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**INAUGURAL ADDRESS**

**Delivered at the opening**

OF THE

**INTERNATIONAL PLAGUE CONFERENCE**

**Mukden, April 4th, 1911**

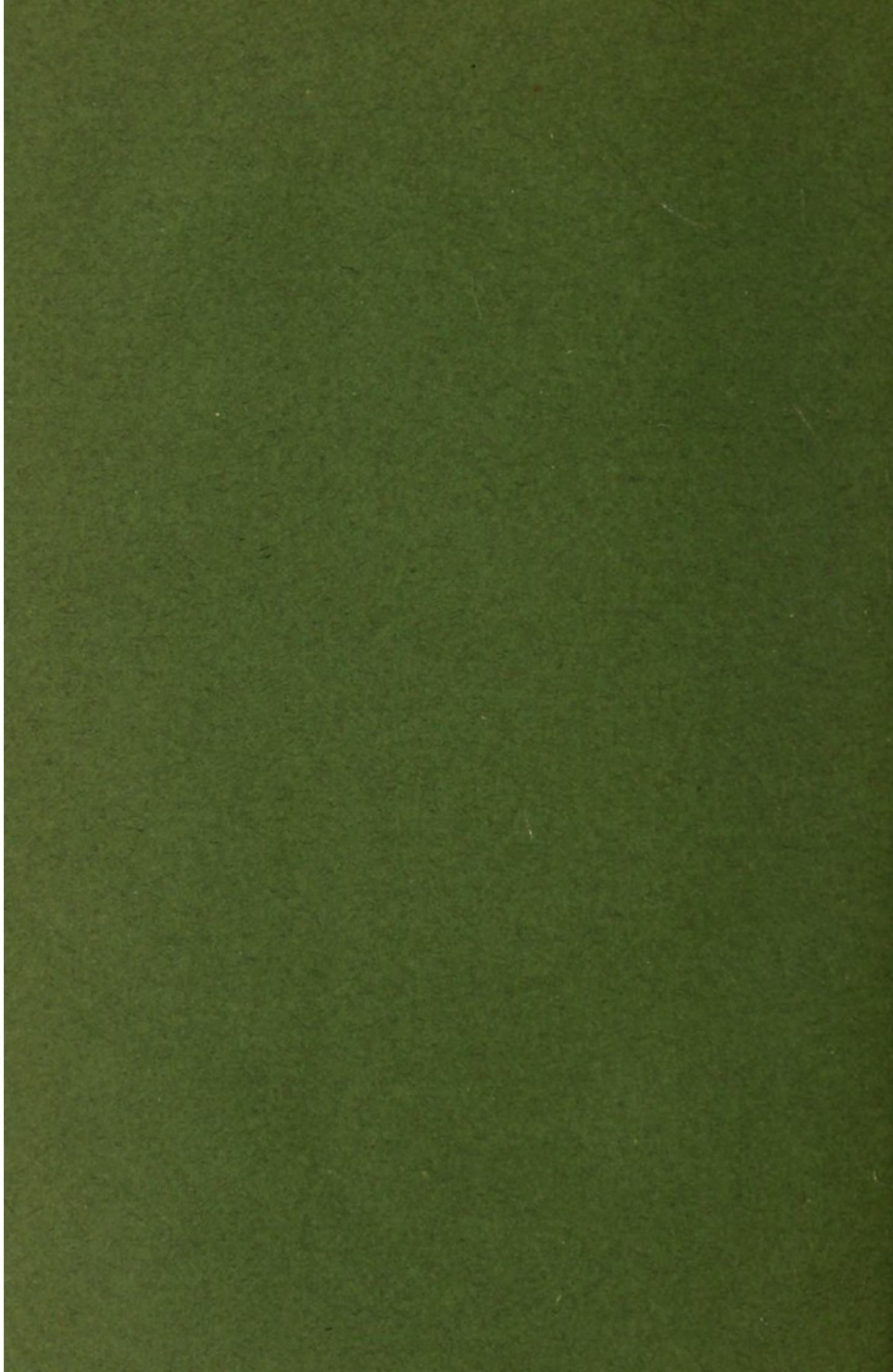
BY

**WU LIEN TEH, B.C., M.A., M.D., (Cantab)**

**(President of the Conference)**



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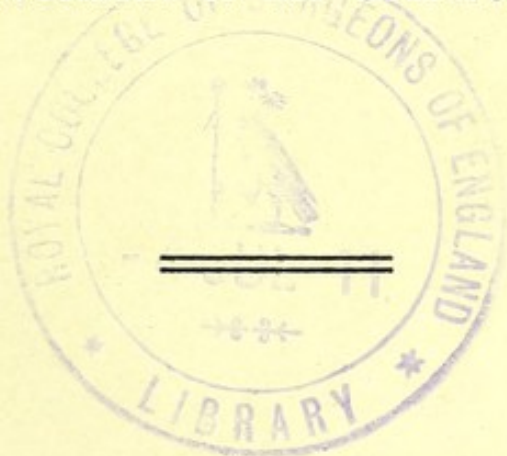
# INTERNATIONAL PLAGUE CONFERENCE

Mukden, April 4th, 1911

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WU LIEN TEH, B.C., M.A., M.D., (Cantab)

(Président of the Conference)



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# Chairman's Address.

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YOUR EXCELLENCY, DELEGATES AND GENTLEMEN,

Permit me to express the great pleasure it gives me in accepting the appointment as chairman of this International Plague Conference, consisting as it does, of so many well-known names in the Medical and Scientific world. I feel very diffident in having to address such an august body, well-knowing my poor qualifications, and the only reason I can think of for having this honour thrust upon me, is the success of the plague prevention work in Harbin, in which, however, I seem to have had but a small share, compared with the arduous tasks which fell to my staff of able and willing assistants.

As His Excellency, the Imperial Commissioner, has remarked, this pneumonic plague sprang upon us suddenly, and despite all our efforts has claimed, up to this date, more than forty six thousand victims. It seems that this form of Plague is not actually new to Manchuria, as, for