

Korean Heritage in Medicine, A Glimpse of History

Sungman Cha**

*Section of Biochemical Pharmacology, Division of Biology and Medicine
Brown University
Providence, Rhode Island 02912*

This manuscript is meant to be a brief account of Korean medical history. Only justification for the author, who is not a historian by any means, to undertake such a venture is that there is scarcely a book on the subject in any Western language.

Medicine in Prehistoric Korea

Records on the medical art of the ancient Korean people are understandably scarce. However, it is noteworthy that the legend of Tan-gun (檀君), the mythical ancestor of the Koreans as described in Samguk-Yusa (三国遺事) includes a story in which his mother was incarnated from a bear. After praying to Hwan-ung Chongwang (the Heavenly King, 桓雄天王), the bear received from him a bunch of mugwort (靈艾, 艾) and twenty pieces of garlic (蒜, 마늘) and followed his instructions faithfully before turning into a woman and conceiving a child. From this myth, it may be deduced that these plants must have been used for medicinal purposes since ancient times. Another interesting fact is that the oldest known Chinese medical literature, Hwangtui Suowon (ca. 50 B.C., 皇帝素問) had a passage saying that "stone needle (砭石 편석, 石鍼 돌침) was originated from the East". The East in the old

Chinese literature refers to Korea. These stone needles were used for incision of abscesses and primitive acupuncture. In 1929, stone needles fashioned from fine textured sedimentary rocks and probably similar to those mentioned above were excavated among other neolithic artifacts near the northeastern corner of the present day North Korea (咸鏡北道慶興郡雄基面松坪洞).

The Three Kingdoms

In Old Korea, three tribal states gradually emerged, Koguryo (37 B.C. to 668 A.C., 高句麗) in the north including Southern Manchuria, Paekche (18 B.C. to 660 A.D., 百濟) in the southwest, and Silla (57 B.C. to 935 A.D., 新羅) in the southeast of the Korean peninsula. In China, this period from the first to the seventh century encompassed the Han (漢) dynasty followed by a period of many divided Kingdoms (南北朝時代) and finally the unified China of the Sui (隋) and Tang (唐) dynasties. During this period, Korean medicine gradually changed from the primitive religious rituals based on Shamanism to the real medical art developed in China during the Han dynasty. Even today,

* Received August 2, 1978

** Visiting Professor, Department of Pharmacology, Yonsei University College of Medicine, Seoul, Korea, Mar - Aug, 1978.

the Chinese characters are called Han-ja (Han letter); the traditional medicine of the Orient, Han-eui-hak (Han medical science); and Oriental drug, Han-yak (漢字, 漢医学, 漢藥).

Since Buddhism was also introduced through China, to Koguryo in 372 A.D., to Paekche in 384 A.D., and Silla in 527 A.D., Korean medicine was also influenced by the Indian culture and perhaps indirectly by the Greek, Persian and Arabian. Thus Taoism (道教) and Buddhism provided the philosophical bases for the medical art of this era. Signs and symptoms were explained on the basis of the contemporary metaphysical philosophy rather than observation of facts or past experiences. For instance, the Chinese school would attempt to explain everything on the bases of Ying-yang (陰陽) and the Five-element theories metal, water, wood, fire, earth (五行說, 金水木火土), while Buddhist monks would explain all the ailments as Disharmony of Four Elements (earth, water, fire and wind, 四大不調說, 地水火風), both reminiscent of the ancient Greek philosophy.

In contrast to the basic philosophy, the curing art was built on a rather solid ground of experiences, and included the use of medicinal materials (drugs), acupuncture (鍼術, 針) and moxa (treatment by cauterizing special parts of skin by burning dried grass, usually mugwort, 灸術, 灸). Vast knowledge on medicinal materials of diverse sources, i.e. plants, animals, fishes mollusks, insects and minerals, was compiled in books similar to the present day pharmacopoeia. The oldest and most famous book of this sort was Shin-lung-pen-chau (神農本草經) written sometime between 80 A.D. and 196 A.D., and the copy that Koguryo and Paekche obtained was probably the one revised by Tao Hung-ching (陶弘景) of the Liang dynasty (梁) ca. 500 A.D. and perhaps some earlier versions as well.

