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MYRRH: MEDICAL KNOWLEDGE FROM ARABIA
INTO CHINESE *MATERIA MEDICA*

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SUMMARY

Native to the Arabic peninsula, myrrh (Commiphora spp./mo yao 沒藥) was traded throughout the ancient world and is an example of the transfer of botanical medical knowledge from the Middle East to China. The timeline of myrrh's introduction to China is a matter of debate. Though firmly established during the Song Dynasty 宋朝 (960-1279 CE) and later documented by Li Shizhen 李時珍 (1518-1593 CE) in his Bencao gangmu 本草綱目 of the Ming Dynasty 明朝 (1368-1644 CE), the incorporation of myrrh into Chinese materia medica (bencao 本草) tradition may have been much earlier. Looking at the primary textual sources both within the field of materia medica and outside of this tradition (in the standard histories, miscellaneous texts, and accounts of foreign interactions), we will trace the inclusion of myrrh into the Chinese medical tradition.

1. Introduction

When one mentions myrrh (*Commiphora* spp./mo yao 沒藥) in the western world, for most, it conjures images of a Christmas story and three travelers bringing it as a gift along with gold and frankincense. Though in this context it is largely believed to be valued for its aromatic properties in use as incense, myrrh was used for numerous medical ailments on the Arabian Peninsula and in the Mediterranean region during this time period.

Key words: Myrrh - Silk Road - Chinese Medicine

The earliest mention of myrrh for medicinal purposes in written medical documentation from the Mediterranean world is found in the *Corpus Hippocraticum*, where there are over 65 citations for myrrh¹. Myrrh can also be found in the writings of Dioscorides (1st century C.E.)². By this time, China also had texts of *materia medica*, that catalogued major herbs used medicinally, most notably, the *Shennong bencao jing* 神農本草經 (*Divine Farmer's classic materia medica*), written sometime between the 2nd and 1st century BCE³. The herbs in this work and subsequent medical texts serve as the foundation for traditional Chinese herbal medicine and in these early texts, myrrh, is noticeably absent. This tradition of *materia medica* texts comes to a peak with the influential, comprehensive text by Li Shizhen 李時珍 (1518-1593 CE), the *Bencao gangmu* 本草綱目 (*Systematic materia medica*). Li spent his later years searching for a publisher for this voluminous work. The scholar Wang Shizhen 王世貞 (1526-1590 CE), a friend of Li, wrote a preface and secured publication with the printer Hu Chenglong 胡承龍, before his death. The *Bencao gangmu* was finally published in 1596, three years after Li Shizhen's passing.

What is myrrh?

Myrrh is a gum resin derived from several species of the genus *Commiphora*. An angiosperm of the Burseraceae family, many species of *Commiphora* such as, *C. myrrha* (Nees) Engl., *C. erythraea* (Ehrenb.) Engl., *C. wightii* (Arn.) Bhandari, among others, have been used historically for both incense and medicine.

Commiphora resins are considered gum resins because they are slightly hydrophilic due to the inclusion of carbohydrates and possibly amino acids⁴. This changes the nature of the compound, and could point to various medical uses. As for myrrh's potential for medicinal use, after looking at modern evidence, Majno points out regarding the historical use of myrrh, "a drug that is harmless to the tissues as well as antiseptic should be useful in the treatment of wounds⁵."

Trade and Use

Plant species that produce myrrh are native to the southern Arabian Peninsula, but some species are also found in East Africa, in modern Ethiopia and Somalia. The areas most involved in its early trade and production are on the Arabian Peninsula, in modern Oman and Yemen. From very early times, myrrh was an important product in commerce and trade. One of the earliest documented trade dealings with myrrh was to Egypt where an inscription from approximately 2500 BCE reads that “80,000 measures” of myrrh were purchased⁶. There was also an expedition in 1500 BCE to the land of Punt to obtain trees for incense that is recorded in an inscription in Queen Hatshepsut’s temple near Thebes. Groom suggests that the trees collected for extracting incense were myrrh and that the land of Punt is the modern Somali coast and the Arabian Peninsula across the sea from it⁷.

Transport of myrrh is recorded very early with the first reference to myrrh from before the 5th century CE in the *Nanzhou ji* 南州記 (The records of Nanzhou) by Xu Biao 徐表. Unfortunately this text has been lost⁸, and the earliest appearance of myrrh in received Chinese is not until the 7th century CE in the *Bei shi* 北史 (History of the Northern dynasties)⁹. In the *Bei shi*, myrrh is mentioned as coming from the Cao country 漕國 that was Jaguda, Ghazni in what is now Afghanistan¹⁰.

As mentioned, myrrh is listed in the *Corpus Hippocraticum* over 65 times. The majority of the uses are for gynecology and obstetrics, to include treating amenorrhea and inducing abortion, but it also mentions treatments for fever, hysteria, and wound healing¹¹. Dioscorides also mentions gynecological uses, especially for amenorrhea and “rapidly drawing down the fetus,” but also gives it for treating cough, pains in the side and chest, diarrhea, dysentery, head wounds, bad breath, bruises, exposed bones, eyesores, and trachomas, as additional pathology and injuries that myrrh treats¹².

In modern Chinese medicine, the primary use of myrrh is in topical trauma formulas. Historically, however, its use was much broader, and similar to those found in the Greek texts. Some of its uses included stimulating abortion, miscarriages and relieving pain associated with childbirth, wounds from blades and blunt force trauma, injuries from falls, and eye redness¹³.

The name of myrrh

Myrrh derives its name from the Arabic word *murr*, which means *bitter*. While Li Shizhen erroneously states that *murr* is of Sanskrit origin¹⁴, Bretschneider points out that the Sanskrit name is *bola*¹⁵. Laufer's conclusion that myrrh is of Semito-Persian origin seems much more likely as he points out the following related pronunciations.

