

THE MEDICINE OF SILLA IN EAST ASIA

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1. Introduction

While studying the political mechanisms of ancient Korea, my research paid particular attention amongst various factors to the bureaucratic systems (官僚制度),¹ government statements by the literati,² political meanings of divination rituals³ and medicine, and attempted to reveal how these were used by the ruling class in solidifying their power over society. In other words, the ruling entities effectively systemized their dominance through public offices such as the law code and various other institutions, communicated with their subjects through written government statements of the literary officials, calmed opposition through divination rituals, and secured loyalty through the monopolization of high-quality medical personnel and resources. One result of this research is my PhD dissertation, “A Study on the Medical History of Silla”, a work that examined how the rulers had used medicine and medical treatments in ruling the populace.⁴

I came to understand that medical service was used as an important arm of governance in medieval Korea. Particularly, the fact that the rulers of East Asia always attempted to monopolize advanced medical information related to human life helped me to understand that medieval Asian countries paid attention to the political aspect of medicine. There was a political reason for the fact that, unlike in the West, the medical system developed in East Asia under a centralized bureaucracy.

Medicine and the medical treatment system of the Tang (唐) dynasty became the model for medieval East Asian medicine and the medical treatment system. I found this system had several distinct characteristics. First, reflecting patriarchal ideology, medical benefits were provided in the form of the highest-ranked ruler’s favour. Using medicine, the emperor governed officials, aristocrats and the common people under the centralized bureaucracy. Such forms were confirmed through the Tang law code, and later, as Unified Silla and Japan adopted this system, it could become the basis for East Asia’s medical system. In short, medical service was utilized as a ruling mechanism.

Second, at the core of medieval East Asia’s medical system lay the fact that medical service was provided under the bureaucratic system. The highest rulers nurtured medical professionals and employed them as medical bureaucrats, placing

them under the control of the state. Medical bureaucrats were responsible for looking after the health of the highest-ranked rulers, the aristocrats. In the Goryeo dynasty (918–1392), literary officials above 5th rank (品), military officials above 4th rank and highest-ranked Buddhist monks were provided with this medical service while preparing and distributing medicinal materials which were bestowed by the rulers and used to show off their power. It came from the Tang Code and presumably Silla accepted this system as well.⁵ The fact that medical service was provided at the state level for people in the core bracket to prop up the regime distinguishes the medieval East Asian medical system from that of the West. I assume that this stems from the early advent of a centralized state in East Asian society, unlike the decentralized society of the medieval West.

Third, East Asian medicine of the medieval age earned a universality and compatibility that were not achieved in ancient times. By adopting Chinese medicine which assumed a central position in East Asian medicine, neighbouring countries such as Korea, Japan and Vietnam naturally came to use Chinese-style names of illnesses, medicinal materials and measurement units. Just as medical exchange can take place actively among today's East Asian nations thanks to the operation of the American-British medical system, which is the global standard, so too in East Asian countries of the medieval era active medical exchange could also take place through the adoption of Chinese medicine as a standard framework.

So, when did Korean medicine gain the universality and compatibility to communicate with Chinese medicine as the centre of East Asian medicine? I intend to regard the establishment of the national medical college, 'I-hak (醫學)', by Silla in 692 as the starting point. After the end of the unification wars, Silla set up the educational institution to teach Chinese medicine and produced medical professionals on a regular basis. By introducing Chinese medicine as the standard framework, Silla was able to exchange with East Asian medicine more actively.⁶ This paper seeks to discuss Silla's medicine from the perspective stated above.

2. The Development of Silla's Medicine

According to *Samguk sagi*, Silla lasted from 57 BCE to 935 CE. In early Silla, as in other ancient tribes of Northeast Asia, shamans (*mu* 巫) had cured people. There is a legend regarding a shaman physician and Buddhist monk physician in *Samguk yusa* (三國遺事), according to which when Princess Sungkuk (成國公主) fell ill during the reign of King Michu (味鄒王, r. 262–284), it was Buddhist monk Ado who came from Goguryeo and cured the Silla princess when a shaman physician failed to heal her.⁷ This was a turning point for Buddhism spreading to Silla. The author of *Samguk yusa* argues that it was during the reign of King Nulji (訥祇王, r. 417–458), not King Michu, when Buddhism was introduced to Silla, but my point is that according to

the anecdote it was a shaman physician who had been supposed to cure the princess. Hence after Buddhism came to Korea, Buddhist monks took a role as healers and a kind of physician. They were called physician monks (醫僧).⁸

It is assumed that Silla's medicine underwent a remarkable development in the 5th and 7th centuries. In the 5th century, Silla's medicine took the form of ancient medicine influenced by that of Goguryeo, and in the seventh it acquired universality in East Asia by adopting the medical system of the Tang dynasty, which had become the standard for East Asian medicine.⁹ What's interesting is that both periods of time experienced war and foreign troops long stationed in Silla, the armies of Goguryeo and Tang respectively. During the war foreign troops came to be stationed within the territory of Silla over a long period of time and their medicine flowed into Silla through military doctors.¹⁰ Similar in context is the fact that military surgeons of the United States participating in the Korean War (1950–1953) played an important role in the development of modern Korean medicine.¹¹

Major consequences included the career of Kim Mu (金武), a Silla physician with the official rank of Pajinchan (波珍瀆: the 4th of 17 ranks) who treated the Japanese Tenno Inkyo (允恭帝) in 414 CE,¹² and the foundation of the medical institute I-hak in 692 CE. Briefly, we can visualise the state of Silla's ancient medicine from an anecdote about Kim Mu, and Silla's efforts to shift to medieval features can be found in I-hak, founded by King Hyoso (孝昭王) in the first year of his reign.

I intend to look first at the former example. Located in the south-eastern part of the Korean peninsula, Silla was not only the last among the three ancient kingdoms of Korea in terms of the development of the state, but also the least-developed one in the aspect of culture and general technology. Nevertheless, it was Silla's doctor, Kim Mu, who cured Tenno Inkyo of Japan.¹³

How could this be possible? Tenno Inkyo was said to have been pro-Silla. Furthermore Silla medicine seems likely to have been influenced when Goguryeo's army was stationed within the territory of Silla in 400 CE. Korean scholars hardly mention Kim Mu, who was dispatched to Tenno Inkyo in the 13th year of King Silsung (實聖王, r. 402–417). Kim Mu was called *kusuri* in ancient Japan, which meant 'medicine' at the time. Some Chinese scholars deny the fact that Kim Mu cured Tenno Inkyo, because only one ancient Japanese historical book, *Kojiki* (古事記) conveyed the story. According to *Kojiki*, it was a Silla envoy, Kim Pajin Hanki Mu (金波珍漢紀武), who had the good medical knowledge that cured Tenno Inkyo's chronic disease. At that time, a person's name revealed his job as well as his family's registered place. Therefore, Kim's name tells us that he had the 4th rank official title pajinchan and came from Hanki region which was in the south-eastern part of Silla's capital, modern Gyeongju. Japanese scholar Misina Shoei (三品彰英, 1902–1971) and Chinese medical historian Wang Yousheng (王有生), who just followed Misina's theory, denied the possibility of Kim Mu's medical activity on behalf of Tenno Inkyo.