many years, certainly within the last decade, there have been sporadic outbreaks, both amongst Russians and Chinese, in Siberia, Mongolia and Manchuria. There are statements that it raged during the seventeenth century, but so far as can be gathered from really authentic records this is the first extensive outbreak of the exclusively pneumonic variety that has occurred for ages. You may be aware that the epidemic, which swept over Newchwang, in 1899,

was mainly bubonic in character, as also was that which carried off over eight hundred people in Tang Shan in 1908. We are indebted to the Russian doctors for the first accurate information regarding epidemics of pneumonic plague, and as full papers will be read before this Conference by our learned Russian Colleagues, I will pass over that part of the subject and confine myself, rather, to what little we have been able to discover regarding the present outbreak. That a certain rodent, the arctomys Bobac, known in English as the Marmot, in Russian as the Tarabagan and in Chinese as the Han T'a is chiefly associated with this form of plague, has, for some time, been fully believed by the inhabitants of Mongolia and north-western Manchuria. According to some valuable information gathered by Dr. Chüan, of the Chinese Medical Staff, who was sent up to the station of Manchourie to report on the subject, it appears that the local people have long been familiar with this disease, both in men and animals. From the actual Marmot hunters themselves, he found out some items, which, I venture to believe, will exercise an important bearing on our knowledge of the plague.

