historical process and vast geographical space covered in this article. In order to depict a panorama of these multiple fields of knowledge as they relate to the hot springs, I have to, unfortunately, confine my attention to a general overview in this article and provide another in-depth case study elsewhere.⁵ By

4 For a recent compilation on the conceptual history of nature from the cross-cultural perspective between China and Europe, see Selin 2003; Vogel 2010.

5 I am particularly grateful to Jennifer Cash, Dorothee Schaab-Hanke, and reviewers of this article, for their thoughtful comments and suggestions. For an in-depth study on the Huaqing Hot Springs at Mount Li, one of the more representative hot springs in China, see Huang 2023 (forthcoming). These two articles are part of a book project with the working title “Hot Springs and Public Bathing: Toward a Social-

taking the risk of providing a simplified synopsis of this topic over a rather long historical period, I hope to present some considerable evidence and a sense of this large and almost entirely uncharted field. As I shall explain in detail and emphasize, I believe a general account of the knowledge recorded about hot springs in premodern Chinese sources provides us with an opportunity to explore an important but subtle undercurrent to understandings of customs, health, and pleasure within the everyday life of premodern Chinese society and its environment.

Hot Springs as Natural Phenomena

As a natural phenomenon, a hot spring is one of the myriad things that Chinese thinkers located as being between heaven and earth and explored in order to understand the natural world and its correlation to human society. Like almost all other scholarly explorations of the natural world in premodern China, the fundamental explanation of the formation of hot springs relied on a mode of correlative thinking based on systems of correspondence, involving the concepts of *qi*, the binary classification of *yin* and *yang*, and the circulation of the Five Phases (Soil, Wood, Metal, Fire, and Water).⁶ In one dialogue explaining changes in the weather, which is attributed to Dong Zhongshu 董仲舒 (194–104 BC), the Confucian thinker and politician of the Western Han dynasty (202 BC–9AD), the opposing pair of “hot spring” (*wenquan* 溫泉) and “cold flame” (*liangyan* 涼焰) is mentioned as an analogy to elaborate on *yin* and *yang* transformations:

水極陰而有溫泉，火至陽而有涼焰。

When *yin qi* in water and *yang qi* in fire reach an extreme degree, hot springs and cold flame are formed respectively.⁷

The same pair also comes into view as an analogous illustration in a debate between Han scholars elaborating on political order and rulership. But they raised the question of why hot water but not cold fire (*hanhuo* 寒火) could be found in the world, since the nature of fire and that of

Environmental History of Body and City in China”, which is based on my habilitation thesis that I submitted to the University of Tübingen in 2020.

- 6 See Granet 1934; Needham 1969; Graham 1986. For other discussions on early Chinese religion and natural philosophy, see, for instance, De Groot 1912; Harper 1999; or Sivin 1995. In modern geology, hot springs are known to be heated by geothermal activity and to appear especially in the zones associated with folds in the rock layers and earthquake-prone or volcanic areas.
- 7 *Xijing zaji*, 5.240. This sentence is part of a response concerning the nature of hail: “Yu bao dui” 雨雹對. For the discussion on Dong Zhongshu and the authorship of “Yu bao dui”, see Loewe 2011, 81; 166–169. Loewe points out that “the authenticity of the item ‘Yu bao dui’ must remain a matter of doubt”, as this narrative of *yin* and *yang* is quite different from that presented in other accounts by Dong. Based on Needham’s identification, “cold fire” was considered to be natural gas. For further discussion, see Vogel 2010.

water are characterized as hot and cold respectively within the Five Phases system. In other words, they insinuated the transformation could only happen in one direction. By further extension, they said that a subject (*chen* 臣) could become a sovereign (*jun* 君), but never the other way around.⁸ By deliberating on the patterns of the natural world, Han scholars legitimized the political and moral order as a microcosm of the natural world that resonated with its rhythms.

“Hot springs” and “cold fire/flame” were passed down as a pair of opposing, unusual natural phenomena to later scholars, who made use of them in further deliberations on correlative cosmology.⁹ One of the allusions cited frequently in later times appears in a debate between Ji Zhan 紀瞻 (253–324) and Lu Ji 陸機 (261–303) in the early medieval period. In this debate, Lu Ji asks Ji Zhan why there are hot springs but there is no cold fire provided that there are *yin-yang* associations between heaven and earth. Ji Zhan responds that there exists a connection of *qi* between mountains and waters (*shanze tongqi* 山澤通氣) during the ascending and descending of the *yin* and *yang* elements. The natural spring, he suggests, becomes warm when its origin continues to bear the ascending *yang qi* (*quanyuan suo tuo* 泉源所托). Therefore, both *yin* and *yang* characteristics interact to create hot water.¹⁰ Unlike the Han scholars who only made use of this natural phenomenon as a mirror of their own political order, Ji Zhan further interprets the formation of hot springs as product of the movement of *qi* between the mountains and waters.

Apart from this fundamental interpretation that *qi* constitutes everything in the world including hot springs, another explanation appears in the *Bowu zhi* 博物誌 (Treatise of the Many Things), which is attributed to Zhang Hua 張華 (232–300), a treatise written for learned men who aimed to become “broadly knowledgeable about things”. This pursuit of textual expressions of erudition flourished in the medieval period, since the demonstration of an impressive degree of erudition became one of the standards for being recognized as a noble man (*junzi* 君子).¹¹ The hot spring is illustrated in the *Bowu zhi* as an unusual natural phenomenon deserving of contemplation and interpretation. It states:

8 *Baihutong shuzheng* 4.37–38: 五行之性，火熱水寒，有溫水，無寒火何？明臣可為君，君不可更為臣。

9 For the record, the same deliberation on hot springs and cold fire as that attributed to Dong Zhongshu above also appears in an early Daoist text, the *Baopu zi's Inner Chapters*. *Baopu zi* 2.14: 水性純冷，而有溫谷之湯泉；火體宜熾，而有蕭丘之寒焰。With the rise of Daoism and Buddhism in the medieval period, their ritual bathing and ceremonial washing practices also influenced public bathing. However, to the best of my knowledge, there is almost no mention of hot springs in the bathing practices recorded in Daoist and Buddhist scriptures. Occasionally, the hot springs are mentioned as a symbolic or abstract metaphor for spiritual healing and redemption, as I will mention briefly in the next section.

10 *Jinshu* 68.1818.

11 For a detailed analysis of how scholars developed their erudition in China's early medieval period, see Nicoll-Johnson 2017. For a general introduction to the “*bowu*” tradition from the Han to Song dynasties, see Yu Xin 2011, 1–26. Elman 2010.

凡水源有石流黃，其泉則溫。或云：神人所暖，主療人疾。

Wherever sulfur is found at the source of water, the spring [that comes from this source] will be warm. Alternatively, there is a saying that the deity warms [the water] mainly to cure the diseases of human beings.¹²

Later, other mineral substances, alum (*baifan* 白礬) or arsenopyrite (*baiyu* 白礬), and cinnabar (*dansha* 丹砂), were also believed to contribute to the formation of natural hot springs.¹³ Instead of only contemplating abstract and sublime concepts, learned men became curious about the direct interaction between hot springs and the surrounding environment, especially mineral substances. Presumably, this knowledge could have come from either direct empirical observation or second-hand anecdotes from others' daily experiences. This conception that was influential in the medieval period was also frequently quoted by many later scholars who maintained that hot springs originated from sulfur or formed through the interaction between water and various minerals.

The intellectual curiosity about the purported causality between mineral materials and hot springs continued to appear in the Song scholars' texts. Mainly due to the expansion of the imperial territory and increase in extensive local knowledge, Song scholars could study more concrete cases of actual geographical phenomena through visits, direct observation, and by consulting various records. For instance, when Zhu Xi 朱熹 (1130–1200) annotated a passage in the *Analects of Confucius*, in which young male disciples of Confucius bathed in the River Yi 沂水 on a casual spring excursion, he believed that the bathing location was probably a hot spring in the vicinity of the River Yi area outlined in a geographical gazetteer.¹⁴ In another deliberation on the formation of hot springs, Hu Zi 胡子 (1110–1170) also agreed that most hot springs originated from sulfur but noted two exceptions: the hot

12 *Chuxue ji* 7.8a. For an introduction to Zhang Hua and an annotated English translation of *Bowu zhi*, see Greatrex 1987. This translation is based on the most frequently used version with ten *juan* that was edited in the Qing dynasty. It has to be pointed out that many other quotations of *Bowu zhi* in the later literature are not included in the later received versions. The records of hot springs, for instance, are quoted by Xu Jian 徐堅 (659–729) in his *Chuxue ji*.

