Healing plants in the spiritual landscape of the *Shanhai jing* (Itineraries of mountains and seas, comp. 1st c. BC)

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Abstract

In this paper I advance arguments against studies of plants listed in the *Shanhai jing* 山海經 (Itineraries of mountains and seas, compiled about the 1st century BC) in terms of materia medica or systematic botany. I propose to consider them instead as an integral part of an ideal organisation of terrestrial space conveyed by this early Chinese work – a *spiritual landscape*. The latter belongs to a so-called 'totalistic' conception, simultaneously embracing cosmological, religious, political, topographical and other dimensions, which cannot be disaggregated, as they are part of a single, complexly interrelated whole. The main distortion to be avoided is to regard its features, for instance the healing plants, independently from other dimensions, and in terms of typologically different or modernistic conceptual frameworks.

Keywords

Science in China, *Shanhai jing*; Healing plants; Spiritual landscape

Plantas medicinais na paisagem espiritual do *Shanhai jing* (Itinerários de montanhas e mares, compilado no século I a.C.)

Resumo

No presente artigo levanto argumentos contra o estudo das plantas contidas no *Shanhai jing* 山海經 (Itinerários de montanhas e mares, compilado ca. século I a.C.) em termos de matéria médica ou de botânica sistemática. Como alternativa, proponho considerá-las como parte integral de uma organização ideal do espaço terrestre transmitida nessa obra – uma *paisagem espiritual*. Essa abordagem se integra numa concepção 'totalizadora', abrangendo simultaneamente dimensões cosmológicas, religiosas, políticas e topográficas, entre outras, que não podem ser desagregadas, porque são parte de um todo complexamente inter-relacionado. A principal distorção a ser evitada é considerar o conteúdo da obra, por exemplo, as plantas medicinais, independentemente das outras dimensões e dentro de marcos conceituais tipologicamente diferentes ou modernos.

Palavras-chave

Ciência chinesa; *Shanhai jing*; Plantas medicinais; Paisagem espiritual

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Introduction

The *Shanhai jing* 山海經 (Itineraries of mountains and seas, hereafter SHJ), compiled in China about the 1st century BC, is a comprehensive description of the inhabited world focusing on its natural aspects – mountains and rivers, animals and plants. Although many of these attributes have fantastical elements, one of the trends in studies of this text consists in attempts to extract its 'realistic' and sometimes 'scientific' substrate, considering the SHJ as a compendium of early Chinese knowledge of geography, botany, zoology, mineralogy, medicine, pharmacology, and so forth.

The systematised form of listing the data in the SHJ and its comprehensiveness may, indeed, give the impression of accuracy and of attempts at proto-scientific classification. However, I argue that the natural features of the terrestrial world described in the SHJ are inscribed within a conceptual framework or worldview markedly different from the one of scientific, and especially modern Western, geography and the natural sciences. For the same reason, I have reservations about referring to it as a repository of 'early science' or 'proto-science'.

I have previously revealed the illusiveness of the SHJ topographical accuracy and tried to prove that it is topographically inaccurate by definition, because it conveys an *ideal* organisation of terrestrial space that aims at mapping a deployment of sacred powers over that space.[1] I proposed to consider such representation of terrestrial space as a *spiritual landscape*. With the creation of this spiritual landscape, the topographical reality was distorted and transformed, therefore, it cannot be judged based on the values and standards of scientific geography, which aims at achieving topographical precision.

In this paper I advance arguments against studies of plants listed in the SHJ in terms of materia medica or systematic botany and propose to explore them as a part of the spiritual landscape. This paper is far from a comprehensive examination of plants from this perspective. The aim is rather, relying on my previous studies of the SHJ, to present some initial insights into the place of plants in this text and define further steps in their exploration.

[1] I have published a series of articles on the SHJ which progressively analyse the representation of terrestrial space in this work, see Vera Dorofeeva-Lichtmann, "Conception of Terrestrial Organization in the *Shan hai jing*," *Bulletin de l'Ecole Française d'Extrême Orient* 82 (1995): 57-110; "Mapping a 'Spiritual' Landscape: Representing Terrestrial Space in the *Shan hai jing*," in *Political Frontiers, Ethnic Boundaries, and Human Geographies in Chinese History*, ed. Nicola di Cosmo, & Don Wyatt (London: RoutledgeCurzon, 2003), 35-79; "Text as a Device for Mapping a Sacred Space: A Case of the *Wu zang shan jing* (Five treasuries: the itineraries of mountains)," in *Creating and Representing Sacred Spaces*, ed. Michael Dickhardt, & Vera Dorofeeva-Lichtmann (*Göttinger Beiträge zur Asienforschung* 2-3 [2003, special double issue]), 147-210; "Mapless Mapping: Did the Maps of the *Shan hai jing* Ever Exist?," in *Graphics and Text in the Production of Technical Knowledge in China*: *The Warp and the Weft*, ed. Francesca Bray, Vera Dorofeeva-Lichtmann, & Georges Métailié (Leiden: Brill, 2007), 217-94.

Representation of the inhabited world in the SHJ (summary)

The SHJ may have incorporated earlier sources and notions, but its compilation reflects the persistent demands of the young Chinese Empire, positioning itself at the centre of the world, for a comprehensive and orderly representation of the latter. Let us take a brief look at the main characteristics of the SHJ and its picture of the world, which are necessary to comprehend the *context* of the references to healing plants in it.[2]

To begin with, the title of this work has caused much confusion and inconvenience for translators. The character *jing* 經 (literally 'warp', meaning 'the core line') in titles is usually applied to denote the status of a 'core' work – a classic or canon. In particular, about the time of SHJ's compilation, *jing* was added to the titles of some works that became recognised as Confucian canons, for instance the famous divination classic *Yijing* 易經(Classic/Canon of changes), the *Shijing* 詩經 (Classic/Canon of songs), the *Shujing* 書經 (Classic/Canon of documents), etc. The recognition of selected works as classics or canons was one of main intellectual enterprises of the Han dynasty that ruled China from the end of the 2nd century BC through the early 2nd century AD, and became one of the cornerstones of the Chinese imperial system.[3] However, in contrast to these Confucian classics, which originally circulated under simple names without the *jing*, the *jing* in the title of the SHJ appeared simultaneously with its compilation. This could perhaps mean a pretension to the status of a classic, which, however, never took place. The official reputation of the SHJ, according to the two first imperial histories – the *Historical Records* (*Shiji* 史記 by Sima Qian 司馬遷, 145? – 87 BC) and the *History of the [Former] Han Dynasty* (*Hanshu* 漢書 by Ban Gu 班固, AD 32-92), the former roughly contemporary to the SHJ - is pointedly negative, as a work of dubious and unreliable content.[4]

The more substantial difference of the SHJ relative to all other early Chinese works that bear *jing* in their general titles, and the main cause of inconvenience for translators, is the consistent usage of *jing* in the titles of all its subdivisions – beginning from the two main parts through to chapters and subchapters (see Table 1):

[2] The characteristics below summarize the results of my studies of the SHJ in the four articles listed above and allow me formulate some points more clearly. Comprehensive information about translations of the SHJ, standard editions, and studies by other scholars is provided in these articles, especially in the last one, and is not repeated here for reasons of brevity.

[3] Michael Nylan, *The Five "Confucian" Classics* (New Haven: Yale University Press, 2001).

