

MEDICINE IN CHINA, OLD AND NEW*

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THE EVOLUTION OF MEDICINE IN CHINA

IT IS commonly believed that Chinese medicine began to take formal shape at least twenty-seven hundred years before Christ. As in every other early civilization, religion and astrology, superstition and witchcraft, were curiously merged with the profession of healing. Priests and sorcerers dominated it. This is well illustrated in the Chinese ideograph for medicine which consists of a quiver and a spear surmounting a symbol representing a witch and a wizard. With the passage of time, the witch symbol was replaced by the symbol for a jar of wine, indicating the introduction of alcoholic decoctions into the pharmacopocia. It is entirely probable that a study of other Chinese characters will throw further light on the evolution of the indigenous system of medicine.

Conscious of this admixture of witchcraft and sorcery with the art of healing, the thoughtful in China have never been willing to commit their relatives to the care of those who were likely to be untrained and superstitious. Thus it arose that the family became, and still remains, the final arbiter as to the appropriateness of the diagnosis and treatment indicated by the physician. For many centuries, the intellectuals of China have read the really classical medical works as they have read classical literature, history, philosophy, and poetry. They have been better informed as to the classical medical authorities than the average physician whom they might summon. I have often been subjected to such questioning by the family court as would astonish and repel the average American physician. After examining a patient and giving my verdict, with an outline of the procedure proposed, I have seen the family court sit in conference to decide whether or not to accept the suggestions offered. More than this, following the custom of centuries, I have seen the family send for one consultant after another, finally deciding for itself between the diagnoses suggested and the treatment outlined. No family in old China ever put the patient under the care of a single physician, but always reserved to itself the final decision as to action in the patient's behalf.

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The development of Chinese medicine has been sketched for us with great illumination by Dr. C. M. Wang of Hangchow. He divides its history into four periods, and for convenience I shall follow his outline.

THE ANCIENT PERIOD (DOWN TO 1000 B.C.)

Much that is said of this era is legendary, as we have no dependable records. Three names, however, are held in the highest regard. The ancient period may be said to have begun with the Emperor Shen Nung who reigned about 2737 B.C. He is universally known as the originator of the Chinese materia medica. Every one knows that "Shen Nung daily tasted a hundred herbs." Naturally, he is called "the father of medicine." Following him reigned Hwang Ti who, in association with one of his ministers, is said to have written the famous "Classic of Internal Medicine." Upon this classic is built up most of the medical literature of China and it still stands as the universally accepted medical authority throughout the land. A French translation has been made by Dabry. The third member of that early distinguished trio was I Yin, an able prime minister who lived about 1800 B.C., and who is credited with being the originator of medicinal decoctions.

THE CLASSICAL PERIOD (1000 B.C. TO ABOUT A.D. 1000)

During this era, literature and art, philosophy and government, religion and medicine, reached a very high degree of development. Confucius and Mencius, Laotze and Moti, lived at this time. Unfortunately, philosophic reflection and subtle debate characterized the period rather than experimental progress. In this period there arose, also, the two doctrines which form the basis of Chinese medicine. The first is the doctrine of the two primary principles, Yang and Yin. From these two principles everything in nature is supposed to arise. They represent, in antithesis, the male and the female element, heaven and earth, day and night, heat and cold, life and death, the sun and the moon, strength and weakness, positive and negative, and other contrasting forces. We still know far too little of that dim distance when, in widely separated areas of Asia, philosophic reflection gave rise to so many related ideas.

The second doctrine is that of the five elements in nature, namely, metal, wood, water, fire, and earth. The human body is described as made up of these elements in harmonious proportions, health re-

maintaining while the proportions are normally adjusted, and disease following if the balance is disturbed. Corresponding with these five elements are the five major organs: spleen, liver, heart, lungs, and kidneys. These elements and organs are related, furthermore, in a complex scheme, to the five planets, the five colors, the five tastes, the five climates, etc.

During the earlier part of this classical era, probably about 250 B.C., there lived a famous practitioner, Pien Chiao. He is said to have been the first to use narcotic drugs, administering them in wine. This made it possible for him to undertake certain surgical operations. No higher honor can be paid a physician in China today than to call him a living Pien Chiao.