13 In the late Zhou dynasty (557–581), Wang Bao 王褒 wrote in the “Wentang bei” 溫湯碑 (Inscription of the Hot Springs [at Mount Li]), “Alum penetrates upwards; cinnabar circulates downwards” (白礬上初，丹砂下流). *Yiwen leiju* 9.167. Sometimes the first half is instead recorded as “arsenopyrite penetrates upwards” (白礬上初), for instance in *Shaanxi tongzhi* 90.63b. Arsenopyrite (*yu* 礬) and alum (*fan* 礬) are two different minerals. Li Shizhen points out that people would often miswrite or confuse these two characters, but that they referred to two different minerals. *Yu* 礬 is a poisonous substance, and it possesses a “hot” property, and *fan* 礬 is usually considered to have a “cold” property in traditional Chinese medicine. *Bencao gangmu* 10.15b–16b. Wang Bao's original inscription has been lost. It is difficult to tell which mineral Wang Bao was referring to. In the case of the hot springs at Mount Li, the main chemical constituents are sodium sulfate, sodium chloride, and calcium oxide based on modern investigation.

14 *Sishu zhangju jizhu* 131: 沂，水名，在魯城南，地誌以為有溫泉焉，理或然也。

spring on Mount Huang 黃山 in Xin'an (in present-day Anhui Province), which was thought to contain cinnabar (*zhusha* 硃砂), which gave the water a slightly reddish hue in the spring and whose water could be used for preparing tea,¹⁵ and the hot springs in Mount Li 驪山 (present-day Shaanxi Province), which he said contained arsenopyrite ores (*yushi* 礬石).¹⁶ In a similar fashion, in an annotation regarding the classical pair of hot springs and cold fire, Zhou Mi 周密 (c.1231–1308) listed the eight most well-known hot springs in various areas to demonstrate that the hot spring is a very common geographical phenomenon.¹⁷ The intellectual exploration regarding the formation and effect of hot springs illustrates the scholarly tradition that goes back to the medieval period of pursuing the far-ranging knowledge of *bowu* to fulfill curiosity. Meanwhile, with the increasing influence of the doctrine of the “investigation of things” (*gewu* 格物) in Neo-Confucianism, scholars also attempted to study exhaustively all concrete objects or natural phenomena, such as hot springs, as a fundamental step in the process of self-cultivation in order to comprehend the one heavenly *li* 理 (often translated as “pattern-principle”) in a well-ordered universe.¹⁸

As different properties of individual hot springs in various regions were increasingly discovered and recorded in late imperial times, the debate on the formation of hot springs became more intense. For instance, Lang Ying 郎瑛 (1487–c.1566) maintained that all hot springs should be considered to contain the *qi* of sulfur, and that it was the differences in distance to the source of the sulfur underneath rather than various other mineral substances that caused the inconsistent temperature of each spring.¹⁹ Song Yingxing 宋應星 (1587–c.1666) did not believe that sulfur was the only mineral material that generated hot springs and quoted the counterevidence that no hot springs had ever been found in the sulfur production area of Don-

15 Here Hu Zi quoted from *Bencao tujing* 本草圖經, a compendium of materia medica published in 1061. Although in our contemporary way of thinking cinnabar is toxic since it contains mercury, in traditional Chinese medicine and Daoist practice, cinnabar was often prescribed for expelling evil *qi* from the body, ensuring a vigorous spirit, and achieving longevity. Liu 2008.

16 *Shaoxi yuyin conghua houji* 26.4a, b. Hu Zi's knowledge of the mineral content of the hot springs at Mount Li came from a Tang Dynasty poem, “Tangtang” 堂堂, written by Li He 李賀 (790–816), which reads: 華清源中礬石湯. In various later quotations, this line is sometimes written with 礬石 instead. See footnotes 13 and 22 for further discussion of arsenopyrite (*yu* 礬) and alum (*fan* 礬).

17 The eight hot springs that he mentions are located at Mount Li in Weishi 尉氏, County of present-day Henan, Luogu 駱谷 in present-day Shaanxi, at the Ru River 汝水 in present-day Henan, at Mount Huang 黃山 in present-day Anhui, at Foji Cliff 佛跡 in Huizhou, Guangdong, at Mount Lu 匡廬 in Jiangxi, and in present-day Fujian Province 閩中. See *Qidong yeyu* 1. 4–5.

18 On the concept of *li* in the Chinese natural philosophy of Neo-Confucianism during the Song dynasty, see, for instance, Kim 2000. On the relationship between *gewu* and *bowu* during the Song and Ming periods, see Elman 2010.

19 *Qixiu leigao* 19.276–277.

ghai 東海.²⁰ Based on the explanation of Lang Ying, however, the lack of hot springs in the sulfur production area could be explained by noting that either the *qi* of sulfur was leaking out, or the “earth veins” (*dimai* 地脈) of sulfur did not connect to the spring.²¹

In response to these contradictory examples that increasingly emerged in the local records, some scholars reverted to using an explanation for this natural phenomenon that involved *yin* and *yang* as well as *qi*. In answering why three different minerals (cinnabar, sulfur, and arsenopyrite) could lead to the formation of hot springs, Xie Zhaozhe 謝肇淛 (1567–1624) goes back to the *yin-yang* concept to explain the shared feature of these various minerals: “It is because they are generated by the extreme *yang* essence between the heaven and earth.”²² He then provides examples in each category, writing that the hot springs in his hometown Fujian contained the smells of sulfur and local people used the water to cure their scabies and immersed bamboo wood in it in order to expel insects. Based on a Tang poem he read, he concludes that the hot spring at Mount Li must contain arsenopyrite. And he says that, having visited the hot spring at Mount Huang, and finding no smell of sulfur, he learned through hearsay that there was cinnabar underneath this spring.²³ Some other Ming scholars also took a similar approach to this subject but went a step further, attributing the origin of springs to *yang qi*, as the early imperial thinkers did. When Tan Qian 談遷 (1594–1658) deliberated upon the classical pair of hot springs and cold fire, he was convinced that extreme *yang qi* created the hot springs and not the various minerals:

雷火所灼，其氣亦硫，豈以云雷之中而亦有硫哉？蓋極陽之氣也。夫溫泉亦極陽所聚，蘊隆如五行變化，奚所不至？

When [something] is burning because [of] the fire caused by thunder, it also smells like sulfur. Can we say that there is sulfur in the thunder? It is all because of the extreme *yang qi*. The hot springs also originate from the aggregation of extreme *yang*. Its accumulation is as the transformation of the Five Phases; where can it not arrive at?²⁴

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- 20 *Tiangong kaiwu* 11.200–201. Song Yingxing does not point out the actual location of this Donghai. He also does not mention the provenance of his source. His comments are likely based on the records of sulfur frequently mentioned in *bencao* 本草 pharmacopeia, where “Donghai” refers to the medieval Donghai jun 東海郡 (present-day Lianyungang and Linqu in Shandong Province) of North Xuzhou 北徐州. In fact, hot springs are indeed found in this area.
- 21 *Qixiu leigao* 19.276–277. Lang Ying shared his experience of reading *bencao* pharmacopeia. After personally bathing in the hot springs himself, however, sores (*chuang* 瘡) appeared on his back. He then confirmed that only a person ill with wind disease should bathe in the hot springs, saying that a healthy person like him should avoid it.
- 22 *Wuzazu* 3.33b: 天地至陽之精所結. Here Xie Zhaozhe also quotes Li He’s poem. For further discussion on 礬, see footnote 13 and 16.
- 23 *Wuzazu* 3.33b.
- 24 *Zaolin zazu* 2.374: This argumentation comes from Sang Qiao 桑喬 (1501–1560) of the Ming dynasty.

By emphasizing the order of *qi*, these intellectual inquiries on the formation of hot springs also reflect one of the intellectual trends of the sixteenth and seventeenth centuries: a number of thinkers tended to take *qi* as the major premise of natural and material inventiveness, as a challenge to the school of Cheng-Zhu learning of Neo-Confucianism, which mainly favored *li*.²⁵ We will come back to this issue in the last section of the article, which focuses on early modern Sino-Western exchanges. In general, during the development of intellectual interest in the hot springs as a natural phenomenon, scholars gradually provided more concrete and detailed analyses over time as they engaged in the heated debate over the formation of the hot springs and the annotation of the opposite pair: “hot springs” and “cold fire/flare”. They aspired, intellectually and morally, to study all areas of human concern as far as possible. By exploring the origin of this natural phenomenon, the Chinese intellectuals were developing their understanding of the cosmic order and its correlation to human society. As we shall elaborate in the following sections, their abstract philosophical deliberation and expanding theoretical knowledge were also derived from the consistent geographical records of hot springs since the early imperial times. Meanwhile, this scholarly interest was also deeply intertwined with the long-lasting public bathing activities in and increasing construction at the hot springs for ritual, medical, and cultural purposes in everyday life.