But in *Samguk yusa* (三國遺事) written in 1285 CE, I found Kim Mu'al (金武謁) who accompanied King Naemul's (奈勿王, r. 356–402) son Bohae to Goguryeo when he was sent as a hostage in 412 CE, the 11th year of King Silsung's (實聖王) reign (402–417), and Kim Mu seems to be the same person as Kim Mu'al.¹⁴ As I already pointed out, at that time a name showed the owner's job. Hence Kim Mu'al might be a kind of chamberlain for King Silsung, because there was an officer *alza* (謁者, Ch. *ye zhe*) in Qin-Han China and Goryeo Korea as well. He escorted Bohae, who was a brother of King Silsung's political rival King Nulji (訥祗王, r. 417–458), to Goguryeo and King Silsung eliminated one of his rivals. Kim Mu probably refined his own medical art by embracing Goguryeo's advanced medicine during his stay there. In fifth-century Silla there were only a few aristocratic people even among the ruling class who had Chinese-style names and could read and write Chinese characters. According to *Kojiki pajinchan* Kim Mu would be Korea's first scholar studying medicine as a hobby (學醫).¹⁵ Why was Kim Mu ignored in Korean history? I think he and his family may have been killed when King Silsung was murdered by Bohae's brother King Nulji. The new king sent an emissary to Goguryeo to rescue his brother Bohae, now held hostage.

In addition, a prescription by Silla's Jinmyoung (眞明方), who treated Tenno Inkyo's concubine Sodo Osi no Iratsme (衣通郎女), survives in the Japanese medical book of 808 CE, *Daidou luishu hou* 大同類聚方.¹⁶ According to Japan's medical historian Fujikawa Yu (富士川游, 1865–1940), most Japanese scholars thought that the surviving *Daidou luishu hou* was fabricated in the Edo period. But here it is not my concern whether it was fabricated or not. I introduce that book because from *Daidou luishu hou* we may see the differences between Chinese- and Japanese-style names for the same medicinal materials and diseases.

Maki Sachico (槇佐知子), a specialist of Japanese ancient literature, translated the *Daidou luishu hou*, which was written in Manyoshu (萬葉集) Japanese, into modern Japanese.¹⁷ The extant *Daidou luishu hou* records 8 medicinal materials in Silla Jinmyoung's prescription to cure a sore throat for Tenno Inkyo's concubine. Jinmyoung seems like a Silla physician's name. According to the anecdotes in *Gojiki* and *Daidou luishu hou*, Silla's envoy Kim Mu cured Tenno Inkyo and Silla physician Jinmyoung cured his concubine in the early 5th century.

Maki translated the ancient Japanese medicinal herb names into Chinese. For some of them she suggested several possible Chinese names. For example, she suggested three possible names for the translation of *Biyi yangji* (比以良支), namely Chinese Skullcap (*Scutellaria baicalensis*), the dried root of Indian mulberry (*Morinda officinalis*, Ch. *ba ji tian* 巴戟天), and *cornutae folium* (枸骨, Ch. *gou gu*) which is dried leaves of holly, *Ilex cornuta* Lindl. Of course *Biyi yangji* was so-called in ancient Manyoshu Japanese, but I guess it was influenced by ancient Korean pronunciation. I searched for these 8 materials in ancient Chinese medical books and realized that most of them

Table 1. Medicinal names referred to in four medical books

Names				Medicinal Properties and Sources
Western	Chinese	Jimyoung-bang	HGKbang	
Arrowroot		久壽加豆良	叱乙根	Used to treat conditions with stiff neck and back and diarrhoea. Also used for headache. <i>Shang</i> , p.168 Sweet taste and non-poisonous. Flower good for hangover, leaf treats injuries by metal. Roots gathered in May and used after drying in the sun. <i>Yak</i> , p.275
<i>Angelica polymorpha</i>	岩薺	袁美奈加豆良	蛇休草, 蛇遊草	Used in the prescription of physician Hou's black powder (侯氏黑散方 <i>Houshi heisan fang</i>) along with <i>Wolffiporia cocos</i> (茯苓; see below). <i>Shang</i> , p.151 Essential for headache. <i>Yak</i> , p.488
<i>Sinomenium acutum</i>	防己	阿保加通良		Hot taste, warm property, non-poisonous. Gathered in the 3 rd , 4 th month and used after drying in the sun. Good to gather in the 9 th and 10 th month in the lunar calendar. <i>Hyang</i> , p.271
Rose of Sharon	無窮花	支波知寸乃美		Relieves swollen legs. <i>Shang</i> , p.165 In traditional Korean medicine, mainly used as an antiphlogistic, painkiller, and diuretic. <i>Yak</i> , p.309
<i>Wolffiporia cocos</i>	茯苓	万豆保度		Used to treat gastritis, haemorrhoids, dysentery, itch, anal prolapse, emesis and thirst. Flower and root skin used for the same purpose. <i>Yak</i> , p.472 Mainly used to treat symptoms such as dizziness, hallucination, heart pounding, thirst and urination problems. <i>Shang</i> , p.147 In Korean medicine, mainly used as a diuretic and sedative. <i>Yak</i> , p.100
				Sweet taste, non-poisonous. Good ones look like a human or turtle. Gathered in February and August and used after drying in the shade. The one with roots in it was called <i>Boksin</i> (茯神, Ch. <i>fushen</i>). <i>Hyang</i> , p.297
				Leaf and stalk used to treat festering. <i>Ben</i> , p.1163
Buxaceae		也左奈支	楊木	Inner skin used as a fever remedy and painkiller for rheumatic fever and malaria. For inflammation in the mouth and throat, rinse mouth with water boiled down with the herb. <i>Yak</i> , p.165
				Whereas <i>Buxaceae</i> (楊木) has short leaves, willow (柳木) has long branches. Skin and roots used for treating a large boil. Flower tastes bitter. Cold in nature, it is non-poisonous. To treat a boil that is hard to cure, paste with this and cauterize. <i>Hyang</i> , p.303
				Used to treat conditions accompanying fever, haemorrhage, lump around the pit of stomach, diarrhoea, nausea and pain in the chest and side. <i>Shang</i> , p.187
Skullcap		比以良支	精朽草	In Korean medicine, mainly used as an antiphlogistic and fever remedy. <i>Yak</i> , p.619
				Bitter taste, cold property. Roots gathered in the 2 nd and 8 th months and used after drying in the sun. Otherwise roots are gathered in the 3 rd month and dried in the shade. <i>Hyang</i> , p.279
Ginger		波自加民		Mainly used for conditions accompanying nausea, excessive saliva in the mouth without feeling thirsty. <i>Shang</i> , p.90