- Hebrew – *mōr*
- Aramaic – *murā*
- Arabic – *murr*
- Persian – *mor*¹⁶

The Chinese characters most often used to write myrrh are 沒藥 (*mo yao*). The medieval Chinese pronunciation of *mo* using Bernard Karlgren's reconstruction in Middle Chinese is *muet*¹⁷. Axel Schuessler's updated Middle Chinese reconstruction based on Karlgren's work is *mwət* and his Late Han and reconstructions is *mət*, and *mət* with a modifier to the vowel in Minimal Old Chinese¹⁸. Baxter and Sagart give *mwot* for Middle Chinese and **m^hut* for Old Chinese while Pulleyblank gives an Early Middle Chinese pronunciation of *mət* and a Late Middle Chinese pronunciation of *mut*¹⁹. A final -t is often used to represent a final -r or final -l in loan words such as this²⁰. As *yao* simply means herb or plant, it is clear that the name is a borrowing. Whether it was from Persian pronunciation of

mor, or the Arabic pronunciation, *murr* directly, it is uncertain from which of these the Chinese drew the name.

According to Li Shizhen, 沒藥 can also be written 末藥. The first character in this second name (also pronounced *mo*) means powder, and as mentioned before, *yao* 藥 means herb. In addition to meaning myrrh, it can simply mean, *powdered herb*, or *to make the herb into a powder*. I have found no instances of 末藥 being used to refer to myrrh in the received texts. Another name for myrrh, *man long she xue* 蠻龍舌血 (barbarian's dragon tongue blood) is found in the *Yao pu* 藥譜 (Drug record), which is a text listing strange names of plants²¹. While curious, I have found no other references to this name either.

2. A Renewed Approach

Sources

In addition to a purely philological approach to studying the texts that mention myrrh, and examine its uses through history, databasing the texts and systematically cataloging the relevant sources of information provides another method of studying textual information to trace the medicinal exchange from West to East.

The starting point for studies on most Chinese herbs is the comprehensive *Bencao gangmu*. This text lists nearly 1,900 herbal, animal, and mineral substances from both domestic and foreign sources²². One of the important features of the *Bencao gangmu* is that Li Shizhen quotes information from earlier texts, of which many are now lost. He includes in his preface, an extensive list of *materia medica*, medical, and non-medical texts that he used in his writing of the *Bencao gangmu*²³.

Of myrrh, Li Shizhen quotes a number of earlier sources including the *Nanzhou ji*, and the *Haiyao bencao* 海藥本草 (*Materia medica of foreign herbs*). While both of these texts have been lost, they survive piecemeal in the *Bencao gangmu* and other texts and have been largely reconstructed²⁴.

The dating of incorporation of herbal substances into the Chinese pharmacopoeia is typically based on when the herb appears in these “*bencao*” or “*materia medica*” texts. For myrrh, its introduction has been one of contention. In Hu’s study of exotic herbs and their incorporation into China, he references the *Kaibao bencao* 開寶本草 (*Materia medica of the Kaibao era*) written by Liu Han 劉翰 and Ma Zhi 馬志 in 973 CE, which follows what Li Shizhen has in the *Bencao gangmu*²⁵. In *Chinese Herbal Medicine* by Dan Bensky et al., the *Yaoping bencao* 藥性本草 (*Materia medica of drug qualities*) or *Yaoping lun* 藥性論 (*Discussion of drug qualities*) of the 7th century CE is cited as the first source of information on myrrh²⁶. The *Zhongyao da cidian* 中藥大辭典 also says the first source was the *Yaoping lun*²⁷.

By using only the *materia medica* texts we are limited, but there was another body of medical knowledge that existed parallel to them in formularies or texts on prescriptions and treatment that can give more insight into myrrh’s timeline. The earliest of these texts that mention myrrh are the Addendum to the *Jing xiao chan bao – xubian* 經效產寶-續編 (*Effective treasure of obstetrics*) by Zan Yin 咎殷 and the *Xian shou lishang xuduan mifang* 仙授理傷續斷秘方 (*The Immortal’s instructions on formulas for mending injuries and fractures*) by Lin Daoren 藺道人, both written in the 9th century CE. The first text deals entirely with women’s health and the second for treating traumatic injuries²⁸.

The *Xian shou lishang xuduan mifang* includes myrrh in eight separate formulas while the *Jing xiao chan bao - xubian* includes myrrh in two formulas by other practitioners in the addendum to the primary text. It is interesting to note that while the author of the *Jing xiao chan bao*, Zan Yin, does not include myrrh in this text, he does use it in another text for severe trauma, the *Shi yi xin jing* 食醫心鏡 (*The Heart’s mirror of diet therapy*)²⁹. Later texts, such as those listed in the chart above further expand on these two areas of use

with over 100 entries for myrrh in the *Taiping shenghui fang* 太平聖惠方 (*Formulas of benevolent sages of the Taiping era*) alone³⁰. Whereas most studies on herbal medicine in China focus solely on the *materia medica* texts, in this essay I will use other textual material, with three general categories texts: *materia medica*, formularies, and stories of contact with foreign cultures. The time period of texts used are from the 4th until the 13th century with the two exceptions being the *Bencao gangmu* from 1596 and the *Huihui yao fang* 回回藥方 (*The Islamic herbal formulary*) of the Yuan dynasty 元代 (1271-1368 CE).