Korea was certainly not just at the receiving end of the exchange of medical knowledge of the time. The Chinese apparently obtained and learned about numerous medicinal materials indigenous to Korea. Tao, in his Shin-lung-pen-chau, described medicinal materials available from Korea including ginseng (人蔘), and praised the metallurgical (or alchemical) skill of Koguryo to produce high quality mercury sulfide (丹砂) and metallic mercury. Among the Taoistic beliefs was the one that eating food out of a bowl made of gold which was transformed from mercury would promote longevity (史記封禪書 卷二十八). Some historians speculate that such a distinctively Arabian alchemists' idea must have permeated to the Far East through India with the propagation of Buddhism. In addition to the exchange of knowledge between Korea and China, Japan relied heavily on Korea for her medical needs, including many physicians, drug experts and at least one veterinarian, for almost three centuries beginning 414 A.D. (the third year of the reign of the Japanese Emperor Inkkyo, 允恭). The cultural exchange between Korea and Japan during this period is well documented in the oldest Japanese history book called Nihonshoki (日本書紀). One Japanese medical book (周波康賴編述 医心方) written in 984 A.D. has a few fragmentary quotations from Paekche prescriptions (百濟新集方). Therefore, Koreans of the period must have brought some book of their own along with copies of Chinese books. However, records of medical books written by Koreans of the period cannot be found anywhere else.

Unified Silla Period (668-935)

After Silla, in alliance with Tang, conquered Koguryo and Paekche, she adopted heavily the

culture of Tang. In medicine, Silla copied the medical education system of Tang almost to the letter with a few omissions of the syllabi. Many written records unequivocally indicate that a remarkably active exchange of medical knowledge and medicinal materials took place during this period with, Tang, India, Southeast Asia and as far as Arabia and Eastern Rome. Many books reached Silla from Tang. One that deserves a special mention is the *Shang-han-lun* (傷寒論), written about 1800 years ago by Chang Chung-Ching (張仲景) of the Later-Han dynasty (後漢, 25-222 A.D.), because it has enjoyed a long-lasting popularity even until today. Despite the ever-increasing knowledge of pharmacognosy, the medicine in the Silla era was even more heavily affected by Taoism and Buddhism. China of the Tang dynasty was strongly influenced by Taoism originated by Lao-tzu (老子), and Chuang-tzu (莊子), whereas Silla was a kingdom of Buddhism. Treatment of patients as well as prevention of illness by incantations (呪文), prayers and the mythical methods of Taoist (神仙道) were as common as the use of drugs or application of acupuncture.

Koryo Dynasty (918-1392)

During this medieval period, Korean medicine developed a great deal. In the first one hundred years or so, Koryo (高麗) simply adopted the system of Silla and Tang. Although interaction with Japan was less frequent than during the preceding era, cultural exchange and commercial trade with China of the Sung Dynasty (宋) and later of the Mongol Empire, Yuan (元) were extremely active. Exotic medicinal materials among other things reached Koryo from all over the world. Being an ardent Buddhist Kingdom, Koryo continued to import

Indian medical art, and Chinese translations of Indian medical books of the Ayur-Veda school were brought in. Arabian (大食国) novelties such as rhinoceros horns (犀角), frankincense (乳香), ambergris (龍涎香), patchouli (木香), cloves (丁香), benzoin (安息香), myrrh (沒藥) and borax (硼砂) were obtained either directly through Arabian merchant ships (at least two of them reached Korean shores and traded) or indirectly through trades with Southern China (the present day Kanton area). After the invasion (1231-1257) by the Mongol Empire, national institutions and customs of Koryo were fashioned after Mongols under the watchful eyes of the Mongol mandarins stationed in Korea. Kings and princes were forced to marry Mongol princesses. Politically, Koryo kings were powerless under the Mongol emperors. However, through relationship with the Mongol, Koryo learned much about the Western world and vice versa. Korea was introduced to the Western world by Marco Polo in 1295 as Kaoli (Chinese pronunciation of Koryo) which changed into Coree, Corea or Korea.

Some bright aspects of medicine in the Koryo period may be divided into the following three categories: extension of medical benefits to the lower class common people; large scale printing of Chinese medical classics; and appearance of original medical treatises written by Koreans.

During the reign of King Munjong (1046-1083, 文宗), the 11th King of Koryo and one of the wisest of the dynasty, the door was opened for the lower class people to study medicine and to take the civil service examination called Kwago (科擧), to be qualified as royal court physicians and governmental medical officers. State offices, called Che-wui-bo (濟危寶) and Taebi-won (大悲院), were established to help the people in sickness, poverty, famine,

distress such as widowhood or widowerhood an loneliness, and other disasters. Between 1058 an 1059, nine different Chinese medical classics (黃帝八十一難經, 川玉集, 傷寒論, 本草括要, 小兒藥證, 病源十八論, 張仲景五臟論, 肘後方, 疑獄集) were printed by wood-engraving. Until this time, hand copied medical texts were so rare that not many people had access to them.