Shang refers to *Shang han lun*, a modern compilation by Huang Huang (黃煌) translated into Korean (Seoul: Beopin Munhwasa, 2000); *Ben* to *Bencao gangmu* (本草綱目, 'Compendium of Materia Medica', Taipei: Wenyou shudian, 1959); *Yak* to *Yakcho / seongbun kwa iyong* ('Ingredients and Usage of Herbs', republished by Ilwol seogak 日月書閣, Seoul, 1991); *Hyang* to *Banglung hyangyak mok* 方中藥目, 'Korean Medicinal Prescription Materials' cited from Shin Youngil, *Hyangyak gukeupbang ae Daehan yeonku* ('A Study of *Hyangyak gukeupbang* 鄉藥救急方', PhD. dissertation, Kyunghee Univ. Dept. of Oriental Medicine).

were popular in 3rd-4th century China. From my research, I selected Chinese Skullcap as *Biyi yangji*. In *Hyangyak gukeupbang* (鄉藥救急方, *First Aid Prescriptions with Korean Medicinal Materials*) published in 1236 CE, Chinese Skullcap was written with a perfect Chinese-style name, *jeonghucho* (精朽草, Ch. *jingxiucao*).

From this prescription, we can see what the ancient medicinal name had been in countries not influenced by Chinese medicine, such as ancient Korea and Japan, where they used their own names. I made a table of Jinmyoung's prescription to compare the medical materials' names in different eras and different countries for the purpose of extracting the traits of ancient medicine.

In Oriental medicine, it is said that the notion of 'medical proof (藥證)' began from *Shang han lun* (傷寒論, 'Treatise on Febrile Diseases'), created by Zhang Zhongjing (張仲景: c.150–219 CE) of the Eastern Han (後漢: 25–220 CE) dynasty, which contained guidelines and evidence regarding the use of medicines. Table 1 examines the main purposes of medicinal materials used by *Jinmyoungbang* based on *Shang han lun* and compares them with the records of related materials appearing in *Hyangyak gukeupbang*. The peculiarity of the ancient medicine of Silla and Japan appears distinctly in the names of medicinal materials. Such peculiarity can also be demonstrated by the following anecdote of a monk from Silla who went to Tang for study in the 8th century.

- A. According to *The Biography of Weilingxian* (威靈仙傳) written by Zhou Junchao (周君巢) during the Zhen Yuan (貞元: 785–805) period of Tang, "*Weilingxian* (*Clematis florida*) removes paralysis (風), helps twelve channels (*jingmai* 經脈) pass through, and is effective if taken in the morning.... There was someone in Changzhou (尚州) who hadn't been able to walk for decades because of serious illness. Although skilful doctors applied various techniques, they only failed to treat his condition. When [the patient] went out to the roadside personally to look for someone who could cure him, he encountered a monk from Silla who said, 'This disease can be cured with only one medicine, but I'm not aware if the medicine is available here.' At that, he went out into the mountains in search of the medicine and found it. It was none other than *weilingxian*. After [boiling down the herb and] taking it, he became able to walk in several days. Later a hermit, Deng Siqi (鄧思齊), discovered the event and recorded it."¹⁸

What we should note here is that the Silla monk didn't know if *weilingxian* was available in Tang. In other words, it implies that he was only aware of the Korean name (鄉名) by which *weilingxian* was referred to in Silla, and that he had little knowledge of Chinese medicine. That the *weilingxian* prescription applied by the Silla monk was not one introduced by Buddhist medicine can be supported by the fact that even the royal doctors of Tang boasting the finest medicine at the time didn't recognize the efficacy of *weilingxian*. Since the Buddhist medicine transmitted to Silla had passed through China, Tang medicine already included most of the Buddhist medicine from

India.¹⁹ The *weilingxian* prescription became a Chinese prescription and was covered by the *Daguan bencao* (大觀本草, ‘Great Compendium of Medicinal Materials’) in 786.²⁰

In addition to *weilingxian*, Silla had its own prescriptions like *nobong* (露蜂, Ch. *lufeng*) from *Silla bupsabang* (新羅法師方, ‘A Compendium of the Prescriptions of Silla Buddhist Monks’), which has been preserved in the Japanese medical book *Isimpo* (醫心方) of 983 CE.²¹ *Nobong* (露蜂) means a beehive, and this medicine was served as a sexual enhancer. According to *nobongbang*, the hive was dried and burnt to powder, which was then supposed to be applied to the male sexual organ. A Silla priest provided a prescription using the hive powder that would make the penis bigger, longer and stronger.²² Kim Doojong said that this is a very authentic and exclusive usage for hives in East Asia of the period.²³ It reveals that the customers for *Silla bupsabang* were mainly royal families as well as aristocrats, one of whose concerns was sexual issue.

Because medical books of Silla dealing with homegrown medical materials or prescriptions completely disappeared long ago, we can only glimpse the unique features of Silla’s medicine through the records of China or Japan. As the anecdote about *weilingxian* suggests, Chinese medicine comprised all medical knowledge from neighbouring countries. Thus, Silla’s medicine, like that of Goguryeo and Baekje, came to survive within the prescriptions of Chinese medicine. In other words, when the Silla monk presented the prescription for paralysis of the legs, it was Silla’s own prescription. After being carried in *Daguan bencao*, however, it changed into a prescription of Chinese medicine. Later, in the 13th century, the Goryeo dynasty

Table 2. Comparison of Curricula in Silla, Tang and Japan

Silla	<i>Classic of Materia Medica</i> (本草經), <i>Systematic Classic of Acupuncture and Moxibustion</i> (甲乙經*), <i>Classic of Plain Questions</i> (素問經), <i>Canon of Acupuncture</i> (針經*), <i>Pulse Classic</i> (脈經), <i>Classic of Channels and Acupoints</i> (明堂經*), <i>Classic of Medical Problems</i> (難經*)
Tang	<i>Materia Medica</i> (本草), <i>Acupuncture and Moxibustion</i> (甲乙*), <i>Plain Questions</i> (素問*), <i>Canon of Yellow Emperor’s Acupuncture</i> (黃帝針經*), <i>Pulse Classic</i> (脈經), <i>Channels and Acupoints</i> (明堂*), <i>Pulse Formulae</i> (脈訣*), <i>Illustrated Manual of Meridian Flow for the Practice of Acupuncture and Moxibustion</i> (流注圖*), <i>Illustrated Manual of Channels and Acupoints in Lying Down Posture</i> (偃側圖*), <i>Classic of Red Crow’s Holly Acupuncture</i> (赤鳥神針經*)
Japan	<i>Materia Medica</i> (本草), <i>Acupuncture and Moxibustion</i> (甲乙*), <i>Plain Questions</i> (素問*), <i>Canon of Yellow Emperor’s Acupuncture</i> (黃帝針經*), <i>Pulse Classic</i> (脈經), <i>Channels and Acupoints</i> (明堂*), <i>Pulse Formulae</i> (脈訣*), (小品方), <i>Collection of Examined Prescriptions</i> (集驗方), <i>Illustrated Manual of Meridian Flow for the Practice of Acupuncture and Moxibustion</i> (流注圖*), <i>Illustrated Manual of Channels and Acupoints in Lying Down Posture</i> (偃側圖*), <i>Classic of Red Crow’s Holly Acupuncture</i> (赤鳥神針經*)

