Tufuling / China Root: a Novel Cure for Syphilis and Mercurial Poisoning as Presented in Li Shizhen's Systematic Materia Medica

Tufuling / China Root: A Novel Cure for Syphilis and Mercurial Poisoning as Presented in Li Shizhen's Compendium of Materia Medica

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> Li Shizhen, *Compendium of Materia Medica* (*Bencao gangmu* 本草綱目), 25 vols. (ca. 1573–1593).
>
> Library of Congress, Chinese Rare Book Collection.*
>
> World Digital Library https://www.wdl.org/en/item/13551/

Commentary

Scholars generally agree that syphilis started to appear in South China by the early 16th century.[1] Both the disease's point of entry to the country (Far South) and its conduit of transmission (through sexual contact), however, elicited a familiar discourse on contagion (*chuanran* 傳染) that had already been present in Chinese medical and general records since at least the 12th century. The term *chuanran* was initially used to denote pathogenic influences imposed upon the human body from without—expressed in terms such as "Heavenly Circulations" (*tianxing* 天行) and

"seasonal air" (*shiqi* 時氣)—a powerful discourse deployed to explain the uneven outbreak of smallpox among children, for instance. Yet the person-to-person route of transmission, as well as the alarming social and ethical consequences this might incur, was already apparent by the Southern Song times (1127–1296). The neo-Confucian philosopher Zhu Xi 朱熹 (1130–1200), for instance, exhorted people not to deceive each other by downplaying the risk of contagion, but instead to persist in taking care of their sick kinsmen even in the face of contagion, "knowing that obligation toward kindness is so weighty that they would not shrink from this obligation in avoidance."[2]

Also emerging in the 12th century was what Marta Hanson has called the "geographical imagination of epidemics" in Chinese medical discourse, one that exerted an increasingly stigmatic view toward the Lingnan region.[3] Angela Ki-Che Leung, in her history of leprosy in China, documented the negative remarks made by Song authors toward Southern climate as "miasmic" (*zhang* 瘴) and eventually a sexually charged view toward native Southern women as agents of spreading venereal disease.[4] The earliest medical discussion of the so-called "Guangdong sores 廣東瘡 / Bayberry Sores 楊梅瘡," which all dated to the 16th century, thus fed into and amplified this existing discriminatory view.

One of the most articulate and commonly-cited early sources on syphilis as a contagious disease in China is *Bencao gangmu* 本草綱目 (*Compendium of Materia Medica*), compiled by the physician-author Li Shizhen 李時珍 (1518–1593) and excerpted below. *Bencao gangmu* is a comprehensive pharmacopeia documenting 1,892 different kinds of materia medica. Rightly celebrated as an innovative achievement both within the Chinese tradition and in the contemporary world more broadly, *Bencao gangmu* has been fully translated into English and meticulously annotated and indexed by researchers.[5] The text has also been subject to much interpretive scrutiny throughout its transnational reception, and Harvard's holdings in microform and in its Rare Book Collection speak to this pharmacopeia's long-running influence since the first print edition came out in 1596.[6]

In this short essay, my first goal is to provide an accurate and more easily accessible translation of Li Shizhen's commentaries on the herb *tufuling* 土茯苓, from which his discussion on syphilis was originally situated. Building on an emergent literature on pharmaceuticals in the early modern global trade, I also seek to weigh in on the discussion of tufuling as the famous "China root" much coveted by physicians and patients around the world.[7] In what follows, I consider the extent to which Li Shizhen and other Chinese physicians in the 16th century perceive *tufuling* as a novel cure for syphilis, and how the identity and use of this herbal cure was justified and stabilized through such an erudite text as Li's *Bencao gangmu*.