Texts

Materia Medica

	Chinese	Author	Dates	Location
<i>Yaoxing bencao</i>	藥性本草	Zhen Quan 甄權	7 th century	N/A ³¹
<i>Haiyao bencao</i>	海藥本草	Li Xun 李珣	923	Sichuan ³²
<i>Kaibao bencao</i>	開寶本草	Liu Han 劉翰, Ma Zhi 馬志, et al.	973-74	Bianjing ³³
<i>Rihuazi bencao</i>	日華子本草	Ri Huazi 日華子	968-975 ³⁴	N/A
<i>Tujing bencao</i>	圖經本草	Su Song 蘇頌	1058	Bianjing ³⁵
<i>Bencao yanyi</i>	本草衍義	Kou Zongshi 寇宗奭	1116	N/A ³⁶
<i>Tujing yanyi bencao</i>	圖經衍義本草	Kou Zongshi 寇宗奭	after 1116	N/A ³⁷
<i>Zhenglei bencao</i>	證類本草	Tang Shenwei 唐慎微	1107	Sichuan Province ³⁸
<i>Huihui yaofang</i>	回回藥方	N/A	before 1367	N/A ³⁹
<i>Bencao gangmu</i>	本草綱目	Li Shizhen 李時珍	1596	Qizhou ⁴⁰

Prescriptions/Formularies

	Chinese	Author/Compiler	Dates	Location
<i>Xian shou li-shang xuduan mifang</i>	仙授理傷續斷秘方	Lin Daoren 蘭道人	841-6	Chang'an ⁴¹
<i>Shi yi xin jing</i>	食醫心鏡	Zan Yin 咎殷	847-860	Chengdu ⁴²
<i>Jing xiao chan bao – xubian</i> ⁴³	經效產寶-續編	Zhou Ting 周頊	897	N/A ⁴⁴
<i>Jijiu xian fang</i>	急救仙方	N/A	959	N/A ⁴⁵
<i>Taiping sheng hui fang</i>	太平聖惠方	Wang Huaiyin 王懷隱, Wang Yu 王祐, Zheng Qi 鄭奇, Chen Zhaoyu 陳照遇 ⁴⁶	992	Bianjing ⁴⁷
<i>Taiping huimin heji jufang</i>	太平惠民和劑局方	Imperial Medical Bureau 太醫局	1078	Bianjing ⁴⁸
<i>Nu ke bai wen</i>	女科百問	Qi Zhongfu 齊仲甫	1220	Lin'an ⁴⁹
<i>Furen daquan liang fang</i>	婦人大全良方	Chen Ziming 陳自明	1237	Linchuan ⁵⁰

Stories of Contact with Foreign Cultures

	Chinese	Author	Dates	Location
<i>Nanzhou ji</i>	南州記	Xu Biao 徐表	4 th century	Nanzhou ⁵¹
<i>Bei shi</i>	北史	Li Yanshou 李延壽	643-659	Chang'an ⁵²
<i>Tong dian</i>	通典	Du You 杜佑	801	Huainan ⁵³

The Journey of Myrrh into China

<i>You yang zazhu</i>	酉陽雜俎	Duan Chengshi 段成式	863	N/A ⁵⁴
<i>Taiping guanji</i>	太平廣記	Li Fang 李昉	977	Bianjing ⁵⁵
<i>Ling wai daida</i>	嶺外代答	Zhou Qufei 周去非	1178	Guilin ⁵⁶
<i>Zhufan zhi</i>	諸蕃志	Zhao Rugua 趙汝适	1225	Quanzhou ⁵⁷

From these lists, it seems that myrrh is a relatively late addition to Chinese medicine. Its impact was mild and did not become a significant part of Chinese medicine until the 9th century CE. It may have come overland in its early trade, but sea routes seem more commonplace especially at the time when it became regularly incorporated into Chinese medicine at the end of the Tang dynasty 唐朝 (618-907) and into the Song dynasty 宋朝 (960-1279), from approximately the 9th to the 13th century.

While it is certain that the drug itself has its origins on the Arabic peninsula and was traded eastward along the Silk Road, what also seems evident is that the knowledge of its medicinal use was also carried with it. Whether used for gynecology and obstetrics, or trauma and pain, both of these categories of use are already attested in Greek medicine centuries earlier and were incorporated into Chinese medicine.

Medicinal uses of Myrrh

While myrrh has a long history as an aromatic, I have found no instances in the Chinese texts that indicate that use, while its medical use is expanded on in a number of different texts.

As the two early formularies allude, there are two primary medical categories of use that are found in both the Greek and Chinese traditions. The first is in women's health. The *Corpus Hippocraticum* lists approximately 50 instances of myrrh's use and applications for

gynecology and obstetrics alone. Dioscorides also cites myrrh for stimulating menses, and softening and opening the uterus⁵⁸.

The *Jing xiao chan bao* is the first known text in the Chinese literature devoted to obstetrics. While the primary text does not list myrrh, the addendum references it twice: for postpartum pain, and postpartum swelling of the limbs⁵⁹. The *Nu ke bai wen* 女科百問 (*One hundred questions on women's medicine*) and *Furen daquan liang fang* 婦人大全良方 (*Complete effective prescriptions for women*) are also both devoted to gynecology and obstetrics. The *Nu ke bai wen* is organized in a question-answer format and myrrh is included in three of the formulas used to address those questions. The treatments included formulas for premenstrual abdominal pain, for women who get frightened easily, and postpartum swelling of the limbs⁶⁰. The *Furen daquan liang fang* lists forty formulas with myrrh in it, to include treatment for abnormal menstruation and painful limbs, general abdominal pain, and sharp pain in the abdomen and weak limbs, to name a few⁶¹. There is even a formula called *Moyao san* 沒藥散 (*Myrrh powder*) for abdominal pain⁶².