(Based on Miki Sakae, *Chosen igakushi oyobi shipeishi* (‘The History of Medicine and Diseases in Korea’, Sakai City, Japan, 1962, p.14)

(*) refers to acupuncture textbooks, and in the case of Silla, to textbooks for acupuncture and moxibustion.

re-imported the prescription when publishing *Hyangyak gukeupbang* because there were no medical books of Silla that had survived.

In 692 CE, Silla founded I-hak (醫學), the medical institute, to produce medical professionals annually who practised Chinese medicine. Through the textbooks used at I-hak, we may observe the universality that Silla's medicine aimed at.

I don't think that Silla's I-hak adopted only seven textbooks. Comparing the list with those used in Tang or Japan, we can perceive that only the names of scriptures (經) remain. In short, not all of the textbooks taught at I-hak have been recorded, but only those enumerated as scriptures. It can be inferred from the comparison of textbooks used in Korea, China and Japan that these three countries ran somewhat different curricula according to the character of each country. In the case of Silla, it is noticeable that books on acupuncture and moxibustion assumed great importance. Of all seven scriptures, five are related to acupuncture. Considering that *Maekyung* (脈經, Ch. *maijing*) is also not irrelevant to acupuncture, we can see that scriptures related to acupuncture were valued. I think that this was possibly related to the fact that following Goguryeo's techniques, acupuncture made considerable progress in Silla.

The establishment of I-hak is significant because after unification, Silla adopted Chinese medicine and embraced it proactively as its medical standard. It is easy to guess from the textbooks that Silla must have changed the official names of medical-related items into Chinese terminology. By obtaining a universality not requiring translation, Silla's medicine was transformed into a system immediately compatible with that of neighbouring countries, and in the process, smoothly acquired an international character.

3. The International Trade of Medicines in Silla

The trading of medicine was very important, because no country could produce every kind of medicinal materials at that time. Hence, the commercial exchange of medical goods may have begun much earlier than we imagine. By dispatching envoys to China and Japan, Unified Silla engaged in distributive trade and public trade (公貿易). Medicinal materials seem to have comprised a large portion in public trade between Korea, China and Japan, because medical goods were expensive but light, creating high profits. In private trade (私貿易) as well as public trade, medicinal materials were probably important items. Considering that epidemics swept through East Asia in the 8th and 9th century,²⁴ we can guess that demand for medical supplies probably skyrocketed.

In public trade with Tang, Silla mainly imported silk, books and jewellery while exporting gold, silver, iron, ox bezoar, ginseng, weasel and seal leather, etc.²⁵ Among imported books, medical titles appear to have represented an important share. As

Pak Yeeon (朴如言), Silla's envoy dispatched to Tang in 804 CE, couldn't find the latest medical book, *Kwanglibang* (廣利方, Ch. *Guanglifang*), compiled in 796 CE, in the market he made a request to Du You (杜佑, 735–812), who was then provincial minister of Yangzhou (揚州). This is one example suggesting that Silla's envoy enthusiastically collected Tang medical publications.²⁶ When *gakgan* (角干, 1st rank) Chung Gong (忠恭), who was King Heondeok (憲德王)'s younger brother, was prime minister (sangdaedung 上大等) and fell ill in 809, an official doctor prescribed 'dragons' teeth soup' (龍齒湯, Ch. *longchitang*) using fossilised mammoth teeth as the main ingredient.²⁷ Since this was a rare material available only in China, the anecdote suggests that the import of medicinal materials from Tang took place actively. In the trade of medicinal materials with Tang, Silla seems to have imported those that were not available in Silla such as dragons' teeth (龍齒, Ch. *longchi*) and dragons' bones (龍骨, Ch. *longgu*), while selling ox bezoar and ginseng as its major export items.

Medicinal materials were also important items in the trade with Japan. The items that the Japanese government purchased from Silla's envoys sent in 686 CE, the 5th year of King Sinmun (神文, r. 681–692), included medicinal materials along with gold, silver, silk and leather goods. In particular, the delegation dispatched in 752 CE, the 11th year of King Gyeongdeok (景德王, r. 742–765), is worth noticing when discussing Silla's trade in medicinal goods. A large delegation of up to 700 persons, they were on a mission to attend the ceremony of dotting the eyes (開眼會) for the Vairocana statue (毘盧舍那佛), the main icon of Tōdaiji (東大寺). *Bai siraki motsge* (買新羅物解), which was the purchase register between the envoys of Silla and Japanese aristocrats, currently survives. The delegation from Silla arrived on the 22nd of the intercalary month (閏), the third month, and stayed through the 24th of the seventh month in the lunar calendar. In order to buy items brought by the delegation, Japanese aristocrats above the 5th rank of bureaucracy made out the purchase register, which contains approximately a hundred kinds of items including perfumery, medicines, paints, dyes, metals, vessels and books, and about 200 items were traded.²⁸ Among these were such medicinal materials as haritaki (阿梨勒), ginseng, [the yellow inner part of] cinnamon bark (桂心), dried root and rhizome of rhubarb (大黃), ox bezoar, the Javanese long pepper *Piper longum* L. (畢拔, pilbal, Ch. *biba*), licorice, *Cistanche deserticola* Y. C. Mai (肉縱容), the dried root of *Polygala tenuifolia* Willd. (遠志), honey (藹蜜), etc.²⁹