Hot Springs as Geographical Discoveries and Associated Local Customs

Hot springs throughout China were considered important landmarks worthy of being recorded in various geographical writings that were produced in conjunction with the steady penetration of power into the outer reaches of the empire. The earliest systematic records of hot springs could be found in the early sixth-century classical geographical work *Shuijing zhu* 水經注 (Commentary on the Water Classic). It documents thirty-eight hot springs located in the central plains area and in the central and lower regions of the Yangzi River.²⁶ A typical description of such a spring often begins with a note on its location, origin and confluences with other streams, temperature (in descriptive terms), and its agricultural or medicinal uses, if any. Having set the physical scene, such a record continues by detailing any pieces of infrastructure in the vicinity (e.g. a shrine, temple, or bath house), associated social activities (such as collective ritual

Tan Qian later compiled the records of hot springs from various provinces, which he collected in *Daming yitong zhi* 大明一統志 (Records of the Unity of the Great Ming) along with other local geographical records to provide various cases. See *Zaolin zazu* 2.374–386.

25 As for the historical reception of *qi* and the seventeenth century thinkers of *qi*, see, for instance, Schäfer 2013, especially chapter 2.

26 For more details, see the two maps drawn by Chen Qiaoyi (1985) and Gong Shengsheng (1996) respectively. For a recent study of the *Shuijingzhu*, see Hüseemann 2017.

bathing or worship), and any cultural appreciation of the spring expressed in poems or essays. In some cases, the record notes a close connection between hot springs and sulfur vents or volcanoes but does not give a further explanation as to how a hot spring is formed.²⁷

The temperatures of the hot springs recorded in this work were given in a descriptive manner. Some terms reflect bodily experience, such as lukewarm (*wen* 溫), warm (*nuan* 暖), hot (*re* 熱), burning (*zhuo* 灼), and scalding (*yan* 炎). Others relate to known cooking and household activities, such as boiling (*tang* 湯), cooking rice (*shumi* 熟米), or cooking or removing the feathers of a chicken (*xunji* 燻雞).²⁸ These terms imply that hot springs were also used for daily purposes such as washing, bathing, and cooking. Hot springs could also be tapped for irrigation, as mentioned in a description of the hot springs in Chen County, present-day Hunan Province, which are said to have provided irrigation that permitted triannual harvests on the farmland.²⁹

Apart from geographical phenomena and the daily usage of the springs, this classical geographical work also records the local customs, anecdotes, folklore, and ritual activities of the native inhabitants. Among them, the most remarkable local customs are the collective bathing assemblies at the hot springs. Take the record about the Han River (which flows from present-day Shaanxi into Hubei Province) as an example:

漢水又東，右會溫泉水口，水發山北平地，方數十步，泉源沸湧，冬夏湯湯，望之則白氣浩然，言能瘥百病云。洗浴者皆有硫黃氣，赴集者常有百數。

When the Han River again turns eastwards, on the right side there is a confluence with a river supplied by the hot spring. The river originates on the plateau on the northern side of the mountain measuring several tens of steps in both width and length. At the source of this spring, the water is at the boiling point both in winter and summer. Seen from a distance, a huge white plume hovers majestically over it in the air. [People] say it can cure hundreds of diseases. All bathers are enveloped in the smell of sulfur. Often hundreds of people attend the bathing assemblies.³⁰

This record follows the standard narrative of classic geographical writing by introducing specific geographical features, noteworthy features, and human activities. The existence of large-scale collective bathing assemblies is mentioned, albeit briefly. Importantly, this reference follows a remark on the spring's reputed healing properties, raising the reader's suspicion that the bathing assemblies might have been organized in conjunction with medical pilgrimages that brought visitors from near and far to the spring. However, as in this entry, other records in such geo-

27 See, for instance, *Shuijingzhu* 13.315, 27.644.

28 See, for instance, *Shuijingzhu* 211.84, 12.299, 13.315, 319, 323, 31.722, 736.

29 *Shuijingzhu* 39.916.

30 *Shuijingzhu* 27.644.

graphical writings that mention therapeutic (or magical) effects of hot springs appear with only very brief or at best vague descriptions, such as “the medical efficacy has been tested” (*liao ji you yan* 療疾有驗), or “able to cure hundreds of diseases” (*nengyu baibing* 能愈百病) or “chronic disease” (*suji* 宿疾). Entries mentioning specific maladies are rare. One exception is that for the hot spring on Mount Li, which the record says could be used for washing sores (*xichuang* 洗瘡).³¹ An early record of Daoists’ physical cultivation in relation to hot springs is also found in the *Shuijing zhu*. In this case, one of the relevant details provided for the hot spring near the Chi River (*Chishui* 滎水) in present-day Henan Province is that it attracted Daoists who not only sought to purify their bodies by taking baths but also drank from the hot spring water three times a day. After forty days, all the illnesses afflicting their bodies are said to have been purged.³²

Although never specifically addressed in the records of hot springs in the *Shuijing zhu*, the collective bathing assemblies at hot springs may have shared similarities with the purification ceremonies in the form of outdoor bathing during certain seasons (normally the spring), which were often associated with rites of purification and exorcism. One such ceremony is known from other sources to have taken place from no later than the second century B.C. on. This is the purification ceremony of Fuchu 祓除, or Fuxi 祓禊, held on the date of *shang-si* 上巳 (the first snake (*si*) day of the third lunar month). Later the date was fixed to the third day of the third month during the Cao-Wei dynasty (220–266), and the ceremony was being held in the medieval period. On that day, everyone (whether monarchs, officials or commoners, male or female) went to the waterside to wash away dirt and malevolent spirits, and to wish each other the best for the growing and harvest seasons. Bathing was accompanied by prayers for fertility (for rain and for pregnancy), by feasting, music, singing, dancing, and intermingling between men and women.³³ Over time, the purification ceremony of Fuchu, or Fuxi, gradually disappeared from the center of Han Chinese culture in the cities in general. From the tenth century onwards, its observance was reduced primarily to visiting and picnicking with friends by a lake or river in the springtime among the learned men.³⁴ Meanwhile, older ritual lustrations or practices of intermingling between men and women in an open-air hot spring area in certain seasons persisted in many small towns and villages, or in the frontier areas, as numerous records from the later periods illustrate.³⁵

31 See, for instance, *Shuijingzhu* 11.284, 13.317, 319, 19.461, 36.824,

32 *Shuijingzhu* 31.722–723. In this case, a stone stele was erected beside the spring bearing the inscription “Imperial Woman’s Thermae (*huangnütang* 皇女湯), which can cure ten thousand diseases”. Schafer translated *huangnütang* as “Yellow Women’s Thermae”. Schafer 1956, 66.

33 Schafer 1956; Lao 1970, 258; Song 1989.

34 Schafer 1956, 69.

35 In some extreme cases, mixed bathing was also recorded as a bathing habit in the frontier areas with use of judgmental language. For instance, the Anning 安寧 hot springs in Yunnan are noted in a Yuan geo-

In short, by at least no later than the sixth century, multiple meanings and functions, geographical information about hot springs located in the central plains area and in the central and lower regions of the Yangzi River had been recorded systematically. Ever since then, hot springs have been considered a key landmark, and they steadily attracted growing attention in various geographical writings. Throughout imperial times, similar descriptive terms and narrative styles that followed the example of the *Shuijing zhu* were applied to writings about hot springs. This knowledge of hot springs became even more widespread in the wake of the popularization of local gazetteers and travelogues in the Song dynasty (960–1279), as examples listed in the previous section demonstrate. A large number of records of hot springs are found in geographical writings detailing the various provinces, counties, and villages in late imperial times.

Although scholars were interested primarily in recording information on hot springs as geographical phenomena, they also continued to pay attention to the local context provided by the surrounding landscape, public infrastructure, the local customs, folklore, and ritual activities of the native inhabitants and the anecdotes told by ordinary visitors. For instance, with the exception of unmanaged or unconstructed “wild” hot springs, it is repeatedly mentioned in the local gazetteers and travelogues that in late imperial times an increasing number of “well-organized bath houses” had been built throughout China to divide users of the hot springs according to gender and class. Bath houses at hot springs were often divided into an “officials’ pool” (*guanchi* 官池, *quantang* 官湯, or 官塘/澆) for officials and cultural elites, a “people’s pool” (*minchi* 民池, *mintang* 民湯, or 民塘/澆) for commoners, and a “female pool” (*nüchi* 女池, *nütang* 女湯, or 女塘/澆). An alternative to having a separate “female pool” was splitting the bathing times between men and women, with women bathing in the day and men at night (*nüchou nanye* 女晝男夜).³⁶ Other accounts also provide examples of the uses of hot springs by ordinary folks for daily or ritual bathing, cooking, irrigating, washing clothes, accessing warm water in the winter, and, in some cases, as the source for sulfur smelting or as a warm spot for camping in the winter. Such descriptive accounts are subjective representations of geography by learned men, in which records of actual human activities or reported supernatural appearances are mixed with naturalistic descriptions based on what the writers experienced, observed, or heard. Their observations raise questions about the kinds of folk activities and bodily knowledge that might have been associated with hot springs by those people who encountered them so often in their everyday lives. In this way, the bodily experience and knowledge of the hot springs circulated and were transmitted between the different social classes in the form of notes in the records of geographical and local customs.

graphical record as a place where “men and women could bathe together without any shame” (*hun nannü zayu bu chi* 混男女雜浴不恥), *Shengchao hunyi fangyu shenglan* 2.455.

