CHINA'S CONTRIBUTION TO MEDICINE IN THE PAST

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TO the uninformed the term Chinese medicine conveys a dark picture of charms, incantations and magic or of disgusting concoctions, painful manipulations, unsightly plasters and worthless remedies. Indeed, superstition and healing are so closely related that it is sometimes impossible to draw a line between them. But these are not the practice of scientific medicine. There are quacks in China just as in other countries, but the regular practitioner is one who treats diseases according to certain rules and standards and who has a clear conception of his noble calling. From this maze of folly and nonsense there is yet a rational, semi-scientific, and dignified empirical practice which is based upon the accumulated knowledge of forty centuries and which represents the thoughts and experiences of many bright minds. Chinese medicine as it exists at the present time is comparable to the situation of about the sixteenth century in Europe. However, viewed from the historical standpoint it is at least equal to, if not more profound, than that of other countries at the same period. It certainly merits deeper investigation and greater appreciation than it has heretofore received.

Many books and articles have been written on its superstitions but its more scientific aspects have scarcely been touched upon. The present short sketch attempts to deal more particularly with its proper position in history, its value and its defects, and its relation to scientific medicine. In such a brief survey as this it is impossible to give full references for the conclusions arrived at. Only the mere outline of the changes and medical thoughts of the various dynasties are herewith recorded.

Four distinct epochs may be distinguished: The epoch from the dawn of history to the end of the Shang dynasty (B.C. 1154) may be termed the ancient or legendary period. Thereafter the accounts were more authentic and the legendary developed into the historical. The period beginning with the Chow and ending with the Tang dynasty (B.C. 1000 to A.D. 959) may be styled the historical or classical period. Chang Chung-King, the Hippocrates of China, and Hua To, the most celebrated surgeon, lived at this time. From the eleventh to the seventeenth century there was a marked change in Chinese medical thought. Instead of the pedantic worship of the ancients, the publications of this period were mostly controversial in character, attacking old writings as well as current opinion. Four schools were recognized and subsequent writers all revolved around these different schools. This period may be called the medieval or controversial period. With the introduction of Western medicine in A.D. 1805 came the modern or transitional period. The most prominent feature of this period is the struggle for supremacy between the old and the new. The latter, however, is slowly and steadily gaining ground. Though it may take some time, the dawn of another golden era is looming large on the medical horizon of China.

1. The Ancient or Legendary Period

There are many legends concerning the founders of Chinese medicine. The first was Sheng Nung (B.C. 2737), the originator of the "Materia Medica." Like Mithridates, King of Pontus, who achieved a reputation in the art of taking poisons, he is said to have tasted seventy different kinds of poisons every day and established the art of medicine. To him is usually ascribed the writing of the "Pentsao" or "Great Herbal," which is supposed to be the earliest medical work. Sheng Nung is venerated as the Father of Medicine.

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Another noted character in Chinese healing art was Hwang Ti (B.C. 2697). In conjunction with Chi Pok, one of his ministers, he is said to have written the famous "Nei Ching" or "Canon of Medicine." But historical researches proved that this work was not composed by him but was a later production, written probably about B.C. 1000. It is the most important medical classic. What the "Four Books" are to the Confucianists the "Nei Ching" is to the native doctors. Upon it is built most of the medical literature of China and so important is it considered by medical men that even at the present time, three thousand years after it was written, it is still regarded as the greatest authority. This work is the oldest Chinese medical treatise extant. It was translated into French by Dabry.

The third name to be mentioned in this legendary period is I Yin, the able and faithful prime minister of Emperor Tang, founder of the Shang dynasty (B.C. 1783). He is credited with the discovery of making medicinal decoctions.