Meanwhile, I think that the *List of Diverse Medicines* (種種藥帳) currently stored at Nara (奈良) prefecture's Tōdaiji Shōsōin (正倉院) well exhibits an aspect of Silla's medical industry. In the 49-day memorial ceremony (49祭) for Japan's Tenno Shomu (聖武) on 21 June 756, his queen dedicated items used by the deceased king and other royal belongings to Tōdaiji, among which medical materials donated are recorded in the *List of Diverse Medicines* (hereafter referred to as the Shomu list) in this article. A total of 60 kinds of Oriental medicines are contained here, and 16 are assumed

to have been imported from Silla.³⁰ This list shows the medicinal materials used by the tenno during his struggle with illness, which can be broadly divided into four categories. The first group refers to the medicinal materials produced in the western and southern regions such as moschus (麝香, the dried secretion of the musk sac of the adult male musk deer), rhinoceros horn (犀角) and pepper (胡椒), the second group those from Silla including ginseng, rhubarb and licorice, the third group from China including *longgu* (龍骨) and mirabilite (朴硝, hydrated sodium sulphate), and the fourth refers to prepared medicines such as powdered mica (雲母粉), 'Gold stone mound' Keumseokleung (金石陵, Ch. *jinshiling*) and 'Purple snow' Jaseol (紫雪, Ch. *zixue*).³¹

The prepared medicines that caught my attention are Keumseokleung (Shomu list no. 56) and Jaseol (Shomu list no. 47).³² 'Keumseokleung', in which the main ingredients are mirabilite, Natrii Sulfas (芒硝, crystalline sodium sulphate) and Gypsum Fibrosum (石膏, a soft mineral chiefly composed of hydrated calcium sulphate) is similar to the prescription for mirabilite 朴硝煎方 introduced in the *Qianjinfang* 千金方.³³ Especially, 'jaseol', adding gold to various medicinal materials, is identified with the prescription used by the wealthy that the *Qianjinfang*'s author Sun Simiao (孫思邈) criticised.³⁴ It is said that these medicines were prepared by the Pharmaceutical Office (藥典) in Silla, a famous gold-producing country, for export to Japan.³⁵

In my view, this seems to be closely related to the fact that in 804, Silla asked provincial minister Du You for *Guanglifang* (廣利方), then Tang's latest medical book published in 796,³⁶ because the book contained many popular prescriptions that would have been absolutely necessary to Silla's medical industry. In addition, I reckon that the medicinal materials of Silla probably took up an important position in the trade fleet of Chang Pogo (張保臯) during the mid-9th century. After unifying the Korean peninsula, Silla secured not only home-grown materials such as ginseng and ox bezoar, but was also able to import various top of the market materials with which it created a valuable new industry in exportable compound medicines.

And then, what specific medicinal materials were chiefly distributed from Silla? Chinese and Japanese literary sources list the following materials: ginseng, ox bezoar, root of Korean indigo plant (藍藤根), sea eel grass (大葉藻), tangle, Aconitum coreanum R. Paymond (白附子), dried root of *Trichosanthes cucumeroides* (土瓜), mint (薄荷), *Herba Schizonepetae* (荊芥), chrysanthemum (菊), pomegranate (海石榴), dried flower of *Carthamus tinctorius* (海紅花), lotus stem (茄子), rock moss (石髮), pine nuts (海松子), peach (桃), *Corylus heterophylla* (榛子), seal penis (*Callorhinus testis et penis*, 膾膾臍), *weilingxian*, Silla sheep fat (新羅洋脂), and so forth.³⁷ A full-blown introduction of Silla's medicinal materials to China was probably prompted in the process of Silla performing joint operations with Tang during its unification war of the 7th century. The following medicines and medical goods appear to have been supplied by Silla during the war:

- B. In the first month of the 9th year of King Munmu (文武王) (669 CE), the Tang monk Fa An (法安) came to seek lodestone, citing the Emperor's order.³⁸
- C. In the ninth month of the 12th year of King Munmu (672 CE), 33,500 *keun* (斤, Ch. *jin*) of silver, 33,000 *poon* (分, Ch. *fen*) of copper, 400 needles, 120 *poon* of ox bezoar, 120 *poon* of gold, 6 rolls of very thin, size 40 cotton cloth (40升布), and 60 rolls of size 30 cotton cloth (30升布) were paid as tribute.³⁹

The reason Tang demanded lodestone from Silla is that [magnetic] iron oxide was used as a haemostatic drug.⁴⁰ Apart from the conflicts on the Korean peninsula, Tang was then engaged in a war with the Tibetans (吐蕃) as well. It can be deduced that Tang sought lodestone from Silla after experiencing its efficacy during the war on the Korean peninsula.

Record C is related to the tribute that Silla offered to Tang during the war between the two countries. Items following silver and copper, including needles, ox bezoar and gold,⁴¹ appear to have been described as medical goods. Silla sent to Tang 400 needles for acupuncture, presumably because the excellence of Silla's needles along with its acupuncture techniques was recognized. Moreover, we might consider that not only were simply needles sent, but also that acupuncture methods went over with them to Tang.

The superiority of Silla's acupuncture can be reaffirmed by an anecdote circulated in the Japanese acupuncture community that Kikawa Henki Maru (紀河邊幾男厲) entered Silla to learn its acupuncture techniques and returned to Japan in 642 (11th year of Queen Sundeok), becoming 'a master of acupuncture (針博士)'. This anecdote is conveyed by Fujikawa Yu in *Nihon igakushi* (日本醫學史, *History of Japanese Medicine*).⁴² I consider this story credible because it is very likely that Silla inherited Goguryeo's outstanding acupuncture techniques. There are anecdotes to exhibit the excellence of Goguryeo's acupuncture. One is the story of a Goguryeo acupuncturist during the Wei Dynasty whose techniques were so marvellous that he could even piece hairs together.⁴³ Another is about Kuratsukuri no Tokushi (鞍作得志) who was a Japanese of Baekje ancestry and came to Goguryeo to learn acupuncture.⁴⁴ Silla's acupuncture seems to have inherited none other than that of Goguryeo.

Discussion up to this point suggests that Silla became an exporter of medicines, compounding a variety of medicinal materials imported from Tang and re-exporting them in the form of finished goods. The international character of Silla's medicine can be inferred from the fact that after unifying the Korean peninsula, Silla positioned itself as an important consumer and exporter in the trade of medical materials in East Asia. In brief, Silla came into full-blown contact with Tang medicine through the unification wars of the mid-7th century. Silla not only embraced Tang medicine, but also exported homegrown medicinal materials along with acupuncture needles and techniques. After accomplishing the unification of the Three Kingdoms, Silla even put together medical traditions possessed by Goguryeo and Baekje, and at the

same time adopted the medical system of Tang as the standard, thereby achieving the prototype of traditional Korean medicine (韓醫學). The establishment of I-hak in 692 CE demonstrated that Silla's rulers set goals for its medicine by adopting a Tang-style medical system. Through such moves, Silla's medicine was able to gain universality and compatibility that were acceptable in the medical community of East Asia. Moreover, as it came to be transcribed in Chinese characters (漢文), Silla's traditional medical knowledge was absorbed into Tang medicine, and in some cases, converted into Chinese medicine. This was also revealed by the anecdote about the Silla monk involving *weilingxian*.