36 For instance, *Yunnan wenquan zhi* 1.490. *Yunnan wenquan zhi bu* 1.19; 4.99.

Hot Springs in Medical Therapy

As mentioned, the medicinal properties of hot springs have been recognized for centuries, yet most of the records discussed above only vaguely mention that hot springs “cure hundreds of diseases” without giving detailed information about treatments and without delving into the specifics of medicinal principles. As mainstream Chinese medical practice involved the use of various herbal concoctions and ointments, research on traditional Chinese medicine has tended to pay less attention to the use of natural features such as hot springs as a form of cure.³⁷ In fact, balneotherapy has always been a part of Chinese medical practice, and as a natural source of hot water, hot springs were often mentioned in the context of such treatments,³⁸ especially of some skin diseases and chronic maladies. One such record of hot springs can be found in the *Bencao shiyi* 本草拾遺 (Supplement to the Materia Medica, c. 739), compiled by Chen Cangqi 陳藏器 (c. 681–757), which was later quoted in the *Zhenglei bencao* 證類本草 (Classified Materia Media, 1108 and 1116).³⁹

温湯，主諸風，筋骨攣縮，及[肌]皮頑痺，手足不遂，無眉髮，疥癬諸疾，在皮膚骨節者入浴。浴乾，當大虛憊，可隨病與藥及飯食補養。自非有佗病，人則無宜輕入。又云：下有硫黃，即令水熱。硫黃主諸瘡病，水亦宜然。水有硫黃臭，故應愈諸風冷為上。當其熱處，大可燂猪羊。

Hot Springs: A cure for all the various diseases caused by contraction of sinews and joints with wind, stubborn blockages of muscles and skin, paralysis of the hands and feet, loss of hair and eyebrows, as well as the *jie* and *xuan* diseases.⁴⁰ [Patients with these diseases] of the skin and joints bathe in [the springs]. Afterwards, [they] will be

37 An exception is Hao et al. 2011.

38 Balneotherapy also appears as a method of healing in many different cultures and regions. Chen Yinque (or Chen Yinke; 2001, 20–24) suspects that bathing in hot springs to cure illness was a custom the Chinese borrowed from Central Asia before the Tang dynasty.

39 The *Bencao shiyi* 本草拾遺 was compiled by Chen Cangqi in c. 739 as a supplementary to the *Xinxiu bencao* 新修本草 c. 659, which is considered the earliest surviving state-issued work relating to *bencao* pharmacopeia. The original version of the *Bencao shiyi* is lost, but passages from it are frequently quoted in other works of medical literature, such as *Ishimpo* 醫心方, *Zhenglei bencao*, and *Bencao gangmu* 本草綱目. See Yu and Li 2006, 694. *Zhenglei bencao* is the abbreviation for *Jingshi zhenglei beiji bencao* 經史證類備急本草. It was first compiled by Tang Shenwei 唐慎微 and officially published in 1108. Here I use the revised version *Zhenghe xinxiu jinshi zhenglei beiyong bencao* 政和新修經史證類備用本草, which was published in 1249 (see footnote 42).

40 Zhang and Unschuld (2014, 3) define *xuan* 癬 and *jie* 疥 as follows: “a) Pathological Condition of dermal lesions with initially erythema, papules, and itching gradually extending in all directions to form an irregular ring with clear boundaries. The skin is slightly elevated with small papules, blisters, and/or scales and scabs. b) Pathological Condition of local lesions with itching, release of liquid and shedding of scabs.” For further explanation of the terms “*xuan*” and “*jie*”, see Zhang and Unschuld 2014, 253, 591.

very weak and tired, and can be nourished with a certain dose of medicine and sustenance. Those who do not suffer from these maladies should not presumptuously bathe in [the springs]. [Chen Cangqi] also says: “Sulfur beneath [the springs] makes the water hot. Since sulfur is a cure for various diseases [involving] sores, the water [of hot springs] also cures the same diseases. The water smells of sulfur; therefore, it should be given priority in treating all [diseases caused by] wind cold.⁴¹ People can also always cook pork and mutton at the hot spot.”⁴²

This description of medical treatment shows that by no later than the eighth century, medical scholars had recognized the various specific diseases that could be cured by bathing in hot springs. It is also evident that they had acquired the knowledge that not supernatural powers but the sulfur, which they thought produced the hot water, had a healing effect. Moreover, the remarks on the side effects (weakness and tiredness) and their treatment (medicine and food) indicate that medical scholars had also noticed the toxic properties of hot springs. As mentioned in section 1, sulfur was the first mineral considered to generate hot springs. Perhaps this is the reason that treatment using “hot springs” was put into the “category of jade and stone” (*yushi bu* 玉石部) in medical works during this period. The therapeutic effects of hot springs are mainly explained in this text as being rooted in the medicinal properties of sulfur in general without mentioning the differences between various springs.

From that time on, the use of hot springs continued to be recorded in various medical works. By the late sixteenth century, the medical knowledge gathered so far was recompiled and revised by Li Shizhen 李時珍 (1518–1593) in his *Bencao gangmu* 本草綱目 (Compendium of Materia Medica), which was published in 1596.⁴³ This work reflects a new development in the system of medical knowledge that had taken place in the sixteenth century, as herbs, drugs, and other natural substances described in it are assigned to the categories of water, fire, earth, metal, and wood to correlate with the Five Phases; the new system replaced the earlier use of only two or three categories (metal, stone, and wood) in medical works.⁴⁴ In this new knowledge system, Li

41 “A compound including the term for ‘wind’ may have two meanings. First, the illness in question was caused by an intrusion into the organism by wind. This may result in blockages, concretions, pain, and other pathological conditions. However, often enough the character for ‘wind’ is added to signify a changing location of the ailment’s manifestation, such as pain or concretions, in the human body. Here the concept of ‘wind’ – as something that exists because it moves – is transferred to the movement of an ailment in the body.” See Zhang and Unschuld 2014, 13–14.

42 *Zhenghe xinxiu jingshi zhenglei beiyong bencao* 5.208, 210.

43 *Bencao gangmu*, 5.562. For more details on Li Shizhen, see Zhang and Unschuld 2014, 9–40.

44 Regarding the discussion of the transformation of the understanding of the natural world as well as the emphasis on the Five Phases in Li Shizhen’s *Bencao gangmu*, see Nappi 2009, 71–72; Hoizey 1993, 120–127.

Shizhen lists thirteen drugs as “water from heaven” (*tianshui* 天水) and thirty drugs as “water from earth” (*dishui* 地水), mentioning not only the healing effects of various waters but also “poisonous” water of bad quality which could cause chronic and acute diseases.⁴⁵ In this system we find hot springs (*wentang* 溫湯) in the category “water from earth”.⁴⁶

Li Shizhen records the quality and taste of hot springs as being “pungent”, hot, and slightly “toxic”,⁴⁷ as well as giving more in-depth explanations of how hot spring water may be used as a medicine by quoting from earlier literature, including the exact text of the *Zhenglei bencao* mentioned above. In addition, Li Shizhen also cites the Song scholar Hu Zi’s notes on hot springs, discussed above, to indicate the various medical side effects in each specific context. The majority of these records collected by Li Shizhen were not products of his own personal innovation but shared the same trends prevalent in medical thinking during the sixteenth century. Phrases like “water from heaven” and “water from earth”, as well as the updated treatments and side effects he mentions, are found in other medical works, too, most notably in the *Shiwu bencao* 食物本草 (Dietetic Materia Medica), which was compiled in various versions by different authors during the sixteenth and seventeenth centuries.⁴⁸ In his further explanation of the hot springs, Li Shizhen quotes from a version of this work, compiled by Wang Ying 汪穎 (c. 1480–1550), stating that illness caused by wind retention (*fenglai* 風癩),⁴⁹ the lesions caused by red bayberry (*Myrica rubra*), and syphilis (*yangmei chuang* 楊梅瘡)⁵⁰ could be cured by the hot springs on Mount Lu, which were highly recommended by the “masters of the recipes and methods” (*fangshi* 方士).⁵¹

By the sixteenth century, the medical records still mainly emphasized the aspect of hot springs regarding the treatment of skin diseases and other illnesses caused by cold wind, as well as external treatment by means of bathing. But later in another seventeenth-century

45 It should be noted that the healing effects of various waters had already been recorded in earlier *bencao* pharmacopeia, such as *Zhenglei bencao*. But Li Shizhen’s records are much more extensive.

46 *Bencao gangmu* 5.562. Besides what he has to say on the topic of “hot springs”, Li Shizhen also records other forms of balneotherapy or hydrotherapy, such as “boiling water” (*retang* 熱湯). See *Bencao gangmu* 5.564.

47 *Bencao gangmu* 5.562: 辛，熱，微毒。

48 The identity of the author of the *Shiwu bencao* has always been unclear. Other suggested authors are Lu He 盧和, Wang Ying 汪穎, Xue Ji 薛己, or an anonymous author. Moreover, there are various versions that were published in the Ming dynasty. Zhang 2012, 1588–1591.