As with all early civilizations of other countries religion and astrology merged into healing, so in China the medical profession was, from the earliest times, under the sway of priestcraft and sorcery. It was not until the Chow dynasty (B.C. 1140) that the functions of these two professions were separated. An interesting sidelight is found in the formation and development of the ancient character for doctor, I. It is composed of three parts: At the top on the left corner is a quiver, on the right corner a spear. Below is the symbol for sorcerer or priest. Thus the priest employs strong weapons to kill or expel the demons of diseases. Later this last symbol was changed to wine, signifying that the profession was no longer in their hands but taken up by the regular doctors, who administered elixirs or wines to their patients. A study of the archaic writing of Chinese characters may throw much light on the medical conditions of the various periods.

II. THE HISTORICAL OR CLASSICAL PERIOD

Reliable history does not extend further back than the middle of the Chow dynasty (B.C. 722), which is one of the most glorious periods in Chinese history. Literature, art, philosophy, government, religion, and all that is included in the term civilization flourished and reached a high degree of development. This dynasty is rightly called the Age of Philosophy, for Laotzu, Confucius, Mencius and most of the famous philosophers lived during this period. Never, before or since, have so many men of genius appeared in the same narrow limits of time. These men speculated on all kinds of subjects. Their influence was so great that it was felt in every branch of literature. Thus we find medicine no longer an effective, practical, although restricted art, based upon observation and knowledge. We see rather, masquerading under its name, pretentious systems of healing carried to an absurd and extravagant extent, elaborate systems of theoretical knowledge developing in complexity without gaining in meaning, tending to become less and less effective in practice. The study of medicine was dominated by the scholastic subtleties of visionary philosophers and was characterized by reverence for authority, petrified formalism and a pedantic excess of detail. As a result of these varied speculations on the theory and causation of diseases there were evolved two doctrines which formed the basis of the whole of Chinese medicine:

The first is the doctrine of the two principles or primordial essences, called "Yang" and "Yin." Everything under the sun is supposed to originate from them. They are generally represented by a circle named the great absolute or infinite void, which is divided into two pear-shaped bodies by a curved line. Attendant upon these diagrammatic elements are eight symbols, which are made up of a combination of triple lines, whole and broken, arranged in such a manner as not to repeat themselves. This Pah-kwa, or eight trigams, is supposed to date from Fuh Hsi (B.C. 2852),

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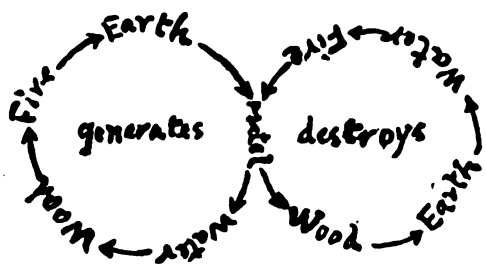
the plan being revealed to him on the back of a supernatural animal called a dragon-horse, that rose from the waters of the Yellow River. Each of the eight trigams has a special name with symbolic and fanciful meaning. But no one has been able to give a definite interpretation to them. Confucius was greatly enamored of these figures and said that if he could devote fifty years to the study of these lines he might attain wisdom. The Yang and Yin principles represent the male and female element. They stand for heaven and earth, the sun and the moon, day and night, heat and cold, life and death, positive and negative, strong and weak, et cetera, corresponding to Ormazd and Ahriman of the Zoroastrians, Osiris and Isis of the Egyptians, the even and the odd of Pythagoras.

The second doctrine is the five elements, which are metal, wood, water, fire and earth. The human frame is supposed to be made up of a harmonious mixture of these primordial substances. So long as the proportions remain proper health exists; but if the balance is disturbed disease follows. The five elements again interact on one another thus:

Metal generates water; destroys wood.
Water generates wood; destroys fire.
Wood generates fire; destroys earth.
Fire generates earth; destroys metal.
Earth generates metal; destroys water.