Through this research, we have been able to understand that while Tang medicine constantly embraced diverse knowledge available within East Asia and supplemented it so that it could become the standard framework of this region, Silla's medicine existed within the broad boundaries of East Asian medicine as a branch of medicine equipped with universality, compatibility and international character.

Notes

- 1 Lee Hyunsook, 'Sillamal eodaejaei sunipkwa unyong (新羅末魚袋制的成立和運用, Establishment and operation of the yutai system at the end of Silla)', *Sahak yeonku* (史學研究) vol. 68, Korean History Society (韓國史學會), 1992.
- 2 On this, see my papers 'Namal yeocho Choi Eunuwi e jungchijeok whaldong kwa uisang (羅末麗初 崔彦摛의 政治的活動과 位相, Choi Eunuwi's political activities and his political status in late Silla and early Goryeo)', *Ewha sahak yeonku* (梨花史學研究), vol. 22, Seoul: Ewha sahak yeonkuso (梨花史學研究所), 1995, pp.7–40; 'Namal yeocho Choi Chiwon kwa Choi Eonwi (羅末麗初 崔致遠과 崔彦摛, Choi Chiwon and Choi Eunuwi in late Silla and Early Goryeo)', *Toikeihak kwa Hanguk munwha* (退溪學과 韓國文化) vol. 35, Daegu: Kyungbuk Toikeihak Yeonkuso (慶北大退溪學研究所), 2004, pp.187–232; 'Namal yeocho seonsa bimun e seongkyuck (羅末麗初 禪師碑文의 性格, The characteristics of the inscriptions of Zen Buddhist monks in late Silla and early Goryeo)', *Hankuk yeoksa yeonkuwhoi Keumseokmun ban* (韓國歷史研究會金石文班發表論文集), 2005, pp.1–15.
- 3 Lee Hyunsook, 'Paekche sidae jeombok kwa Jeongchi (百濟時代 占卜과 政治, Divination and politics in the Paekche dynasty)', *Yeoksa minsokhak* (歷史民俗學) vol.28, 2008.
- 4 'A Study of the Medical History of Silla (Silla ihaksa yeonku, 新羅醫學史研究)', Seoul: Ewha Women's University 梨花女大, 2002.
- 5 Lee Hyunsook, 'Goryeosidae Kwanryoje hai iryowa mingan ihak (高麗時代 官僚制下の 醫療과 民間 醫療, The governmental and the non-governmental medical care systems in the Goryeo dynasty 913–1392)', *Dongbang hakji* (東方學誌) vol. 139; Seoul: Yonsei Kukhak Yeonkuso (延世大國學研究所), 2007, pp. 7–45.
- 6 Lee Hyunsook, 'The birth of Korea's medieval medicine (韓國中世醫學的誕生)', *Isahak* (醫史學, *History of Medicine*) 16–2; Seoul: Society for the History of Medicine 大韓醫史學會, 2006.

- 7 Trans. Ha tae-Hung and Grafton K. Mintz, *Samguk yusa*, book 3, Seoul: Yonsei University Press, 1972: ‘Ado Brings Buddhism to Silla: In the third year of the reign of King Michu (264) the King’s daughter Songguk Kongju was stricken with a strange malady which *neither medicine nor sorcery* could cure. Greatly worried, the King sent messengers throughout the land to seek a physician who could heal the princess. Finally Ado was summoned to the palace, where he at once restored the princess to perfect health.’ (pp. 181–2). But I think it is more correct to interpret ‘*i mu* (醫巫)’, not as ‘neither medicine nor sorcery’ but as ‘shamanic medicine’.
- 8 Lee Hyunsook, ‘Jilbyoung, chiryo, jongkyo: Hankuk godae bulkyo ihak (疾病, 治療, 宗教; 韓國古代佛教醫學, Disease, healing, and religion: Buddhist medicine in ancient Korea)’, *Hankuk sasang kwa munwha* (韓國思想과文化) vol. 48, 2009, pp.170–3.
- 9 Although the two concepts of peculiarity and universality seem to be opposed to each other, they should be treated very cautiously in discussing the characteristics of medicine in each era. That is because when Silla was developing ancient medicine around the 5th century, it was the medicine of Goguryeo that had the greatest impact, and to Silla, Goguryeo’s medicine would have been perceived as having universality. Likewise, when the medicine of the Tang dynasty was fully introduced to Silla in the 7th century, the medicine that had been commonly used before would have been considered to be a medicine with strong characteristics of Silla. In brief, when it comes to medicine, such notions as universality and peculiarity are comparative ones. Thus, according to whichever standard is applied, those notions are newly defined. In this sense, as a standard framework of Tang medicine was set up with the establishment of I-hak in 醫學 692, prescriptions like *weilingxian* 葳靈仙 or *nobobang* 露蜂房, lacking in Tang medicine, become examples of the peculiarity of Silla’s medicine.
- 10 At an early date China introduced a system to dispatch doctors to military troops and labour forces where a large number of people lived in a group, and the *ritsuryō* state (律令國家) of Japan also adopted the system in the 8th century. Niida Noboru 仁井田陞, Ikeda On 池田溫 et al, ed., *Douryo shui hoi* 唐令拾遺補, Tokyo: Tokyo University Press 東京大出版會, 1997: “(唐)諸行軍及作役之處, 五百人以上太常給醫師一人. (日本)行軍及作役之處, 典藥給醫師一人” (p.1413). The Tang code was influenced by the Northern Dynasties’ codes, such as those of Northern Wei and Northern Ji, as well as that of Sui. It appears that Goguryeo probably had such a military doctor system.
- 11 Military surgeons of the United States dispatched to Korea in the 1950s conducted various operations, many of which were first introduced to the nation by them, and Korean doctors assisting them are said to have acquired new techniques. After the end of the Korean War, the US government implemented the “Mississippi Project” to invite Korean doctors to America for retraining. This is considered to have had a critical impact when modern Korean medicine became rearranged, from the past inclination for Japanese-style German medicine towards an American style.
- 12 “三年春正月辛酉朔, 遣使求良醫於新羅. 秋八月, 醫至自新羅, 則令治天皇病. 未經幾時, 病已差也. 天皇歡之, 厚賞醫以歸于國.” *Nihonshoki*, book 13, Tenno Inkyo 3rd year (<http://miko.org/~uraki/kuon/furu/text/syoki/syoki13.htm>).
- 13 “.. 及壯篤病, 容止不便.... 皇子謝曰, ‘我之不天, 久離篤疾, 不能步行, 且我既欲除病,

獨非奏言，而密破身治病，猶勿差。由是，先皇責之曰，汝雖患病，縱破身。不孝孰甚於茲矣。其長生之，遂不得繼業。亦我兄二天皇，愚我而輕之。群卿共所知.... 寡人弗敢當。” Ibid., Tenno Inkyo's accession (允恭天皇 即位).

