Sino-Indian contacts through the Buddhist monks facilitated the entry of ideas of Ayurveda, ancient Indian medicine, into China. It is evident in Buddhist canonical works as well as in popular and historical literature in China, in legends of Buddha and Bodhisattva and in manuscripts, engravings of medicinal recipes and treatments found at excavated caves. These contacts have been studied by a generation of scholars beginning from the early twentieth century. A resurgence of this activity is witnessed in the last quarter. Much new material has come to light through recent studies. It goes a long way to dispel doubts regarding the long-term effect of these medical transmissions. Major references and suggestions are found in Chinese medical works, compilations as well as pharmacopoeia.

The subject matter of these cross-cultural medical contacts is seen to be very diverse. It includes ophthalmology, gynecology, pediatrics, psychology, physical fitness and therapeutics. It ranges from philosophical and theoretical concepts to practical methods like surgery. Present article takes a brief account of varied sources that highlight these medical transmissions. Ophthalmology is in the class of its own since several Chinese works have titles delineating their Indian origin. The time, route and extent of transmissions of the ophthalmic in particular that are studied by the author are reviewed here bringing out their Ayurvedic roots.

**Key words:** Buddhist canon, Dunhuang manuscripts, Gynecology, Kaśyapa, Medical transmissions, Monastic medicine, Nāgarjuna, Ophthalmology, Spread of Buddhism.

**INTRODUCTION**

It is a well known fact that the introduction of Buddhism from India into China in early medieval period promoted exchange of a multitude of
ideas between them. Along with philosophical ideas those related to various arts and sciences were exchanged too. Buddhism being intimately concerned with deliverance from sufferings, medicine played a prominent role in these exchanges. As a matter of fact, Buddhist monks were well acquainted with medicine since it was part of their formal training.\footnote{1} It was for the purpose of attending the sick among them. Monks invariably practiced various medical specialties including surgery and provided treatment for the residents of monasteries as well as the lay people. Through these practices ancient Indian medicine found its way into Chinese medicine. Great many scholars have alluded to Sino-Indian Buddhist contacts\footnote{2}, Buddhists’ interests in medicine\footnote{3} and the possibility of transmission of Ayurvedic ideas to China in medieval period. Moreover, a few of them have also expressed doubts regarding any lasting impressions these contacts could have led to\footnote{4}. Recent researches in this field by scholars\footnote{5} including the author of this article point at noticeable continued influences in various fields of medicine. Here is an attempt to collate some outstanding deductions and point out directions for further study.

Involvement of the Buddhists with medicine, both theoretical and practical, as well as its connection with Ayurveda or ancient Indian medicine is depicted in following diverse ways.

1. Canonical works refer to medicine and its various disciplines in large number.
2. Buddhist monks used to provide medical treatment to the residents of the monastery as well as to lay people and it is reflected in Chinese historical and popular literature.
3. Legends of Buddha and Bodhisattva as Bhaisajyaguru abound in China, Japan and elsewhere. They refer to Buddha teaching medicine and handing over medical texts to disciples and also bestowing medicines to the needy.
4. Buddhist caves depict engravings of medicinal formulae and pictures of medical treatment given by monks.
5. Chinese medical works and pharmacopoeia from the fifth century AD onwards, include materials suggesting connections with Buddhist medicine that usually have Ayurvedic flavor.
6. Two works on ophthalmology attributed to Nāgārjuna exist in Chinese medicine and they were important standard works studied by the students of ophthalmology till the sixteenth century AD. Their study by the author illustrates parallels with ophthalmic contents of ancient Indian medicine.

1. **MEDICINE IN BUDDHIST CANONICAL LITERATURE**

The Chinese came to know about Buddha and his teaching in the second century BC through their campaigns in Central Asia. Later on, Emperor Ming in the first century AD invited Buddhist monks Kāśyapa Mātaṇga and Dharmaratna to China to teach Buddhist philosophy and to translate Buddhist classics into Chinese. The early articles of *Da cang*, the Chinese Buddhist canon, primarily contained Buddhist philosophical literature expressly created for the Chinese audience. Basic tenets of the school were explained in these texts. Before long, the monks translated standard Buddhist philosophical works into Chinese and they became the earliest part of the canon.

Chinese monks then visited India for pilgrimage and to collect more canonical works. Indian monks also visited China primarily to participate in their translation into Chinese. As a matter of fact, authors of the Chinese Buddhist canon in addition wrote elaborate articles on systematic learning of Sanskrit or *Fan wen* as it is called even today. They compiled specialized dictionaries as well to translate Sanskrit and Pali works into Chinese and Tibetan. These dictionaries form a part of the canonical literature.

After the first century AD, there began a regular flow of Buddhist monks between India and China. While religious interests were the foremost, other scholarly interests also prevailed and significant exchange of scientific ideas took place at this time. These exchanges were related to sciences like astronomy, mathematics, alchemy, medicine, metallurgy etc. Gradually medicine acquired a leading position in these exchanges.