49 Zhang and Unschuld 2014, 164.

50 Zhang and Unschuld 2014, 618.

51 *Bencao gangmu* 5.562. With reference to early imperial China, the term *fangshi* 方士 generally refers to “technical specialists” whose areas of expertise varied depending on which methods (*fang*) they had mastered. Later, the term was principally used to refer to medical scholars or elite doctors. For a discussion of this term, see De Woskin 1983; Harper 1998, 42–52.

bencao pharmacopeia, the use of hot springs to treat many more diseases by both bathing and ingestion is described individually. One of the later editions of the *Shiwu bencao*, compiled by Yao Kecheng 姚可成 (c. 1628–1644), a local scholar and publisher in Suzhou, also documents sixteen “waters from heaven” and thirty-seven “waters from earth” including “hot springs”, which largely overlap with those in Li Shizhen’s work.⁵² The most innovative section of this edition of the *Shiwu bencao*, however, is the record of thirty-seven “famous waters” (*mingshui* 名水), and 664 “famous springs” (*mingquan* 名泉), which were distributed over fifteen regions of China. In the entry for each specific spring, river, or lake, the author provides not only the geographical information and related historical and cultural contexts but also notes the effect of each unique medical treatment and bodily experience.

In this work, eighteen hot springs in different regions, each with its own individual treatment, are recorded among the “famous springs”. Although the text describes medical treatments for each spring, it does not help the reader to understand any general principles underlying the treatments. Instead, the treatments might seem contradictory. In the entry with the heading “Hot Springs” in the section titled “Water from Earth”, the text emphasizes that one should not drink from the hot springs.⁵³ However, in the section titled “Famous Springs”, many hot springs are marked as drinkable. For instance, at the hot spring in Shahe County in Beizhili (the Ming administrative unit which was roughly coterminous with present-day Hebei Province), bathing “could cure hundreds of diseases” and “drinking the hot spring water could warm up the spleen and stomach (*piwei* 脾胃)” according to the text.⁵⁴ As regards the hot spring at Yingcheng 應城 in Hubei Province, however, the author states that one should not drink the water, but only bathe in it. This was a sulfur spring said to cure diseases characterized by skin lesions,⁵⁵ but the compiler does not indicate that this mineral content is responsible for the contraindication on drinking its water. Indeed, he does not note any apparent divergences in his medical advice.

One of the possible reasons for Yao Kechen to pay more attention to all of these individual treatments involving hot springs in different regions is that this resonates with the major theme of his book (*Dietetic Materia Medica*).⁵⁶ His main concern was to record whether or not the water of a certain hot spring could be drunk, and if so, to record its specific taste and therapeutic effects. It is hard to know from where Yao Kechen obtained his various examples.

52 For a full examination of this work, see Bian 2014, 75–77.

53 *Shiwu bencao* 1.10b.

54 *Shiwu bencao* 1.27b.

55 *Shiwu bencao* 3.17a, b.

56 On the issue of the connection between “drinkable springs” and the major theme of the *Dietetic Materia Medica*, I have benefited from a discussion with He Bian on 03.03.2022.

Perhaps he simply gathered all the information from various records together without making any further inquiries. The inconsistent descriptions might also have been based on empirical observation and bodily experience or knowledge of the particular medical treatment practiced by the ordinary folks in each local context. In some cases they may also have been completely detached from the actual local practices, as many of these treatments cannot be verified in the respective local gazetteer or other local records. Nevertheless, this compilation does show an attempt to portray each spring individually and establish its unique medicinal properties. In so doing, it is not hard to imagine that Yao Kecheng's edition of *Shiwu bencao* could succeed in standing out among the other publications on daily health care in the flourishing commercial book market of the seventeenth century.

The sixteenth and seventeenth centuries were the period that saw the full flowering of Chinese pharmaceutical theory and practice among educated scholars and physicians. Hot springs were among the more than 2,000 natural occurrences for which medical effects were acknowledged. Following the same method of recording the medical drugs, the therapeutic value, pharmacological effects, and pathological mechanisms of the hot springs that had been revealed gradually through the personal experiences of medical scholars and supplemented by second-hand knowledge were also recorded in *bencao* pharmacopeia. Demands for detailed verification were rare. Earlier records had just given detailed analyses of the medical functions of hot springs without offering any further information about the areas in which they were situated, with the exception of a few well-known examples such as the hot springs on Mount Li, Mount Huang, or Mount Lu. By the end of the sixteenth century, this situation was changing and a new form of compilation began to appear as rapidly expanding knowledge of geographical and medical information became available, providing more information and creating popular knowledge about the unique medical treatments available at each individual natural spring.

It has to be pointed out, however, that the study of the healing powers of hot springs was treated rather marginally by *bencao* pharmacopeia. Most of the balneotherapy mentioned in medical records mainly concentrates on adding various herbs and drugs to boiled water instead of using naturally occurring hot springs. Bathing in or drinking from hot springs was not often prescribed by medical practitioners. This means that the actual long-term medical use of hot springs had little internal development. However, the records about hot springs also suggest that medical writings were influenced by literary compositions. That is to say that accounts of individual natural springs often refer to the notes on famous mountains, water, or springs which were compiled by literati expressing cultural appreciation. This indicates the insinuation of influences from another field of writing, one in which hot springs throughout the length and breadth of China were considered to be a part of a beautiful landscape to be praised in countless travelogues, poems, and verses.

Hot Springs in Landscape Appreciation

From early imperial times on, hot springs also appeared as an outstanding example of natural beauty in landscape appreciation. One good example is the “Wenquan fu” 溫泉賦 (Rhapsody on Hot Springs) by Zhang Heng 張衡 (78–139), which he wrote on visiting the hot spring at Mount Li one sunny spring. Impressed by its unique beauty and magnificence, he composed a *fu* (rhapsody) to describe this hot spring, which was quietly located within the shade of the high mountain: “Among all the preciousness and exotica within the territory, none of them carries the holy spirits of this water;” therefore people from far away are running here; “the scholars and ladies magnificently appear like schools of fishes and thronging thick as mist.”⁵⁷ He then composes a coda (*luan* 亂) saying:

天地之德，莫若生兮。帝育蒸人，懿厥成兮。六氣淫錯，有疾癘兮。溫泉汨焉，以流穢兮。蠲除苛惡，服中正兮。熙哉帝載，保性命兮。

The virtues of heaven and earth are nothing but to bring life to the world,
the supreme deity nurtures his prosperous people and brings them virtue.

When the six *qi* are in disorder, there are diseases and pestilences.

The hot spring is gurgling in order to wash away the dirt.

It reprieves and removes the atrocious evil,

and never swerves from impartiality and correctness.

How auspicious for the supreme deity's deeds!

Such a blessing for the people's lives!⁵⁸

The genre of *fu* (rhapsody) is well-known as an outlet for courtly celebration of the empire's achievements, and it later also served as an outlet for the personal contemplation and appreciation of nature in a well-ordered cosmos from the divine power. This rhapsodic description of the hot springs echoes their application in medical treatments and related outdoor public bathing activities. The hymn itself expresses the poet's aesthetic sensitivity toward the hot springs as a form of landscape appreciation. It also phrases the morally coherent system between nature and human beings. In particular, it connects physical bathing with purifying the mind and pursuing virtue. This moralizing perspective is also emphasized in the Confucian classic *Book of Rites*: “Confucian scholars bathe their bodies and immerse [themselves] in virtue.”⁵⁹ This philosophi-

57 “Wenquan fu”, 15–18. For an introduction to Zhang Heng's fu compositions, see Knechtges and Chang 2014–2155. There is no previous translation of “Wenquan fu”. Knechtges only mentions “Wenquan fu” briefly: “He has a delightful description of crowds of people ‘clustering like schools of fish’ and ‘thronging thick as mist.’” Chang and Owen 2020, 143. Here I borrow these two parts from his translation and provide my own translation. I would like to thank Su Peng 蘇芃 for his suggestions on this translation.

58 Ibid.

59 *Liji zhengyi*, 66.2229: 儒有澡身而浴德。

cal and artistic attitude towards natural springs further prevailed in later times as part of the appreciation of landscapes, which was considered a cultivated way of conveying one's perception of nature and expressing inner feelings and moral endeavors.