Nature is very rich in coincidences, and perhaps as Scientists, more than any other class of men, you are prepared for such, but who could have dreamed that the healthy marmot basking, as it loves to do, in the warm sunshine, utters a cry resembling the sound "Pu p'a, pu p'a," which in the Chinese language, at any rate, means, "don't be afraid," or "no harm"? Sickness renders it mute, so that in the light of present knowledge it would seem, that when the marmot is not crying "no harm, no harm," there is a very real harm indeed! The sickness in the tarabagan, which we presume is the forerunner of the plague in this case,

is characterised by an unsteady gait, inability to run, or to cry when chased, and, when caught, the physical signs are seen to consist principally of enlargement of the glands. When he notices the above signs the experienced hunter leaves his quarry severely alone and betakes himself to more distant spheres. During the past few years, however, there has been an exceptional demand for the marmot skins in the European and American markets, and numbers of wandering Shantung coolies have, in consequence, found their way to the marmot resorts, hunting it indiscriminately, and, food being scarce, they have often cooked and eaten the flesh of the animal. A number of these Shantung men have died in previous years, but not in sufficient numbers to attract attention. The season for killing marmots is from August to the middle of October. About the third week in October of last year there were said to be fully ten thousand of these hunters gathered in Manchourie and Khailar with their skins, waiting to sell them and then return south for the winter. Dr. Chüan found out that the symptoms of sickness suffered by these hunters, were headaches, fever and spitting of blood-coloured sputum, followed by rapid death.

The tarabagan, or marmot, has a wide range over the plains and sandy wastes of Mongolia and Central Asia, and now that such attention has been called to its power of infecting human beings with plague, we shall learn more about its habits. We know that it hibernates through the winter and awakes fat and strong in the Spring, when the younger ones seek new homes in which to breed. The new burrows often run into old "earths," in which it may happen that there may be dead left from a previous season, which may infect the new arrivals. The animals that die in the open



are probably all devoured by birds etc., but it seems that the marmot creeps into its home, as a rule, to die. The inexperienced hunters nearly always dig out the marmots from their holes and thus run more risks than the ordinary Mongol, who generally hunts the marmot in the open or traps it near its abode, thus coming into contact with and catching only healthy animals. Despite the apparent risk however, there are no statistics which show that many hunters die on the plains, but when they are gathered together in the late Autumn at the market places, they crowd into very poor hovels or inns, where, with piles of raw pelts, they may often be found living, sleeping and eating, from twenty to forty in the smallest of most badly ventilated rooms, the conditions being thus ideal for the encouragement of any epidemic disease.

From Chinese sources we learn that the first case of pneumonic plague reported in Manchuria, occurred in the small town of Manchourie on October 8th, 1910, (6th of 9th moon), but owing to the energetic action of the Russian authorities only about 400 died; the last case reported was on December 25th, i.e. two and half months after the outbreak. The first cases reported in Harbin were on November 7th (6th of 10th moon), when two tarabagan hunters, who had arrived from Manchourie, were lodged in the shop of an artesian well mechanic. These two men died of plague and infected four others, with whom they had lived. From this time forth the epidemic began to spread rapidly, and Harbin soon earned an unenviable reputation as a plague-distributing centre, from whence it spread into central and southern Manchuria and far into the northern provinces of Chihli and Shantung. The following dates are of interest as showing the rate at which certain centres became infected:—

Manchourie .....	October 8th, 1910.
Tsitsihar .....	December 4th, 1910.
Harbin .....	November 7th, 1910.
Hulanho.....	December 13th, 1910. 15 miles from railway.
Shuangcheng Fu ....	January 5th, 1911.
K'uanchengtze .....	December 14th, 1910.
Kirin city.....	January 16th, 1911. Eighty miles from a railway.
Mukden .....	January 2nd, 1911.
Hsinmin Fu.....	January 14th, 1911.
Chinchou Fu... ..	January 14th, 1911.
Yungping Fu .....	January 15th, 1911. Twelve miles from railway.
Tientsin .....	January 15th, 1911.
Peking.....	January 12th, 1911.
Chefoo .....	January 21st, 1911. By sea from Dalny.
Tsinan Fu .....	February 1st--7th, 1911.