Translation of canonical works into Chinese began in the second century AD. It was at its peak during the three hundred years between the eastern Han (25-220 AD) and the Jin (265-420 AD) dynasties. It continued in the Tang dynasty (618-907 AD). Chinese, Indian as well as Central Asian
Buddhist monks participated in it. To begin with, the translation work was
shouldered by the Central Asian monks since they were acquainted with both
languages. Kumārajīva was pioneer among them. An Shigao, the prince of
the country of An Xi in Central Asia, who reached Lo Yang in 147 AD,
translated large number of medical texts into Chinese. Subsequently Song
Yun and Hui Sheng in the early sixth, Yi Jing and Xuan Zang in the seventh
and Fa Xian in the early eleventh century AD made outstanding contributions.
Very few of these works have been studied from the point of view of their
medical content and connection with Āyurveda.

Among the medicine-related essays of Buddhist scriptures, some
referred to medicine in general9 and others to some specific discipline of
medicine e.g. pediatrics, ophthalmology and women’s diseases etc.10 These
references have a deep imprint of ancient Indian medicine. Standard Āyurvedic
treatments of internal medicine and surgery for various diseases are mentioned
in canonical works. Furthermore, they often mention the Tridoṣa theory11
that forms the basis of diagnosis and treatment in Āyurvedic works.12

One of the articles in Chinese Buddhist canon viz. Neng qing yijie
yanjibing dolonj jing - A classic on the spell which can clear (cure) all the
eye diseases or Cakṣurviūodhanavidyā, was written/translated by
Amoghavajra13. He contributed a large number of works to Chinese Tripitaka
between 749 and 770 AD. This particular entry introduces a Dhāranī i.e.
Mañtra or invocation which claims to cure all eye diseases. Although it does
not contain material of any real medicinal value, it does touch upon the
standard etiology of eye diseases as defined by the Tridoṣa theory of
Āyurveda. It mentions common symptoms of eye diseases also.
The three doṣas are translated as follows.

vāta - feng meaning ‘wind’  
pitta - huang meaning ‘yellow’  
kapha - tan meaning ‘phlegm’

There are numerous references to Nāgārjuna, Jīvaka, and Kâûyapa in
Chinese canonical literature. They are with respect to specific medical
specialties. Buddha himself was revered as a great physician and was called
Bhaiṣajyaguru/Bhaiṣajyarāja (medicine teacher or king of medicine) for that
reason.
All the three viz. Nāgārjuna, Jivaka and Kāuyapa are important figures in ancient Indian medicine. Nāgārjuna is traditionally known to have revised Śūrūtasamhitā, the famous ancient Indian medical classic. Nāgārjuna is also known as a renowned Buddhist philosopher of the second century AD and the founder of Madhyamaka philosophy of Mahāyāna school of Buddhism. His works form a part of the Chinese Buddhist canon. One of the early references to Nāgārjuna in Chinese Tripitaka is in the work Longshu wuminglun or ‘Nāgārjuna’s Pañcavidyā’. Jñānabhadra, an Indian Buddhist monk who visited China in the sixth century AD, translated this work in collaboration with three other monks. There are references to medical personalities like Jivaka or Qi po and medicine including ophthalmology, gynecology and obstetrics in this work.

Jivaka and Kāuyapa’s names are closely related to ancient Indian female pathology and pediatrics. Although famous compendia of Caraka and Suśruta contain sections on the topic Kāuyapasamhitā, also called as Vṛddhajīvakatantra, it is only a separate work. Scholars ascribe it a date of fifth century AD while tradition takes it back to the Buddhist period. Interestingly, it mentions China in one of its chapters while suggesting diet according to the place of living, substantiating the early contacts.

An Shikao, a central Asian prince-convert-monk translated two works in 147 AD that were accredited to Jivaka and Kāuyapa. They were Nai nu qi po jing or ‘Jivaka’s classic on women’s standard diseases’ and Ka ye jin jie jing or ‘A classic of Kāuyapa’s prohibitions (for pregnant women)’ whereas Fa xian in the early eleventh century AD translated Ka ye xian ren shuo yi nu ren jing or ‘A classic on women’s diseases as told by the sage Kāuyapa into Chinese. The fact of Kāuyapa’s name being linked with female pathology in Chinese literature as back as the second century AD goes a long way to support earlier date for Kāuyapa. Bagchi has studied above three works and translated them into English.

Indian drugs and their applications too were mentioned in canonical literature. An Indian monk named Bao si wei jing or Ratnacintā, was translator of Buddhist works. He wrote Quanshiyin pusa ruyi moni tuoloni jing (A Classic of Bodhisattva Avalokiteśvara’s Cintāmaṇi dhāraṇī) in Tang dynasty. It mentions medicines like Hu jiao (Barbarian’s or foreigner’s spice) or
pepper (*Piper nigrum* L), *Niu huang* (meaning cow’s yellow or *Gopitta* since ‘*pitta*’ was translated as *huang*) or dried gallstone of domestic cattle etc in the treatment of eye diseases. These drugs are often used in preparations of *Ayurvedic* medicines.

### 2. Buddhist monasteries and medical practice

Since Indian monks, who visited China in the medieval period, were conversant with certain medical skills as a part of their official instruction, they extended medical service to Chinese nobles and laity whenever needed, probably out of compassion. Yet, the purpose of easy endorsement thereby of Buddhist philosophy in the new land cannot be ruled out.