[4] See Vera Dorofeeva-Lichtmann, "Where is the Yellow River Source? A Controversial Question in the Early Chinese Historiography," *Oriens Extremus* 45 (2005-2006): 68-90; "Ritual Practices for Constructing Terrestrial Space (Warring States-Early Han)," in *HdO Early Chinese Religion. Part One: Shang through Han (1250 BC – 220 AD)*, ed. John Lagerwey, & Marc Kalinowski (Leiden: Brill, 2009), 595-644.

Table 1: The table of contents of the *Shanhai jing* 山海經

No. of juan	TITLE OF *JUAN* 卷(chapter), its sub-divisions (if any)
Part I. "Itineraries of Mountains" *Shanjing* 山經	
1	"Itineraries of Southern Mountains" *Nanshan jing* 南山經 1 "[First] Itinerary of Southern Mountains" *Nanshan jing* 南山經 2 "Second Itinerary of Southern [Mountains]" *Nan ci er jing* 南次二經 3 "Third Itinerary of Southern [Mountains]" *Nan ci san jing* 南次三經
2	"Itineraries of Western Mountains" *Xishan jing* 西山經 1 "[First] Itinerary of Western Mountains" *Xishan jing* 西山經 2 "Second Itinerary of Western Mountains" *Xi ci er jing* 西次二經 3 "Third Itinerary of Western Mountains" *Xi ci san jing* 西次三經 4 "Fourth Itinerary of Western Mountains" *Xi ci si jing* 西次四經
3	"Itineraries of Northern Mountains" *Beishan jing* 北山經 1 "[First] Itinerary of Northern Mountains" *Beishan jing* 北山經 2 "Second Itinerary of Northern [Mountains]" *Bei ci er jing* 北次二經 3 "Third Itinerary of Northern [Mountains]" *Bei ci san jing* 北次三經
4	"Itineraries of Eastern Mountains" *Dongshan jing* 東山經 1 "[First] Itinerary of Eastern Mountains" *Dongshan jing* 東山經 2 "Second Itinerary of Eastern [Mountains]" *Dong ci er jing* 東次二經 3 "Third Itinerary of Eastern [Mountains]" *Dong ci san jing* 東次三經 4 "Forth Itinerary of Eastern [Mountains]" *Dong ci si jing* 東次四經
5	"Itineraries of Central Mountains" *Zhongshan jing* 中山經 1 "[First] Itinerary of Central Mountains" *Zhongshan jing* 中山經 2 "Second Itinerary of Central [Mountains]" *Zhong ci er jing* 中次二經 3 "Third Itinerary of Central [Mountains]" *Zhong ci san jing* 中次三經 4 "Fourth Itinerary of Central [Mountains]" *Zhong ci si jing* 中次四經 5 "Fifth Itinerary of Central [Mountains]" *Zhong ci wu jing* 中次五經 6 "Sixth Itinerary of Central [Mountains]" *Zhong ci liu jing* 中次六經 7 "Seventh Itinerary of Central [Mountains]" *Zhong ci qi jing* 中次七經 8 "Eighth Itinerary of Central [Mountains]" *Zhong ci ba jing* 中次八經 9 "Ninth Itinerary of Central [Mountains]" *Zhong ci jiu jing* 中次九經 10 "Tenth Itinerary of Central [Mountains]" *Zhong ci shi jing* 中次十經 11 "Eleventh Itinerary of Central [Mountians]" *Zhong ci shi yi jing* 中次十一經 12 "Twelfth Itinerary of Central [Mountians]" *Zhong ci shi er jing* 中次十二經
Part II. "Itineraries of Seas" *Haijing* 海經	
"Outside the Seas" *Haiwai* 海外	
6	"Southern Itinerary of Outside the Seas" *Haiwai nanjing* 海外南經
7	"Western Itinerary of Outside the Seas" *Haiwai xijing* 海外西經
8	"Northern Itinerary of Outside the Seas" *Haiwai beijing* 海外西經
9	"Eastern Itinerary of Outside the Seas" *Haiwai dongjing* 海外東經
"Inside the Seas" *Hainei* 海內	
10	"Southern Itinerary of Inside the Seas" *Hainei nanjing* 海內南經
11	"Western Itinerary of Inside the Seas" *Hainei xijing* 海內西經
12	"Northern Itinerary of Inside the Seas" *Hainei beijing* 海內北經
13	"Eastern Itinerary of Inside the Seas" *Hainei dongjing* 海內東經
"Great Wilderness" *Dahuang* 大荒	
14	"Eastern Itinerary of the Great Wilderness" *Dahuang dongjing* 大荒東經
15	"Southern Itinerary of the Great Wilderness" *Dahuang nanjing* 大荒南經
16	"Western Itinerary of the Great Wilderness" *Dahuang xijing* 大荒西經
17	"Northern Itinerary of the Great Wilderness" *Dahuang beijing* 大荒北經
"Inside the Seas" *Hainei* 海內 – addition	
18	"[Central] Itinerary of Inside the Seas" *Hainei jing* 海內經

Since the chapters and subchapters feature itineraries (the spatial arrangement of these itineraries is summed up below), there are good reasons to believe that in this case *jing* designates a "[system of regularly established] main routes or passages", also derived from the primary meaning of 'warp'. This interpretation was advanced in 1980 by an outstanding Chinese scholar of the 20th century and recognised specialist in the SHJ, Yuan Ke 袁珂 (1916-2001), who insisted that in this case *jing* is used in the sense of *jingli* 經歷 ('to go through, to pass, to undergo, to stretch over'), and not *jingdian* 經典 (classic, canon, book').[5] Yet, so far only Richard Strassberg and myself have followed this interpretation, translating the title of this work as "Guideways through mountains and seas" and "Itineraries of mountains and seas", respectively.[6] This interpretation allows one to avoid the awkwardly excessive repetition of "Classic/Book" in the titles of chapters and subchapters. Nevertheless, the translation of the general title as 'Classic/Book of mountains and seas' is still more common. It should, however, be noted that to be absolutely precise, *jing* in the general title of the SHJ plays with the two meanings of this character.

The systematic division of the SHJ into 'itineraries' accommodates a textual body of about 31,000 characters, which makes it the largest among early Chinese terrestrial descriptions. In comparison, the earliest and the most authoritative ancient Chinese terrestrial description, the *Yugong* 禹貢 ([Legendary Emperor] Yu's [system of] tribute, ca. 3rd-5th centuries BC) is about 2,000 characters in length.[7]

The outstanding size of the SHJ matches the large scope of territories encompassed by the text. In contrast to the *Yugong*, which is limited to the core territories of Chinese civilisation - the basins of the Yellow and Yangzi rivers - the SHJ comprises a detailed description of peripheral lands, barely mentioned in the *Yugong*.[8] The general idea of the picture of the inhabited world, according to the SHJ, can be grasped from the so-called 'wheel' maps based on this work (Map 1):[9]

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[5] Yuan Ke 袁珂, *Shanhaijing jiao yi* 山海經校譯 [A vernacular translation of the *Shanhaijing* with commentary] (Shanghai: Shanghai guji chubanshe, 1980), 180-4. Yuan Ke, in turn, relied on Hao Yixing 郝懿行 (1757–1825), one of the main commentators of the SHJ and author of its standard edition – *Shanhai jing jianshu* 山海經箋疏 (Explanatory notes and sub-commentary on the SHJ) first published in 1809 and reproduced in the *Sibu beiyao* 四部備要 editions, who elucidated the *jing* as follows: 經，言禹所經過也 ("*Jing* means [the itineraries that were] passed through by [the legendary Emperor] Yu", see Dorofeeva-Lichtmann, "Mapless Mapping," 254-9.