Corresponding with the five elements are the five organs: spleen, liver, heart, lungs and kidneys, which are further related in a complex system of arrangements to the planets, color, taste, climate, et cetera, according to the following scheme:

	Organ	*Planet*	*Element*	*Color*
1	Heart	Mars	Fire	Red
2	Liver	Jupiter	Wood	Green
3	Spleen	Saturn	Earth	Yellow
4	Lungs	Venus	Metal	White
5	Kidney	Mercury	Water	Black

	Taste	*Climate*	*Direction*
1	Bitter	Hot	South
2	Sour	Windy	East
3	Sweet	Moist	Center
4	Pungent	Dry	West
5	Salt	Cool	North

This reminds us of the humoral pathology of the Greeks, the Chinese system, however, being more complicated and profound. But let us now consider some of its more strictly medical aspects.

The first real doctor who practiced medicine and surgery was Pien Chiao. He lived about B.C. 255. It is said that he could see through the human body, revealing all the diseases of the internal organs. Some are of the opinion that this is an apparent anticipation of the roentgen rays. In the "Lietsz" the following story is related: King Wu of Lu and Tsi Ying of Chao were sick and both asked Pien Chiao to treat them. Pien Chiao gave them a narcotic wine to drink which made them unconscious for three days. He opened their chests, removed their hearts, exchanged them, and put them in again under the administration of some effective drugs. When they awoke, they felt as before, took leave and returned home. This is the earliest record of the use of anesthetics in China. Pien Chiao is also regarded as the first exponent of taking the pulse, which is considered indispensable by native doctors in diagnosis.

Massage has been practiced in China from time immemorial. Its value is fully recognized and in the Tang dynasty it was elevated to a science, forming one of the seven departments of medicine. A special chair was established with a professor in charge of it. After the Sung dynasty it degenerated till at the present day it is mostly in the hands of the barbers and the

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blind. Massage was first brought to European notice in the last century through the publications of the Jesuit Fathers. It is now widely practiced in various new phases, as by electromassage rubbers, steam manipulators, and so forth.

Acupuncture is also a very old Chinese method. It consists of puncturing certain points on the surface of the body. Three-hundred and sixty-seven such points are described. Perhaps more harm than good is done by its practice, as asepsis is unknown to native doctors. Acupuncture spread early to Japan and according to Remusat it was introduced into Europe by Ten-Rhyne, a Dutch surgeon, at the end of the seventeenth century, and was much extolled in France early in the nineteenth century. Recently Sir James Cantlie and others tried it for sprains and chronic rheumatism and reported very favorably on it. With further investigation it might, no doubt, prove a valuable addition to our armamentarium. In the Imperial Academy of Medicine at Peking there is still to be found a copper model pierced with holes at the proper places for puncturing. The figure is covered with paper, pasted on, and the student is required to practice needling the spot where the hole is made.

Because of the great reverence for the dead, human dissection is seldom attempted; hence gross mistakes are found in their conceptions of anatomy and physiology. The following two facts, however, are very little known and deserve mention: Dissection was described in B.C. 2697. In the Lin Shu it is stated that after death the body may be dissected and observations made as to the size of the organs, the capacity of the intestines, the length of the blood vessels, and so forth. In the Han dynasty emperor Wang Mang captured a revolutionary and ordered his physician to dissect his body. Measurements were made of the internal organs and bamboo rods were inserted into the blood vessels to see where they began and where they ended, for the alleged purpose of curing disease. Many records of this nature are described in ancient literature. The circulation of blood was known to the Chinese about two thousand years before Harvey made his discovery. At least they have a very near guess at it, for we find the following very significant passages in the "Canon of Medicine" already referred to:

> 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 "loh" vessels [veins]. . . . The harmful effects of wind and rain enter the system first through the skin. It is then conveyed to the "sun" vessels [capillaries]. When these are full it goes to the "loh" vessels and these in turn empty into the big "chin" vessels [arteries]. . . . The blood current flows continuously in a circle and never stops.

The last sentence is especially significant.