At long last, about 1000 years after the ancient Koreans gained knowledge of Chinese medicine, some signs of independency and originality of Korean medicine began to sprout. Sometime during the reign of King Euijong (1148-1170, 毅宗), Kim Yong-sok (1089-1166, 金永錫) wrote a text called *Chejung-Iphyobang* (濟衆立効方) which is known with certainty as the oldest medical text written by Korean. The book apparently included some subscriptions based on experiences of Koreans in addition to quotations from various Chinese books of the Sung Dynasty. In the thirteenth year of King Kojong (1226, 高宗), Choi Jong-jun (崔宗峻) wrote two volumes of *Shinjip O'eui Chwalyobang* (新集御醫撮要方) and in the meantime, King Kojong's Library Office (大藏都監) compiled a treatise called *Hyangyak Kukupbang* (A treatise on Domestic-Drug prescription in 3 volumes, 鄉藥救急方). This is the oldest medical book written by Koreans and remaining intact until the present day. In

book, emphasis was placed on the use of locally available drugs rather than those imported from China and more distant places.

In speaking of book printing, it must be noted that in 1234 A.D., under King Kojong (高宗), a movable metal type (鑄字) was invented, more than 200 years ahead of Gutenberg is in Germany (1455). Were it not for the Mongol invasion and th subsequent gradual decay of the Koryo dynasty, the newly invented printing process could have had much greater impact much sooner on the Korean and

world civilization than actually it had.

During the three hundred year period from the 12th to the 14th century, some nine medical treatises, mostly collections of prescriptions of locally available drugs and some on diagnostic methods by palpation of pulse, were published. All but one was lost, and today only fragmentary quotation from the books of later days, e.g. *Hyangyak Chipsongbang* (1433, 鄉藥集成方), enable us to have some ideas about those books.

Yi Dynasty Chosun (1392-1910)

With the fall of the Mongols, Koryo intended to terminate Chinese suzerainty for good, but the new Ming (明) Emperor insisted that Koryo maintain the traditional tributary alliance with China. In 1388, King U (禡王) ordered Yi Song-gye (李成桂) to attack Liaotung (遼東) to forestall Ming's southward march. Yi Song-gye, instead of attacking the Ming army, turned around his army of 38,800 men at Wihwa Island (威化島回軍) in the Yalu River (鴨綠江) and marched backward to Kaesong (開城), the Capital of Koryo, to depose King U in a bloody coup d'état. In 1392, Yi Song-gye ascended the throne to become King Taejo (太祖). Thus began the Yi dynasty (李氏朝鮮) which lasted until August 29, 1910.

In Chosun, Buddhism of Koryo was replaced by Confucianism (儒教) as the philosophical foundation of the society. During the first one hundred years up to the reign of King Sonjong (成宗), Chosun enjoyed peace except for a few incidents of royal family squabbles. Political and economical foundations were laid down solidly, and the national culture effloresced. The second century of the Yi dynasty, from the reign of Prince Yongsan (燕山君) to that of King Sonjo (宣祖), began with factional strives (党争) and ended with the worst devast-

ation in the Korean history, the Japanese invasions of 1592-1598 (壬辰倭乱, 丁酉再乱). In the beginning of the second half of Chosun, hardly forty years after the Japanese invasion, Korea had to suffer from another humiliating blow in 1636-1637 (丙子胡乱), this time by the newly risen Manchu who had conquered the Ming emperor of China and established the Ching Dynasty (清). Never having had a chance to recover from these two wars, the demoralized Korea shut the door to all foreign nations but her suzerain Ching. The bickerings among factions of the Confucian mandarins became institutionalized to a ridiculous degree. The whole country went down the path of decay until Japan blew the final coup de grace in 1910 in the form of annexation to subjugate Korea under Japanese colonial rule.

King Sejong and Euibang-Yuchui: Yi Song-gye was undoubtedly an able statesman. Order was quickly established, and the business of rebuilding the nation was on the way. Organization of health administration, medical education and implementation of medical and drug administrations were among the priority items. As a result, in 1399, Kwon Chung-hwa (權仲和) and Kim Hi-sun (金希善) finished their work which was started in the last years of Koryo, and printed 30 volumes of a new book, Hyangyak Chesaeng Chipsongbang (鄉藥濟生集成方) or the Collection of Lifesaving Domestic Prescriptions which paved the way to the further development of indigenous herb medicines.

