

LIBRARY OF CHINESE CLASSICS
CHINESE-ENGLISH

大中华文库

汉英对照

黄帝内经 素问

YELLOW EMPEROR'S CANON
OF MEDICINE
PLAIN CONVERSATION

I



大中华文库

汉英对照

LIBRARY OF CHINESE CLASSICS

Chinese-English

黄帝内经·素问

Yellow Emperor's Canon of Medicine ·

Plain Conversation

I



李照国 英译

刘希茹 今译

Translated into English by Li Zhaoguo

Translated into Modern Chinese by Liu Xiru

世界图书出版公司

西安 北京 广州 上海

World Publishing Corporation

Xi'an Beijing Guangzhou Shanghai

First Edition 2005

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, now known or to be invented, without permission in writing from the publishers, except for brief quotations by reviewers.

ISBN 7-5062-6981-3/R · 676

© 2005 Xi'an World Publishing Corporation

17 South Street, Xi'an, 710001, Shaanxi, China

<http://www.wmcxian.com>

Printed by

Donnelley Bright Sun Printing Co., Shenzhen, China

Printed in the People's Republic of China





总 序

杨牧之

《大中华文库》终于出版了。我们为之高兴，为之鼓舞，但也倍感压力。

当此之际，我们愿将郁积在我们心底的话，向读者倾诉。

—

中华民族有着悠久的历史 and 灿烂的文化，系统、准确地将中华民族的文化经典翻译成外文，编辑出版，介绍给全世界，是几代中国人的愿望。早在几十年前，西方一位学者翻译《红楼梦》，书名译成《一个红楼上的梦》，将林黛玉译为“黑色的玉”。我们一方面对外国学者将中国的名著介绍到世界上去表示由衷的感谢，一方面为祖国的名著还不被完全认识，甚而受到曲解，而感到深深的遗憾。还有西方学者翻译《金瓶梅》，专门摘选其中自然主义描述最为突出的篇章加以译介。一时间，西方学者好像发现了奇迹，掀起了《金瓶梅》热，说中国是“性开放的源头”，公开地在报刊上鼓吹中国要“发扬开放之传统”。还有许多资深、友善的汉学家译介中国古代的哲学著作，在把中华民族文化介绍给全世界的工作方面作出了重大贡献，但或囿于理解有误，或缘于对中国文字认识的局限，质量上乘的并不多，常常是隔靴搔痒，说不到点子上。大哲学家黑格尔曾经说过：中国有最完



二

备的国史。但他认为中国古代没有真正意义上的哲学，还处在哲学史前状态。这么了不起的哲学家竟然作出这样大失水准的评论，何其不幸。正如任何哲学家都要受时间、地点、条件的制约一样，黑格尔也离不开这一规律。当时他也只能从上述水平的汉学家译过去的文字去分析、理解，所以，黑格尔先生对中国古代社会的认识水平是什么状态，也就不难想象了。

中国离不开世界，世界也缺少不了中国。中国文化摄取外域的新成分，丰富了自己，又以自己的新成就输送给别人，贡献于世界。从公元5世纪开始到公元15世纪，大约有一千年，中国走在世界的前列。在这一千多年的时间里，她的光辉照耀全世界。人类要前进，怎么能不全面认识中国，怎么能不认真研究中国的历史呢？

中华民族是伟大的，曾经辉煌过，蓝天、白云、阳光灿烂，和平而兴旺；也有过黑暗的、想起来就让人战栗的日子，但中华民族从来是充满理想，不断追求，不断学习，渴望和平与友谊的。

中国古代伟大的思想家孔子曾经说过：“三人行，必有我师焉。择其善者而从之，其不善者而改之。”孔子的话就是要人们向别人学习。这段话正是概括了整个中华民族与人交往的原则。人与人之间交往如此，在与周边的国家交往中也是如此。