State medical examinations were held in China as early as the tenth century B.C. In the Chow Rituals it is stated that at the end of each year the work of the doctors was examined and the salary of each fixed according to the results shown.

Hygiene and sanitation were also in an advanced state at this time. Wine drinking was prohibited. The law against it was as stringent as the present prohibition laws in the United States. There were special doctors to look after food and drink; dietitians, physicians, surgeons, and veterinary surgeons being the four classes of doctors. Temperance in the broad sense of the word was strongly advocated. The value of exercise was recognized. From experience they learned the law of eugenics, though its real meaning was imperfectly understood. Many very sensible rules were laid down for prenatal care. Hospitals were also established more than six hundred years before the celebrated Basilias at Caesarea in Cappadocia was founded by St. Basil. Yet in spite of such a good start the Chinese never seem to have pushed their investiga-

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tions further but on the contrary have lost many of the valuable discoveries left them by the ancients.

Chinese medicine begins properly in the Han dynasty and its scientific advancement centers in the figure of Tsang Kung, Chang Chung-King and Hua To, three of the greatest doctors of China. Tsang Kung, who lived about B.C. 170, was the first to record personal observations of clinical cases. In the biographical section of the "Ancient History" we find a detailed list of his case histories from which we may have a peep into the medical thoughts of that time. Of the twenty-five cases he has left us (almost the only record of its kind for the next 1500 years) ten are reported as fatal. Unlike Galen and most medical writers, Tsang Kung was more modest, for he admitted that his prognosis was not always accurate and that he could not cure any disease unless the pulse indications were favorable. He kept these records for a double purpose: to estimate the percentage of failures and successes and also to guide in future predictions. These case histories are not to be compared with those of Hippocrates, for they are not of much scientific value. After Tsang Kung this practice of taking clinical case histories died out until the Sung dynasty, when it was again taken up with a fervor which has continued unabated to the present time.

Chang Chung-King, the greatest of the trio, was a doctor of literature in addition to his medical accomplishments. Very little is known of his life except that about A.D. 195 he was mayor of Chang-sha for some time. He is often spoken of as the Chinese Hippocrates and is venerated as the sage of medicine. His fame rests chiefly on his "Typhoid Fever," which is one of the medical classics, ranking with Huang Ti's "Canon of Medicine" in importance, and was the first book of the kind in Chinese. This work does not, as the name implies, deal with typhoid only, but with other fevers as well. In it are found 113 prescriptions. These were scientifically written, containing only a few potent drugs instead of the later "shot-gun" practice of one or two dozen inert ingredients. The antipyretic treatment of fever by cold baths was described. This antedates James Currie's method by 1700 years. Chang Chung-King was perhaps the first to employ enemas to evacuate the bowels.

Before the Han dynasty treatment was chiefly confined to acupuncture, moxa, massage and draughts. The medical writings were entirely philosophical. With the advent of Chang Chung-King, however, a new era was inaugurated. Diseases were studied more from a clinical standpoint, emphasis being laid on the physical signs, symptoms and course of an illness, the methods of treatment and the action of drugs, rather than on the theories of disease as in former times. Chang Chung-King stands above the crowd not only on account of his keen power of observation but also because of his lofty ideals. He gives to the profession a high conception of its dignity and noble mission in life. After his death scientific medicine may be said to have degenerated into dogmatic formalism. No writings of any value or originality appeared until the Sung dynasty, a gap of nearly one thousand years.