As mentioned before, the *Taiping shenghui fang* lists myrrh over 100 times. 65 of these are for women's health, including postpartum treatments for diarrhea, and severe abdominal pain. The *Taiping huimin heji jufang* 太平惠民和劑局方 (*Formulas of the Bureau of Medicines of the Taiping era*) on the other hand, only lists a single elixir with myrrh for women's health, the *Shenxian ju bao dan* 神仙聚寶丹 (*Gathering immortal's treasured elixir*), for menstrual irregularities such as, severe uterine bleeding that doesn't stop, palpitations, lower abdominal pain and swelling, frequent urination, painful limbs, and more⁶³.

The *materia medica* also cite myrrh's use in gynecology and obstetrics. The *Haiyao bencao* says myrrh can be used to induce abortion and treat postpartum pain. As is common with the *materia medica* tradition, these treatments are copied in the *Tuijing bencao* 圖經本

草 (*Illustrated classic materia medica*)⁶⁴, and then again in both the *Zhenglei bencao* 證類本草 (*The classified materia medica*)⁶⁵, and the *Tujing yanyi bencao* 圖經衍義本草 (*Extension of the illustrated classic materia medica*)⁶⁶.

The second major treatment category for the use of myrrh is the one which survives today in modern Chinese medicine, and that is in the treatment of trauma⁶⁷. Greek mentions of trauma can be found in the *Corpus Hippocraticum* and the writings of Dioscorides as well, but are limited to open wounds, pains in the sides of the chest, and pussy and inflamed afflictions of the ears⁶⁸. The *Xian shou lishang xuduan mifang* includes eight unique prescriptions to treat traumatic injuries⁶⁹. This text, along with the *Jijiu xian fang* 急救仙方 (*Emergency prescriptions from the immortals*) is found in the *Dao zang* 道藏 (*Daoist canon*) of the Ming dynasty 明代 (1368-1644 CE), and both have references to myrrh's use in traumatic injury⁷⁰.

Numerous of references to myrrh's use for traumatic injury probably explain its continued use to this day. The passage from the *Shi yi xin jing* that can be found in the Jin dynasty 金代 (1115-1234 CE) commentary on the *Zhouhou beiji fang* 肘後備急方 (*Emergency formulas to keep up one's sleeve*) by Yang Yongdao 楊用道 written in 1144⁷¹, is copied into the *Tujing bencao* and then later into the *Zhenglei bencao*. The prescription combines myrrh with tiger skull, taken with wine to treat "bone and joint pain that is unbearable night and day"⁷².

In the *Taiping shenghui fang* there are 28 citations for trauma including incised wounds and ulcers, while stopping pain from tendon and bone damage seems to be a common use as well. The *Taiping huimin heji jufang* also contains formulas for trauma, including the *Moyao jiang sheng dan* 沒藥降聖丹 (*Pill of myrrh passed down from the sages*)⁷³.

The *Yaoxinglun* says myrrh is used for damage from strikes and falls and harm from metal blades⁷⁴. The *Haiyao bencao* refers to myrrh's

effectiveness for falls from horses, and the *Rihuazi bencao* 日華子本草 (*Materia medica of Rihuazi*) says myrrh disperses swelling and toxins⁷⁵. The *Bencao yanyi* (*Extended materia medica*) also says myrrh is useful for cuts from blades as well as for blunt force trauma, and goes into detail as to the pathological pathway that causes pain. The *Tujing bencao*, *Zhenglei bencao* and *Tujing yanyi bencao* reflects these uses as well, and often copy these texts verbatim⁷⁶. Other mentions of the use of myrrh that are similar to early Greek treatments include use for eye redness and blurring as mentioned in the *Kaibao bencao* and later copied by Li Shizhen into the *Bencao gangmu*⁷⁷. In the *Nu ke bai wen*, myrrh is also used in a formula to treat hysteria when addressing a question to determine two types of madness⁷⁸. This use is also found in the *Corpus Hippocraticum* three times⁷⁹.

The Trade of Myrrh

The starting point of myrrh's trade is without question. Being from such an isolated part of the world on the Arabic Peninsula and area directly across, in Somalia and Ethiopia, makes myrrh an easy case study, given that there is no question of where it came from. Where it went and how it got there, on the other hand, is not as easy of a question to answer.

Beginning in Arabia, trade of myrrh to China was both overland and maritime, but one of the earliest roads into China seems to be along the northern land route north of the Pamir mountain range⁸⁰. As cited in the *Bei shi* 北史, the country of Cao 漕國 gave myrrh as tribute during the Sui dynasty 隋朝 (581-618)⁸¹. The Cao country is located in what is now modern Afghanistan, south of Kabul⁸². The *Nanzhou ji*, which mentions myrrh and was written before the 5th century however, refers to the area that is now Sichuan province 四川, which lies in the Southwest of China⁸³. Though an overland route is possible here, it is more likely a combination of land and sea⁸⁴. As the region between the Arabic peninsula and China became more volatile due

to the Muslim conquest of Persia beginning in the 7th century, the sea route seems to have been the route of choice. This also brought with it a flow of Persian refugees to China including its government in exile in Chang'an 長安 that was set up by the son Persian king Yazdgard III (r. 632-651), Peroz III (636-679)⁸⁵.

By the mid-eighth century, the sea routes, especially into the area of Guangzhou 廣州, became the preferred routes of traders from the East. Of the maritime trade route from the Arabic peninsula, Jia Dan 賈耽 (710-785) wrote the *Huanghua sida ji* 皇華四達記, where he describes a sea route from Canton to the Persian Gulf, of which Friedrich Hirth and W. W. Rockhill (who translated the passage), say the Persians and Arabs had a monopoly over at the time⁸⁶.

It is also clear that myrrh came through the seaports in the south from Persia as well by looking at the *Youyang zazu* 酉陽雜俎 (*Miscellaneous morsels from Youyang mountain [in Sichuan]*). With the compatible timeline it seems that the southern sea trade corresponds to increase in availability, as is evidenced by the increase in textual references.