For the accuracy of the dates I cannot vouch, but they are within a day or two. It is instructive to note that:—

1. The plague tended to follow the quickest line of travel:
2. The lines of infection corresponded exactly with the route taken by the coolies on their return home, for the Chinese New Year.
3. Although Shuangcheng Fu is only about thirty miles south of Harbin, on the Russian Railway, the first case reported there was nearly two months after the outbreak in Harbin. When it did appear it was extraordinarily virulent, killing over 4,000 people in the whole district, in the course of two months:

4. It spared certain towns, e.g. Newchwang, also Chin-wang-tao, the principal winter port of North China. The reason in the former case appeared to be due to the fact that it is frozen in winter; in the latter case the cause might be traced to the coolies not using it on their southward march by foot. That Tangshan actually and Peking and Tientsin practically escaped might be due to their employing only local coolies in winter, and therefore those homeward bound from Manchuria, would not remain in these cities.

As the main object of this conference, is set forth in the words of His Excellency the Commissioner,—“ We are determined henceforth to meet this enemy, the plague, armed with the best knowledge we can obtain,” I will therefore venture to lay before you, the following topics for your consideration.

I would request you to confine your attention, as far as possible, to the present epidemic, in its pneumonic, septicaemic, and other forms (if such be existent), and only deal with the bubonic form, in no far as it throws light upon the present outbreak, and I trust that the elucidation of the many plague problems at this Conference, will enable us more effectually to deal with it in the future.

It would be idle, on my part, at this stage, to attempt in any way to deal, *ad seriatim*, with the many interesting problems,—some of them exceedingly obscure—which have arisen out of this epidemic, but a few observations made, whilst I was in Harbin, may perhaps be of interest to you. When I first went there many of the inhabitants with whom I conversed, informed me that this epidemic was quite an ordinary visitation, to which they had been accustomed. It

never killed many, and would stop of itself, if no attention was paid to it. From both Russian and Chinese records, there is no doubt that the pneumonic form of plague had occurred there before, but why on this particular occasion it should have assumed such a virulent form, killing, within the space of three months, over five thousand persons, in a population of thirty thousand, I hope you will be able to explain.

Two factors seem to have contributed largely to the virulence of the epidemic in the Chinese city. These were, firstly, the severe climatic conditions, the thermometer registering, at times,—30°C., which extreme cold prevented the people going out-doors; and, secondly, the low, dark, dirty and over-crowded houses, which formed the majority of the dwellings. At the same time it is worthy of note, that some of the double-storied houses, with plenty of air space, and not over-crowded, were badly infected. In one house particularly,—a China-ware shop—situated in the largest street, containing eight inmates, including the proprietor, not of the coolie class, one after the other had the plague until in the end not a soul was left to claim the property.

Whilst on this topic I should like to say a few words on the character of the epidemic at Shuangcheng Fu, a city situated 30 miles south, on the railway line from Harbin. As cities are known in China, there could be no greater contrast than between Shuangcheng Fu and Fuchia-tien (the Chinese town of Harbin). The latter is closely packed and built on a low-lying, swampy plain, with narrow streets, inhabited principally by coolies, whilst the former (Shuangcheng Fu) is a finely planned city, with wide streets at right angles to one another, some of which are as much

as from eighty to a hundred feet broad. This town is famed for its spacious compounds and large well-constructed houses. There is much open space used by the numerous large inns, bean mills, distilleries, pawn shops etc., and at least half the population is well to do, there being but little poverty, and a generally settled people living in families, thus making a very marked contrast to the transitory hand-to-mouth multitude, that forms so large a section of Fuchiatien. About half of the families of Shuangcheng Fu are Manchus, many of them are wealthy landowners, who with the leading Chinese merchants, are very clean in their habits and homes. Yet there were fifteen hundred deaths in this city of about six thousand, within the space of seven weeks. I cite this to show that there may be other reasons besides dirt and poverty, to account for the fierce mortality.