Under King Sejong (1419-1450, 世宗大王), the greatest promotor of Korean culture of all the Yi dynasty Kings, various technological inventions and developments took place. Hangul, the phonetic Korean letters were created. Astronomical observatories compiled meteorological data. The world's first rainfall gauge was invented. Automatic water clocks

were built, and so on. The medical field was not an exception to these cultural developments. In 1433, the Hyangyak Chipsongbang (新增鄉藥集成方) was revised and expanded into 85 volumes by Yu Hyo-tong (俞孝通), Noh Chung-ye (盧重禮) and Pak Yun-dok (朴允德). This book was later translated into the Korean language and was printed using metal type in 1488. Until as late as the 1880's, most writings in Korea were in Hanmun (Chinese) just as the medieval Western countries used Latin as the media for higher learning.

The unquestioned masterpiece in the medical field under King Sejong was the 365-volume Uibang Yutchui (醫方類聚), the Classified Collection of Medicine and Prescriptions. Kim Sun-ui (金循義), Choi Yun (崔閔), Kim Yu-ji (金有智) and others, under the direction or Prince Anpyong (one of the many sons of King Sejong, 安平大君), finished the work in 1445 after three years of painstaking work. These volumes were a great medical encyclopedia unmatched by any other books of the time. They contained direct quotations from 153 medical texts of the Tang, Sung, Yuan, and the early years of Ming dynasties of China, carefully classified according to various disease categories. By the time they were printed with metal type in 1477, they underwent several partial revisions and the number of volumes was reduced to 266, each having more than one hundred pages. Only 30 copies of the enormous volumes were printed. Of these original printings, only one copy of 252 volumes which was taken by the Japanese invaders (1592-1598) still exists in the Japanese Imperial Court Library (日本宮内省圖書寮). The Japanese made wood-block reproductions of the book in 1852, and brought one set to Korea as a good-will gift in 1876 when two countries resumed diplomatic relationship in almost 300 years.

Dong-eui Bogam (東醫寶鑑): During the

外形篇 雜病篇 湯液篇 及 鍼灸篇). In each passage, meticulous references were made to one or more of eighty-six medical classics of China and Korea. Although the text was written in the classical Chinese Classics, Hangul (the Korean phonetic letters) was added to the names of many herbs so that they could be readily identified with the local names. Dong-eui Bogam has been printed eighteen times in Korea, China, and Japan. Since its publication, it has replaced practically all the previously existing books throughout the Orient as a textbook or a bedside reference book. Even today, Dong-eui Bogam remains as one of the finest classical textbook of the Oriental medicine. Most recently in 1971, it has been translated into the modern Korean language, and was distributed with the reproduction of the original text (1814-printing, See General Reference 4).

One notable event which took place during the Japanese invasion was the dissection of war casualties by Chun Yu-hyong (全有亨) in the battle fields in Chollado. He is known to have recorded his careful observations in O-jang-do (五臟圖), the Pictures of Five Organs (Atlas of Anatomy). Dissection of the human body was unthinkable taboo in the Orient. After the two invasions by the Japanese and the Manchu, everything in Korea including the medical field stagnated for a long time. Nevertheless, some significant scholarly writings appeared. Among these were three books (1662 新纂辟瘟方, 1663 群瘟神方, 1653 群瘟新方) on epidemic diseases which became more frequent than before due to the wars, famine and increasing traffic to and from Manchuria. In addition to these, eight more books (康命吉撰 濟衆新篇, 李景華著 廣濟祕笈, 徐有渠著 仁濟志, 李元豐著 麻診彙成, 丁若鏞著 麻科會通, 黃泌秀著 方藥合篇, 黃芝淵著 醫方活套, 李濟馬著 東醫壽世保元所貫四象醫學) were written before the end of the Yi dynasty.

Silhakpa in a Hermit Kingdom: They say that, when neighboring countries catch cold, Korea sneezes. More correctly it appears that, throughout the history, when neighboring countries sneezed, Korea suffered from febrile convulsions sometimes followed by a prolonged paralysis. Korea seems to have never recovered from the two invasions at the turn of the 16th century, one by Japan (1592-1598) and the other by the Manchu in the winter of 1636-1637. Nevertheless, in the midst of the factional strives and bloody power struggles among mandarins called Yang-ban, a group of scholars had a vision for the world to come, and strived for the development of new technology. This group of scholars was called Silhakpa or the School of Practical Learning (實學派). However, the earnest cries of these wise men fell on to the deaf ears of quarrelling Confucian mandarins, and their advice got lost in the thicket of political chaos. Had the Silhakpa scholars had their way, and had their voices been heard, Korean might have been much better off in developing modern culture and technology.