The *Youyang zazu*, written by Duan Chengshi 段成式 in the 9th century CE, categorizes 14 (including myrrh trees *mo shu* 沒樹) of 59 plant products imported as being of Persian origin⁸⁷. Laufer believed that myrrh did not come from Persian sources, but rather from the Malaysian peninsula alone, and discounted pre-Song dynasty texts. While myrrh may have been transplanted to the Malaysian peninsula, the evidence points to a much more distant origin with a much clearer connection to the Arabic Peninsula and Persia. Schottenhammer's study on the trade of *xiangyao* as put forth in the *Youyang zazu*, reestablishes this text as a major reference to the trade of aromatic herbs⁸⁸. Her study, and also the addition of numerous formularies of the Tang dynasty as further evidence, point to an earlier exposure that predate a purely Malay trade origin. It also raises the possibility that myrrh was more readily traded along a partial land route from the Arabic world and through Persia.

Later, Song dynasty sources also reference myrrh and its import into China. Zhou Qufei 周去非 (? – after 1178), in the *Lingwai daida* 嶺外代答 (*Instead of replies about the Southern regions beyond the mountain passes*) written in 1178, mentions myrrh in the chapter on various Arabic countries and their exports.⁸⁹ The *Zhufan zhi* 諸蕃志 written by Zhao Rugua 趙汝适 (1165? –after 1225) in 1225 also addresses myrrh being imported to China in ports in the Southern seas.

Exchange of Knowledge

Looking at two of the most relevant texts from the Greek tradition (the Hippocratic corpus and Dioscorides) suggests that there was an exchange of information it is very unlikely that these treatments developed independently. The two primary uses of myrrh attested in historical texts in both Ancient Greek medical traditions and Ancient Chinese medicine, are for the treatment of wounds, ranging from incised wounds and ulcers, to bruises, and gynecology and obstetrics to include abortions and various postpartum and menstrual irregularities. Other treatments common to both systems are the treatment of eye disorders, and the treatment of hysteria.

Further Considerations

While this study attempted to broaden the search for information about transfer of a particular medical substance, it is still limited in its scope and focused on one medical tradition, Chinese medicine, and used Ancient Greek medicine as a reference point due to proximity to myrrh's native habitat, and also its documented early use. Using only two sources for Greek medical information, without considering Persian, Arabic, Tibetan, and Ayurveda medical traditions⁹⁰, the perspective of exchange is narrow and just addresses the reception into the Chinese tradition. Following a purely philological approach to address the use of a particular product in one culture or region limits the body of information that can be analyzed, which is

restrictive for the study of trade and transfer of knowledge in medicines. By taking a more systematic approach and cataloging the information in the texts about specific herbs and medicines, it will be possible to look at a broader number of texts from a more diverse regional pool, regardless of the language.

Further systematic study is needed and with relative certainty due to a precise starting location, myrrh still must be analyzed in much greater detail with regards to alternative names, more precise species and sub-species identification, additional uses, and exchange with other cultures.

Determining the ties and transfer of knowledge in the herbal medicine traditions provides invaluable information in the overall study of herbal medicine. Not only does it paint a clearer picture of history, but it also allows for the potential of more precise and proper identification of herbs, diseases, and treatments. While some ancient medical traditions continue to this day, many are not practiced or passed down, and the information is at risk of being lost as time passes.

This brings us back to our Christmas story and gifts of gold and incense. Given the evidence of myrrh's extensive use in history for the treatment of postpartum pathology, it is probable that these three travelers in the Christian stories were not just bringing gifts of value, but also bringing medicine for a mother who had just given birth to a child. Did myrrh's value come from its price on the market for incense and precious products, or was it due to its medicinal value?

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1. The majority of texts in the *Corpus Hippocraticum* were written between the 5th and 4th centuries BCE. See Aliotta G, Piomelli D, Pollio A and Touwaide A, *Le Piante Medicinali Del “Corpus Hippocraticum.”* Napoli: Guerini e Associati; 2003. pp. 300-1.
 2. Beck L, *Pedanius Dioscorides of Anazarbus: De materia medica*. Hildesheim: Olms-Weidmann; 2005. pp. 45-6.

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3. Qiu Peiran 裘沛然 (ed.), *Zhongyi ji da cidian 中醫籍大辭典*. Shanghai: Shanghai kexue jishu chubanshe; 2002. p. 250.
4. Langenheim J, *Plant Resins*. Portland: Timber Press; 2003. p. 47.
5. Majno G, *The Healing Hand: Man and Wound in the Ancient World*. Cambridge- Massachusetts: Harvard University Press; 1975. p. 217.
6. Majno G, see note 5, p. 208.
7. The exact location of the land of Punt is not certain, but many believe it is part of modern Ethiopia. See Groom N, *Frankincense and Myrrh: A Study of the Arabian Incense Trade*. London: London Group Limited and Librairie du Liban; 1981. pp. 22-8.
8. Reference to this text is from the now lost, *Haiyao bencao 海藥本草* by LI XUN 李珣 (8th to 9th century), See Li Xun, *Haiyao bencao 海藥本草*. Beijing: Renmin weisheng chubanshe; 1997. p. 58. This text is compiled from fragments including those from the great compendium by Li Shizhen 李時珍, *Bencao gangmu 本草綱目*. Beijing: Renmin weisheng chubanshe yingying; 1957. pp. 1.333b-334a, and 34.1373a.
9. The *Bei shi* is one of the standard Chinese histories written between 630-50 by Li Yanshou 李延壽 (fl. 618-76). See Li Yanshou 李延壽, *Bei shi 北史*. Beijing: Zhonghua shuju; 1974. pp. 185.3238-9. Myrrh is not, however, mentioned in the *Sui shu 隋書* (The Book of Sui) written in 636 by Wei Zheng 魏徵 (580-643) et al, as the first character is left out, leaving only yao 藥. This could have implied that simply herbs were transported, but the *Bei shi* and the *Tong dian 通典* (Comprehensive Institutions) by Du You 杜佑 (735-812), both have 沒藥, and commentators on the *Sui shu* generally agree that the character was accidentally omitted. See, Wei Zheng, *Sui shu 隋書*. Beijing: Zhonghua shuju; 1959. pp.48.1857 and 1861n9. See also, Du You 杜佑, *Tong dian 通典*. In: *Siku quanshu*. Shanghai: Shanghai guji chubanshe; 1987. p. 192.605.
10. Tan Qixiang 譚其驤 (ed.), *Zhongguo lishi ditu ji 中國歷史地圖集*. Shanghai: Ditu chubanshe; 1982-7. pp. 4.30-31. See also, Laufer B, *Sino-Iranica: Chinese Contributions to the History of Civilization in Ancient Iran*. Chicago: Field Museum of Natural History; 1919. p. 460.
11. Aliotta G et al., see note 1, pp. 300-1.
12. Beck L, see note 2, pp. 45-6.
13. Li Shizhen, see note 8, p. 34.1373a.
14. Li Shizhen, see note 8, p. 34.1373a.
15. Bretschneider E, *On the Knowledge possessed by the Ancient Chinese of the Arabs and Arabian Colonies, and other Western countries, mentioned in Chinese books*. London: Trubner & Co.; 1871. p. 20, fn4.