Turning to the subject of statistical data, full tables will in time be handed to you for your consideration. It is interesting to note, that where records have been kept, the age of greatest susceptibility is from twenty to forty years. In Fuchiatien less than one hundred women died, out of a total of over five thousand deaths, whilst in Shuangcheng Fu nearly five hundred out of fifteen hundred lost their lives. This is explained by the fact that in Fuchiatien there are almost no females, whilst in Shuangcheng Fu a large part of the population is made up of females.

This epidemic found us at the beginning relying on many of the data of bubonic plague, relating to prevention and treatment, but the results of our experience at Fuchiatien have tended to modify our early expectations as to the efficacy of the vaccines and serums procured by us. Another fact, perhaps worthy of notice, is that in Mukden alone thirteen thousand rats have been examined, besides large numbers in other

centres, under the Chinese Administration, without showing any signs of plague. It might be suggested, therefore, that few, if any, have been infected; yet in Harbin the unusually large number of deaths amongst domestic animals, as also the deaths of about four hundred horses, and three hundred pigs, might suggest the possibility of a similar epidemic infection.

I regret deeply, that the enormous amount of work in hand at the time, when the epidemic was raging, and our limited number of assistants, made it impossible for us to collect positive scientific facts upon this interesting subject.

The question of natural immunity forced itself upon our consideration. Several instances of plague hospital assistants and attendants in hospitals, where scores were dying daily under our notice, worked right through the epidemic, even though the precautions taken by them were of the lightest character, and for long periods, non-existent.

Two items of interest which proved their utility during the Harbin outbreak, in such a manner as to have an important bearing upon any future epidemic, may be alluded to. First, the use of railway wagons for quarantine work, and second, the disposal of the dead bodies by burning.

The ease with which a railway wagon, holding, at the most, not more than twenty persons, enables a segregation camp to be divided into small units, completely isolated from each other; also the simplicity of disinfection, the early detection of suspects, the satisfactory ventilation by small windows and sliding doors, and the heating by a central stove, suggest at once a most efficient form of quarantine which can be quickly established at any place in proximity to a railway.

The second, viz., the burning of the dead, which, though not unheard-of in Chinese Annals, still conjures up, in the native mind, all that is repulsive and contrary to natural feelings, yet, once decided upon by the Government, was accepted by the people without complaint or hindrance.

At a time when severe frost made burial almost impossible, burning, by its ease and simplicity, commended itself to all of us. A pit, twenty feet square and ten feet deep, which had been blasted by dynamite, was capable of holding five hundred bodies at a time. When bodies were in coffins, the wood of the coffins was sufficient for complete burning, but bodies without coffins required at the rate of four pieces of wood, two feet long by about four inches in diameter, for each body, and upon the whole mass, in the pit, kerosine oil was pumped from a fire engine, at the rate of ten gallons to every hundred bodies. This, when lighted, burned so rapidly and fiercely that little or nothing remained but ashes. The example of Fuchiatien, in this respect, was afterwards followed by neighbouring towns, and the process has proved to be a satisfactory means for the disposal of dead bodies in all large epidemics.

Such an action on the part of the Chinese Government in dealing with the great problems of the plague, and their permission to conduct post-mortem examinations on unclaimed bodies for the first time in the history of China, must prove to you that the Government is moved by the highest motives of humanity, and is ready to lay aside age-long prejudices, to spend money unsparingly, and to possess itself of all that science can impart, for the saving of life and elimination of national perils.

In closing may I remind you, that this is the first International Medical Conference held in China, and it is impossible to estimate its widespread effects. Besides the beneficial results of your observations and resolutions on the subject of plague, the impulses you will set in motion by the fact of this Conference will react, not only upon the national life, but more particularly upon the future progress of Medical Science in China, and I feel deeply the burden of the honour placed upon me in being chairman of this Medical Conference, which is unique in our history, powerful in its representation, and which gives China a strong position amongst nations seeking the welfare of the people.