During this period, lasting about two thousand years, certain medical procedures came into common use, the two most important being massage and acupuncture. While massage was practiced in China from the earliest days, it was not till about 600 A.D. that it gained recognition as a definite department of medical science. A special chair, under a special professor, was then established in the imperial medical school. The publications of the Jesuit Fathers brought it to the attention of Europe towards the close of the sixteenth century. No one who has lived in a Chinese city will fail to recognize the familiar sound of the gong struck by the blind masseur who roams the streets at night, hoping to be called in to administer the treatment in which he is so adept. Acupuncture is also an ancient Chinese practice. It extended early to Japan, was brought from there to Europe by a Dutch surgeon at the end of the seventeenth century and was particularly valued in France during the early part of the nineteenth century. There is a copper model of the human body in the Imperial Academy of Medicine in Peking, pierced with 367 holes at the points where acupuncture may be performed. Paper is pasted over the figure and the student of acupuncture is required to practice needling so as to acquire accuracy in striking the spots where treatment may be safely given. In nearly every provincial capital as well as in some smaller towns, less formal models of the body are to be found, some pierced with arrows at the points where acupuncture is safe.

Those who have tried to secure cadavers for anatomical teaching in China realize how reverence for the dead has made human dissection practically impossible. Only recently has opposition to anatomical study weakened. It is reported, however, that early in the

Christian era certain criminals were killed and dissected, measurements of the internal organs made, and bamboo sticks inserted into the blood vessels to trace their course. Certainly the circulation of the blood was distinctly foreshadowed at least two thousand years before the time of William Harvey. Consider the following passage from the Classic of Internal Medicine:

All the blood is under the jurisdiction of the heart. The twelve blood vessels are deeply hidden between the muscles and cannot be seen. Only those on the outer ankles are visible because there is nothing to cover them in these places. All other blood vessels that are on the surface of the body are veins. The harmful effects of wind and rain enter the system first through the skin, being then conveyed to the capillaries. When these are full, the blood goes to the veins and these in turn empty into the big vessels. The blood current flows continuously in a circle and never stops.

Whatever the achievements of Chinese medicine prior to the second century B.C., its real progress began with the Han dynasty. Dr. Wang well says that its scientific advancement centers in the three figures:

(a) Tsang K'ing who lived about 170 B.C. and left a reputation for his detailed clinical case records, twenty-five of which have been preserved, ten of them the records of fatal cases.

(b) Chang Chung-king who lived about 195 A.D. His eminence as a physician was widely recognized and he even held office for a time as mayor of the city of Changsha. Chang's work on typhoid fever is one of China's great medical classics. The descriptions of the malady are clear, although other diseases than typhoid are evidently included in some of the clinical observations. In this treatise it is noteworthy that only a few potent drugs are recommended, to be used singly, instead of the shot gun prescriptions favored by the ordinary physicians of the day. Chang recommended, also, that typhoid fever be treated by cool baths as an antipyretic measure, thus antedating James Currie by some seventeen hundred years. He recommended the use of enemas rather than cathartics. Chang was the first of a series of clinicians who gave attention to physical signs and symptoms and who carefully recorded the actual results following the administration of drugs. He was not only a keen observer of disease, but an upholder of the dignity and responsibility of the medical profession. No one else in medical history could fairly be

said to deserve the title of the Hippocrates of China.

(c) Hua To, however, was the most famous surgeon in China's history. It is reported that with the use of narcotic potions he was able to perform many operations, ranging from venesection to laparotomy. He is said to have excised the spleen and to have done resections of the intestines and liver.

Aside from the contributions of these three distinguished men, physical diagnosis became established at this time, and included four methods: observation, attentive listening, interrogation, and palpation. The Chinese physician certainly observes with severe scrutiny and can detect many of the signs of disease with singular accuracy. He seldom undresses the patient, so that his observations center about congestion, pallor, tumescence, and pulsation in the head and hands. His auscultation is neither aided by instruments nor performed with the ear against the body. It consists in attentive listening to the patient's groans, grunts, sighs, and ejaculations to which custom has given individuality, so that each has a definite meaning. Interrogation is formal and tends to elicit answers in line with China's traditional medical philosophy, rather than to provide objective information. Of the four methods, the palpation of the pulse is the most studied and most highly regarded diagnostic procedure in China. Quantities of treatises have been written on the pulse, describing the information to be gained from the several points to be palpated on the left wrist and on the right wrist. It is remarkable to watch a Chinese physician feeling the pulse and to observe the keenness with which he interprets his findings. The procedure is a literary ritual, undertaken deliberately and reflectively.