To begin, the nomenclature and ontological stability of the drug was by no means taken for granted, but was only achieved through Li's union of previously divergent texts. Combing through previous *bencao*, Li Shizhen found multiple variants that matched the herb he knew intimately from the mountains of Hubei (*Jing* 荊) and Sichuan (*Shu* 蜀). The earliest record he found of relevance was what a 6th-century commentary called "herbaceous Cereal left by King Yu" (*cao Yuyuliang* 草禹餘糧), a name that re-appeared also in a 10th-century herbal focusing on "drugs from the ocean (*haiyao* 海藥)." The root acquired its name likely because it looked similar to the real "Cereal left by King Yu," a moniker for the reddish-brown mineral, limonite clay ironstone.[8] Another cluster of entries with matching descriptions appeared in an 11th-century pharmacopeia, *Bencao tujing* 本草圖經 (*Illustrated Classics of Materia Medica*), in which the chief editor Su Song described a "prickly" (*ci* 刺) variety of the fungus *zhuling* 豬苓.[9] Reconciling their differences and compiling the corresponding passages together, Li opted for the primary name *tufuling* as a "native" (*tu*) version of the well-established ingredient *fuling* (a wood-decay fungus) because of the similar shape and texture of the pharmaceutical parts. Here, Li performed an audacious exercise of practical naming and established taxonomical affinity and ontological stability by combining and condensing heretofore quite separate textual records. We might well say that *tufuling* was an entity whose novelty was only constructed in Li's pharmacopeia and, as we shall see, whose applications and names remained highly uneven in China, even as he wrote its identity into existence.

Having never been to Guangdong himself, Li Shizhen echoed a familiar trope and blamed the onset of the new disease to "licentious people" from the hot and humid Far South. Yet Li did not dwell so much on this trope of contagion, but rather focused his attention on the plain fact that the disease was firmly established "from South to North" (*zi nan er bei* 自南而北) across the country. His description and discussion of the drug *tufuling* is thus firmly situated in a clinical perspective by someone who had intimate knowledge of the herb, the disease's various manifestations and geographical scope, as well as a fairly impressive knowledge of theoretical and formulaic texts on the subject matter. This immediacy of the clinical encounter is important because in his "Further explications" (*faming* 發明) of this drug, he framed *tufuling* as not only a cure for syphilis, but also—if not more so—for the toxic side effects among patients taking calomel and powdered cinnabar to treat their Guangdong sores. Here, Li Shizhen quoted (not translated here) the discussion of another Ming physician, Wang Ji 汪機 (1463–1539), of a similar situation to establish his own diagnosis of a syndrome (*zheng* 證) whose manifestations included cramps, paralysis, and severe dehydration of the inner organs.[10] In her discussion of therapeutic treatments for leprosy, Angela Leung has similarly noted a decreasing favorability toward strong or toxic mineral drugs, especially for internal use, among learned physicians.[11] Yet Wang Ji

and Li Shizhen's writings reveal how the patients they saw were overwhelmingly seeking relief from prolonged mercurial treatment and likely late-stage syphilis, as well. In other words, the "sweet and bland" (*gandan* 甘淡) *tufuling* emerged as a favorite drug in Ming China not to replace mercurial drugs as a magic bullet against syphilis per se, but rather as a digestive aid to alleviate the prevalent and intransigent clinical misuse of mercurial drugs among an ailing population.

One last observation concerns the epistemic function of medical formula (*fang* 方) in this mini-treatise. Having explicated the pharmacological principles by which *tufuling* alleviated the suffering among mercury-poisoned syphilis patients, Li Shizhen disclosed a "secret formula (*mifang* 秘方)" that was also used by "professional doctors" (*yijia* 醫家), the "Wind-Searching and Poison-Relieving Concoction" (*sou feng jie du tang* 搜風解毒湯). He seemed to have preferred this formula over another six formulas involving *tufuling* (in its various vernacular names) that he had collected from previous recipe collections.[12] Unlike some of these authors who collected "tested recipes" (*yanfang* 驗方) and disseminated them, Li would not acknowledge the efficacy of new remedies without making sure that they were, in fact, consistent with the "wonderful lessons that the Ancients did not state explicitly." This statement is important here as an example of how medical experts in 16th-century China attempted to scrutinize and explain new epidemics and new remedies with an open but critical mind. The situation would soon change after Li Shizhen's death in 1593, as the commercialization of pharmacy and the book trade further undermined professional medical authority over therapeutic intervention. Meanwhile, as the pace of global trade quickened, newer and more severe forms of epidemics along the Southeast coast would cause widespread alarm among the general populace, who sought salvation in ever more esoteric and exotic remedies beyond canonical explications.[13]