The last of the trio and a contemporary of Chang Chung-King was Hua Tu, the most famous surgeon of China. To him is usually attributed the discovery of anesthetics, though Pien Chiao employed them about four hundred years before him. It is said that he administered to his patients an effervescing powder in wine, which produced complete unconsciousness, and that he performed all sorts of operations ranging from venesection and acupuncture to laparotomy, excision of spleen, intestines and liver. A pioneer of hydrotherapy, he was also an exponent of systematic exercise and invented a system called the "frolics of the five animals." Most of the notables of that period were his patients. Among them was Kwan Kung, a famous general now deified as the god of war, on

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whom he operated, without an anesthetic, for a poisoned arrow-wound of the arm. King Tso Tso was another of his patrons. Hua Tu offered to cure the king's headaches by opening the skull under hashish. He was arrested, thrown into prison and later caused to be killed. Just before his death he gave all his manuscripts to the warder, who, however, dared not take them. Hua Tu then burnt his papers. Legend has it that a few leaves of his work were recovered from the ashes. These described the method of castration which is the only operation still known to the Chinese. The books bearing his name are two: "Inner Reflection Diagrams" and "The Internal Organs." In the last named is a prescription which gives the earliest account of the internal use of mercury in therapeutics.

A prominent feature in this age of science was the introduction of the four methods of diagnosis, namely, observation, auscultation, interrogation and palpation. In course of time the first three methods were not much employed, entire reliance being placed on palpation. The greatest importance was attached to this procedure and it is universally believed that any internal diseases can be revealed by feeling the pulse alone. The supposed sympathy that exists between the different points of the pulse and the internal organs are set down in the following table:

LEFT WRIST

Inch when lightly pressed indicates the state of the small intestines;
Inch when heavily pressed indicates the state of the heart;
Bar when lightly pressed indicates the state of the gall-bladder;
Bar when heavily pressed indicates the state of the liver;
Cubit when lightly pressed indicates the state of the urinary bladder;
Cubit when heavily pressed indicates the state of the kidneys.

RIGHT WRIST

Inch when lightly pressed indicates the state of the large intestines;
Inch when heavily pressed indicates the state of the lungs;
Bar when lightly pressed indicates the state of the stomach;
Bar when heavily pressed indicates the state of the spleen;
Cubit when lightly pressed indicates the state of the three passages;
Cubit when heavily pressed indicates the state of the gate of life.

The last two are imaginary organs.

Buddhism was introduced into China by Ming Ti in A.D. 68. At first, however, it made but little progress, but gradually it gained a firm foothold. The Taoists, realizing their declining influence and wishing to stem the tide of opposition, also became active. Chang Tao-ling, popularly known to foreigners as the Taoist Pope, invented charms, and incantations for the curing of diseases. Seeing the lucrative income brought in by these devices, Buddhist monks soon invented their own system of charms with the result that the people were steeped in superstition.

Similar to the conditions that existed in Europe in the fifteenth and sixteenth centuries the search for the philosopher's stone and the elixir of life reached their height during the Tang dynasty, which is often spoken of as the age of superstition. Magicians, doctors and alchemists were found everywhere experimenting with herbs and minerals in an attempt to discover a substance which could confer on the person drinking it everlasting life and beauty. Of twenty-two rulers of this period seven experimented with these elixirs and died from the effects. In this vain pursuit the time, the health and the fortunes of thousands were wasted. To these superstitious experiments, however, we owe a great deal of our knowledge of the actions and uses of many plants, especially of mineral drugs, about which the Chinese knew so little.

Chief among the alchemists was Keh Hung (A.D. 281–360) who wrote the famous "Handbook of Emergencies." This book contains an authentic description of smallpox, the first in the world, Rhazes' account,

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which is regarded as the earliest record, being between A.D. 860 and 932. Another famous doctor was Tao Hung-ching, the author of "Formulas of Famous Physicians," which is a work on medicinal plants. The ancient materia medica contains only 365 kinds of herbs. Tao included in this treatise 365 additional drugs, doubling the original number.

The most important works on medicine in the Tang dynasty were the "Thousand Gold Remedies" (A.D. 652) and the "Medical Secrets of an Official." The former is a book of sixty volumes by Sun Su-moh, a doctor of literature, who is immortalized as one of the genii. There is a supplement of thirty volumes which contains a full collection of incantations. The latter was compiled by Wang Chu, who was not a doctor by profession. Many formulas for demoniacal possessions and other peculiar diseases are found scattered among its pages. It consists of forty volumes. These two works sum up the teachings and discoveries up to that time. Treatment forms the chief feature of these books; in fact, they are collections of prescriptions and remedies corresponding to the modern system of treatment.