I remember seeing a Chinese physician feel the pulse of a western professor. After careful palpation, he said without hesitation that the patient was thoroughly healthy except for his lungs which appeared to be seriously below par. Singularly enough, the patient had had pleurisy with effusion only a year or two earlier! I have repeatedly seen a Chinese physician feel the pulse of a patient and report unhesitatingly that he was suffering from nephritis. Laboratory examinations confirmed the diagnosis!

Still further features introduced during this classical period were the catheter, formed of the hollow leaves of *allium fistulosum*; vaccination; and organotherapy. Vaccination is described as having been introduced by Prime Minister Wang about 1000 A.D. He inoculated his son with the scab from a patient who had smallpox. He

learned the method from a priest who came from O-mei Shan, the sacred mountain of Western China. Other methods used were to take the wet serum directly from pustules, to use a moistened scab or powdered dry scabs and to wear the garment of an infected person. A long article appears in a medical classic of this period discussing minutely the choice of scabs and the determination of persons suitable to receive inoculation. Methods of inoculation were four, by the needle, by blowing the powdered scab into the nostril, by inserting a wet scab into the nostril, and by wearing an infected garment.

THE CONTROVERSIAL PERIOD (11TH AND 17TH CENTURIES)

During this epoch there appeared a great number and variety of monographs on particular diseases. This was particularly true during the Sung dynasty which lasted three centuries and came to an end about 1280 A.D. Among the original works we find monographs on the following: on Beri-Beri; on the Care of the Aged, an early treatise on the care and feeding of old people; on Women's Diseases, a textbook in 24 volumes; on Obstetrics, the earliest monograph on this subject in China; on Pathology, a textbook in 18 volumes entitled "Three Courses of Diseases"; on The Fontanelle, an anonymous work in 2 volumes; on Carbuncle, together with a nine-volume publication entitled "Royal Infirmary Model Essays," which is in fact a collection of examination papers. In addition to these monographs, an Imperial Cyclopedic of Medicine was published during the Sung dynasty, compiled under orders of the Emperor by a staff of medical men. The work was published in 200 volumes, most of which have unfortunately been lost.

In addition to the inoculation against small pox mentioned above, which was discovered in 1022 A.D., two other features of the Sung dynasty are worthy of note, namely, the establishment of medical schools and the holding of state medical examinations, both of which began in 1068 A.D., under the Emperor Shen Tsung. It is interesting to reflect that at a period only two years after William the Norman landed in England, when that country was still a long way from the organizing of its formal education, China had made such progress in medical education and examination.

During the Ming dynasty (1368-1644 A.D.), the "Synopsis of Ancient Herbals" was published. This important work was compiled by a district magistrate in Central China, and consists of 52 books.

All known works on materia medica, to the number of 41 were consulted, while references to 360 treatises and 591 other scientific and historical works were freely made. There are 71,096 formulæ given in this work and the substances enumerated include 1892 kinds. These are arranged in sixty great classes under sixteen orders. This treatise is one of the most popular and important books in Chinese medical literature and merits the praise accorded to it by doctors as well as laymen.

Published in 1590, no medical reference book in the western world begins to wield such influence in its field as this work on materia medica does in China. It is more than probable that pharmacological studies, based on suggestions from this and similar Chinese works, will enrich the world's knowledge of potent pharmacals. We find reference in this work, for example, to a plant called Ma-huang, or *ephedra vulgaris*, that grows wild on the hills of North China. The recently extracted alkaloid *ephedrine* occurs in this Chinese plant, which had a place in the pharmacopoeia of that land centuries ago.