The literary expression of personal inner experience and self-cultivation related to nature later became the origin of the so-called "landscape literature" that flourished from the medieval period and steadily gained prominence from the Song dynasty onwards.⁶⁰ As Chinese landscape literature and art were devoted to "mountains and water" (*shanshui* 山水), travelling to natural sources of water and the mountains was an essential cultural activity in the scholars' intellectual life.⁶¹ In the depictions of the literati, one of the most spectacular landscapes is a site at which natural springs gush forth from between the mountains. A specific poetry genre called "watching the springs" (*guan quan* 觀泉) is devoted to this aspect of the landscape. As with other springs, hot springs were often selected and described by the literati of Chinese cities and towns as important features of a particular local landscape in the cultural tradition of selecting a set of the "best scenic views" (*shengjing* 勝景) and designating them as spots of local beauty during the late imperial time. Among all the hot springs, the most famous one is the hot spring at Mount Li. Famed for its associations with the names of great emperors and court beauties in the Tang dynasty (618–907), the hot spring at Mount Li (also named the "Huaqing Hot Springs" after the Tang) is the most impressive historical relic and bathing location in the suburbs of what was once the imperial capital of Chang'an. Countless poems, travelogues, and literature are devoted to this hot spring across China and beyond.⁶²

As mentioned above, the water from hot springs could sometimes also be used for making tea or decoctions. With the popularization of the culture of tea drinking and medicinal decoctions in medieval China, the literati from the Tang dynasty onwards acquired a taste for good-quality natural water, as shown in the work entitled *Shuipin* 水品 (Water Classification), which provides a classification of water into twenty types, as well as *Shiliu tangpin* 十六湯品 (Sixteen Types of Boiling Water), which assesses the quality of various heating waters.⁶³ The cultural practice of selecting and evaluating various waters (and teas) reached a new peak in the sophisticated commercial society of the late Ming dynasty. The *Zhuquan xiaopin* 煮泉小品 (A Small Classification of Boiling Springs) was compiled by the Ming

60 For instance, the landscape poems composed by Xie Lingyun 謝靈運 in the Six Dynasties period. See Owen 2004, 203–226. For the landscape literature from Song dynasty on, see, for instance, Frodsham 1967. Sullivan 1962.

61 See Strassberg 1994.

62 For the history of Huaqing hot springs at Mount Li during the Tang period, see Schafer 1956. For the post-Tang development of these hot springs (1000–1900), see Huang 2023 (forthcoming).

63 Benn 2015, 190–195.

scholar Tian Yiheng 田藝蘅 in 1554 as an aid to judging the quality of water used to make tea. With the exception of that on Mount Huang, however, the hot springs mentioned in his work are said not to be suitable for drinking. Just as the other connoisseurship of art and landscapes, the custom of critically assessing (*pinjian* 品鑒) the springs became a marker of status among the cultured elite.



Figure 1. “The number one [hot] spring under Heaven”⁶⁴

One part of the evaluation of water quality in Ming times was the cultural activity of selecting “the number one [hot] spring under Heaven”, which spread among the local literati of different areas.⁶⁵ Among all these “famous springs” that were selected at that time, the hot spring at Anning 安寧 in Yunnan is perhaps one of the best examples on which to base an elaboration of the cult of landscape appreciation in late imperial China. The cultural image of the Anning hot spring was given an enormous boost by Yang Shen 楊慎 (1488–1559), one of the most famous Ming scholars who was exiled to Yunnan. He spent the years between 1524 and 1559 in Yunnan and enjoyed all the pleasures the frontier landscape had to offer, among them the Jade Hot Springs (*biyu quan* 碧玉泉) at Anning. In the preface to his “Hot Springs

64 *Anning zhouzhi* 1.4b–5a.

65 Regarding the discussion of famous springs in the Jiangnan area in late imperial China, see, for instance, Wang 2004.

Poem” (*wenquan shi* 溫泉詩), Yang Shen asserted that dozens of other famous hot springs could not compete for the following seven reasons:

而此泉特皓鏡，百尺纖芥必呈，一也；四山壁起，中為石凹，不煩甃甃，二也；浮垢自去，不待捫拭，三也；苔汗絕跡，不用掬灑，四也；溫涼適宜，四時可浴，五也；掬之可飲，尤發茗顏，六也；盞酒增味，治瘡省薪，七也。雖仙家三危之露，佛地八功之水，何以加焉？謂之海內第一湯，可也。

Firstly, this spring is extremely limpid and mirrorlike; even the slender plants in one hundred *chi* deep [water] are visible. Secondly, the hills surrounding the spring resemble stone walls and the middle is a stone hollow, so that it was not necessary to lay bricks [to construct a pool]. Thirdly, [during bathing], detritus naturally disappears without having to be raked off. Fourthly, the dirty moss comes loose [from the stones] without having to be scooped off and washed away. Fifthly, the temperature is neither hot nor chilly; one can bathe in [the spring] at any time. Sixthly, the [spring’s water] can be scooped up with the hands and drunk directly, and it is especially good for making tea. Seventhly, dripping the spring water into wine boosts the flavor, and [using this spring water to] cure pustules,⁶⁶ one can save firewood [for boiling the water]. Even the dew from immortal Mount Sanwei, or the legendary “Eight Merit Water” from the holy lands of Buddhism cannot surpass [the hot springs of Anning]. To claim that [the hot spring at Anning] is the number one hot spring within the [Four] Seas, is indeed justified.⁶⁷

Yang Shen then goes on to list the comments of his literati colleagues in the Jiangnan area who not only endorsed his judgment but also convinced him to compose a verse to immortalize this hot spring’s name as had been done for other famous landscapes, such as West Lake at Hangzhou and Mount E’mei in Sichuan. As an exiled official and literatus in the remote southwest frontier, Yang Shen’s composition of a hymn to this hot spring might have been a way for him to intimate his virtuous moral standards by emphasizing the purity and cleanness of the spring, as well as to help ensure the reputation of this distant area, so far away from the political and cultural centers in which other famous hot springs were situated. In order to present a strong contrast emphasizing the purity of the Jade Hot Springs, he provocatively despises the famous hot springs at Mount Li for their unpleasant smell, uncomfortable extremely high temperature, and often polluted bathing pools.⁶⁸

66 Zhang and Unschuld 2014, 379.

67 *Anning zhouzhi* 19.17a–19a.

68 *Anning zhouzhi* 19.17a–19a. This is part of a long tradition of exile literature dating back to the Tang dynasty, in which efforts were made to link the frontier landscape with personal experience while lamenting marginalization and longing for recognition. See Strassberg 1994, 36–37.

Besides holding up a mirror to his own state of exile, Yang Shen's poetic writing also provides a good example of the criteria for the selection of hot springs that were current among the cultural elite: good-quality hot springs had to be connected to the surrounding landscape in order to please the eye, and they were supposed to evoke the most sensitive feelings of taste, touch, and temperature. In the eyes of the literati elite, cultural appreciation and spiritual enjoyment played the key roles in the depiction of hot springs. The sensual experience of being immersed in clean natural water at a proper temperature, heightened by the magnificence of surrounding mountains and woods, is often heavily emphasized in hot springs landscape literature. In their writings, the literati established the standard for appreciating hot springs and in doing so reached beyond the more practical medical uses and symbolic religious aspects of the hot springs. In turn, their writings contributed to the popularity of such landscapes among other visitors, who not only enjoyed bathing in or drinking the water but could also feel that they had been raised to a different spiritual or even social level and connected to, even if just for a short moment, the historical and literary figures who had also once spent time there.

Hot Springs in Early Modern Sino-Western Exchanges

Within a global context, early modern Sino-Western exchanges display the circulation of the theoretical and practical knowledge of hot springs with its multiple interconnections quite well. During the sixteenth and seventeenth centuries, with the assistance of their Chinese converts, Jesuit missionaries translated and compiled early scientific and mechanical knowledge derived from aspects of natural philosophy and practical use in Europe. Among their works is a book entitled *Taixi shuifa* 泰西水法 (Hydromethods of the Great West), which was orally composed by the Jesuit missionary Sabatino de Ursis (1575–1620) and revised by the Chinese scholars Xu Guangqi 徐光啟 (1562–1663) and Li Zhizao 李之藻 (1565–1630) in 1612.⁶⁹ It concentrates on selected Western knowledge about various mechanical equipment used for irrigation and other practical purposes (*shuiqi* 水器), theoretical and systematic explanations of various water-related phenomena, and techniques concerning the management of water resources (*shuifa* 水法).⁷⁰ A few references are made to hot springs,

69 For more in-depth studies on Xu Guangqi and Li Zhizao, see Standaert 2000; Jami et al. 2001.

70 It is often believed that it was based on the work of the Italian engineer Agostino Ramelli (1531–c.1620) with the English title *The Various and Ingenious Machines of Captain Agostino Ramelli*. But Agostino Ramelli's work was just one of the Western sources that informed the *Taixi shuifa*. Regarding the first complete translation into a Western language of Sabatino de Ursis' preface, see Vogel et al. 2020. Regarding recent research on *Taixi shuifa*, see Kink 2022, 2020a, 2020b, 2019. I thank Hans Ulrich Vogel and Sabine Kink for allowing me to participate to a certain extent in their project "Translating Western Sci-

each with its own focus on knowledge about the human body and nature. These give us insight into an early global encounter of the ideas and practices associated with hot springs.