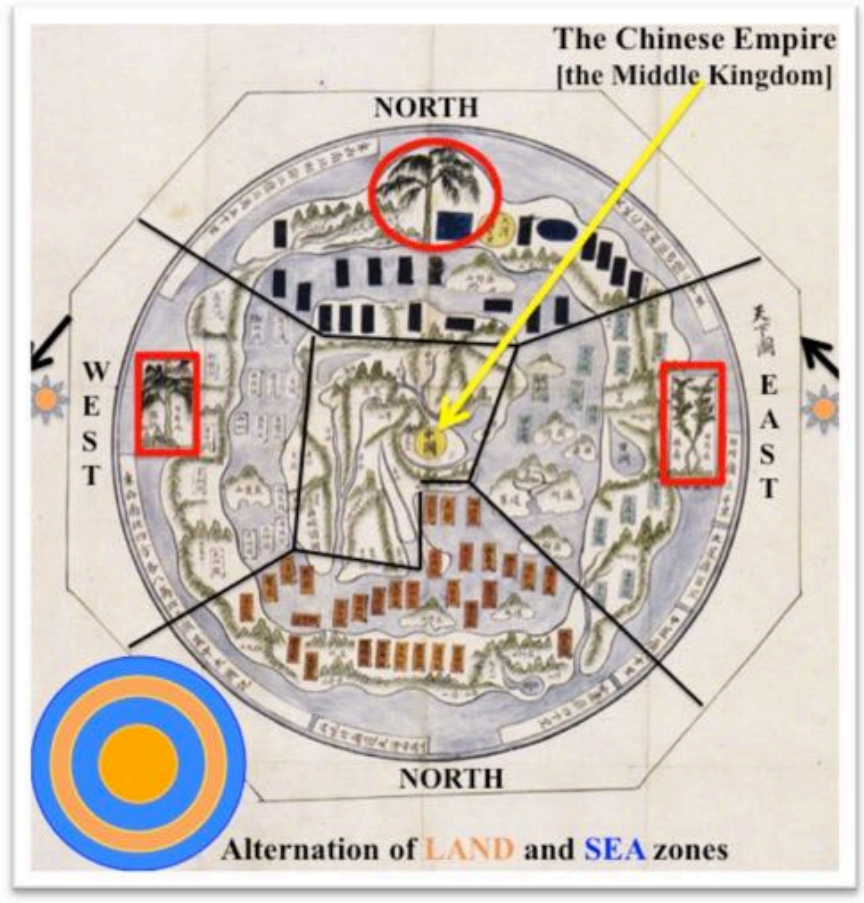
[6] Richard E. Strassberg, *A Chinese Bestiary: Strange Creatures from the Guideways Through Mountains and Seas* (Berkeley: University of California Press, 2002).

[7] The legendary Emperor Yu or Yu the Great is famed for having overcome the Flood and established an orderly division of the terrestrial space. This division is described in the *Yugong*, which became the officially recognized version of Yu's regulations and the crucial text in the Chinese tradition of representing space. For studies on the *Yugong*, the representation of terrestrial space according to the *Yugong*, and its difference from that of the SHJ, see Vera Dorofeeva-Lichtmann, "Ritual Practices".

[8] A list of concentric zones - the *Wufu* 五服 - is appended at the end of the *Yugong*, but not much detail is provided there. Interestingly, the zones' breadth of 500 *li* (each) and the name of the extreme zone – 'wilderness' (*huang* 荒) zone - are the same as in the SHJ.

[9] The 'wheel' maps, referred to in this way by convention, are the first sheets (key world maps) of the so-called Sino-Korean Atlases that became popular in Korea in the 18th-19th centuries. Copies of such atlases

Map 1. 'Wheel' map. Map of the Under-Heavens. 天下圖 Korean: Ch'ônhado; Chinese: Tianxatu. The first sheet (key-map) of a Sino-Korean atlas (late 18th century)



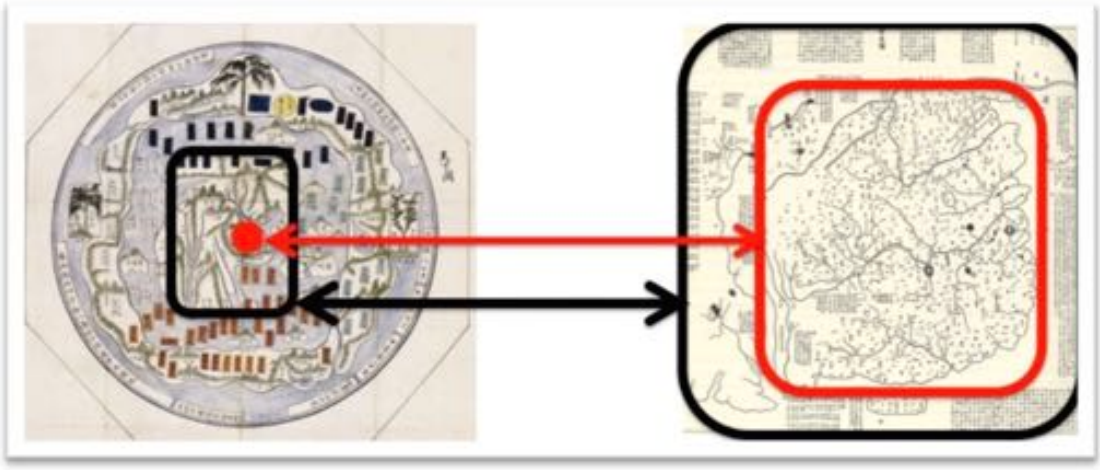
The world is structured as a nest of concentric zones, alternating land and sea (a simplified scheme of their alternation is given in the lower left corner, yellow= land, blue= sea). China is marked by a bright YELLOW CIRCLE in the CENTRE. The China-centred concentric zones are structured relative to the four cardinal directions. In this exquisite example of a 'wheel' map, the cardinally-oriented arrangement is highlighted by the symbolism of colours established in the Chinese tradition: YELLOW for the CENTRE, RED for the SOUTH, BLACK (blue-green black) for the NORTH, BLUE for the EAST and WHITE for the WEST. One can also see clear indications of the importance of vegetation in the SHJ, especially in a cosmological sense: the three eye-catching cosmic trees mark the EXTREME NORTH, the EXTREME EAST and the EXTREME WEST, respectively. The trees in the EAST and in the WEST mark the sunrise and sunset, respectively. The cosmic trees are matched by green-coloured mountain

(block print and manuscript) are very numerous and vary in artistic quality. Map 1 is a particularly beautiful example of a 'wheel' map. For the Sino-Korean Atlases, see the still pertinent article by Nakamura Hirosi, "Old Chinese Maps Preserved by the Koreans," *Imago Mundi* 4 (1947): 3-22, and its revision by Gari Ledyard, "Cartography in Korea," in *The History of Cartography, Vol.II.2: Cartography in the Traditional East and Southeast Asian Societies,* ed. J.B. Harley, & David Woodward (Chicago: The University of Chicago Press, 1994), 256-67.

ranges that fill the land zones. The visual abundance of green in the map conveys the idea of rich vegetation.