Another feature of the Ming dynasty was the appearance of syphilis in China, the source of which has caused much controversy, reminding one of the argument in southern Europe as to whether syphilis came there through French or Italian armies. Most Chinese writers maintain that it was unheard of in China until the middle of the sixteenth century and that it was introduced into Canton by Portuguese from India. "The descriptions of this disease were very accurate and illuminating and in one interesting monograph, written in 1631, the various manifestations and hereditary transmission of syphilis are mentioned in full detail."

THE MODERN PERIOD

The last of the Chinese imperial dynasties, the Manchu, came into power in 1644. By this time, Westerners were already in the land, the Portuguese having reached Canton in 1516, the Spaniards and Dutch a little later and the English in 1622. Undoubtedly many of the foreign commercial groups brought ship's physicians with them; while the Jesuits, who first appeared in Peking in 1581, had not a few scientists in their number, men familiar with aspects of botany and chemistry, as well as with mathematics and astronomy. Some of them received high honor at the court of K'ang Hsi, who

came to the throne in 1662 and reigned for sixty years. Falling seriously ill with malaria in 1698, he sent for his Jesuit friends, who were reputed to have secured a potent bark from Peru, one that was said to be of great value in cases of ague. Much against the wishes of the court officials, the Emperor insisted on taking the bark under the guidance of a Jesuit father. He was completely cured and presented to the religious order a splendid site in the capital, where one of their largest cathedrals now stands. More than this, the Emperor was a patron of the arts throughout his reign, many medical publications being issued with his approval. These were, however, compilations for the most part, rather than original works.

The eighteenth century was one of comparative isolation against the West, but by 1805 an English physician, Dr. Hobson, is reported to have visited Canton, although Dr. Thomas R. Colledge, a physician of the East India Company, was undoubtedly the first to establish a clinic there.

In May 1806 the modern method of vaccination was introduced into China via the Philippines and Macao. It is noteworthy "that a century before Jenner's epoch-making discovery, the Chinese seem to have had an idea of vaccination, for in the Synopsis of Ancient Herbals the use of cow fleas is described as a method of preventing smallpox." It was believed that the fleas of a cow suffering with vaccinia might be used to immunize a human individual. This treatment is said to have become very popular.

By 1844 the first Chinese student, C. H. Wong, was ready to go abroad for the study of Western medicine, travelling to the United States with his schoolmaster, the Rev. Samuel R. Brown. After studying here for four years, he went to Edinburgh and received his medical degree there in 1855. Two years later he returned to China and worked assiduously in hospitals in South China until his death in 1878.

The first Western physician to settle in Canton and to launch a permanent hospital work was Dr. Peter Parker, a graduate of Yale, who reached China about 1835 and is known as the man that "opened China at the point of the lancet." He was the first of a long line of medical missionaries, men with the pioneer spirit that would not be discouraged by the difficulties and obstacles they constantly encountered. The establishment of modern medicine in China is due, in large part, to their ceaseless activity in starting hospitals and dispensaries and in breaking down the almost universal suspicion that



Courtesy of Field Museum of Natural History

THE GENIUS OF VACCINATION DRIVING OUT THE DEMON SMALLPOX
 Japanese Colorprint by Shuntei

met them wherever they went. The old Chinese systems of medicine have been so deeply entrenched in the popular confidence, that the countless innovations proposed by the foreigner aroused fear and hostility that cost not a few medical lives. Surgery was undoubtedly the most dramatic aid the Western doctor used in getting established; and even today the average Chinese citizen, intellectual or illiterate, will tell you that he has great admiration for the surgical procedures of the foreign doctor, but that when it comes to internal medicine, he believes the Chinese doctor the better able to understand and treat his malady.

With the opening of the twentieth century, great strides began to be made by modern medicine. For one thing, Japan, which had already made German medicine its state model, began to graduate in its Grade B medical schools, numbers of alert young Chinese. Returning to their own country, this Japan-trained group acquired political influence and exerted it, frequently in opposition to the Western-trained physicians, whether Chinese or Westerners. It will take half a century to reconcile the conflicting interests represented in such a situation, for the early group that received its medical training in Japan, was unprepared in basic science, studied superficially while there, and returned with little or no clinical experience after graduation. Even today there are two national medical associations, one founded by those trained in Japan, and the other by those trained either in Europe and America, or under Western doctors who taught them in China.