In the last section of the fourth *juan* of the *Taixi shuifā*, the reader is introduced to methods for probing the quality of water and is provided with two examples of healing water, one of which is that from hot springs – the other example being that used in the distillation of medicinal substances (*yaolu* 藥露). At first glance, the text reads like many Chinese medical works: It states that hot springs originate from water but have absorbed the undiluted *qi* (*jingqi* 精氣) of sulfur, and that they, therefore, are more efficacious than sulfur. As regards the medical use of the hot springs, ninety percent of their usage is said to have consisted of taking steam baths in them and ten percent of drinking them as soup. The text continues, saying that when used for steam baths, the hot poison (*redu* 熱毒)⁷¹ of sulfur does not enter into the intestines and stomach (*changwei* 腸胃), but the power of its natural force (*xingli* 性力) is able to reach the interstices and pores (*couli* 腠理),⁷² and that therefore, its benefits are many and its harm minimal.⁷³ Thereafter, however, the text turns to relaying a summary of the empirical methods by which the medical efficacy of individual hot springs in Europe had been deduced:

西國一大郡，其山間所出溫泉數十道，每道各有主治。昔有國主徵集名醫，辨其性理。又多用罪囚，患諸對症者，累試累驗。然後定為方術，是何泉水，本何性味，主何疾病，作何薰蒸，或是沐浴，或是湯飲，用何藥物，以為佐助。設立薰蒸器具，沐浴盆池。刊刻石碑，詳著方法，樹之本所。凡染病者，依方療治，多得差焉。今溫泉所在有之，亦有沐浴而得愈疾者。若更講求試驗，如前所云，所拯救疲癯，當復不少也。

In a large prefecture in the Western states, dozens of hot springs emerge from between the mountains, each of which has its own medical usage. In the past there was a sovereign of a state who summoned famous physicians to differentiate the patterns of their properties. They also often used criminals and prisoners who were suffering from appropriate diseases and carried out repeated tests and verifications [on them]. Afterwards, they stipulated prescriptions and techniques [providing detailed information], such as what kind of spring water this was, on what kinds of nature and fla-

ence, Technology and Medicine to Late Ming China: Convergences and Divergences in the Light of the *Kunyu gezhi* 坤輿格致 (Investigations of the Earth's Interior, 1640) and *Taixi shuifā*," which is being supported from 2018 to 2023 by the German Research Foundation (DFG) at University of Tübingen. I thank them for their kind suggestions on my translation and the first draft of this section.

71 Zhang and Unschuld 2014, 398.

72 溫泉本水，而得硫之精氣，故為勝之。又溫泉療病，用之薰浴者什九，用之湯飲者什一。薰沐者，其熱毒不致入於腸胃，而性力却能達於腠理，則利多而害少焉。*Couli* is a clinical term in traditional Chinese medicine, referring to the space between skin and muscles. Nowadays it is often translated as "interstices and pores."

73 *Taixi shuifā* 4.4a, b.

vor it is based, which disease it can cure, what [kind of] steam it produces, whether a bath should be taken [in it] or a decoction [made with its water] drunk, and what kinds of medicine should be taken [additionally] to assist it. They set up containers and equipments for steam baths as well as pools and basins for bathing. [Moreover,] they inscribed this on stone steles describing the methods in detail, and installed them at the sites. All those who had contracted diseases were treated in accordance with these methods, and many of them recovered. Now there are [also] places with hot springs [here in China], and there are also some at which one can cure a disease by taking baths. If one pays more attention to such tests and verifications, in the manner related above, not a few fatigued and exhausted [people] will be saved and rescued.⁷⁴

It is hard to know to which “large prefecture in the Western states” this work refers, and it is not particularly important, because knowledge about hot springs in Europe had already become standardized. In Europe, building bath houses at hot or mineral springs was already common in antiquity.⁷⁵ Although bathing became less frequent in the period known as the Dark Ages, hot or mineral springs still retained their importance as sources of holy water at Christian pilgrimage sites in the Middle Ages. Between the mid-fourteenth and mid-fifteenth centuries, the popularity of hot mineral springs was high in many parts of Europe. Swept up in a wave of renewed knowledge building, increasingly famous resorts quickly popped up throughout sixteenth-century Europe, and by at least 1560, the term “spa” had appeared in English, referring to resorts at mineral springs used for both health and leisure, where the water was drunk or bathed in.⁷⁶

As Katharine Park points out in her case study on knowledge of healing springs in Italy, this was the key transition period for the formalization of new knowledge by practicing physicians who became engaged in this growing interest in discovering new springs in order to respond to the rising demand for treatments among the ruling elite. During this period in Italy, noble and patrician families sent their own physicians to investigate hot springs as a preliminary to planning a more detailed development strategy. What distinguished the investigations of hot springs from those of other natural wonders was the emphasis on the

74 *Taixi shuifā* 4.4a, b.

75 Jackson 1990.

76 Tubergen and van der Linden 2002. It is worth noting that the Ming scholar Fang Yizhi 方以智 (1611–1671) also quoted this narrative of the “large prefecture in the Western states” in his *Wuli xiaoshi*, 2.58. But according to this record, this narrative came from another Jesuit, Nicolas Trigault (1577–1628), who came from the Spanish Netherlands. Considering that Fang Yizhi had close personal contact with the early Jesuits in China, we might assume that the same narrative may have been derived from Nicolas Trigault. But I have not found other supporting evidence that it was Nicolas Trigault and not Sabatino de Ursis who related this story of various hot spring medical spas located in a “large prefecture in the Western states”. In any case, these narratives share knowledge of the development of spa culture across Europe.

uniqueness of particular springs and the insistence that they had to be studied individually by experimenting with color, smell, taste, temperature, mineral content, and the illnesses that could putatively be cured.⁷⁷

The early Jesuits had presumably also witnessed the burgeoning spa resorts in Europe. The tone of the *Taixi shuifa* suggests that the writers were trying to convince the Chinese to conduct similar testing and verification of their springs to make the best use of them. As mentioned above, Chinese scholars were also recording the unique medicinal properties of individual springs, as shown by Yao Kecheng's *Shiwu bencao* (1628–1644). This work appeared slightly after the *Taixi shuifa*, but there is no evidence to indicate that Yao Kecheng ever set eyes on that written work. Nor, is there any evidence that de Ursis had ever discussed any aspect of the Chinese cultural elite's practice of selecting and evaluating water from various sources with his Chinese colleagues. Nevertheless, both works take a similar approach to knowledge building regarding the properties and practical uses of individual hot springs.

Having provided a glimpse of recent medical practices in Europe, de Ursis intended to further discuss the more abstract natural philosophy regarding hot springs. The fifth *juan*, "Some Questions about the Methods of Water", elaborates on the principles of various water forms on the basis of the Aristotelian four elements theory (in which the elements are fire, air, water, and earth) in order to provide an alternative cosmological order and challenge to the Chinese five phases theory.⁷⁸ The authors further state that the nature of sulfur is closest to fire. Therefore, when water passes through places in which there are deposits of sulfur, hot springs result. This statement by de Ursis is very similar to some Chinese scholars' discussions that only attribute the formation of hot springs to sulfur as illustrated in section 1. Based on the four elements theory, de Ursis believed that the reason that some of these springs did not give off the smell of sulfur was not that they contained other minerals, but that the place from which the water welled up had been separated from the sulfur source. This argumentation is similar to Lang Ying's as discussed in the section 1.⁷⁹

When the *Taixi shuifa* was noticed by local readers, the text evoked a new response from the Chinese.⁸⁰ In their work *Dijing Jingwu lue* 帝京景物略 (Survey of Scenery and

77 Park 1999; Harley 1990; Richard 1990.

78 This chapter (the fifth *juan*: "Shuifa huowen" 水法或問) was based on the ideas taught by Sabatino de Ursis and "extensively explained" (*yanshuo* 演說) by Xu Guangqi. According to Kuang-tai Hsu, it shows that Xu Guangqi was the first Chinese scholar who adopted the Aristotelian four elements theory. Hsu 2008.

79 *Taixi shuifa* 5.2a–2b.

80 Unlike the practical application of hydraulic methods and equipment, with only a few exceptions, discussions of the texts in the *Taixi shuifa* that present hot springs as a source of medicinal treatment were confined to the literati. The work was reprinted a dozen times by different printers, and it was later selected to be compiled in the *Siku quanshu* 四庫全書 from the mid-Qing period in the category "Agricultural

Monuments in the Imperial Capital, 1635), Liu Tong 劉侗 (c. 1593–1637) and Yu Yizheng 於奕正 (1597–1636) summarized the history of the bathhouses at the hot springs in the western suburb of Beijing. The compilers examined the origin of this natural phenomenon and quoted their recent readings of de Ursis's discussion of hot springs. They disagreed with it and pertinently picked up on a logical flaw in the passage quoted above: if sulfur was the only element that could generate a hot spring or lead to healing, it would have been superfluous for the sovereign of “a great prefecture in the Western states” to summon his physicians to study each spring individually in order to discover their different medicinal properties. The compilers believed that it must have been the changes between hot and cold of “earth qi” (*dìqì* 地氣) that generated both the sulfur and hot springs. They elaborate this point in their response to the classical deliberation on the paired terms “hot springs” and “cold fire” as follows: “When *yin* forms the tangible quality (*zhi* 質) and *yang* forms *qi* in the water, there will be hot springs. When *yang* forms the tangible quality and *yin* forms *qi* there will be cold fire.”⁸¹ They further point out that once the hot spring is placed into the storage instruments, it will cool down. This, they say, only shows that “the [same] quality remains and *qi* changes” (*zhi cun qi yi* 質存氣異).