Such a comprehensive picture of the world is not at all typical of traditional Chinese 'global' maps, which, similarly to the *Yugong*, focus on the core territories of the Chinese Empire and its close periphery, as one can see, for instance, in the famous map of the Chinese Empire and 'barbarians' (*Huayitu* 華夷圖, engraved in 1136) inevitably found in all survey studies of the history of Chinese cartography and geography.[10] To the Western eye such global maps give an impression of being maps of the Chinese Empire within a thin frame of neighbours. The territories covered by such maps roughly correspond to the central zone of the inhabited world delimited by the sea in the 'wheel' maps (Map 2):

Map 2. Comparison of areas covered by a 'wheel' map and the *Huayi tu* 華夷圖



'Wheel' map (see Map 1)

Huayi tu 華夷圖
("Map of the Chinese and Barbarian [territories[", engraved in 1136

Red: the Chinese Empire; **Black**: its close periphery

Though distinguished by an outstandingly large geographical scope, the SHJ still gives its primary attention to the territories occupied by the Chinese Empire and its close neighbours. Indeed, these territories are described in the first part of the SHJ, the *Shanjing* (Itineraries of mountains), which is the core part of the text, making up two thirds of its length (ca. 21,000 out of 31,000 characters). The central part of the world is mapped by 26 itineraries (*jing* 經) orderly distributed between the four cardinal directions and the centre, as one can see from their titles (see Table 1, chapters and subchapters of "Itineraries of mountains"). There are three itineraries in the south and three in the north, four in the east, four in the west, and 12 in the centre. The 26 itineraries are relative to 447 mountains. The level of comprehensiveness of this system of itineraries can again be appreciated by

[10] Cordell Yee, "Cartography in China," in *The History of Cartography, Vol.II.2: Cartography in the Traditional East and Southeast Asian Societies,* ed. J.B. Harley, & David Woodward (Chicago: The University of Chicago Press, 1994), 46-8.

comparing it to the *Yugong*, where one can find nine itineraries encompassing 27 mountains. In both texts itineraries are delineated from mountain to mountain. In contrast to the *Yugong*, where only sequences of mountains are listed, the SHJ gives a direction from the preceding mountain in the itinerary (according to the four cardinal and four semi-cardinal directions) and a distance between two neighbouring mountains (in round figures). For instance, Mountain B is located "300 *li* (ca. 150 km) to the south-east" (*dongnan sanbaili* 東南三百里) from Mountain A. This makes for a very rough mapping, so that the topographical accuracy sometimes attributed to the SHJ is impossible on these premises alone.[11]

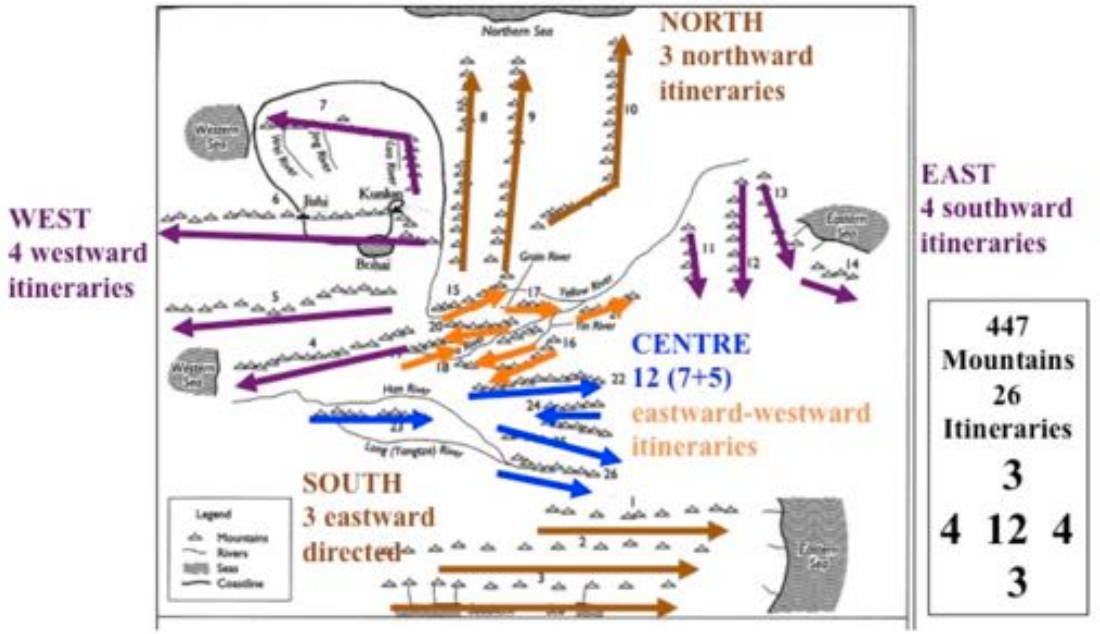
Map 3. Map of the Chinese Empire (the Middle Kingdom) 中國 *Zhongguo tu*
The second sheer in a Sino-Korean atlas (late 18th century) following the 'wheel' map (see Map 1)

In Map 1 and especially in Map 3 - related to it and that provides a close-up of the Chinese territory - one can see mountain ranges coloured in vegetative green, which may appear as itineraries. Yet the mountain ranges in Map 3, and in any other map of China, do not match the system of 26 itineraries, as the latter does not reflect the natural landscape, but operates as an interface that transforms the latter into an

[11] Yet, the principle is the same as in portolan maps (direction-distance) with the difference that the portolan charts are much more sophisticated (32 rhumb directions, latitudes).

ideal spatial construction. One can see this in a reconstruction of the system of 26 itineraries superimposed on a physical map of China (Map 4).[12]

Map 4. "Itineraries of mountains". Shanjing 山經



1. First guideway through the Southern Mountains
2. Second guideway through the Southern Mountains
3. Third guideway through the Southern Mountains
4. First guideway through the Western Mountains
5. Second guideway through the Western Mountains
6. Third guideway through the Western Mountains
7. Fourth guideway through the Western Mountains
8. First guideway through the Northern Mountains
9. Second guideway through the Northern Mountains
10. Third guideway through the Northern Mountains
11. First guideway through the Eastern Mountains
12. Second guideway through the Eastern Mountains
13. Third guideway through the Eastern Mountains
14. Fourth guideway through the Eastern Mountains
15. First guideway through the Eastern Mountains
16. Second guideway through the Eastern Mountains
17. Third guideway through the Eastern Mountains
18. Fourth guideway through the Eastern Mountains
19. Fifth guideway through the Eastern Mountains
20. Sixth guideway through the Eastern Mountains
21. Seventh guideway through the Eastern Mountains
22. Eighth guideway through the Eastern Mountains
23. Ninth guideway through the Eastern Mountains
24. Tenth guideway through the Eastern Mountains
25. Eleventh guideway through the Eastern Mountains
26. Twelfth guideway through the Eastern Mountains

The spatial arrangement of the itineraries is as follows:

- 3 northern itineraries go north, 4 western itineraries go west.
- 3 southern itineraries go east; 4 eastern itineraries go south.
- 12 itineraries in the centre form two clusters, all itineraries go east or west, 7 itineraries refer to the Yellow River Basin, 5 to the Yangzi River Basin.