- 14 Lee Hyunsook, 'Osegi cho Silla isa Kim Mu wa ihaki baljeon (五世紀初 新羅醫師 金武斗醫學의 發展, Silla's doctor Kim Mu of the early 5th century and the development of medicine)', *Hankuk sasang kwa munwha* (韓國思想斗 文化), vol. 12, 2001, p.12.
- 15 Lee Hyunsook, 'Sillai minkan Iryoin 新羅의 民間醫療人', *Sillasa hakpo* (新羅史學報) vol. 6, 2005, pp.124–125.
- 16 For the translation of ancient Japanese I referred to Maki Sachiko 槇佐知子, *Daidou luishu hou* 大同類聚方 book 3; Tokyo: Shinsensha 新泉社, 1992, pp.44–5.
- 17 Ibid.
- 18 “發明:(頌曰)唐貞元中，嵩陽子周君巢作威靈仙傳云，威靈仙去風，通十二經脈，朝服暮效，... 先時商州有人病手足不遂，不履地者數十年。良醫殫技莫能療，所親置之道傍以求者，遇一新羅僧見之，告曰，此疾一藥可活，且不知此土有否，因爲之入山求索，果得，乃威靈仙也。使服之，數日能步履。其後山人鄧思齊知之，遂傳其事...” *Bencao gangmu* (本草綱目) book 18, *caabu* (草部); Taipei: Wenhua shudian 文友書店, 1959 ed., p.758.
- 19 An obvious example is *Beiji qianjin yaofang* 備急千金要方 (briefly called *Qianjinfang* hereafter), compiled in the early 7th century. *Qianjinfang* borrowed many theories and prescriptions from Buddhist medicine. See Ma Boying (馬伯英) et al., trans. into Korean by Jeong Wooyeol, *Jungwe ihak kyoryusa* 中外醫學交流史, Seoul: Jeonpa kwahak sa (電波科學社), 1997, pp.162–165 & pp.178–180; Lee Hyunsook, 'Dang ihakseo Kwanglibange doip kwa ke iei 新羅哀莊王代 唐醫學書 廣利方의 導入斗 그 意義, Introduction of the Tang medical book *Kwanglibang* during the reign of Silla's King Aejang and its implications (1)'. See *Dongyanggojeon yeonku* 東洋古典研究 vol.13; Dongyang gojeon hakwhei 東洋古典學會, 2000, pp. 253–5.
- 20 “貞元二年九月，山人鄧思齊獻威靈仙草，出尚州，能愈衆疾。上于禁中試用有效，令編附本草，授思齊太醫丞。” *Tang hui yao* 唐會要 vol. 82, *yishu* 醫術; Shanghai: Guji chubanshe 古籍出版社, 1991, p. 1806.
- 21 It is known that *nobongbang* 露蜂房 burning a wasp hive to use as a tonic was a unique prescription hardly found in any other medical books. Kim Doojong, *Hanguk ihaksa* 韓國醫學史; Seoul: Tamgudang, 1964, pp.74–7.
- 22 Lee Hyunsook, 'Jilbyoung, chiryo, jongkyo: Hankuk godae bulkyo ihak (疾病, 治療, 宗教; 韓國古代佛教醫學, Disease, healing, and religion: Buddhist medicine in ancient Korea)', *Hankuk sasang kwa munwha* (韓國思想斗文化) vol.48, 2009, p.170–3
- 23 Kim Doojong, op.cit, p.77.
- 24 Lee Hyunsook, 'Silla tongilki jeonyeombeong e yuhaengkwa dae eung (新羅統一期 傳染病의 流行斗 對應策, Epidemics of Unified Silla and counter-measures)', *Hanguk godaesa yeonku* 韓國古代史研究, vol.31, 2003, pp.170–173.
- 25 Gwon Deokyoung, *Godae Hanjung oikyosa* (古代韓中外交史, History of Early Korean-Chinese Relations); Seoul: Ilchokak, 1997, pp.279–281.
- 26 Lee Hyunsook, 'Introduction of the Tang medical book *Guang li fang* during the reign of

- Silla's King Aejang and its meanings (1) and (2)'. See *Dongyang gojeon yeonku* 東洋古典研究 vols.13 and 14 (op. cit).
- 27 *Samguksagi* 三國史記 vol.45, Biography 列傳5, *Nokjin* 綠眞, “時忠恭角干爲上大等坐政事堂注擬內外官 退公感疾 召國醫診曰: 病在心臟 須服龍齒湯 遂告暇三七日 杜門不見賓客”.
- 28 Douno, Haruyuki 東野治之, ‘鳥毛立女屏風下貼文書の研究-買新羅物解の基礎的研究’, *Shilin* 史林 57-6, 1974; Yun Seontae, ‘Controversial interpretation of historical materials from Unified Silla, Silla’s trade with Japan of 752 and 「買新羅物解」- focusing on the interpretation of 「貼布記」 owned by the Shōsōin’, *Yeoksa wa hyunsil* vol. 24, 1997, p.47.
- 29 Choi Jaeseok 崔在錫, ‘Relations between Unified Silla and Japan based on medicinal materials owned by Japan’s Shōsōin’, *Minjok munwha yeonku* 民族文化研究 vol. 26, Korea University, 1993, p.8.
- 30 The 16 kinds of Oriental medicine included musk (麝香), *Prinsepia uniflora* (薺核), *Glauberitum* (寒水石, a natural crystalline of glauberite), *wonchung* (元青), *Celosiae Semen* (青葙草), white skin (白皮, error for *Bletilla Striata* 白芨), dragon horn (龍角, actually deer horn 鹿角), stalactite (鐘乳石), *Polygala tenuifolia* Willd. (遠志), ginseng (人蔘), rhubarb (大黃), beeswax (蜜臘), licorice (甘草), skin of hedgehog (蝟皮), maca (雲母), dried root of *Euphorbia fischeriana* Steudel (狼毒), etc. Besides, it is considered that prepared medicines such as *Jaseol* (紫雪, list no. 47), *Keumseokleung* (金石陵, Shomu list no. 56), *Suck su bing* (石水冰, Shomu list no. 57) were imported in the form of finished goods from Silla’s Pharmaceutical Office (藥典). Choi Jaeseok, *ibid.* pp. 9-15. For translation from the Oriental medicinal materials into English, the web site of Korea Institute of Oriental Medicine was helpful, specifically http://210.218.196.134/kiom/eng_dic/dic_search_result.php
- 31 Torigoe, Yatsyosi 鳥越泰義, *Shosoin yakubutsu no sekai* 正倉院藥物の世, Tokyo: Heibonsha, 2005, see pp. 80-81.
- 32 *Keumsuckleung* (金石陵 Ch. *jinshiling*) is a powdered medicine compounded with 1 *geun* (斤) each of high quality mirabilite (上朴硝) and high quality glauber salt (上芒硝), 3 *nyang* (兩) of Gypsum Fibrosum (石膏), and 2 *nyang* of glauberite (凝水石). *Jaseol* (紫雪, ‘purple snow’) is a medicine prepared through multiple processes using 100 *nyang* of gold, 3 *geun* each of *Glauberitum* (寒水石), lodestone (紫石, iron oxide), Gypsum Fibrosum (石膏), and talc (滑石), 1 *seok* (石) of water, 5 *geun* each of powdered antelope horn (羚羊角屑), powdered water buffalo horn (犀角屑), *Aristolochia contorta* (青木香) and *Aquilaria agallocha* (沉香), 1 *nyang* of dried clove buds (丁香), 1 *geun* each of *Scrophularia* (玄蔘) and *Cimicifuga heracleifolia* Komarov (升麻), 8 *nyang* of licorice, 10 *geun* of mirabilite (朴硝), 4 *seung* of niter (硝石), 1 *nyang* and 2.5 *jeon* (錢) of musk (麝香), grains of musk (當門子), and lastly 3 *nyang* of *cinnabaris* (朱砂, a mineral, containing mainly mercuric sulphide). Asahina Yatshiko 朝比奈泰彦, *Shosoin yakubutsu* 正倉院藥物, 大阪: 植物文庫刊行, 1955, p.7; Choi Jae-Seok, op. cit. p.15.
- 33 “論曰, 凡人患大熱, 皆須候脉, 若大大熱者, 不得一準方用藥, 皆準病用藥. 大熱不可那者, 當兩倍三倍. 大大熱者, 乃至十倍用之, 乃可制之爾. 有人苦熱不已, 皆有服石所致, 種種服餌不能制止. 惟朴消煎可以定之. 武德中, 有貴高人師市奴謂之金石凌非也, 此方直用二消寒水石石膏可也, 卽不勞金, 有金者, 貴高人所加也.” *Beiji qianjin yaofang* 備急千金要方, book16, ‘Stomach (*weiwan* 胃腑)’, Beijing: Renmin weisheng chubanshe 人民衛生出版社, 1998, pp. 299-300. Detailed contents