Episodes of Buddhist monks curing patients with their very effective medicine are frequently recorded in Chinese history. Quite a few of these episodes are about Buddhist monks performing cataract surgery. Tang poets Bo Juyi (772-846 AD) and Liu Yuxi (772-842 AD) wrote about Nâgârjuna’s work on ophthalmology and a Brâhmin removing the cataract using a golden probe.22 This part is discussed in a separate section below.

**Medicine for Beriberi:** Beriberi is a deficiency disease that is now known to be caused by deficiency of thiamine. It was widely prevalent in the world in ancient and medieval period. Beriberi was a known disease in ancient China and it is recorded under different names in medical literature. Su Jing in the seventh century AD revised the famous Tang pharmacopoeia called or *Xinxiu bencao* (Newly revised materia medica)23 and noted down a remedy as ‘Brâhmin’s prescription’ in his pharmacopoeia. Later in 752 AD a large compendium *Waitai miyao fang* (Medical secrets of an official) was written by a famous medical writer/compiler Wang Tao of the Tang dynasty.24 The author in the chapter on *Jiao qi* or Beriberi records a prescription by the name ‘Brâhmin’s prescription’. These historical records suggest that a successful cure for Beriberi was made known to the Chinese in all probability by an Indian Buddhist monk.

### 3. Legends of medicine: Buddha and Bodhisattva

As one looks back in history, many medical personalities attain a legendary status for lack of concrete historical evidence. It is often witnessed
in ancient Indian medicine also. Jīvaka, Kāyapa, Caraka, Suṣruta, Nāgārjuna etc were great medical men of their time, considering large body of references as well as works attributed to each one of them. Their dates and contributions are only surmised after analyzing a labyrinth of literature and legends. References to these famous medical personalities of ancient India in Chinese literature could be useful in the process.

There exist many anecdotes of medicine about Buddha and Bodhisattva as well as Buddhist monks in Chinese culture. They relate to their delivering medical instruction, medicines, and medical texts. Cui Zhuti, the Minister of revenue in the Tang dynasty, wrote two books viz. *Cui shi zuanyaofang* (Mr. Cui’s collected medicines) and *Chantu* (Birth maps). He attributed the success of his midwifery to the work of a Buddhist monk Tan Luan. Both Cui Zhuti’s and Luan’s works are no more extant. Their only source is *Waitai miyaofang*.²⁵

Similarly, there exists much information about introduction of ophthalmic knowledge from China into Japan through the Buddhists. It exists in the form of facts intertwined with legends. A monk Majima Seigan practised couching of cataract and founded an ophthalmic school in Japan in the fourteenth century AD. This school continued to be active till the seventeenth century. As one story goes the monk Majima Seigan had a dream when the *Bhaiṣajyaguru* appeared before him and taught him the methods of healing and the next morning he found a book that gave details of eye disease treatments. Majima Seigan then repaired a temple of *Yi wang shen yao shi si* (Temple of the king of healing *Bhaiṣajyaguru*) located near the city Nagoya. This temple was allegedly founded in 802 AD.

Again, a Japanese monk in the sixteenth century AD stated that his ancestor went to China in 809 AD and studied under Longshu pusa or Bodhisattva Nāgārjuna. Although the Japanese legends are not reliable historical evidence, their date go close to the first Chinese reference (Bo Juyi’s) to the earlier ophthalmic work attributed to Bodhisattva Nāgārjuna. Aforesaid Japanese legend supports the idea that ‘Nāgārjuna’s discourse on eyes’ was indeed being circulated in China in early ninth century AD. Whether in reality the Japanese traveller monk learnt ophthalmic techniques from a monk by that name or he is simply referring to the famous book is hard to
verify. Nevertheless, the fact that this ophthalmic work found its way to Japan and promoting ophthalmic studies there, is a certainty.26

As monastic medicine flourished, gradually some monasteries became famous for their medical treatment. ‘The monastery of benevolent aid’ or Huijisi is located at the Xiaoshan county in Zhejiang province of China. It is locally called Zhulinsi or the Bamboo grove monastery. It has been famous for its practice of medicine till the nineteenth century AD. Monks of “Bamboo grove monastery” were regarded as experts in the treatment of women’s diseases i.e. gynecology and obstetrics.27

This monastery was first founded in the tenth century AD at the site of a pre-existing temple. According to a legend, the tenth century chief of the monastery once hosted a wandering monk who gave him a medical treatise on women’s diseases. These remedies turned out to be very effective and the tradition of treating women continued from then onwards at this place.

Handbooks on efficacious medicines were printed in this monastery and they were distributed among needy people during the eighteenth and the nineteenth centuries. These formulae were revered as excellent remedies for number of gynecological diseases like infertility and miscarriage. These formulae were successfully used by modern gynecologist as well.28 These remedies of handbooks given out by the ‘Bamboo grove monastery’ need to be studied from the viewpoint of their possible relation to ancient Indian medicine.

