



# Wellbeing Clinic Newsletter

*Today's Focus:*

## **WHO HAS FIRED THE FIRST ROCKET (AND WHY WOULD IT MATTER FOR TCM)**

*It is this time of the year (again). In the keen anticipation of the end of year festivities and the season's favourite fireworks, we would like to invite you to think of a rather unusual and seemingly random question: Who has fired the first rocket?*

*Most of us would probably think of the USA or the Soviet Union in the second half of the 20th century. But in fact the origins of the rocket science are much older. The first documented rockets, powered by gunpowder, were fired by the Chinese in 1232. That is much closer to the time of the famous Marco Polo's travels than that of the Cold War. Chinese pioneering rocket science in the Middle Ages? Who knew?*

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### **But why would this be in any way relevant to TCM?**

History of China has not featured prominently in Western schools except perhaps more recently for its role in the "silk roads" trade. It is probably fair to say that for an average member of the public in the Western hemisphere China is likely to be viewed as a former poor country which has only recently experienced some economic success and an increase in living standards. Looking from this perspective it may seem strange that such a country could create a trustworthy medical discipline, which in many respects even claims to outperform the modern, highly developed, science based, Western medicine.

However, if we look at the wider historical context, for the most part of the human history China and India were some of the most developed and sophisticated cultures, civilisations and economies in the world. It is no coincidence that many useful things we are familiar with today including paper, ice-cream, silk, porcelain, wheelbarrows, parachutes, clocks, seismographs, already mentioned gunpowder and countless other useful inventions originated in China. If you do a very short internet search on Chinese inventions you may end up believing that almost anything seems to have been invented in China.

Around the time when the first rockets were fired, China was by far more advanced than any Western country. As witnessed by the famous European visitor Marco Polo, China had an established monetary system issuing printed money. A widespread and well maintained roads system facilitated communication and international trade, on which as Marco Polo relates, merchants could travel safely and "in perfect convenience". Similarly widespread system of inland waterways and interconnecting canals equipped with some most impressive bridges also facilitated travel, communication and trade. Extensive and highly advanced economic activity including agriculture, manufacturing and trade was overseen by a highly educated and organised administration.

Living standards in China at that time were beyond comparison to those of Medieval Europe. As Marco Polo relates, many people in China lived in "luxurious ease", dressed in silk every day, were in a habit of bathing daily, with some even having their private baths at home, and were able to afford meat and fish on the table in a single meal. The amount of foodstuffs and other goods sold at markets was such that, as Marco testifies, it seemed impossible to be sold, but it was all taken at the end of each day. For a Medieval European such stories must have sounded not just extravagant but simply out of this world. Not even mentioning luxury

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pleasure boats and restaurants capable of serving a hundred parties at the same time, as witnessed by Marco Polo in Hangzhou!

Many conveniences and practices available back then in China sound surprisingly modern and are a proof of its incredible organisation and civilizational advancement, such as hospitals, orphanages, granaries and stores dedicated to help regions in the event of crop failure or cattle disease, extensive and highly organised civil engineering works such as irrigation systems to sustain agriculture and protect against floods and even the famous Great Wall. China also had a widespread national education system training innumerable candidates willing to pursue highly lucrative careers in the country's public administration. As Marco Polo relates for example, detailed recording of foreign merchants and of the innumerable commodities they traded in exchange for silk and other goods was a routine practice for the purpose of tax and customs. Even inns had to keep guests log-books, and houses in many cities had to have a list of their residents displayed on their door. What a contrast compared to Medieval Europe, which was then engaged in deadly crusades in the Middle East and with close to 100% of its population illiterate.

Looking from this perspective, does it seem a little more understandable that such highly developed, organised and sophisticated

civilisation could produce an advanced medical system?

In 13<sup>th</sup> century, when Marco Polo was travelling across Asia, the major Traditional Chinese Medicine book "A handbook of Prescriptions for Emergencies" by Ge Hong (283 CE-363 CE) was already almost a thousand years old. This medical book contains prescriptions which are still in widespread use today. Methodology described in this book was fundamental to the success of research on Artemisinin, a "new-era anti-malarial treatment", for which its discoverer Youyou Tu was awarded with Nobel Prize in 2015.

But this was not the first or the only major medical book written around that time, which remains relevant to this day. In fact, we could not list all significant medical books from this period without making this article way too long and boring. Notable examples include theory of acupuncture and moxibustion, which was recorded in "The Yellow Emperor's Canon of Medicine and The Classic of Difficult Issues" during the Han Dynasty (202 BC – 220 CE) and "The Systematic Classic of Acupuncture and Moxibustion", a 12 volume work written by Huang Fumi (215 CE-282 CE).

The very fact that these books and many others were written suggests that the practices described in them must have been much older and already well established at the time of their

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writing. Indeed, there are much older medical inscriptions dating back to the Yin Dynasty (1600 BC -1046 BC). If we refer this period to the European history, this is more or less when the Trojan War is thought to have taken place. During Zhou Dynasty (1046 BC to 256 BC), i.e. around the time when Alexander Macedonian lived, doctors were already officially divided into four categories: dietician, physician, surgeon and veterinarian. A famous physician Hua Tuo (140 CE-208 CE) was recorded as the first doctor using anaesthesia in surgery. Further multiple medical books written in later centuries evidenced continuous progress in various medical domains including traumatology, treatment of pregnancy and postpartum, podiatry, etiology, otorhinolaryngology and even ophthalmology with a technique of removing cataracts using needles.