This arrangement is to a considerable extent influenced by the natural configuration of the mapped territory: the itineraries in the south and the east are parallel to the sea coast, and in the north and the west, where no definite natural

[12] The reconstruction was proposed by Wang Chengzu 王成組, *Zhongguo dilixueshi: Xian Qin zhi Ming dai* 中國地理學史，先秦至明代 [History of Chinese geography: from the Qin through the Ming dynasty] (Peking: Shangwu, 1988 [1st ed. 1992]), 19, map 2; redrawn with translations and some useful additions by Strassberg, *Chinese Bestiary*, 37, fig. 10; corrected by Dorofeeva-Lichtmann, *Where is the Yellow River Source*, 82, map 3.

borders are in evidence, they go from the centre to the periphery. The central itineraries are parallel to river courses. Yet, apart from the rule to delineate itineraries between waterways so that they never cross them, there is little correspondence to the real topography of the mapped territory. No distinct sequences of mountains that *could* correspond to the itineraries can be distinguished in the real topography of the mapped territories. Many of the mountains have contradictory identification or cannot be identified at all, and the distances given between mountains make the itineraries go largely beyond the limits of the basins of the Yellow and Yangzi rivers. The reason for this mismatch is that the itineraries do not follow natural mountain ranges, as one might misunderstand from the reconstruction above, but *comprise mountains that are governed by the same group of local spirits*. Such itineraries delineate an invisible *spiritual landscape,* which has distinctive attributes of an orderly spatial scheme.

The 26 core itineraries comprising the "Itineraries of mountains" are complemented by itineraries of the *Haijing* (Itineraries of seas), which describe the overseas periphery. These itineraries are delineated less consistently, but possess even more pronounced sacred connotations, such as correspondence to the four gods of the cardinal directions, and huge cosmic trees marking the eastern, northern and western extremities of the inhabited world (these trees are depicted in Map 1). More concerned with peoples of faraway countries than with landscape features, the "Itineraries of seas" are less important for our exploratory investigation, which is limited to the numerous references to plants in the system of 26 itineraries.

Similarly to the rigidly structured system of 26 itineraries, the description of the features of the natural world along the itineraries is also systematised and uniform. The 447 mountains in the 26 itineraries are not only the 'fixing points' of the 'supporting frame' of the mapped picture of the world, but also the 'entry points' to the descriptions: all the listed features of the inhabited world are related to mountains. In other words, a description of an itinerary is a sequence of descriptions of mountains. The mountains are described in a uniformly formulaic way according to recurrent characteristics. The main characteristics are the plants, animals and minerals found on a mountain and the river(s) emanating from it, which in turn contain various beings and things. As a rule, the beings and things are so-called 'anomalies' (e.g., trees of extreme height, animals with five legs, etc.) and many of them possess extraordinary properties, such as being auspicious or evil signs, or producing healing or poisoning effects. Their order varies considerably (except for the name of the mountain and its distance from the preceding one, which always heads the description). In general, those descriptions give an impression not unlike that one might get from the filling of forms. An interesting manifestation of this 'form-like' style is the occurrence of frequent notes about the *absence* of a certain characteristic (e.g., 'there are no herbs and trees, no rivers...') as in the case of forms in which one is requested to cross out absent items. Even more interesting are references of the type 'there *are* herbs and trees' or 'there *are many* herbs and trees', which enhance the form-like impression of the description.

The SHJ in studies on the history of Chinese science

The *comprehensiveness* of the SHJ in many respects, and especially *its systematic and orderly presentation of natural data,* attracted the attention of historians of Chinese science ever since the upsurge of studies in this field in the mid 20th century under the impulse of Joseph Needham's 'Science and Civilisation in China'.

Needham personally took notice of the SHJ, in particular of its healing substances. Although he tried to be careful in his formulations, his view of herbs and minerals occurring in this work implies an interpretation enclosing a materia medica:

> "Now when we look at what is said of herbs and minerals in this treatise, we find, rather surprisingly perhaps, that the idea of prevention rather than cure is outstandingly present. The *Shan Hai Ching* usually recommends particular drugs, not for curing diseases but for preventing their onset. No less than sixty items of this kind are stated to promote health and to prevent illness."[13]

Needham's trend had unfortunate impact on the SHJ. His cautious approach became vulgarised by some Chinese scholars striving to discover the ancient origins of Chinese science as proof of its priority. As a result, the SHJ became systematically misinterpreted as the earliest source for various domains of Chinese natural science.

Many examples of such misinterpretations are found in the main Chinese journal for the history of Science, *Ziran kexueshi yanjiu* 自然科學史研究 (Explorations in the History of Natural Sciences) published by the Institute for the History of Natural Sciences (*Ziran kexueshi yanjiusuo* 自然科學史研究所), Chinese Academy of Sciences (*Zhongguo kexueyuan* 中國科學院) in Beijing. According to a series of articles in this journal and related works, the SHJ may be defined as a compendium of ancient Chinese "zoology"[14] and "zoogeography",[15] a source on "ancient China's knowledge of mineralogy", representing an early stage in the "development of Chinese geology",[16] and as evidence of "systematic botany of a high level" in early China.[17]

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[13] Joseph Needham, *Clerks and Craftsmen in China and the West* (Cambridge: Cambridge University Press, 1970), 350.

[14] Meng Fangping 孟方平, "Nanshanjing qiqin yishou shijie 南山經奇禽異獸試". A tentative explanation for the strange birds and beasts in the *Nan Shan Jing*, *Ziran kexueshi yanjiu* 自然科學史研究, 12, no. 2? (1993): 174-84, strives to find actual prototypes for the 'strange birds and beasts' in the SHJ; a similar aspiration is pursued in the part devoted to the SHJ of the monograph study on "ancient Chinese zoology" by Guo Fu 郭郛, *Zhongguo gudai dongwu xueshi* 中國古代動物學史 [History of ancient Chinese zoology] (Beijing: Kexue chubanshe, 1999), 37-79.

[15] Chen Guosheng 陳國生 and Yi Zefeng 易澤丰,"Wuzang Shanjing jizai de dongwu dilixue zhishi 五藏山經記載的物地理學/Zoo-geography Recorded in *Wu zang Shan jing*," *Zhongguo keji shiliao* 中國科技史料 19, no. 1 (1998): 75-88.