Yi Ik (penname; Song-ho, 1681-1763 星湖李翼) was one of the pioneering scholars of Silhak (Practical Learning). He wrote a lengthy discussion of the theories of blood circulation and the central nervous system in a chapter entitled "Western Medicine" (西醫) in the book, Song-ho Sa-seol (星湖僮說) or Song-ho Trivia. In another chapter on pharmacology (本草) he expressed his regret for not having had the opportunity to learn the pharmacology of Schall. Johannes Adam Schall von Bell (湯若望) was a German catholic priest stationed in Yenching (Peking, China; 燕京). King Injo's (仁祖) heir, Prince Sohyum (昭顯世子) who was in Yenching as one of royal hostages to insure the Korean King's loyalty to the Ching emperors, became friendly with

Father Schall, and returned to Korea in 1644 with many books on astronomy, mathematics, and catholicism along with a globe and a picture of Jesus Christ.

Thus the Western medical science began to penetrate into the hermit Kingdom by slow osmosis through China. Pak Chi-won (1757-1805; 燕巖 朴趾源) in his *Yol-ha Ilgi* (China travelogue; 熱河日記) mentioned the excellent pediatric skills of Holland (近世和國所刻小兒經驗方最佳 此出西海中荷蘭陀). Chung Yak-yong (penname, Dasan; 1762-1836; 茶山 丁若鏞) was the best of the Silhak Scholars. His book, *Makwa Hoi-tong* (麻科會通) includes two addenda, *Chongdu Shimpub Yoji* (種痘心法要旨) and *Sinzung Chongdukupub Saŋsil* (新証種痘奇法詳愁) both on vaccination. The former was his own writing based on the Chinese book by Cheng Wang-i (鄭望頤) and the latter was an exact copy of the book by Alexander Pearson (1828, Peking, China; 皮爾孫) on the work completed by 1796 by the English physician Edward Jenner (1749-1823). Apparently Dasan practiced the smallpox vaccination on his relatives and close friends, but for the most part he kept it secret. By this time, Catholicism and the accompanying Western ideology and technology were outlawed, and Christians were persecuted (西教獄事). In 1839, three French missionaries and 30 Korean Catholics were massacred (己亥邪獄). Apparently Dasan tried to avoid the accusation of being a Western sympathizer by keeping his practice of vaccination secret and by not making any comment of his own on Pearson's book. In 1801, one of the Dasan's brothers was executed, and Dasan was exiled to a remote place (全羅南道 康津).

The broken doors of the Hermit Kingdom: While Korea was suffering from the internal power struggles in the 19th century, the colonialism was rampant in the Far East. France (丙寅

洋擾), the United States (辛未洋擾), Japan (雲揚号事件) and Britain (巨文島事件) sent gunboats to Korean shores, and the Russian Czar demanded trade over the land (韓露修好通商條約, 1884). The appearance of Russians at the Northeast border led to the massacre of Christians in 1865. China, the traditional protector of Korea already obtained a new nickname, the Sleeping Tiger, and was of little help to Korea. Infested with internal and external problems, Korea became an easy prey for Japan, the newly risen military power. Diplomatic envoys, missionaries, gunboats, military contingencies and traders knocked on the already decaying doors of the Hermit Kingdom until they cracked open. Through these openings, the Western medicine seeped in.

In 1876, after the Korean-Japanese Treaty of Amity (丙子韓日修好條約) was signed, Korea sent the First Diplomatic Envoy headed by Kim Ki-su (第一次修信使 金綠秀) to Japan. Among the company was Pak Yong-sun (朴永善) who learned about vaccination from a Japanese physician, Ohtaki (大瀧富三). After Pak returned he taught the techniques to Chi Sok-yong (池錫永). In 1880, Chi himself accompanied the Second Envoy to Japan headed by Kim Hong-jip (第二次修信使 金弘集), and learned more about vaccination including the method of preparing vaccine. Through his persuasion, vaccination become compulsory for all infants of ages from 70 days to one year by a decree of King Kojong (高宗) in 1895.