4. Pictures of medical treatment and engravings of medicinal formulae in Buddhist caves

Buddhism thrived in China during the Tang dynasty and number of Buddhist monasteries and temples increased rapidly. Early Tang emperor Tai song (627-650 AD) in the seventh century AD developed contacts with several Indian kingdoms including Magadha that was ruled by the powerful king Harṣavardhana. Nalanda University therein was a famous seat of learning at that time and Chinese Buddhist monks visited it in large numbers. Since interests in Indian medicine and other sciences were growing, these monk-travelers wrote about the distinctive nature of Indian medicine in their
travelogues as seen in *Da tang xiyu ji* (The great Tang dynasty travels in the western regions). By and by, under the directive of Tang emperors, Chinese monks and visitors searched for famous Indian doctors and drugs. Practice of medicine in Chinese monasteries also grew rapidly and it is reflected in literature, cave inscriptions and carvings of the time.

Ancient caves at Dunhuang (of the sixth to tenth century AD) in the North-western part of China on the other hand symbolize cultural development when Buddhism was at its peak. The famous monk traveler Xuan Zang after his long stay in India returned to the then capital Changan via Dunhuang. Being located on the ancient Silk-road, as Buddhism prospered during the Tang dynasty Dunhuang became a major center for trade and travel.

Although beginning of the construction of caves at Dunhuang is traced back to the Sui (581-618 AD) dynasty, it was during the Tang that major caves, murals and sculptures were carved. The caves were excavated in early twentieth century and thousands of paintings, Buddhist scriptures and historical documents were brought to light. Among the vast number of manuscripts that were discovered there are some medical manuscripts as well. Interestingly, Dunhuang medical manuscripts contained one named *Qiposhu* or *Jīvakapustaka*. It was written both in Sanskrit and Brāhmi. It is extensively studied by Chen Ming. Jean Filliozat found that some five formulae in *Qiposhu* are from *Carakasaṅghitā*. Likewise, Longmen (Dragon gate) caves at Loyang in north China contained three caves called the ‘Cave of prescriptions’ where medical formulae are engraved under the title *Longmen fang* or *Longmen* (Dragon-door) formulae. Considering the style of engraving and literature and patterns of Buddha statues around it, scholars ascribe the date of seventh century (650-653 AD) to it. It has been noted that *Longmen* formulae and *Qiposhu* or *Jīvakapustaka* found in Dunhuang caves have much in common. Lately, *Longmen* formulae have been translated into English and they form another source for studying ancient medical contacts.

*Qiposhu* employs special drugs in its formulae viz. *San guo* and *San xin*. *San guo* (three fruits) are *Harītaki* (*Terminalia chebula* Retz), *Vibhītaka*...
Terminalia belerica Retz) and Ámalaki (Phyllanthus emblica L) i.e. Triphalâ in Sanskrit. San xin (three pungent or hot substances) are pippalî (Piper longum L), marîca (Strychnos potatorum L) and úuñthî (Zinziber officinalis Rosc) i.e. Trikaṭu in Sanskrit. Both are common ingredients of ancient Indian medicine.

Cave paintings at Dunhuang are based on Buddhist stories. A number of these frescoes depict Buddhists’ medical practices. Illustrations of medical treatments throw light on medical techniques of the time.

5. Medieval Chinese medical works and compilations included material from Buddhist medical works and pharmacopoeia

As seen earlier, Sino-Indian Buddhist contacts facilitated entry of ancient Indian medical ideas into China and Buddhist monks in the capacity of travelers, translators and at times medical practitioners, acted as catalysts in this process. Soon after, some of these ideas entered main stream Chinese medicine and they were reflected in contemporary medical works and compilations.

Many intermediary works that formed a link between the earliest ideas that entered through the Buddhist channel and their final depiction in popular Chinese medical texts, are no more extant. They are listed in ancient bibliographies e.g. Sui shu (the bibliography of Sui dynasty) and indicate the extent of transmission.

Tao Hongjing, Sun Simiao and their works: Writings of Tao Hongjing (456-536 AD), famous medical writer, alchemist and pharmacologist depicted influence of Buddhists’ four element theory Si da for the first time. A century later famous medical writer and physician Sun Simiao (581-682 AD) referred to Indian medicine in a big way in his two compilations.35

Sun Simiao was conversant with all the three established philosophies of medieval China viz. Confucianism, Buddhism and Taoism. He emphasized the need for love and compassion as advocated by the Buddhist philosophy for ethical medical practice.36
Transliterated Sanskrit terms pointing at Āurvedic connections are numerous in Sun Simiao’s works e.g. Agatuo wan meaning ‘Agada pill’. He introduced concepts of healing of mental sufferings by means of Chan or Dhyāna and Yoga. He mentioned a method of Indian massage An mo fa in his writings and called it a Brāhmin’s method. Sanskrit name for jaundice i.e. Kāmalā as Ka mo lo also appears in this text.

Sun Simiao’s famous work Beiji Qianjin yaofang [important medicinal formulae (worth) a thousand (pieces of) gold] also contains a lot of medicinal formulae attributed to Jivaka. In a section on medicinal substances he writes, “A great medicine man of India Jivaka has said that all things under heaven have efficacy.” It is a quote from Carakasamhitā. Interestingly, the term Sun Simiao used for a suppository in the ‘Womens’ diseases’ section of Beiji Qianjin yaofang viz. zuodaoyao (sitting-directing medicine) goes close to the general term used for enema and suppository in Sanskrit viz. Netrabasti (directing-sitting medicine). Although suppositories were used in China earlier as seen in Sengshenfang (profound medicinal formulae of the Buddhists), a fifth century work; they were not under this name. These facts hint at Sino-Indian medical ties in the field of gynecology and obstetrics that have been overlooked. They also underscore the need for further investigation.