Translation

Text excerpted from Li Shizhen, *Bencao gangmu* (Hefei: Zhang Shaotang, 1885), *juan* 18b.4a-6a.[14]

Nomenclature (*shiming* 釋名)

Li Shizhen says:[15]Note that in Tao Hongjing's commentary to "Cereals Left by King Yu" of the Minerals Division, he said that in the flat marshes of the Southern Mountains there was a vine whose leaves resemble Greenbrier (*ba qia*), whose root has knots also like Greenbrier but red in color and tastes like yam. Its name was also "Cereals Left by King Yu." It was said that when King Yu was hiking in the mountains and running out of food, he took this as a substitute cereal and discarded the rest.

Thus, it acquired this name. Considering Tao's commentary, this plant is today's *tufuling*, and the other names such as "Cereals Left by Immortals" and "Cold Riceball" also bear the same tradition. The "herbaceous Cereals Left by King Yu" in Chen Cangqi's *bencao* and "prickly *zhuling*" in Su Song's *Illustrated Guide* are both this same thing. Now these entries are altogether combined here. Linking it to fuling, zhuling, and calling it "mountain ground chestnuts" are all depicting its appearance. As for the vulgar name of "Dragon Runner Across Hills," it is simply absurd.

Collected Interpretations (*jijie* 集解)

Li Shizhen says: *tufuling* is found abundantly in mountain forests in Hubei and Sichuan. It grows in vines like water lilies. Its stem has tiny spots; its leaves are not arranged opposite to each other, looking rather like big bamboo leaves, but also thick and slippery like Daphne leaves, five to six inches long. Its root resembles Greenbrier but is rounder and larger, like a string of chicken or duck eggs spaced one foot or several inches away from each other. The flesh of the root is soft and can be eaten raw. There are two kinds—red and white—and the white one is superior as medicine. In the ancient text *Classics of Mountain and Seas*, it says: "there is a grass on the Gudeng Mountain named Rong. Its leaves are like willow. Its roots are like chicken eggs and can be eaten to treat wind illnesses." I suppose that quote was referring to this plant. In the past, people did not know how to use it. Lately during the Hongzhi and Zhengde reigns, a lot of people abuse mercurial drugs to treat rampant Bayberry Sores. While it is effective in the short term, the poison often lingers inside one's sinew and bones and can fester into painful sores for a long time. For this reason, this plant was applied medically and became an important drug. Many physicians had no way to ascertain its origin and often took it for wild yam or greenbrier, but since its root and sprout look completely different, one must refer to it carefully with deliberation. Yet its uses are quite close to these other drugs, so it must be of a similar kind as the wild yam and greenbrier.

Further Explications (*faming* 發明)

[Li] Shizhen says: The Bayberry/*Yangmei* Sore was not recorded in ancient formulas, and there was no one suffering from this disease. Recently, the disease originated from south of the Nanling Ranges and spread out in all directions. It is because in the Far South, winds and land are low-lying and torrid, where mountainous mist and miasma give rise to steaming vapors; the food and drinks are pungent and hot; and men and women engage in excessively licentious acts. The evil of damp heat, having accumulated and stagnated deep [into the body], then erupts into poisonous sores. Thus, people pass it on to each other, spreading it from South to North and all over

our country. Yet only licentious and evil individuals suffer from it. There are several manifestations of this disease, and yet the treatment is the same.

The syndrome (*zheng*)[16] of this disease mostly belongs to the two meridians: Terminal Yin and Bright Yang. When evil also resides in other meridians, the sores will first emerge from there. For example, if evil also resides in the Lesser Yin and Greater Yin meridians, then the sores will emerge in the throat. If evil also resides in the Greater Yang and Lesser Yang meridians, then the sores will emerge on the head and around the ears. For the Ministerial Fire lodges in the Terminal Yin meridian,[17] and the flesh belongs to the Bright Yang meridian.[18]

Doctors apply the aggressive treatment of Calomel and powdered Cinnabar, and the patient recovers in five to seven days. This is because mercury's nature is mobile and unstable. Mixed with salt and alum, it is sublimed into calomel and powdered cinnabar. Its nature is dry and fierce, very good at expelling phlegm and saliva. Saliva is the fluid derived from the Spleen organ.[19] The drug is ingested into the Stomach and enters the Bright Yang meridian, carrying the saliva with the rising fire and expelling it from the throat, cheeks, and gums between teeth. The sores then essentially dry and wither, and the disease would be cured.