16. Laufer B, see note 10, p. 461.
17. Karlgren B, *Grammata Serica Recensa*. BMFEA, 1957; 29. Separately printed: Kungsbaka: Elanders Boktryckeri Aktiebolag; 1972. pp. 134-5.
18. Schuessler A, *Minimal Old Chinese and Later Han Chinese: A Companion to Grammata Serica Recensa*. Honolulu: University of Hawai'i Press; 2009. p. 309.
19. These pronunciations are relevant to the time period of this paper and give an overview of the current systems used in reconstruction. Whether the vowel difference in these reconstructions point to a more precise location of borrowing, needs to be further studied. See Baxter W, and Sagart L, *Old Chinese: A New Reconstruction*. New York: Oxford University Press; 2014. p. 294, and Pulleyblank E, *Lexicon of Reconstructed Pronunciation in Early Middle Chinese, Late Middle Chinese, and Early Mandarin*. Vancouver: University of British Columbia Press; 1984. p. 218.
20. Schaefer E, *The Golden Peaches of Samarkand: A Study of T'ang Exotics*. Berkeley: University of California Press; 1963. p. 3.
21. Yao pu 藥譜, *Scripta Sinica, Han ji dianzi wenxian 漢籍電子文獻*, Academia Sinica (<http://www.sinica.edu.tw/~libserv/aslib/>), accessed 5 July 2014.
22. NAPPI C., *The Monkey and Inkpot: Natural History and its Transformations in Early Modern China*. Cambridge - Mass.: Harvard University Press; 2009. p. 10. See also Ji Yun 紀昀 (1724-1805), *Siku quanshu zongmu tiyao 四庫全書總目提要*. Shanghai: Shangwu yinshu guan; 1933. p. 103.2132.
23. Li Shizhen, see note 8, pp. 1.331a-363a.
24. Li Shizhen, see note 8, p. 34.1373a.
25. Hu Shiu Ying, *History of the Introduction of Exotic Elements into Traditional Chinese Medicine*. *Journal of the Arnold Arboretum* 1990;71:491 and 496. Also see, Li Shizhen, see note 8, p. 34.1373a.
26. This text serves as one of the primary sources of clinical information for non-Chinese readers in Traditional Chinese Medicine. See Bensky D, Clavey S, Stoger E, With Gamble A, *Chinese Herbal Medicine: Materia Medica*. 3rd edition. Seattle: Eastland Press; 2004. p. 636.
27. Jiangsu Xinyixueyuan 江蘇新醫學院 (eds.), *Zhongyao da cidian 中藥大辭典*. rpt. 1986. Shanghai: Shanghai kexue jishu chuban she; 1992. pp. 1167-8.
28. Zan Yin 咎殷, *Jing xiao chan bao 經效產寶*. Beijing: Renmin weisheng chubanshe; 1955. Lin Daoren 蘭道人, *Xian shou lishang xuduan mifang 仙授理傷續斷秘方*. In: *Dao zang 道藏*. Beijing: Wenwu chubanshe; 1988. p. 26.627.
29. This text is actually referenced in the commentary to the Ge Hong's *Zhouhou beiji fang* by Yang Yongdao 楊用道 written in 1144. See Ge Hong 葛洪,