Sun Simiao explicitly recorded surgical treatment for glaucoma or Qing mang, so also for several other eye diseases like polypus of the white part of the eye for the first time. This was the entry of Indian techniques of ophthalmic surgery into China. Detailed account of these techniques was recorded about a century later in the work attributed to Nāgārjuna.

Wang Tao’s Waitai miyao: Wang Tao (670-755 AD), a famous personality of early Tang period, was an influential government official as well as a physician. He wrote a large compendium Waitai miyao fang (Medical secrets of an official). In its chapter on ophthalmology he included sections from a work of Indian origin viz. Tianzhu jing lunyan (Indian classic of discussion on eyes). Just as the name indicates, its contents indeed depict parallels with ancient Indian medicine.
According to the ‘Indian classic of discussion on eyes’ merely physical factors like sense organs and supply of bile, are insufficient for vision. It considered ‘divine knowledge’ as a necessary factor. It states “The flow of ‘qi’ from the liver channel to the eye, three lights, the divine knowledge, all combine to enable the eye to see”. Carakasamhita also includes factors other than physical to explain the phenomenon. It states “Conscious perception arises from the fusion of the ātman (self), mind, senses and sense organs”.

Furthermore, the ‘golden probe’ method for the removal of cataract that became very famous in following centuries in China was first mentioned in this compilation Waitai miyao fang. Aforesaid ‘Brâhmin’s prescription’ for Beriberi is recorded in this very text.

Tanba Yasuyori and his compilation Yixinfang: Tanba Yasuyori, an 984 AD Japanese scholar, made a collection of Chinese medical works viz. Yixinfang (Central medicinal formulae). It contains material from Jin (265-420 AD) to Tang (618-907 AD) dynasties. Therefore it provides material for the study of history of medicine of that period. Interestingly, among the sources used by the compiler of Yixinfang there are many related to Buddhism in general and to the Indian experts mentioned above.

This work records over ninety articles related to Qipo yifang (Jivaka’s Medicine). Qipo yifang does not exist as a separate work. These articles include formulae for women’s diseases like stomach ache during menstruation, pregnant woman’s chest pain, stomach ache and problem of continued bleeding after delivery, post partum stomach and chest pain, treatment for infertility etc. On the other hand, the incomplete work Qiposhu or Jivakapustaka, that was excavated in Dunhuang is a short version meant for practical use and it is much quoted in other medical works.

Yixinfang also quotes a Sanskrit Dharaṇī or Mantra from a canonical work Da ji tuo lo ni jing (Mahādhāraṇī classic). It is to be uttered to ease difficult childbirth. It consists of writing a Sanskrit Mantra in vermilion ink on the skin of a pheasant that is then burnt to ashes, mixed with clear water and given to the pregnant woman to drink.

As the use of Indian drugs increased, they found entry in Chinese pharmacopoeia, e.g. Bencao shiyi (A supplement for the pharmaceutical natural
histories) of 725 AD by Chen Zangchi. He added 368 new entries including A-le-bo or Áragvadha (Cassia fistula L). He also wrote about Bolomen zaojia (Brâhmin soap bean tree). Duan Chengshi also described it in his work Yu yang za zu (Miscellany of Yuyang Mountains) of 860 AD.

6. NĀGĀRJUNA’S WORKS ON OPHTHALMOLOGY

Entry of ancient Indian ophthalmic knowledge into China was closely related to Buddhist philosophical assumptions. Buddha was looked upon as a surgeon who could extract four poisoned arrows that of anger, greed, pride and jealousy which pierced the humans. Furthermore, an analogy of Buddha removing the screen of ignorance using the probe of wisdom to the surgeon who removes cataract and enables the patient to see clearly was very popular. A symbolic operation upon cataracts with the Úalâkâ or probe is described in these texts. The rite consisted of the master initiating the inspirer by touching his eyes with a metallic wand, saying, “Vaidya-Râja or ‘king of physicians’ clears away the membrane or pañâla of ignorance with a golden probe”. It is cited in Vairocanasûtra in Chinese translation. This metaphor gave rise to numerous references to eye surgery in the Buddhist canon.

Thus, ideas related to ophthalmic surgery, which was a novelty to Chinese medicine, were introduced in the second century AD onwards. This was an unintentional transmission in its initial stages. The earliest entry of these ideas in the form of analogies and metaphors, as seen in the Buddhist literature, probably made the Chinese aware of new therapeutic possibilities. Since ophthalmic surgery was not practiced in China at that time, it alerted the Chinese Buddhists, some of whom were also medical men like Sun Simiao. Chinese ophthalmology took a turn at this point.