Some of the leading features of this period are given below:

Nélaton of Paris invented the catheter in 1860 but in China this was mentioned in the seventh century A.D. The "Thousand Gold Remedies" recommend a catheter of the hollow leaves of Allium Fistulosum, which is inserted into the urethra to a depth of three inches. Air is then blown into it. One doctor, mentioned in the "Precious Mirror of Hygiene," used an empty pig's bladder with a quill tied to it. For obvious reasons such a crude instrument was attended with risks and it is no wonder that it soon fell into disuse, until at the present time native doctors scarcely know its name.

The idea of vaccine therapy seems to have been discovered. One such instance is recorded in which the patient's own pus was taken and injected under the skin around the original sore.

Organotherapy, formerly much ridiculed by foreigners and now hailed as a valuable modern discovery, is known to every Chinese housewife. The use of sheep thyroid for cretinism, goiter, and so forth, is mentioned in the sixth century. Even psychotherapeutics, so much in vogue nowadays, was practiced as early as the second century B.C. in the form of charms and incantations.

The fame of Chinese medicine during the Han and Tang dynasties spread far and wide. It is recorded that in A.D. 609 Japan sent Dr. Fuyiwaiyi (?) and others to study medicine in China, where they stayed for fifteen years.

III. The Medieval or Controversial Period

As has been pointed out, the Chinese have a great reverence for authority. What the ancients say is regarded as always right. None dares to question the accuracy of their statements. This veneration of the ancients amounts almost to a worship and is the chief cause of the scarcity of original writings and the petrified fixedness of Chinese Medicine. In the beginning of the Sung dynasty a marked change is noticed. The practice of medicine became more intensive and specialized. Monographs on particular diseases began to appear. The number and variety of publications in this dynasty exceed that of all the previous dynasties put together; many of them are quite original. A selected list of the more important works is given below:

1. Tung Keh. Treatment of Beri-beri. 2 vols. The first and only monograph on this subject.
2. Chen Chih. Care of the Aged. The earliest treatise on hygiene with special reference to the care and feeding of old people.
3. Chen Chi-Ming. Textbook of Women's Diseases. 24 vols. A special work on diseases peculiar to women. The first of its kind in this branch of medicine.
4. Obstetrics. 2 vols. Author unknown. This is the earliest monograph on this important subject.

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5. Chen Yin. Three Causes of Diseases. 18 vols. A standard work on pathology.

6. The Fontenel. 2 vols. Anonymous. It is said that the success of Chien Yueh, the greatest doctor on children's diseases, was due to a thorough knowledge of this book, which is the earliest special treatise on diseases of infants.

7. The Copper Model. 7 vols. Also anonymous. The first practical handbook on acupuncture.

8. Li Shun. On Carbuncle. 1 vol. An interesting monograph.

9. Royal Infirmary Model Essays. 9 vols. Author unknown. It is a collection of examination papers.

10. Chang Kuo. Medical Miscellany. 10 vols. Contains much that is of interest. Useful for reference.

11. Imperial Cyclopedia of Medicine. 200 vols. Compiled under imperial orders by a staff of medical men. A remarkable work but unfortunately most of the volumes have been lost.

The distinct features in this dynasty are the inoculation against smallpox, which was discovered in 1022, the establishment of medical schools and the holding of state medical examinations in 1068. Gradually the schools declined and then ceased to exist until 1280, when they were revived by Imperial decrees. State examinations were also discontinued for some time but reintroduced in 1317.