Almost the same argument challenging the statement in *Taixi shuifa* also appears in *Wuli xiaoshi* 物理小識 (Notes on the Principles of Things) by Fang Yizhi 方以智 (1611–1671), who was one of several literati of the late Ming who were in close contact with the early Jesuits in China.⁸² After listing many individual hot springs that he learned of from various geographical writings and essays, Fang Yizhi confirmed that the presence of *yang qi* underneath the hot springs instead of that of various mineral substances should be considered to be what led to their formation.⁸³ His son Fang Zhongtong 方中通 (1634–1698) further elaborated that it must be *yang qi* that accumulated below which either produced the hot springs, or sulfur ore, or natural gas (*huojing* 火井).⁸⁴ As mentioned in section 1, their responses on the formation and usage of hot springs, at least to a certain degree, contributed to the intellectual trend of the seventeenth century emphasizing an cosmological order based on *qi*. In fact, Fang Yizhi himself is one of the most representative *qi* thinkers of his time. During their communication and interaction with their Chinese scholar friends, the European Jesuits came to understand that hot springs played quite a role in everyday life and intel-

Treatises” (*nongshu* 農書), mainly on account of the applications of its hydraulic methods in agriculture. In later times, the Western hydraulic methods in this work were often quoted or discussed among the literati, a practice which continued up to the beginning of the twentieth century. Zou 2019, 396–414.

81 *Dijing jingwu lue* 8.546: 陰得質而陽得氣，為泉，為湯。陽得質而陰得氣，為焰，為涼。

82 For Fang Yizhi's discussion of *Taixi shuifa*, see also footnote 76.

83 *Wuli xiaoshi* 2.57–58.

84 *Wuli xiaoshi* 2.58

lectual debates among the Chinese. Jesuits might also have been aware of the occurrence of the classical opposing pair of “hot spring” and “cold flame” in the deliberations on the nature of water and fire within the Five Phases system. They might also have noticed the disagreement among the different scholars as to whether it was sulfur or other mineral materials, or the *yang qi*, that directly generated hot springs. In any case, the Jesuits might have seen discussing hot springs as a chance to promote the Aristotelian four elements theory, and perhaps as a chance to encourage conversion to Christianity.

Furthermore, the contradictory narrative in *Taixi shuifa* also can be seen as reflecting the coexistence of two Western knowledge systems – Aristotelian natural philosophy and the newly emerging practical knowledge. The Jesuits often received very solid learning in Aristotelian natural philosophy, but they were not able to receive systematic training in the updated scientific knowledge of the Renaissance.⁸⁵ In the case of *Taixi shuifa*, at least in the section on hot springs, there is an obvious contradiction between the abstract theoretical knowledge presented on hot springs and their actual practical uses listed in the work. Ironically, this self-contradiction led some sensitive Chinese scholars to strongly defend the Chinese system of correlative cosmology.

With the surge in the degree of global contact during this period, new foreign knowledge about hot springs in the West was transported to China and translated into Chinese in intellectual circles. During this Sino-Western exchange, both sides seemed to agree on the need to identify practical uses for the springs through close study and analysis of individual springs. They disagreed, however, about what probably caused the formation of the hot springs, with each side understanding that this answer was directly linked to a specific understanding of the cosmic order. The topic of practical uses of hot springs was also picked up later by the Kangxi emperor (r. 1661–1722), who had a strong interest in western scientific ideas for his own curiosity and imperial uses. In his own “investigation of things” (*Gewu* 格物), he claimed that previous scholars could not really identify the different mineral substances in the hot springs. On the contrary, Kangxi was confident that he knew how to apply the verification methods: “Each time I visit a [new] hot spring, I use the silver bowl to carry the water [from the hot spring] and place the silver bowl in a pot containing hot water and cook it on a low flame. After the water within the silver bowl has dried out, [I] observe the remaining substances from the water stain.”⁸⁶ He continues, stating that in this way one can tell whether the spring water contains sulfur or other mineral substances and thereby understand each spring’s usability. The emperor was very proud of his “method based on real evidence” (*shi you ke ju* 實有可據) and promoted it

85 On the academic training missionaries of the Society of Jesus received before they arrived in China, see, for instance, Brockey 2007.

86 *Jixia gewu bian* 1.3.80–83: 朕每遇溫泉，即以銀碗盛水，隔湯用火收煉，俟碗水乾，觀水腳所積。

above the “hollow deliberation” (*xuxuan niyi* 虛懸擬議) of previous scholars.⁸⁷ Indeed, Kangxi completely ignored the abstract epistemological debate and concentrated on finding a practical solution. His approach echoes the same general theme of embracing the methods of tests and verifications from Western learning. Nevertheless, this new input from the West soon stopped as Jesuit missionaries were forced to withdraw from China in the early eighteenth century. It was only in the nineteenth century with the advent of modern geology and (renewed) popularization of spas and sanatoriums throughout the world that the next stage in the circulation of global knowledge on hot springs began.⁸⁸

Concluding Remarks

Knowledge of hot springs serves both locally and globally as one of the key ways of understanding the interrelationship between nature and the human body. The central concern of this article has been to find out how this sort of comprehension was historically produced and circulated in multiple branches of learning both within China and outside its borders over a long period of time. In its overarching expression, the cultural significance of hot springs in China became multifaceted, and yet these facets became inextricably intertwined, although their circulation followed different literary trajectories. Meanwhile, the circulation of these forms of knowledge and experience passed through various stages, oscillating between theoretical and practical constructions.

The learned Chinese persons, comprising erudite Confucian scholars and literati, technical specialists, and medical physicians, were the key actors involved in the “discovery”, recording, and use of hot springs, and there was often interplay between their respective knowledge about hot springs. Hot springs were presented as an unusual natural phenomenon demanding a cosmological explanation from scholars. Attention to hot springs, however, found its greatest expression in geographical records of administrative units throughout China. These records were not strictly theoretical treatments of the world’s natural wonders but derived from empirical observations or second-hand anecdotes. Meanwhile, the specifics of medicinal principles and therapies related to hot springs had been recognized for centuries. In addition, the cultural elites recorded and elaborated on their own personal visits to both famous and less well-known hot springs in numerous texts. In particular, they wrote poems, developing and expressing their connoisseurship with regard to the appreciation of various waters and landscapes. Influenced by evident cultural practices involving the selection and evaluation of various waters, the unique medical treatments at each individual hot spring throughout China also became available in late imperial times. Both theoretical and practical

87 *Jixia gewu bian* 1.3.80–83.

88 For a discussion of modern spas and sanatoriums in China, see Huang 2020.

scholarly interest in hot springs among learned Chinese persons came to the attention of Jesuits who introduced the Chinese to western experiences in return. Hot springs were a point of common discussion and debate, through which the relative merits of Western and Chinese theories could be weighed by both sides. In the late imperial period, a more organized and systematic compilation of knowledge about hot springs had been formulated by the elite. Scholars' intellectual interests in the hot springs illustrate their comprehension of a large corpus of texts and annotations, comprising geographical records and travelogues, medical texts, and allusions from various literary pieces, poems, and art.

All of these multiple aspects of the intellectuals' interest in nature and the human body that interacted with one another shaped knowledge building regarding hot springs in premodern Chinese sources. Beyond learned persons, however, the activities surrounding hot springs had a strong connection with the common public image of these places that was held by large numbers of ordinary people, such as local inhabitants, pilgrims, and travelers. Scholarly interest in hot springs was more deeply connected to the social encounter integral to public bathing activities and customs and to the increasing construction of bathing areas at hot springs. For a long time, the various medical usages of hot springs that were compiled by medical physicians and commercial publishers also drew on local knowledge about the springs' uses in healing therapy in everyday life. This local knowledge, which was possessed and transmitted by non-elite groups of different ethnicities, and perhaps those of a different gender, is hard to recover, though traces of it appear in the records of the literati in the form of fragmented and often judgmental observations on local practices and beliefs. We can glimpse some of this knowledge, related to the suitability of hot spring water, in accounts of household cooking and washing, collective public bathing, and worship at springs.

The study of hot springs in China, therefore, reveals a cultural encounter between intellectual and popular conceptions of an individual's body as well as social rites and customs. This is evident in the various unsystematic forms of bodily knowledge attached to individual hot springs that circulated locally in routines of every life, and were collected and reorganized into forms of philosophical debates, the observation of local customs, the bodily treatment in medical records, spiritual connoisseurship of various waters, and translations during the early modern Sino-Western encounter. Each of these facets provides some hints of how ideas about nature and the human body have been shaped, transmitted, circulated, and translated through encounters between highly structured forms of knowledge and bodily knowledge throughout premodern Chinese society.

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