From the eighth century AD onwards, about a century after Sun Simiao’s works, three ophthalmic classics related to India came up one by one. The first work was ‘Indian classic of discussion on eyes’ of the eighth century AD mentioned above. The other two were attributed to Nāgārjuna. They are Longshu pusa yanlun (Discourse of Bodhisattva Nāgārjuna on eyes) of early ninth century AD and Longmu zong lun (Nāgārjuna’s
comprehensive discourse) of late eleventh century AD. These works were functional as standard textbooks till sixteenth century AD in China.\textsuperscript{57}

These ophthalmic works played a major role in the early development of Chinese ophthalmology. They considerably changed the state of the discipline and eventually led to the integration of two medical systems in many ways. All these three works exist to this day as sections in medieval medical compilations.

Entry of Indian ophthalmic information encouraged the founding of a separate discipline of ophthalmology in Chinese medicine. From an empirical approach as seen in *Neijing*, the earliest text attributed to the legendary Yellow Emperor, it led to its systematic study in the medieval period. As a result of exposure to Indian ophthalmology, eye diseases were classified on the basis of eye anatomy as in the case of *Aṣṭāṅga-hṛdaya*, *Susrutasaṃhitā* and other major Ayurvedic classics. Broad categorization in Chinese works was on the basis of inner and outer parts of the eye. A clear differentiation between various kinds of glaucoma, between glaucoma and cataract and also between various kinds of cataracts is found in Nāgārjuna’s later work even more explicitly than in ancient Indian works that in fact was their starting point. In the last section of the chapter on ophthalmology, Suṣṛuta discusses some additional eye diseases that are not included in the seventy-six cases discussed by him. These are traumatic injuries and children’s eye diseases.\textsuperscript{58} Likewise, Nāgārjuna’s work also discusses traumatic/external injuries and children’s eye diseases in the last sections.

Efficacy was evidently the foremost reason behind the introduction and acceptance of cataract surgery in China. To a degree, Fan Ka Wai considers the reason may be that this kind of surgery could be interpreted in terms of acupuncture that was an age-old practice.\textsuperscript{59} Various aspects of surgery are taken into consideration in Nāgārjuna’s works. They included suitable time and place for surgery, selection of method and instruments, pre-operational cautions and care, contra-indications of surgery, precision in surgery, indications of success or failure, post-operational care including that of bandage, diet, movements etc. All this goes close to Ayurvedic information contained in classics.\textsuperscript{60}
CONCLUDING REMARKS

Sino-Indian Buddhist contacts that began in the first century AD resulted in exchange of ideas between the two culture areas. Alongside philosophical ideas, those related to science and technology, were transmitted too. In view of the Buddhists’ involvement in liberation from sufferings for the mankind, they had an inherent interest in medicine. It led to transmission of ideas related to ancient Indian medicine or Ayurveda into China. It was depicted in diverse ways. Chinese Buddhist canon contains several medicine-related works. Allusions to Indian monks and their medical skills are numerous in Chinese historical and popular literature. Legends of Medicine Buddha and Bodhisattva abound in Chinese culture. Again, Buddhist cave engravings included pharmaceutical formulae too. Buddhist monks often provided medical service to the community. Lastly, standard Chinese medical works and compilations of succeeding periods incorporated Ayurvedic information.

Even though the entry of Ayurveda into China through the Buddhist connection is known for some time, the foremost historian of Chinese science Joseph Needham and a few others too doubted any long-lasting influence. Recent studies by the author and other scholars help dispel these reservations. Medieval Chinese ophthalmology was the foremost to depict Indian influence. Three existing Chinese ophthalmic works related to India reveal parallels with ancient Indian ophthalmology in many ways. The key similarities being classification of eye diseases based on anatomy of the eye and incorporation of cataract-removal and other surgical methods that also form major part of ophthalmic surgery in Indian works. Although ophthalmology outshines others, fields like gynecology, obstetrics, pediatrics, psychology, physical fitness etc also made their stamp. All in all Buddhist medicine contributed in the evolution of various disciplines of medicine in medieval China and had a share in overall medical practice of the time. To it goes the credit of introducing ancient Indian medicine with its concepts, techniques and drugs into Chinese culture.

This is by no means an exhaustive review of Sino-Indian medical exchanges of medieval period. Yet it points at the period, path and scope of medical contacts between these neighboring cultures and indicates direction and sources for further study.
List of Chinese characters

Agatuwo wan 阿迦陀丸
A-le-bo 阿勒勃
An mo fa 按摩法
An Shigao 安世高
Bao si wei jing 寶思惟靜
Beiji qianjin yaofang - 備急千金要方
Bencao Shiyi 本草拾遺
Bo juyi 白居易
Bolomen zaojia 波羅門皂荚
Chan 禪
Chantu 產圖
Chen Zangchi 陳藏器
Chu yiqie jibing tuoloni jing 除一切疾病 陀羅尼經
Cui shi zuanyaofang 崔氏纂要方
Cui Zhiti 崔知悌
Da cang 大藏
Da ji tuo lo ni jing 大集陀羅尼經
Da tang xi yu ji 大唐西域記
Duan chengshi 段成式
Dunhuang 敦煌