of the mirabilite prescription (朴硝典方) are as follows: 1 *geun* of mirabilite (*poxiao* 朴硝), 8 *nyang* of glauber salt (*mangxiao* 芒硝), 4 *nyang* of glauberite (*ning shui shi* 凝水石), 2 *nyang* of plaster (石膏), 2 *nyang* of gold.

- 34 The prescription for powdered medicine of Jaseol (紫雪散) contained in *Waitai biyao* 外臺秘要 book 31 (*ibid.*, p. 848) is as follows: 100 *nyang* of gold (黃金), 3 *geun* each of Glauberitum (寒水石) and Gypsum Fibrosum (石膏, replaceable with talc), 1 *geun* of Scrophularia (玄蔘), 5 *nyang* each of powdered antelope horn and rhinoceros horn, Aquilaria agallocha (沈香), and Aristolochia contorta (青木香), 1 *nyang* of dried clove buds (丁香), and 8 *nyang* of licorice. Then, the prescription transmitted to Silla and Japan has 7 additional ingredients including magnets (紫石), talc (滑石), Cimicifuga heracleifolia Komarov (升麻), glauber salt (朴硝), niter (硝石), Moschus (麝香), grains of musk (當門子) and cinnabaris.
- 35 See Choi Jaeseok, *op. cit.*, pp. 9–20.
- 36 Lee Hyunsook, *op. cit.* vol.15, 2000, pp. 201–234.
- 37 Kim Doojong, *op. cit.*, pp. 80–81.
- 38 *Samguk sagi* 三國史記 Book 6, *Silla bonki* 新羅本紀 6, King Munmu文武王 上, “(9年春正月) 唐僧法安來, 傳天子命, 求磁石”. In the 5th month of the same year, Silla dispatched an officer Jijinsan 祗珍山 to take two boxes of lodestone 磁石 to Tang.
- 39 *Ibid.*
- 40 “治金瘡方... 磁石末傅之, 止痛斷血” *Qianjinfang* 千金方, Book 25, 金瘡血出條 ‘bleeding cuts’, *op. cit.* p. 460; *Bencao gangmu* 本草綱目, 卷 10, *op. cit.*, pp. 341–3; “廣濟飛黃散, 療諸惡瘡腫方: 曾青, 雌黃, 白礬石, 磁石, 雄黃, 丹砂 各一兩”, *Waitai biyao* 外臺秘要 book 30, *op. cit.* p. 818, citing *Guangjifang* 廣濟方 compiled during the reign of Tang Xuanzong 玄宗. Powdered medicines could be prepared in advance in large volumes and thus, *feihuangsan* (飛黃散) applying magnetic iron sulphide (磁石) would have been very useful in wartime.
- 41 It is very likely that gold sent by Silla to Tang was gold processed for use as medicinal material. My conjecture is based on two facts: first, gold was stated just following ox bezoar, which is a medicinal material; second, Silla sent it in a very small quantity of 120 *poon* (分).
- 42 Fujikawa Yu 富士川游, *Nihon igakushi* 日本醫學史, Tokyo: Shogabo, 1904, p.77.
- 43 “魏時有高句麗客, 善用鍼, 取寸髮斬爲十餘段, 以針貫取之, 言髮中虛也, 其妙如此.” Duan Chengshi 段成式 [Tang], ed., *Youyang zazu* 酉陽雜俎 book 7, Yi (醫 medicine) (Shanghai: Zhonghua shuju 中華書局, p. 57). This suggests that Goguryeo owned a sophisticated technique for fine needles.
- 44 *Nihoshoki* 日本書紀 book 24, the 4th year of Kogyoku 皇極, “夏四月, 戊戌朔, 高麗學問僧等言: 「同學鞍作得志, 以虎爲友, 學取其術. 或使枯山變爲青山, 或使黃地變爲白水, 種種奇術, 不可殫究. 又虎授其針曰: 慎矣慎矣, 勿令人之. 以此治之, 病無不愈. 果如所言, 治無不差. 得志, 恒以其針隱置柱中, 於後虎折其柱, 取針走去. 高麗國知得志欲歸之意, 與毒殺之”. Referring to the year 645 CE, this anecdote shows that when asked by a Japanese man about Kuratsukuri no Tokushi (鞍作得志), a scholar monk from Goguryeo said that he had been killed. Thus, it would have been much earlier than 645 that Kuratsukuri learned acupuncture techniques in Goguryeo, namely the early 7th century.