Berthold Laufer of Chicago has placed us under a great debt by his studies of Chinese medicine and particularly by his monograph entitled "Sino-Iranica," in which he describes the exchanges between ancient Iran and China, of material products such as silk, bamboo, etc., as well as pharmacopoeial articles. The Emperor Wu (140 to 87 B.C.), for instance, greatly desired to possess the fine thoroughbred horses of Iran and sent General Chang Kien on a memorable expedition to Fergana in 126 B.C. to get them. Returning with the splendid animals, which were believed to have been the offspring of a heavenly breed, General Chang, who was a practical man, concluded "that if these much coveted horses were to continue to thrive on Chinese soil, their staple food, alfalfa, had to go along with them." He therefore took from Iran to China the seeds of alfalfa, planted these on wide tracts of land near the imperial palaces and thus introduced an important botanical specimen into the ancient empire. Al-

falfa proved to be not only food for horses but was used in a number of ways in the Chinese pharmacopoeia. From the capital it spread all over the north of China and in recent years has been carried to Russia. Singularly enough, the Chinese word for alfalfa is *mu-su*, taken directly from the Iranic word, probably *muk-suk*. General Chang also brought the grape to China in 128 B.C.

Through the centuries other exchanges have occurred. We know that the peach and apricot originated in China and were carried thence to the West and South. Camphor and cinnamon, cassia and rhubarb, were drugs highly prized in China and regarded in other countries as of better quality if they came from China. In 1562 Garcia da Orta said that the best rhubarb in Persia came from China.

In the Chinese pharmacopoeia we find many others of our familiar medicaments, such as saltpeter and sarsaparilla, calomel and red oxide of mercury. The latter was sent as a tribute to the imperial house each year from a district in the west of Hunan province, where an abundant supply has always been available.

Other drugs that have been prominent in the Chinese pharmacopoeia are asafoetida, which is used for chorea, for syphilis and as a vermifuge; galls, which are used both in ointment form and internally; mustard; castor oil; balsam; nux vomica and many aromatics.

Tea has had many uses in the pharmacopoeia. The pomegranate is an illustration of the way in which ancient China mixed objective facts and symbolism. It is said to have been brought to China from ancient Iran and found its way into the Chinese pharmacopoeia. More than this, however, because of its exuberant seeds, it is regarded as an emblem alluding to numerous progeny. It has become a symbol opposed to race-suicide. Two pomegranates were presented to King Ngan-teh when he was being married. It was explained that the pomegranate enclosed many seeds and implied the wish for many sons and grandsons. The fruit is still a favorite marriage gift.

MODERN MEDICINE IN CHINA TODAY

The noteworthy facts regarding modern medicine in China today are that medical education is well launched, that there is already at work a goodly number of trained physicians, quite an army of nurses and a few public health workers, already leavening the social order.

Through the past decades, every Western physician who conducted hospital work in China gave informal training to such men

as he could gather about him. It was these medical missionaries who laid the foundation of modern medical education in China. Gradually, formal teaching was introduced.

By 1915 several modern schools were under way. The Chinese group included a National Medical School in Peking, a provincial school in Soochow, one in Hangchow, one in Canton and certain others. The medical missionary schools included the Peking Union College formed by a federation of medical missionary teaching units; the St. Johns Medical School in Shanghai; the Medical School of Shantrng Christian University in Tsinan; the Medical School of Nanking University; and the West China Medical School in Chengtu. Two cooperative schools were also under way, including the Hunan-Yale Medical College in Changsha, and the Kung-Yee Medical School in Canton.

Soon after 1915 the institution in Peking was taken over by the Rockefeller Foundation which built a magnificent medical school and hospital plant in the national capital, preserving the old name of Peking Union Medical College. Formally opened on September 15, 1921, this institution represents the highest ideals of medical education and practice and serves as a center where Chinese students may go to receive the best possible training for the profession and where physicians of any nationality, practicing in China, may go from time to time to renew their strength.

The day of western leadership in medicine in China has well-nigh passed by. Westerners are needed, however, to cooperate with the Chinese in clinical work, in medical teaching, in research, in nursing education and in public-health work. The field of opportunity is boundless. China offers a tremendously attractive opportunity for men and women of science who desire to search, to practice, and to prevent, in the field of medicine.