Fa xian 法賢
Fan fan yu 翻梵語
Fan wen 梵文
Fan yi ming yi ji 翻譯名義集
Fan yu qian zi wen 梵語千字文
Feng – 風 Fo yi jing 佛 醫 經
Fo zhi shen jing 佛治身經
Guanshiyin pusa ruyi moni tuoloni jing 觀世音菩薩如意摩尼陀羅尼經
Hu jiao 胡椒
Huang – 黃 Huangdi neijing 黃帝內經
Huijisi 惠濟寺
Jiao qi 腳氣
Ka mo lo 迦摩羅
Ka ye jin jie jing 迦葉禁戒經
Ka ye xian ren shuo yi nu ren jing 迦葉仙人說醫女人經
Liao zhi bing jing 瘡痔病經
Liu yuxi 劉禹錫
Longmen 龍門
Longmu zong lun 龍木總論
Longshu pusya yanlun 龍樹菩薩
眼論
Longshu wuminglun 龍樹五明論
Longshufang 龍書方
Loyang 洛陽
Luo bu na shuo jiu liao xiao er ji bing jing 囚哺難說救療小兒疾病經
Ma Wangdui馬王堆
Nai nu qi po jing 奈女耆婆經
Neng jing yiqie yanjibing doloni jing 能淨一切眼疾病陀羅尼經
Niu huang 牛黃
Po lo men bi si jing 婆羅門避死經
Qianjin yifang 千金異方
Qi Po da shi zhi ren wu zhang liu fu nei wan bing ji bu yi chang nian bu lao fang 耆婆大士治人五臟六腑內方病及補益長年不老方
Qi Po e bing fang耆婆惡病方
Qi Po tang 耆婆湯
Qi Po wan bing wan耆婆萬病丸
Qi po wan耆婆丸
Qipo maijuejing 耆婆脈訣經
Qipo yiyaofang耆婆醫藥方
Qiposhu耆婆書
San guo 三果
San xin 三辛
Sengshenfang 僧深方
Sokokyoshou 沖渠京聲
Sui shu 隋書
Sun Simiao 孫思邈
Tan – 臘
Tan Luan 暈巒
Tan Ma lo chen 暈摩羅讎
Tang fan wen zi 唐梵文字
Tang 唐
Tao Hongjing 陶弘景
Tian zhu guo 天竺國
Tianzhu jing lun yan 天竺經論眼
Waitai miyao fang 外台秘藥方
Wang Tao 王濤
Xinxiu bencao 新修本草
Xuan Zang 玄奘
Yi Jing 義淨
Yi wang shan yao shi si 醫王山藥師寺
Yinhai jingwei 銀海精微
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Notes and References

1. A study of biographies of some traveler monks reveal the fact that they had studied Pañcavidyā i.e. astronomy, writing or script, mathematics, medicine and tantra in their early life. See P.K. Mukherji, Indian literature in China and the Far East, Prabhasi Press, Calcutta, 1931, p 139.

2. P.K. Mukherji (1931), op. cit.

D.P. Singhal, Buddhism in East Asia, Books & Books publishers, New Delhi, 1984.


   TT 2130 *Fan fan yu* (Translating Sanskrit)
   TT 2131 *Fan yi ming yi ji* (Collection of translated names) *Mahāvyutpatti*
   TT2133 *Fan yu qian zi wen* (A thousand characters of Sanskrit language)
   TT2134 *Tang fan wen zi* (Tang Sanskrit script)
9. TT.795- *Fo zhi shen jing* or [A classic on Buddha curing the (diseases of) body] - An Shigao
   TT.1323 – *Chu yi qie jibing tuoloni jing* or *Sarvarogapraúamanidhârani* (A classic on spell to cure all diseases) by Amoghavajra in the eighth century AD
   TT.1325 *Liao zhi bing jing* or *Arsaprasamanasutra*. (A classic on curing all hemorrhoid-related diseases) by Yi Jing who visited India between 671-696 AD.
   TT.793 - *Fo yi jing* (Buddhist medical classic) by Jikuritsuen & Shiotsu
10. TT.131- *Po lo men bi si jing* (A Brahmin classic to avoid death) and TT.554 - *Nai nu qi po jing* (Jivaka’s classic on women’s standard diseases) by An Shigao in the second century AD.
   TT.1326 - *Zhou shi qi bing jing* [A classic of incantation poem for the Qi (seasonal) epidemic diseases]; TT.1327- - *Zhou chi jing* [A classic to exhort (diseases of) teeth];
   TT.1328 - *Zhou mu jing* [A classic to exhort (diseases of) eyes], *Caksurvisódhanavidyā*,
   TT.1329- - *Zhou xiao er jing* [A classic to exhort (diseases of) children] - all by Tan Ma lo chen (Dharmalocana?) during the period of 381 to 395 AD.
   TT.1324 - *Neng jing yi qie yanjibing doloni jing* (A classic on a spell to cure all eye diseases) - Caksurviśodhanavidyā by Amoghavajra,
   TT.1330- *Lu bu na shuo jiu liao xiao er ji bing jing* A classic told by Rāvana on curing of children’s diseases - Fa xian who visited Nalanda around 1001 AD.
   TT1691- *Ka ye xian ren shuo yi nu ren jing* (A classic on women’s diseases as told by the sage Kāyapa)- by Fa xian
   TT.620 - *Zhi chan bing mi yao fa* (Secret methods to cure the Chan diseases) – Sokokyoshō ~457 AD.
11. *Trīḍoṣa* theory- According to this theory body is sustained by the three elements or ‘dhātu’ which are *kapha*, the phlegm, *vāta*, the wind and *pitta*, the bile. These are essential for the growth and maintenance of the body, a balance of the three keeps body
in good, healthy state. An imbalance of the three on the other hand causes illnesses. Thus when a \textit{dhātu} is rendering an adverse effect due to its being in deficit or excess, it is called a ‘\textit{doṣa}’. Any illness is characterized by either one or more of the \textit{doṣas}. Sometimes all the three \textit{doṣas} together cause a disease in which case it is called as due to \textit{sannipāta} or concurrence of the \textit{doṣas}. See \textit{Carakasamhita}: \textit{Sūrasthāna}, 7-39 and \textit{Vimānasthāna}, 6-13. \textit{Aṣṭāṅgahṛdaya}: \textit{Sūrasthāna}, 11-1 to 3, also in \textit{Sūrutasamhītā} with \textit{Dalhanaṭīkā}: \textit{Sūrasthāna}, 14-20.