After the Sung dynasty another change is noticed. The publications became controversial, attacking old writings as well as contemporary literature. Four distinct schools may be recognized: Liu Shou-Cheng propounded the theory that diseases were caused by excessive heat in the body and advocated the use of cooling medicines. Chang Tzu-Ho was famous for his "attacking" policy. He compared diseases to a foreign substance in the system which should be attacked and driven out by drastic drugs such as purgatives, emetics and diaphoretics. Li Tung-yuan emphasized the importance of the spleen and stomach and put down the causes of all disease as due to derangements of the digestive tract. Chu Tan-chi thought that malnutrition was the root of all troubles; hence he extolled the value of tonics. These famous men are called the "Four Great Doctors of the Kin Yuan Period." Later writers like Sih Lih-cha, Chen Hsiu-yuan, Chang Ching-yoh and others only revolved around the different schools.

An important contribution to medical science in the Ming dynasty was the publication of the "Pen Tsao Kang Muh" or "Synopsis of Ancient Herbals." This standard work, compiled by Li Shi-chen, a district magistrate, born at Ki-chan, a town in the east of the province of Hupeh, consists of fifty-two books and took the author thirty years to complete. All known works on materia medica, to the number of forty-one, were consulted, while references to 360 medical treatises and 591 other scientific and historical works were freely made. There are 71,096 formulas 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. The "Synopsis of Ancient Herbals" was published in 1590. Another valuable book is Wu Yiu-Ko's "On Plague," which is a special treatise on fevers and epidemic diseases. It contains many original observations and suggestions.

In some quarters it is declared that syphilis originated from China, but this is not supported by fact. Most Chinese writers of this period maintained that it was unheard of in China till the middle of the sixteenth century and that it was introduced into Canton by Portuguese from India. These statements, though not strictly true, as there are other references recording its presence earlier than this date, show that syphilis was most prevalent in the Ming dynasty. Indeed, the descriptions of this disease were very accurate and illuminating and in one interesting monograph written in 1631 the various manifestations

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and the hereditary transmission of syphilis are mentioned in full detail.

IV. The Modern or Transitional Period

Transitional is a fitting term for the Tsing dynasty, for during this period Chinese medicine showed a gradual and perceptible decline until 1805, when it received a fresh shock by the introduction of Western medicine. Struggling under the yoke of an alien race, naturally the scientific advancements made could not be compared with other dynasties. Emperor Kien Lung, however, was a great patron of literature and as a result of his encouragement the "Golden Mirror of Medicine" was produced. This is a sort of encyclopedia of medicine and surgery, compiled by a committee of doctors at the order of the emperor. It summarizes the corrections and revisions of many ancient works and epitomizes all the recent methods and discoveries. The "Golden Mirror" is regarded as a standard work.

An interesting figure of this time was Wang Hsun-shan, who is sometimes styled the reformer of Chinese medicine. He was the author of "Corrector of Medical Errors," a remarkable little work which contains many ingenious opinions concerning anatomy and pathology, based on forty-two years' medical experience and the observations of thirty decapitated human bodies. Unfortunately, the corrections are more erroneous than the original. The book, though of not much scientific value, is full of original ideas, his opinions on the causation of hemiplegia, and on the brain as the organ of thought, being especially interesting.

The Western method of vaccination was introduced into China in May, 1806. It was brought over from the Philippines to Macao, whence it spread to Canton and other places. It is remarkable 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 for the prevention of smallpox is mentioned. It is not at all impossible that the fleas of a cow affected with variola, when taken by the mouth, might have the same effect as vaccination. That this treatment was once popular proves that there must be some efficacy in it. Had there been a Chinese Jenner to follow up this valuable clue the discovery of vaccination might have been made earlier and millions of lives saved.

In 1805 Dr. Hobson, an Englishman, came to Canton to be followed later by Drs. Parker, Kerr and others. Silently and steadily these pioneers of Western medicine worked their way and in spite of the proverbial conservatism of the people it has now gained a firm foothold. It would be impossible for a short article such as this to do justice to the eventful period under review. Here only a few historical landmarks will be given.