In Seoul, the power struggles were going on as usual. On November 4 (October 7th by the lunar calendar), 1884, the pro-Japanese Reform Party headed by Kim Ok-kyun (開化黨 金玉均) staged a coup d'etat (甲申政變) on the occasion of an evening party to celebrate the opening of the new Post Office (郵政局事件). Min Yong-ik (閔泳翊), a member

of the Queen Min's pro-Chinese party in power was stabbed and critically wounded. Through the arrangement by P.G. von Möllendorf (穆麟德), the German advisor to the government, I Horace Newton Allen the physician in the American Legation (美国公使馆 安連) saved Min's life. The prestige of the Western medical skill soared overnight. In the next year, the government opened a clinic called Kwanghewon (廣惠院), later the name changed to Chejungwon (濟衆院), for Dr. Allen to practice and teach medicine to Koreans. Thus began the era of the Western medicine in Korea. In 1886, Dr. Allen and Dr. Annie Ellens (惠論) were awarded an honorary government title (堂上階 通政大夫). In 1893, Dr. O. R. Avison (魚丕信), a professor from the University of Toronto, Canada replaced Dr. Allen, and the American-Canadian protestant Missionary group took over the operation of the clinic. A generous donation in 1899 by Mr. L. H. Severance (世富蘭德), a philanthropist in Cleveland, Ohio made possible the building of a new hospital outside of the South Gate in Seoul. Severance Hospital and Severance Union Medical College became a part of Yonsei University (延世大 학교) in 1957 when it merged with Yonhi University (formerly Chosun Christian College; 延禧大 학교).

In addition to the Dr. Allen's Chejungwon, a new National Hospital called Daehan Hospital (The Great Korea Hospital; 大韓病院 現서울大 학교 医科大 학교病院 本館) was build in 1908 by Empero Kojong's decree. Now, the real political power being in the hands of the Japanese Governor General, Ito Hirobumi (朝鮮統監 伊藤博文), from the very beginning, the hospital staff was mostly Japanese with Dr. Sato Susumu (佐藤進) as the first superintendent. Among the handful of Korean staff members was Chi Sok-yong who previously initiated vaccination in Korea. He was the Dean of

Students (学生監). Daehan Hospital was the beginning of the present Seoul National University, Medical College.

The first Korean to receive a doctorate degree from an American university was So Chai-pil (Philip Jaison; 徐載弼). Kim Ok-kyun's cabinet after the coup d'état in 1884 was crushed in three days (三日天下) by the intervention of the Chinese General Yuan Shih-kai (袁世凱). So Chai-pil was among the several Reform Party members who fled to Japan. He was disappointed by the cool reception of the Japanese for the unsuccessful revolutionaries, and headed for America. He arrived in San Francisco with three dollars in his pocket and somehow he not only kept himself alive, but overcome the language barrier, and received an M. D. degree from George Washington University (1895) before returning to Korea a year later. Dr. So's contribution to Korea, however, was not as much as a physician but as a patriot. He organized the Independence Club (獨立協會), published a newspaper, the Independent (獨立新聞), both in Korean and in English, and preached democracy to the people.

1910 and After

During the thirty five years of the Japanese colonial rule (1910-1945) the young Koreans suffered the discrimination against them in higher education in all subjects. However, the medical field, though not an exception, was relatively fortunate compared to others in that there were eight medical colleges in Korea in 1945, some of them having being founded rather hastily as a part of the Japanese war efforts. So, at the end of the Second World War, Korea's manpower in the medical field was in a better position than most other scientific and technological fields, to receive

and assimilate the advanced Western medicine which were rushed into Korea like tidal waves. After the Korean War (1950-1953), many Korean doctors went abroad, practically all over the world, to study and practice. On the surface, this appeared to be a brain drain, but the fact is that Korean doctors abroad serve as a valuable pool of human resources which help the further advancement of medicine in Korea, and spreads the good-will and prestige of Korea to many developing countries.

1. 金斗鍾著 韓國醫學史 正音社 1955
2. 崔南善著 朝鮮常識問題續編 三星文化文庫 第十七卷 1972
3. 李相栢著 韓國史 近世前期篇及 近世後期篇 震檀學會篇纂 正音社 1965
4. 金永勳 申佶求. 金在誠. 裴元植 監修 國譯增補 東醫寶鑑 南山堂 1971
5. Korea, Past and Present, Kwangmyong Publishing Co. Seoul, Korea, 1972. Chapter III, History by Shin Seok-Ho; Chapter XII, Science by Jeong Sang-Woon.

GENERAL REFERENCES