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- Zhouhou beiji fang 肘後備急方. Tianjin: Tianjin kexue jishu chubanshe; 2011. p. 73.
30. Wang Huaiyin 王懷隱 et al., Taiping Shenghui fang 太平聖惠方. Beijing: Renmin weisheng chubanshe; 1958.
 31. Though early scholars did not identify an author for this text, Li Shizhen ascribes it to Zhen Quan 甄權 (7th century). See Li Shizhen, see note 8, p. 1.333b.
 32. Though Li Xun 李珣 was living in Sichuan at the time of writing, Chen Ming 陳明 believes he was born in Guangzhou 廣州 and lived there for a good portion of his life. Chen Ming 陳明, *The Transmission of Foreign Medicine via the Silk Roads in Medieval China: A Case Study of Haiyao Bencao*. *Asian Medicine* 2007;3: 246-50.
 33. Bianjing 汴京 is now modern Kaifeng 開封. Liu Han and Ma Zhi were two of nine scholars ordered by the founder of the Song Dynasty, Emperor Taizu 太祖 (r. 960-976) to compile this text. See Li Shizhen, see note 8, p. 1.334a-b.
 34. This time period is the Kaibao 開寶 reign period of the Song dynasty which is when this was likely written. See Li Shizhen, see note 8, pp. 1.335b-336a.
 35. According to Li Shizhen, Emperor Renzong 仁宗 (r. 1022-1063) ordered the court official Zhang Yuxi 掌禹錫 and others to revise the Bencao which resulted the Jiayou buzhu bencao 嘉祐補注本草 that was issued in 1060. Su Song was ordered to complete the work and the result was the Tujing bencao. See Li Shizhen, see note 8, p. 1.335b. Also, Su Ying 蘇穎 and Zhao Hongyan 趙宏岩 (ed.), *Bencao tujing yanjiu 本草途徑研究*. Beijing: Renmin weisheng chubanshe; 2011. pp. 11 and 459.
 36. Qiu Peiran, see note 3, p. 254.
 37. This text is also called, Xinbian zhenglei tuzhu bencao 新編鄭磊圖注本草. See Qiu Peiran, see note 3, p. 255.
 38. Unschuld P, T'ang Shen-wei. In: Franke H. (ed.), *Sung Biographies*. Wiesbaden: Steiner; 1976. pp. 1003-4. This text is also called, Chongxiu zheng he jingshi zhenglei beiji bencao 重修政和經史證類備急本草. See Ji Yun, see note 21, pp. 103.2101-2.
 39. Y.C. Kong et al., *A Botanical and Pharmacognostic Account of Hui Hui Yao Fang, The Islamic Formulary*. *Hamdard medicus* 1988;31(1):3.
 40. Qizhou 蘄州 is now Qichun 蘄春 in Hubei 湖北 province. See Nappi C, see note 22, p. 13.
 41. This is modern Xi'an 西安. See Lin Daoren, *Xian shou lishang xuduan mifang – Zhengti leiyao 仙授理傷續斷秘方 – 正體類要*. Beijing: Renmin weisheng chubanshe; 2006. p. 3.

42. Chengdu 成都 is in modern Sichuan 四川 province. See Qiu Peiran, see note 3, p. 253.
43. Zhou Ting added to Zan Yin's *Jing xiao chan bao* in 897. While myrrh is mentioned in Zhou Ting's addendum, it is not found in Zan Yin's original text. There is also an additional addendum by Song Dynasty physician, Guo jizhong 郭稽中 about Li Shisheng's 李師圣 method that also mentions myrrh. See Qiu Peiran, see note 3, p. 832.
44. Ma Dazheng 馬大正, *Zhongguo fu chan ke fazhan shi 中國婦產科發展史*. Taiyuan: Shanxi kexue jiaoyu chuban she; 1991. and also, Tameto Okanishi 岡西為人, *Song yi qian yi ji kao 宋以前醫籍考*. Taipei: Gu ting shu wu; 1969. pp. 1079-84.
45. *Zhongguo yi ji da cidian*, 385. See also Wong M, Chi-chiu hsien-fang. In: Balazs E, and Hervouet Y (ed.), *A Sung Bibliography/Bibliographie des Sung*. Hong Kong: Chinese University Press; 1978. p. 253, and Ji Yun, see note 22, p. 103.2113.
46. These four were the primary compilers of this text commissioned by Emperor Tai Zong 太宗 in 978. See Miyasita S and Porkert M, T'ai-p'ing sheng-hui fang. In: Balazs E and Hervouet Y (ed.), see note 45, p. 246.
47. Porkert M, "Wang Huai-yin 王懷隱," In: Franke H (ed.), see note 38, pp. 1112-3. See also Tuo Tuo 脫脫 (Toghto) et al., *Song shi 宋史*. Beijing: Zhonghua shuju; 1977. p. 462.12b.
48. Qiu Peiran, see note 3, p. 386. Chen Shiwen 陳師文 was a major contributor to the updates from 1107-1110. See Wong M, In: Balazs E and Hervouet Y (ed.), see note 45, p. 248.
49. Lin'an 臨安 is modern Hangzhou 杭州. See Qiu Peiran, see note 3, p. 832.
50. Linchuan 臨川 is a district in Fuzhou 撫州, Jiangxi province 江西省. See Ji Yun, see note 22, p. 103.2108.
51. The location of authorship is uncertain, but Nanzhou 南州 was in modern Sichuan province 四川省. See Tan Qixiang, see note 10, pp. 5.67-8.
52. Li Yanshou was a native of Xiangzhou 相州 in modern Shandong province 山東省. He also served as a governor in Sichuan and then Chang'an, where he was while writing the *Beishi*. See Li Yanshou 李延壽, *Xin Tang shu 新唐書*. Beijing: Zhonghua shuju; 1975. p. 102.3985.
53. Huainan 淮南 is in modern Anhui 安徽 province. See Wilkinson E, *Chinese History: A New Manual*. Cambridge – Mass: Harvard University Press; 2013. p. 464.
54. Duan Chengshi's timeline is not clear as pointed out in *A Tang Miscellany: An Introduction to Youyang zazu* by Carrie Reed. According to various