[16] Chen Guosheng, & Yang Xiaoxia 楊曉霞 ["Wuzang Shanjing zhong kuangwu mingcheng kaoshi ji qi dili fenbu yanjiu" 五藏山經中礦物名稱考釋及其地理分布研究 / The names of minerals in *Wu zang Shan jing* and their geographical distribution," *Ziran kexueshi yanjiu*, 16, no. 4 (1997), 368-83] see in the SHJ

Especially numerous are the 'geographical' studies of the SHJ, beginning from the detailed 'geographical study' of its first part, illustrated with numerous maps, by Wei Tingsheng 衛挺生 and Hsu Shangmo 徐聖謨.[18] The famous historian of Chinese geography, especially of historical geography, Tan Qixiang 譚其驤, in his seminal article of 1982 on the geographical areas covered by the "Itineraries of mountains", concludes that, "though mixed up with some elements of legend and mythology, it is primarily a geographical work that contains much realistic knowledge of the ancient times" [19]. Tan Qixiang stresses the evidence on the 'realistic' characteristics of this geographical 'knowledge' and tends to play down discrepancies between data given in the SHJ and the topographical reality. This approach is the most common within the 'scientific' trend of SHJ studies. There are some cases of highly critical evaluation of the reliability of the topographical data found in the book.[20] However, even the most severe critical evaluations still rest on the assumption that the SHJ aimed at conveying topographical reality, and differ from the high evaluation of its topographical accuracy only in the assessment of how well this aim was achieved. There is a whole series of studies focussed on the SHJ as a source on ancient Chinese geography, and also chapters devoted to the SHJ in survey histories of Chinese geography that vary between these two extremes.[21] The single scholar who goes a bit astray and comes close to revealing an *ideal spatial conception* prevailing over the topographical reality in the SHJ is Wang Chengzu 王成祖, the author of the reconstructed map behind the system of 26 itineraries (see Map 4).[22]

"ancient China's knowledge of mineralogy" representing an early stage in the "development of Chinese geology".

[17] Ding Yonghui 丁永輝 ["Shanhaijing yu gudai zhiwu fanlei 山海經與古代植物分類 / *Shan Hai Jing* (Classic of mountains and rivers) "systematic botany in ancient China," *Ziran kexueshi yanjiu* 12, no. 3 (1993): 268-76] "systematic botany" of a "high level".

[18] Wei Tingsheng 衛挺生, & Hsu Shengmo 徐聖謨, *Shanjing dili tukao* 山經地理圖考/*A Modern Geographical Study of Shan-ching with maps* (Taipei: The China Academy Yang Ming Shan, 1974).

[19] Tan Qixiang, "Lun Wuzang Shanjing de diyu fanwei 論五藏山經的地域范圍/The Areas Covered by *Wu zang Shan jing*," in *Explorations in the History of Science and Technology in China*, ed. Li Guohao et al., (Shanghai: Guji Chubanshe 1982), 299-300.

[20] Zhang Jian 張箭, "Cong ziran dilixue bian Shanhaijing de diyu fanwei 從自然地理學辨山海經的地域范圍/To discern the scope of records of the mountains and rivers in terms of natural geography," *Da ziran tansuo* 大自然探索 15, Sum no. 57 (1996, no. 3): 123-7, highlights "the natural geographical mistakes" across the entire SHJ and provides a list of the main geographical errors in it.

[21] I analyse the 'geographical' studies of the SHJ in Dorofeeva-Lichtmann, "Mapping a 'Spiritual' Landscape".

[22] Wang Chengzu, *Zhongguo dilixueshi*, 16-26. It should be noted that Chinese scholarship always showed interest in the general pattern of the world according to the SHJ. Those studies, however, are parts of explorations of Chinese cosmography and cosmology and are not concerned with the itineraries for being too specific. An interesting example is the article by Chang Pei-Chen 張佩珍, "《山海經》世界形制及其整體觀 — 以兩位學者的探討為主 / Mapping the world of the *Shanhaijing* – a comparison

The paper on "systematic botany" by Ding Yonghui belongs to the positive extreme of the 'scientific' interpretations of the SHJ, attributing high value to its scientific characteristics and applying such modernistic terms as "systematic botany" and "taxonomy" to it:

> "Through a comparative study of how plants are recorded in the book *Shan Hai Jing*, this paper finds that the plants in it are classified according to such characteristics as their shape, temperament, odour and function, and that it shows a high level of systematic botany. The author of the paper holds: (1) As China's most ancient extant work reflecting systematic botany, *Shan Hai Jing* occupies a prominent position in the history of taxonomy in China and even in the world; (2) Its systematization of plants has a close relation to and is an embryonic form of the system of medicinal herbs of later ages; (3) In the light of plants put down in inscriptions on bones and tortoise shells of the Shang Dynasty (c. 16th-11th century B.C.), the primordial systematization of plants in ancient China deals with herbs, trees and grains, and not just herbs and trees."[23]

The ultimate goal is to prove the priority of Chinese science in the history of the formation of modern science.

Western scholarship on the SHJ is less direct in its search of the origins of Chinese science, however, neither it avoided modernistic interpretations of this work. Illustrations of 'scientific' interpretations are found in a still very useful research tool created by a translator and careful researcher of this work, Riccardo Fracasso, namely, a bibliography of the studies conducted on it arranged by subject.[24] Section 'H' of this bibliography, entitled "Natural Sciences and Medicine", includes 19 entries by seven Chinese scholars, four Japanese, one American, and one Russian.[25] No note is provided about possibly exaggerated scientific interpretations of the SHJ in the listed works, which are thus taken for granted.

Among Western scholars, a medical interpretation of the SHJ has been attempted by John Schiffeler, who looks here for the origins of the Chinese folk medicine, thus avoiding a rough modernistic interpretation of this work:

> "In many ways, this classic bears some similarity in content and theme to the Hippocratic treatise *Airs, Waters, Places*, although it is not commonly associated with being a part of the Chinese medical corpus

study," 東海大學文學院報/*Tonghai Journal of Humanities* 51 (2010): 143-70, which summarises a series of studies in this area by Western scholars including myself.

[23] Ding Yonghui, "Shan Hai Jing", 276.

[24] Riccardo Fracasso, "The Shanhai jing: a bibliography by subject," *CINA* 23 (1991): 81-104.

[25] 'Geographical' works are accumulated in section 'F' – "Geography and Ethnology" which includes 22 entries by 15 Chinese scholars and 1 Japanese.

as the latter is in the Greek medicine. For, like this ancient Greek treatise, *The Classic of the Mountains and Seas* is based upon a philosophical and scientific premise of nature – the Chinese *Weltanschauung*."[26]

Spatial arrangement of plants in the SHJ (approximation)

Schiffeler infers a pertinent conclusion about the key-role the Chinese *worldview* plays in the comprehension of the data listed in the SHJ, though still considering such wordview as a '*scientific* premise of nature'. I argue that the meaning and role of the healing plants in the SHJ cannot be adequately understood separately from all the other elements in the *spiritual landscape* mapped by the system of itineraries. The *spiritual landscape* belongs to a so-called 'totalistic' conception, simultaneously embracing cosmological, religious, political, topographical and other dimensions, which cannot be disaggregated, as they are part of a single, complexly interrelated whole.[27] Therefore, the main distortion to be avoided in the case of the SHJ is to regard its dimensions one independently from the other, and in terms of typologically different or modernistic conceptual frameworks.

Instead of trying to adjust the plants enumerated in the SHJ to systematic botany or a materia medica, I propose to determine, at this point very generally, what place they have in the system of organisation of data used in this work.

The system of 26 itineraries is distinguished by two main properties:

1) The itineraries map an orderly distribution of groups of spirits over terrestrial space – a *spiritual landscape*.
2) Each mountain is ascribed a unique and precise 'position' within the system of itineraries.

Therefore, all the issues related to the mountains have a certain *place within the spiritual landscape*. This necessarily applies to the plants included in the SHJ.

[26] John Wm. Schiffeler, "Chinese Folk Medicine: A Study of the Shan-hai Ching," *Asian Folklore Studies* 39, no. 2 (1980): 41-83, on 41.