Medicine and medical education occupied a major importance in Chinese society and their administration and governance were highly organised. Medicine was taught by medical officials governed by the minister of medicine. An imperial medical academy was established during the Sui Dynasty (581 CE-618 CE). The medicine bureau overseeing medical administration, national medical education and health care of the royal family as well as compilation of the first official pharmacopeia of China, the "Newly Revised Materia Medica" were organised since the Tang Dynasty (618

CE – 907 CE), which was, if we refer to the European historical context, quite some time before the Battle of Hastings.

The Song Dynasty (960-1279) has seen further essential development in Chinese medicine. Personnel was appointed to compile large-scale prescription books. Illustrated books and bronze models featuring acupoints were produced for educational purposes and even medical charities were set up. Proliferation of medical books was facilitated by advances in printing technology, leading to a significant increase of their numbers.

During the period of rising supremacy of Genghis Khan China was afflicted by wars and disease. This produced a large number of prominent medical experts and hundreds schools of medical thought. Consolidation of the Mongolian empire as a vast single territory facilitated exchange of medical knowledge and practices, with contributions of various other Asian communities such as Khitan, Uighur, Tubo, Dangxiang and Hui, whose medical traditions were also highly developed, adding further valuable input to the development of Chinese medicine. By the time of Marco Polo's travels there were widespread medical exchanges between China and other countries including Japan, Korea and Arabia, not only helping spread Chinese medical knowledge beyond China but also providing further insight

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and expertise to enrich the medical field back in China.

The progress continued throughout the Ming Dynasty and Qing Dynasty with numerous medical schools, many famous doctors, enormous amount of medical publications, a widespread practice of keeping medical records and medical notes as well as continuous medical and cultural exchanges with many countries and regions in Asia, Europe and Africa. Among others, theory of febrile diseases of the previous dynasties was integrated by Wang Mengying, a famous physician of that time, which improved treatment standards of infectious diseases and epidemics. It is considered that during the Qing Dynasty TCM academic system had already been relatively complete.

Introduction of Western medicine in the 19<sup>th</sup> century brought with it further progress with an expansion of already existing TCM's scientific principles and efforts towards integration between Chinese and Western medicine. In fact, TCM swiftly adopted knowledge and improvements offered by the Western medical and scientific methods and largely included them as part of its own toolkit. Modern TCM doctors in China are trained at medical universities, where they are educated in both TCM and in conventional medicine. Such professionals are therefore legally qualified in China not only to perform acupuncture or herbal

treatments but also to prescribe conventional drugs such as antibiotics, perform surgery and multiple other conventional medical treatments. Use of TCM practices in nowadays China is widespread. By the end of 2015, there were 3966 TCM hospitals in China and 910 million people were diagnosed and treated in Chinese TCM institutions that year.

Modern TCM continues to develop vigorously and to expand its reach and influence worldwide. Modernisation, standardisation and industrialisation of TCM as well as enhanced regulation of TCM doctors, clinics and medicines to ensure medical safety and quality have been actively promoted in China, in close cooperation with WHO, thus elevating TCM to a status of a modern and global medical system. According to WHO, as of 2021 103 of its member states have approved the use of acupuncture and moxibustion, 29 of which have established laws and regulations on TCM, while 18 have incorporated acupuncture as part of their medical insurance system. Several countries including Cuba, Russia, Singapore Vietnam and the UAE have registered TCM as medicine.

Modern technology of the "digital age", including computer technology, internet and artificial intelligence present many new and exciting opportunities for further development of TCM. These include enhanced cooperation between universities and research centres,

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development of large scale TCM databases such as Chinese medicine chemical composition database or Chinese medicine traceability system, to facilitate, among others, data mining, data sharing and research. Integration of AI is likely to help with data analysis, improved clinical diagnosis and accurate decision making. Indeed, multiple TCM products have already been launched based on the machine learning theory, data mining of TCM diagnostic methods and treatment prescriptions. Further internet applications provide vast opportunities for development of telemedicine and other TCM online services. Incorporating big data technology in TCM academic research will enhance scientific understanding of TCM theories and facilitate objective evidence-based explanations of its treatment outcomes.

We hope that by now we were able to provide you with enough wider perspective to understand that TCM is a major medical discipline, which today benefits many millions of people in many countries around the world. Its practices were developed and perfected over millennia based on consistent, rigorous methodologies and sound academic principles, which were tried, tested and thoroughly recorded and documented by several generations of highly skilled professional practitioners. It also has brought together medical knowledge and practices of multiple

cultures and civilisations, including those of the Western world, and enhanced it further into an astonishingly advanced medical system with an unrivalled level of clinical depth and expertise.

TCM therefore does not stand in any contradiction with the Western medicine and science but, to the contrary, it has already incorporated their achievements into its own methodology and core value system and it is now ready to embark into further stages of its development with the help of information technology and modern research.

It is therefore no coincidence that modern pharmaceutical companies are now increasingly seeking inspiration in TCM for their own research and development, making this discipline an international research hotspot.

Just as there was no coincidence at all in the fact that the first rockets were fired in China.

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