If, however, there is an overdose or the drug is misused, then its poisonous qi escapes into the interstitial space between meridians, sinews, and bones and cannot get out. The phlegm and saliva are gone, the blood is exhausted and dry, and thus the sinew loses its source of nutrients, the nutritive and defensive spirits will become disharmonized.[20] Thus, the sinews and bones will be cramping and in pain, which then turn into poisonous sores and ulcers, and furthermore into worm-infested rashes.[21] Lesions will appear on the hands and feet, and the disease will ultimately become incurable.

Only the herb tufuling has flat qi and sweet and bland taste, a proper drug to cure Bright Yang meridian diseases.[22]It can strengthen the Spleen and Stomach and get rid of wind and humidity. Once the Spleen and Stomach are functional again, the nutritive and defensive spirits will follow suit; once wind and humidity are gone, the sinews and bones will be mobile again. Therefore, the various syndromes are mostly cured. This treatment is truly getting at the wonderful lessons that the Ancients did not state explicitly.

Nowadays, professional doctors have a "Wind-Searching and Poison-Relieving Concoction." It treats Bayberry Sores without using calomel. Patients with severe cases will recover in a month or so; milder cases recover in half a month. It is also effective for those who, having taken calomel, suffer from painful cramps and palsy and cannot walk.

The formula:

Take one *liang*[23] *tufuling*, mix with

five *fen* each: adlay millet, golden-and-silver honeysuckle, *fangfeng* 防風[24] roots, Chinese quince, *mutong* 木通[25] vines, Chinese dittany bark

four *fen* Chinese honey locust seed

When depleted in vital breath (*qi* 氣), add seven *fen* ginseng

When depleted in blood, add seven *fen* Chinese angelica

Boil with two big bowls of water and serve. Three times a day.

The only taboos when taking this medicine include drinking tea, eating the flesh of ox, goat, chicken, goose, or fish, consuming distilled liquor (*shaojiu*) or fermented wine (*famian*),[26] and sexual intercourse. This is indeed a secret formula.

Notes

* Harvard Library has digitized one of its copies of *Bencao gangmu* ([China]: Zhang Zhaolin, [1658]). However, it is missing the volumes that contain *juan* 18b.4a–6a, the focus of this essay. The version at the World Digital Library contains the material of interest and is thus referenced here.

[1] Many general discussions of syphilis today assert that syphilis arrived arrived in China in 1505. See for instance Nathan Nunn and Nancy Qian, "The Columbian Exchange: A History of Disease, Food, and Ideas," *The Journal of Economic Perspectives* 24, no. 2 (2010): 166. The much-cited discussion in Alfred W. Crosby Jr., "The Early History of Syphilis: A Reappraisal," *American Anthropologist* 71 (1969): 218-227, does not touch on syphilis in China. Yet the date 1505 is at best an approximation, since the earliest Chinese source on this subject, a text published in 1522, only describes a new disease emerging "toward the end of the Hongzhi reign," which starts in 1488 and ends in 1505. See Angela Ki-Che Leung, *Leprosy in China: A History* (New York: Columbia University Press, 2008), 45.

[2] Zhu also seems to suggest that the righteousness (*zheng*) of one's spirit could overpower the pathogenic influence, using anecdotal evidence to support this. Cheng Minzheng, *Xin'an wenxian zhi*, reproduced in vol. 1375-6 of *Wenyuan Ge Siku quanshu* 文淵閣四庫全書 (1782; repr., Taipei: Taiwan Shangwu yinshu guan, 1983), *juan* 33, 4b–

5b. For the prevalent medical theory in medieval China that examines recurrent epidemics as result of regular cosmic influence, see Catherine Despeux, "The System of the Five Circulatory Phases and the Six Seasonal Influence," in Elisabeth Hsu ed., *Innovation in Chinese Medicine* (Cambridge: Cambridge University Press, 2001), 121–65.

[3] Marta Hanson, *Speaking of Epidemics in Chinese Medicine: Disease and the Geographic Imagination in Late Imperial China* (Milton Park, Abingdon, Oxon: Routledge, 2011).