[27] As defined by Stanley J. Tambiah, *Culture, Thought and Action: An Anthropological Perspective* (Cambridge, MA: Harvard University Press, 1985), 252-9, following Marcel Mauss. For another example of a 'totalistic' view of terrestrial space in ancient China, see the study of an 'ancestral landscape' in late Shang China (ca. 1200-1045 BC) by David Keightley, *The Ancestral Landscape: Time, Space, and Community in Late Shang China (ca 1200-1045 BC)* (Berkeley: Institute of East Asian Studies, University of California; Center for Chinese Studies (China Research Monograph 53), 2000).

The plants included in the SHJ belong to two main categories: trees (*mu* 木) and herbs (*cao* 草).[28] These are the most numerous features of the mountains in the "Itineraries of mountains", many – at first glance – possessing healing properties.

Out of a total of 447 mountains, 192 (about 43 %) are covered with vegetation. Such an arrangement of plants rather significant.

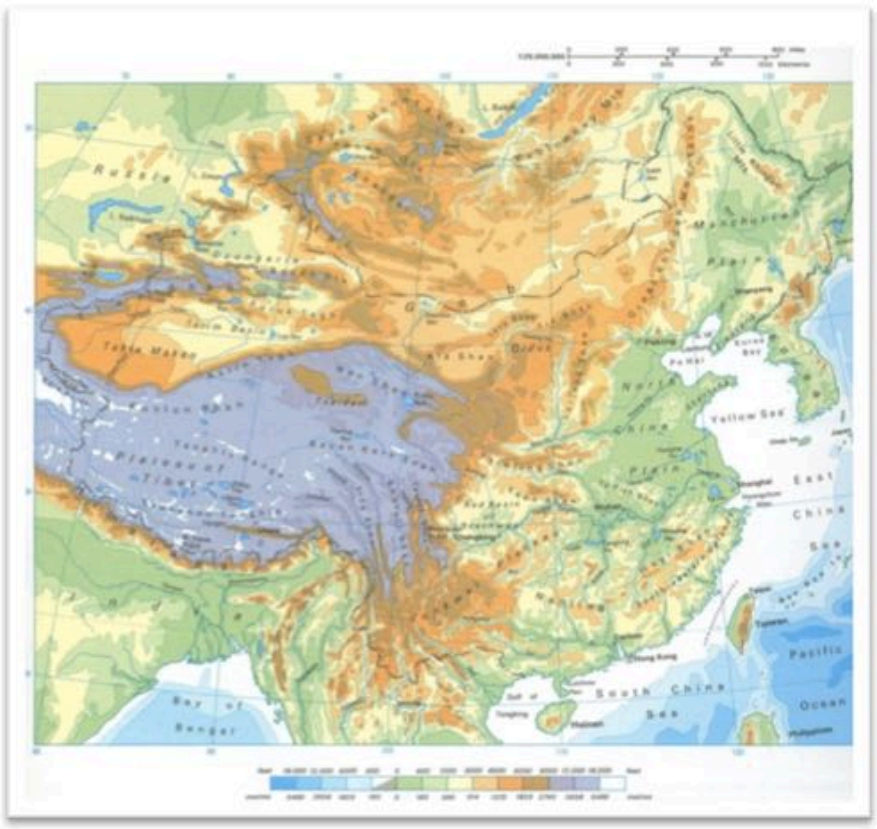
First, it is noteworthy that in the SHJ plants are related exclusively to mountains. This relationship can be seen in Chinese coloured maps, where mountains are often tinted luminescent green, or green-blue in the case of especially high mountains, so that they stand out from the plains, which are devoid of images of vegetation and usually coloured in grey or sandy tones (see Map 5, which depicts a fragment of a Yellow River map, versions of which were current during the early Qing dynasty [1644-1911]).

Map 5. Map of the Yellow River (early Qing dynasty [1644-1911]), fragment, Musée Guimet, Paris

This map gives us a close-up of a landscape view, which inspired the tracing of itineraries marked by mountains. One can see it has many places considered as 'mountains' – each slightly elevated site or hill seems to have qualified as a 'mountain' – and that itineraries can be traced in many different ways. Interestingly, in Western maps the colour-code for landscape features is usually the opposite (see Map 6): green is used for plains, while mountainous regions are depicted in various shades of brown, from light brown for slightly elevated areas to dark brown for high mountains.

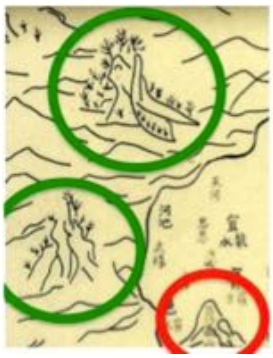
[28] An examination of the SHJ from the perspective suggested here may allow distinguishing other categories of plants, like, e.g., 'grains; , as suggested by Ding Yonghui, as well as to perceive the relationships between them.

Map 6. Physical map of China

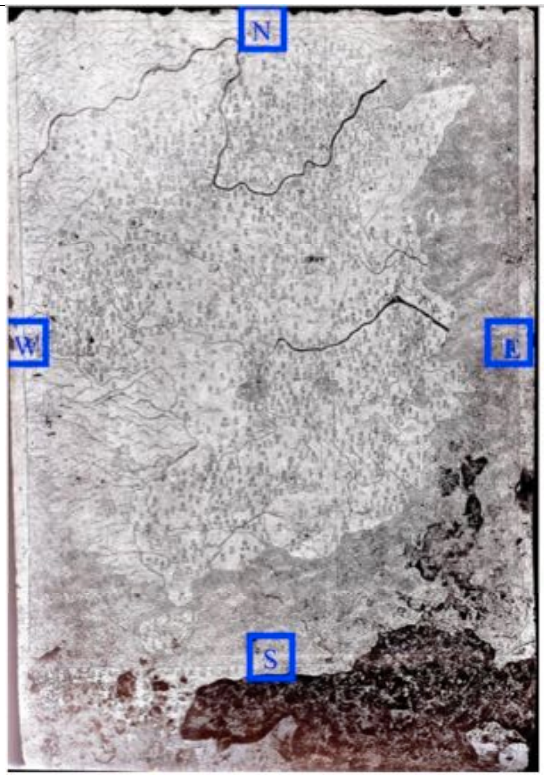


Second, also the ratio of verdant and barren mountains – 43% versus 57% – is very interesting, especially since the absence of vegetation is pointed out in the text. Again, there is a clear distinction between verdant and barren mountains in some Chinese maps, a clear indication of its importance. This distinction can be seen in the earliest extant maps of the Chinese Empire, dating from the Southern Song 南宋 Dynasty (1127-1279), engraved on stone steles. Those maps do not have colours, but contain prominent depictions of trees on mountains, so that one can easily spot mountains with and without trees (see Maps 7 and 8).