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- biographies, Duan Chengshi may have been in Xiangyang 襄陽, Jiangzhou 江州, or Chang'an 長安. He also spent time in Sichuan which is where Youyang mountain 酉陽山 is located. See Reed C, *A Tang Miscellany: An Introduction to Youyang zazu*. New York: Peter Lang Publishing Inc.; 2003. pp. 1-24.
55. Li Fang served as the Minister of Finance in 976 and was appointed as Prime minister in 983. He was the chief compiler of the *Taiping guanji*. See Wilkinson E, see note 53, p. 651.
 56. Velgas V, translated by Milsky C, Ling-wai tai ta 嶺外代答. In: Balazs E and Hervouet Y (ed.), see note 45, pp. 158-9.
 57. Quanzhou 泉州 is in modern Fujian province 福建省. See Velgas V (translated by), Milsky C, Chu-fan chih 諸蕃志. In: Balazs E and Hervouet Y (ed.), see note 45, pp. 161.
 58. Aliotta G et al., see note 1, pp. 300-1, and Beck L, see note 2, p. 46.
 59. Zan Yin 筭殷, *Jing xiao chan bao 經效產寶*. Beijing: Renmin weisheng chubanshe; 1955. pp. 31b and 33b.
 60. Qi Zhongfu 齊仲甫, *Nu ke bai wen 女科百問*. In: Xuxiu Siku quanshu 續修四庫全書. Shanghai: Shanghai guji chubanshe; 1995-2002. pp. 1007.111a-b, 116b-117a, and 173b.
 61. Chen Ziming 陳自明, *Furen daquan liang fang 婦人大全良方*. Tianjin: Tianjin kexue jishu chubanshe; 2012. pp. 112, 159-60, and 164.
 62. Chen Ziming, see note 61, p. 160.
 63. Chen Shiwen 陳師文, *Taiping huimin heji jufang 太平惠民和劑局方*. Beijing: Renmin weisheng chubanshe; 1962. p. 172.
 64. Su Ying et al., see note 35, p. 459.
 65. Tang Shenwei 唐慎微, *Chongxiu zheng he jingshi zhenglei beiji bencao 重修政和經史證類備急本草*. Beijing: Zhongguo zhongyi yao chubanshe; 2013. pp. 891-3.
 66. Kou Zongshi 寇宗奭, *Tujing yanyi bencao 圖經衍義本草*. In: *Dao zang 道藏*. Beijing: Wenwu chubanshe; 1988. p. 17.580.
 67. Binsky D et al., see note 26, pp. 636-8.
 68. Beck L. see note 2, p. 46.
 69. Lin Daoren, see note 28, pp. 26.627-634.
 70. Jijiu xian fang 急救仙方. In: *Dao zang 道藏*. Beijing: Wenwu chubanshe; 1988. pp. 26.599-659.
 71. The Zhouhou beiji fang is attributed to the 3rd and 4th century scholar, Ge Hong 葛洪. The original text does not mention myrrh, but was added in a sample formula for pain treatment by Yang Yongdao 楊用道 in 1144.

72. Ge Hong, see note 29, p. 73.
73. Chen Shiwen, see note 63, p. 153.
74. Jiangsu Xinyixueyuan, see note 27, p. 1168.
75. Li Shizhen, see note 8, p. 34.1373a.
76. Su Ying et al., see note 35, p. 459, Tang Shenwei, see note 65, pp. 891-3, and Kou Zongshi, see note 66, p.17.580.
77. Li Shizhen, see note 8, p. 34.1373a.
78. Qi Zhongfu, see note 60, p. 130a-b.
79. Aliotta G et al., see note 1, p. 300.
80. Here it is uncertain why it was being given as tribute: incense, embalming, and/or medicine. The Pamir range runs along the western border of China, just north of the Himalayas.
81. Li Yanshou, see note 9, pp. 185.3238-9.
82. Tan Qixiang, see note 10, pp. 4.30-31.
83. Tan Qixiang, see note 10, pp. 5.67-68.
84. Sichuan was undoubtedly an area of importance since a number of the texts cited were either written here, or their authors spent a significant portion of their life here. The two main cities in the province are Chengdu 成都 and Chongqing 重慶. Chongqing is now a separate political entity, but historically was part of Sichuan.
85. Schottenhammer A, Transfer of Xiangyao 香藥 from Iran and Arabia to China – A Reinvestigation of Entries in the Youyang zazu 酉陽雜俎 (863). In: Kauz R (ed.), Aspects of the Maritime Silk Road: From the Persian Gulf to the East China Sea. Wiesbaden: Harrassowitz Verlag; 2010. pp. 117-18.
86. Hirth F and Rockhill WW (translated and ed.), Chau Ji-kua: His Work on the Chinese and Arab Trade in the twelfth and thirteenth Centuries, entitled Chufan-chi. St. Petersburg: Imperial Academy of Sciences; 1911. rpt, New York: Paragon Book Reprint Corp.; 1966. pp. 9-14.
87. Duan Chengshi 段成式, Youyang zazu 酉陽雜俎. Beijing: Zhonghua shu ju; 1981. pp. 172-180.
88. As Schottenhammer also points out, the Taiping Guangji 太平廣記 (Extensive records of the Taiping era) by Li Fang 李昉 et al., also contains many passages borrowed from the Youyang zazu. See Schottenhammer A, see note 85, pp. 127-8. The passage on myrrh trees is one of those listed. See Li Fang 李昉 et al., Taiping Guangji 太平廣記. In: Siku quanshu. Shanghai: Shanghai guji chubanshe; 1987. pp. 406.1046-7.
89. Zhou Qufei 周去非, Lingwai daida 嶺外代答. In: Siku quanshu 四庫全書. Shanghai: Shanghai guji chubanshe; 1987. p. 3.411.

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90. An interesting note on this point is the Tibetan term according to Berthold Laufer, for myrrh is *rgya gul nag* (“black Guggula of China”). See Laufer B., *Loan-Words in Tibetan*. *T’oung Pao* 1916; Second Series 17.4/5, p. 448. There are two aspects of this name that are important to notice. The first is that the name itself points that it is from China; *rgya* directly refers to China. The second is *gul*, which refers to Guggula (*Commiphora mukul*). Though only a small bit of information, it could point to the incorporation of myrrh into Tibetan medicine via a Chinese route.

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