[4] For the confusion over similar symptoms between Guangdong sores and the cluster of diseases known as *dafeng/li/lai*, see Leung, *Leprosy in China*, 39–51.

[5] The standard English translation is Li Shizhen, *Compendium of Materia Medica* (*Bencao Gangmu*), trans. Xiwen Luo (Beijing: Foreign Languages Press, 2003). For more thorough annotations and a useful index, see Paul U. Unschuld and Zhang Zhibin eds., *Dictionary of the Ben Cao Gang Mu*, 3 vols. (Oakland: University of California Press, 2015–2018). For a general overview of ideas of nature in *Bencao gangmu*, see Georges Métailié, "The *Bencao gangmu* of Li Shizhen: An Innovation in Natural History?" in Elisabeth Hsu ed., *Innovation in Chinese Medicine* (Cambridge: Cambridge University Press, 2001), 221–61; and Carla Nappi, *Natural History and Its Transformations In Early Modern China* (Cambridge: Harvard University Press, 2009).

[6] He Bian, *Know Your Remedies: Pharmacy and Culture in Early Modern China* (Princeton: Princeton University Press, 2020), 44–48.

[7] The global career of China root has been documented most recently by Anna E. Winterbottom, "Of the China Root: A Case Study of the Early Modern Circulation of *Materia Medica*," *Social History of Medicine* 28, no. 1 (February 2015): 22–44.

[8] Shiu-ying Hu, Y. C. Kong, and Paul P. H. But, *An Enumeration of Chinese* Materia Medica (Hong Kong: Chinese University Press, 1980), no. 2225. Where possible, I provide translations of the *materia medica*, along with Latin transliterations.

[9] For more on the genre of *tujing* and the Song pharmacopeia's transmission in print, see He Bian, *Know Your Remedies: Pharmacy and Culture in Early Modern China* (Princeton: Princeton University Press, 2020), 25–26, and 52–53.

[10] For the work of Wang Ji and others to compile an abridged bencao from the earlier pharmacopeia, see Bian, *Know Your Remedies*, 36–40. For Wang's life and medical practices, see Joanna Grant, *A Chinese Physician: Wang Ji and the "Stone Mountain Medical Case Histories"* (London: Routledge Curzon, 2003).

[11] For the learned medical opinion's increasingly critical attitude toward using toxic and/or mercurial drugs to treat leprosy and herbal therapeutics, see Leung, *Leprosy in China,* 53–57.

[12] Many of these collections used different vernacular names of the plant and were intended to treat various syndromes beyond Bayberry Sores.

[13] For the changing discourse on epidemics in South China under the Qing dynasty, see Hanson, *Speaking of Epidemics*, chs. 6–7; Florence Bretelle-Establet, "Les épidémies en Chine à la croisée des savoirs et des imaginaires: le Grand Sud aux XVIIIe et XIXe siècles," in the special issue "Penser les épidémies depuis la Chine, la Corée et le Japon," *Extrême-Orient, Extrême-Occident* 37 (2014): 20–60; and Angela Ki-Che Leung, "A 'South' Imagined and Lived: The Entanglement of Medical Things, Experts, and Identities in Premodern East Asia's South," in Eric Tagliacozzo, Helen Siu and Peter Perdue eds., *Asia Inside Out: Itinerant People* (Cambridge: Harvard University Press, 2019), 122–45.

[14] The reference here uses the juan and folio numbers in the 1885 Hefei edition because it was used to prepare most 20th century editions of *Bencao gangmu*, including major Sinological databases. Please see the WDL link above for digitized images of the 1603 edition.

[15] *Bencao gangmu* follows previous pharmacopeias' convention of inserting the author / compiler's voice as double-lined commentary under the main text of each section. In the entries for drugs documented in ancient classics, the later authors' commentaries appear in chronological order. For a new entry added to the pharmacopeia such as *tufuling*, however, there were no older commentaries that precede Li Shizhen's. For the structure and layout of the longer entries in *Bencao gangmu*, see the discussion of dragons in Nappi, *The Monkey and the Inkpot*, 50–68.