Map 7. "Map of the prefectures and counties of the nine districts". *Jiuyu shouling tu* 九域守令圖. Stone rubbing-positive, 100 x 130 cm, engraved in 1121 Yellow River course: 1069-1081 or 1094-1099



Map fragment: **GREEN** – mountains with vegetation; **RED** naked or bald mountains



Map 8. "Map of Terrestrial Organisation:. *Dili tu* 墜理圖. Stone rubbing-redrawing, 101 x 179 cm, created in 1190, engraved in 1247

Map fragment: **GREEN** – mountains with vegetation; **RED** naked or bald mountains

Third, the distribution of verdant and barren mountains is not even relative to the itineraries and the cardinal directions. The general layout of their distribution is as shown in Table 2, below:

Table 2: Spatial distribution of plants in the SHJ

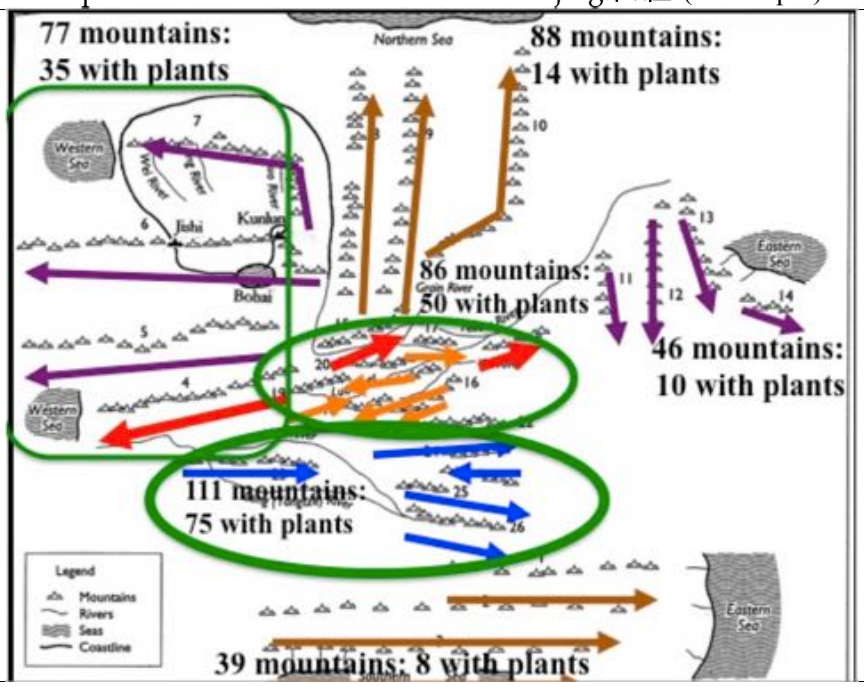
Cardinally-oriented groups of ITINERARIES in the *Shanjing* 山經 "Itineraries of mountains"	Number of mountains	Mountains with plants number (%)
SOUTH	39	8 (about 21 %)
WEST	**77**	**35 (about 45 %)**
NORTH	88	14 (about 15 %)
EAST	46	10 (about 21 %)
CENTRE 1 (Yellow River basin)	**86**	**50 (about 58 %)**
CENTRE 2 (Blue River basin)	**111**	**75 (about 68 %)**
Total	**447**	**192 (about 43 %)**

Caption: bold indicates areas with a large percentage of verdant mountains (> 40%)

This distribution can be better grasped when represented on the reconstructed map of the itineraries (see Map 9). One can see that according to the SHJ the vegetation is concentrated in the Centre, especially in the southern part around the Yangzi River, and also, rather surprisingly, all across the West, where vegetation is not actually that impressive; in turn it appears to be very modest in the South, which in reality is distinguished by a lush vegetation. A hypothesis to explore here is that vegetation was recorded for the best-known parts of the described territories and does not reflect the actual distribution of the vegetation.

Now, when one outlines an approximate arrangement of plants with healing properties, the result is even more unexpected, and their distribution more narrow. The healing plants in the SHJ are densely concentrated in three itineraries, to wit, the 1st western, and 1st and 7th central (see Map 9**).** These three itineraries are roughly located on the same level, namely, along an imaginary east-west axis, whereas references to plants with healing properties are occasional in the other itineraries, and the most richly vegetated itineraries in the Yangzi basin do not contain many healing plants at all.

Map 9. "Itineraries of mountains". Shanjing 山經 (see Map 4)



Distribution of plants: 447 mountains – 192 with plants (ca. 43%)
GREEN – groups of itineraries with rich vegetation **RED** – itineraries rich in healing plants

1. First guideway through the Southern Mountains
2. Second guideway through the Southern Mountains
3. Third guideway through the Southern Mountains
4. First guideway through the Western Mountains
5. Second guideway through the Western Mountains
6. Third guideway through the Western Mountains
7. Fourth guideway through the Western Mountains
8. First guideway through the Northern Mountains
9. Second guideway through the Northern Mountains
10. Third guideway through the Northern Mountains
11. First guideway through the Eastern Mountains
12. Second guideway through the Eastern Mountains
13. Third guideway through the Eastern Mountains
14. Fourth guideway through the Eastern Mountains
15. First guideway through the Eastern Mountains
16. Second guideway through the Eastern Mountains
17. Third guideway through the Eastern Mountains
18. Fourth guideway through the Eastern Mountains
19. Fifth guideway through the Eastern Mountains
20. Sixth guideway through the Eastern Mountains
21. Seventh guideway through the Eastern Mountains
22. Eighth guideway through the Eastern Mountains
23. Ninth guideway through the Eastern Mountains
24. Tenth guideway through the Eastern Mountains
25. Eleventh guideway through the Eastern Mountains
26. Twelfth guideway through the Eastern Mountains

However, when I tried to identify healing and poisonous plants to make precise calculations, I encountered several problems which prevented me from advancing further at this point: plants, animals and minerals may produce similar healing or poisoning effects; sometimes the so-called healing properties verge on the edge of magic (e.g., a plant may help to subdue horses); and the references to the healing properties of plants, animals and minerals are formally similar as evil or auspicious portents.[29]

[29] For portentous effects of animals mentioned in the SHJ, see Riccardo Fracasso, "Teratoscopy or Divination by Monsters, Being a Study on the Wu-tsang Shan-ching," *Han hsüeh yen chiu*/ 漢學研究 1, no. 2 (December 1983): 657-700. Two useful tables of portentous animals made by Fracasso show a lack of a clear distinction among the portentous, magical and healing functions of beings and things in the SHJ.

Conclusions and perspectives for further investigation

These preliminary insights into the distribution of plants in general, and healing plants in particular, show that looking for references to healing plants in the SHJ, or healing substances in general, and then trying to evaluate them in the terms of the materia medica, or even folk medicine, is a misleading approach. The healing properties of plants, beings or things can only be adequately understood when seen as an integral part of *spiritual landscape* mapped in the SHJ. One should systematically explore the healing and poisoning properties of all the substances possessing them – plants, animals and minerals, taking into account their reported evil or auspicious effects. For this purpose one should meticulously list the references to healing and poisoning, evil and auspicious properties of plants, animals and minerals relative to the sequences of mountains (= itineraries) so that one might immediately identify the mountains devoid of plants, beings or things with such properties, mountains especially rich in them, and clusters of mountains that containing them. Only by pursuing this approach one might come to comprehend the idea of healing according to the SHJ's worldview and avoid clouding it with notions corresponding to some sort of early scientific medicine.

The aforementioned lists reveal the distribution of healing/poisonous and evil/auspicious beings and things and the type of such special qualities between the 26 cardinally oriented itineraries, and their relationship to the spatial arrangement of local spirits. A thorough study of such distribution requires determining whether there are connections between the configuration of the *spiritual landscape* and the occurrence of healing/poisonous and evil/auspicious beings and things. The preliminary insights into this subject described in the present article suggest that there are some such connections, albeit perhaps more complex and less consistent than one might expect, which throw new light on the origins of the SHJ.