12. \textit{Sūrutasamhītā} and \textit{Carakasamhītā} famous Sanskrit works on medicine that are traditionally taken as belonging to the first millennium BC. Their present versions are taken to be revisions made in the early first millennium AD.

13. TT 1324


16. TT1420 p 957, 966.


18. TT 554

19. TT1469


P.C. Bagchi, \textit{Ka ye xian ren shuo yi nu ren jing, Kāúyapa¯“iproktasṛcikitsśūtra}, Indian Culture, IX, 53-64.]

21. TT 1083


29. TT2087

30. Archaeological excavations Ma Wangdui (second century BC) unearthed manuscripts that included some medical manuscripts. It points at the long tradition in China of storing the documents and relics in the caves for safe-keeping. Ma Wangdui tombs belong to the time before the entry of Buddhism into China and medical manuscripts therein thus represent indigenous practices in ancient China.


32. Chen Ming, Yixinfang zhong de Qipo Yiyaofang lai yuan kao, jianyu Dunhuang (Qiposhu) zhi bijiao, (An inquiry into the source of Qipo Yiyaofang in Yixinfang and simultaneous comparison with Qiposhu of Dunhuang), Wenshi, Vol 2, 2002, p145.


35. Beiji qianjin yaofang, [Important medicinal formulae (worth) a thousand (pieces of) gold], written by Sun Simiao (581-682 AD), first published in 652 AD, People’s Hygiene Publications Beijing, 1987


37. Qianjin yi fang, pp. 200, 201.


39. Tian zhu guo - Qian jin yi fang, p. 201
Qi po wan - Qian jin yao fang, p. 276
40. Qianjin yifang – Chapter 12 Yang sheng, Yang lao shi liao di si, Qipo wan. Also Beiji qianjin yaofang -Chapter 12

Qi Po wan bing wan - Jivaka’s ball medicine for ten thousand illnesses
Qi Po e bing fang Jivaka’s medicines for illnesses caused by evil spirits
Qi Po tang – Jivaka’s soup
Qi Po da shi zhi ren wu zang liu fang ji bu yi chang nian bu lao fang – Jivaka’s medicine for prolonging life without getting old

41. Beiji qianjin yifang, chapter Yao ming di er, 藥名第二 p8
42. Carakasamhitā, Sūtrasthāna -26 -12, 29.
44. Sūrutasamhitā, Cikitsāsthāna, chapters 35 to 38
45. Yixinfang p 432
46. Role of foreign medicine in shaping Sui and Tang gynecology, unpublished ms, paper read in the 56th annual meeting of the Association for Asian Studies at San Diego, March 4-7, 2004.
48. Carakasamhitā, Sūtrasthāna, chapter 1, verses 8 to 14
52. Qipofang- Jivaka’s pharmaceutics, Sengshenfang - Profound pharmaceutics of the monks, Longshufang – Nāgārjuna’s pharmaceutics, Longmenfang Dragon (Nāga) gate pharmaceutics, Daji duoluoni jing - Mahādhāraöi classic, Qipo maijuejing – Jivaka’s classic on pulse examination.
55. Glenditsia Sinensis

56. Mark Tatz (1985) op. cit. p. 10, 11. “Tathagata - ‘Thus Come One’ surpasses mundane physicians in ophthalmology because he understands how to cut off the cataract (timira) of ignorance with the iron of wisdom.’ This is an idea expressed in Samyuktagama (T 99:36:259c-260c) attributed to the eastern Jin dynasty (350-431 AD). These kinds of references to cataract removal operations are especially numerous in early Buddhist texts which were translated from original Buddhist canon into Chinese.”


58. Sūtratasaphitā Uttaratantra, 19- 1 to 8 and 8 to 16 respectively

59. Fan Ka Wai – ’Couching for cataract and Sino-Indian medical exchange from the sixth to the twelfth century AD’ in Clinical & Experimental Ophthalmology 33 (2), 188–190, 2005.


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*Xīnxīu běncǎo (Tāng běncǎo)* compiled by Su jing in 659 AD – Shanghai guji publications 1981.