[16] *Zheng* is translated here as "syndrome"—not a single symptom, but a combination of associated symptoms that is used for diagnosis and also a target for therapeutic intervention. See Volker Scheid, "Convergent Lines of Descent: Symptoms, Patterns, Constellations, and the Emergent Interface of Systems Biology and Chinese Medicine," *East Asian Sscience, Technology and Society* vol. 8, no. 1 (2014): 107–39.

[17] The Song-Yuan physician Zhu Zhenheng championed an influential theory that attributed diseases to excessive sexual desires, which in this theory fuels the "Ministerial Fire" (*xianghuo*) associated with kidney functions. Here Li Shizhen implies that since the origin of the Bayberry Sore is sexual in nature, the Ministerial Fire (and where it usually lodges in the body) is important. See Charlotte Furth, "The

Physician as Philosopher of the Way: Zhu Zhenheng (1282–1358)," *Harvard Journal of Asiatic Studies* 66, no. 2 (January 2006): 423–59.

[18] This connection between the flesh and the Bright Yang meridian is again a quote from the Yellow Emperor's Inner Canon. In a passage that describes the progression of febrile diseases ("cold damage") in 12 days, the disease progresses from the head and neck to the fleshy parts around the nose and eyes and causes pain and dryness there, through which the Bright Yang meridian passes. See Paul Unschuld and Hermann Tessenow, "Discourses on Heat," in *Huang di nei jing su wen: An Annotated Translation of Huang Di's Inner Classic – Basic Questions* (Berkeley: University of California Press, 2011), 492–93. Here Li Shizhen uses this classical correspondence to connect the damages to the flesh in syphilis patients to the Bright Yang meridian. The passages about Ministerial Fire draw on distinct medical doctrines, and that Li Shizhen is here combining them to arrive at a plausible explanation of the new disease's etiology.

[19] Here is another *Inner Canon* reference that matches five bodily fluids to five Inner Organs. See Unschuld and Tessenow, "Wide Promulgation of the Five *Qi*," in *Huang di nei jing su wen*, 405–406. Note that organ names in classical Chinese medicine are customarily translated with capital letters to emphasize the physiological functions, rather than physical shapes, of inner organs.

[20] The nutritive and defensive spirits are a pair of terms in Classical medicine that describe what happens to food after digestion: the nutritive (*ying* 營, also sometimes rendered as *rong* 榮) goes into blood veins and the defensive (*wei* 衛) remains outside the blood flow but protects the surrounding tissues. See, for instance, the recent discussion of Seung-Won Hong, Jeong-Hun Um, and Sang-Yong, Lee, "A Study of Literature on the Ying Qi and Wei Qi," *Korean Journal of Acupuncture* (2002), 19.

[21] Rashes are a common symptom for the second stage of syphilis. Here, Li Shizhen was perhaps observing both the advanced syphilis symptoms *and* the side effects of calomel overdose (cramps). Late stage syphilis also could develop into palsy and permanent disfigurement / disability (*feigu*). The point here is that he was trying to connect the different stages of the disease with a unified physiological explanation. Note also here his association of "worms" with rashes (*xuan*) and the similarity with the English word *ringworm*. Further investigations into the genealogy of this claim on either the Chinese side or the Western side would be illuminating.

[22] The Bright Yang meridian corresponds to the Spleen and Stomach, which are considered a pair of solid / hollow organs (*zang / fu*) with related functions. Here again, Li Shizhen follows the predominant Jin-Yuan medical theory that viewed qi and taste (*wei*) as the two major axeis of pharmacological principles. See Ulrike Unschuld,

"Traditional Chinese Pharmacology: An Analysis of Its Development in the Thirteenth Century," *Isis* 68, no. 2 (1977): 224–48, and Bian, *Know Your Remedies*, ch. 3.

[23] 1 *liang* 兩 = 100 *fen* 分 = approximately 37.8 grams.

[24] *Ledebouriella seseloides* and *Saposhnikovia divaricata*.

[25] *Akebia quinata* and *Aristolochia mandshuriensis*.

[26] *Famian* 法麪 is a term not typically seen outside *Bencao gangmu*. It seems to be a vernacular term referring to fermented wine starter, which is distinguished from distilled liquor (*shaojiu* 燒酒).