The first Chinese who studied foreign medicine abroad was Wong Cheuk Hing. A native of Canton, he was born in 1832 and obtained his English education in Macao and Hongkong. In 1840 he followed a Mr. Brown to America for further studies, where he stayed for four years. After his graduation in literature he went over to Edinburgh to study medicine, receiving his degree in 1855. Two years later he returned to China and worked in the various hospitals in Hongkong and Canton until his death in 1878.

With the return of a number of graduates from Japan in 1899 a new situation was created. Hitherto all medical work was entirely in the hands of European and American doctors. Through the writings and influence of this new body of men, Japanese medicine and especially Japanese medical terms became popular. They founded schools and hospitals and gradually developed into a new force in Chinese medical matters. Many of them are now holding important Government positions.

The new era in modern preventive medicine may be said to have dated from 1911. The great pneumonic plague in Manchuria

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demonstrated to the people the great superiority of Western science as compared with the old native methods for the suppression of plague. Since that time many laws governing the notification of infectious diseases, the standardization of medical education, the dissection of dead bodies, the registration of medical practitioners, the sale of narcotic drugs, and so forth, have been passed. In 1914 the National Medical Association of China, which has for its members the most prominent graduates from European, American, Japanese and Chinese colleges, was founded. Prior to this teachers and authors had great difficulty in their work because of the lack of uniform scientific terms. In 1915 a Terminology Committee was appointed consisting of representatives of the Ministry of Education, National Medical Association, Medical and Pharmaceutical Society, Medical Missionary Association, and Kiangsu Educational Association, to determine the terms to be used throughout China. In order to promote public health and sanitation among the masses a Joint Council of Public Health Education was formed in 1916, consisting of representatives from the National Medical Association, Medical Missionary Association, Y.M.C.A., Y.W.C.A., and China Christian Educational Association. All these organizations are doing splendid work toward the medical progress of China.

The formal opening of the Union Medical College and Hospital at Peking on September 15, 1921, adds another chapter to the annals of medicine in this country. The whole plant covers an area of about ten English acres and cost approximately five million dollars gold. It is the finest medical school in the Orient, not only in the magnificence of its architecture but also in the completeness of its outfit. Great things are expected of this institution.

In conclusion the highest tribute must be paid to the missionary doctors, who were the earliest to found hospitals, organize schools, promote public health and hygiene, and so forth. They have brought a new light and a new hope to the teeming millions of suffering humanity. Though handicapped by insufficient funds, lack of proper equipment and other adverse conditions, these men labored with incessant zeal, gradually gaining ground until Western medicine attained its present position. The institutions they founded are scattered throughout the country. They are not only centers of healing but are also factories of learning, whence, every year, a small army of trained men are sent out to join those in the field to fight the demons of ignorance and disease. Inspired by the noble efforts of these pioneers, the Government and other public bodies have started to establish hospitals and schools of their own. Some of these are well organized and fully equipped. In the years to come the work of the missionary doctors may be eclipsed and eliminated. But their great contribution to medical advancement and to human progress in China will forever remain.

Such is a brief epitome of medicine as it has existed and been practiced in China. While the Chinese anticipated many discoveries, collected a great variety of facts, invented some valuable methods, and brought a few to a high degree of excellence, they have never pursued a single subject in a way calculated to lead them to final success. The circulation of blood, anesthetics, roentgen rays, vaccine therapy, massage, catheters, hypnotism, hydrotherapy, hygiene, organotherapy, and so forth, had all been hinted at but remained barren of results until centuries later Western science stepped in and secured the prize. The field of Chinese medicine is still a veritable virgin soil. There are golden opportunities for research workers to break open its hidden wealth of treasures. The day will come when Chinese medicine will pass through this stage of transition to emerge once more, purified and strengthened, and lead again the medical thought of the world.

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