秦始皇第一个统一了中国，可惜在位只有十几年，来不及作更多的事情。汉朝继秦而继续强大，便开始走出去，了



解自己周边的世界。公元前 138 年，汉武帝派张骞出使西域。他带着一万头牛羊，总值一万万钱的金帛货物，作为礼物，开始西行，最远到过“安息”（即波斯）。公元前 36 年，班超又率 36 人出使西域。36 个人按今天的话说，也只有一个排，显然是为了拜访未曾见过面的邻居，是去交朋友。到了西域，班超派遣甘英作为使者继续西行，往更远处的大秦国（即罗马）去访问，“乃抵条支而历安息，临西海以望大秦”（《后汉书·西域传》）。“条支”在“安息”以西，即今天的伊拉克、叙利亚一带，“西海”应是今天的地中海。也就是说甘英已经到达地中海边上，与罗马帝国隔海相望，“临大海欲渡”，却被人劝阻而未成行，这在历史上留下了遗憾。可以想见班超、甘英沟通友谊的无比勇气和强烈愿望。接下来是唐代的玄奘，历经千难万险，到“西天”印度取经，带回了南亚国家的古老文化。归国后，他把带回的佛教经典组织人翻译，到后来很多经典印度失传了，但中国却保存完好，以至于今天，没有玄奘的《大唐西域记》，印度人很难编写印度古代史。明代郑和“七下西洋”，把中华文化传到东南亚一带。鸦片战争以后，一代又一代先进的中国人，为了振兴中华，又前赴后继，向西方国家学习先进的科学思想和文明成果。这中间有我们的领导人朱德、周恩来、邓小平；有许许多多大科学家、文学家、艺术家，如郭沫若、李四光、钱学森、冼星海、徐悲鸿等。他们的追求、奋斗，他们的博大胸怀，兼收并蓄的精神，为人类社会增添了光彩。

中国文化的形成和发展过程，就是一个以众为师，以各国人民为师，不断学习和创造的过程。中华民族曾经向周边国家和民族学习过许多东西，假如没有这些学习，中华民族决不可能创造出昔日的辉煌。回顾历史，我们怎么能够不对



伟大的古埃及文明、古希腊文明、古印度文明满怀深深的感激?怎么能够不对伟大的欧洲文明、非洲文明、美洲文明、澳洲文明,以及中国周围的亚洲文明充满温情与敬意?

中华民族为人类社会曾作出过独特的贡献。在15世纪以前,中国的科学技术一直处于世界遥遥领先的地位。英国科学家李约瑟说:“中国在公元3世纪到13世纪之间,保持着一个西方所望尘莫及的科学知识水平。”美国耶鲁大学教授、《大国的兴衰》的作者保罗·肯尼迪坦言:“在近代以前时期的所有文明中,没有一个国家的文明比中国更发达,更先进。”

世界各国的有识之士千里迢迢来中国观光、学习。在这个过程中,中国唐朝的长安城渐渐发展成为国际大都市。西方的波斯、东罗马,东亚的高丽、新罗、百济、南天竺、北天竺,频繁前来。外国的王侯、留学生,在长安供职的外国官员,商贾、乐工和舞士,总有几十个国家,几万人之多。日本派出“遣唐使”更是一批接一批。传为美谈的日本人阿部仲麻吕(晁衡)在长安留学的故事,很能说明外国人与中国的交往。晁衡学成仕于唐朝,前后历时五十余年。晁衡与中国的知识分子结下了深厚的友情。他归国时,传说在海中遇难身亡。大诗人李白作诗哭悼:“日本晁卿辞帝都,征帆一片远蓬壶。明月不归沉碧海,白云愁色满苍梧。”晁衡遇险是误传,但由此可见中外学者之间在中国长安交往的情谊。

后来,不断有外国人到中国来探寻秘密,所见所闻,常常让他们目瞪口呆。《希腊纪事》(希腊人波桑尼阿著)记载公元2世纪时,希腊人在中国的见闻。书中写道:“赛里斯人用小米和青芦喂一种类似蜘蛛的昆虫,喂到第五年,虫肚子胀裂开,便从里面取出丝来。”从这段对中国古代养蚕技术的



描述，可见当时欧洲人与中国人的差距。公元9世纪中叶，阿拉伯人来到中国。一位阿拉伯作家在他所著的《中国印度闻见录》中记载了曾旅居中国的阿拉伯商人的见闻：

——一天，一个外商去拜见驻守广州的中国官吏。会见时，外商总盯着官吏的胸部，官吏很奇怪，便问：“你好像总盯着我的胸，这是怎么回事？”那位外商回答说：“透过你穿的丝绸衣服，我隐约看到你胸口上长着一个黑痣，这是什么丝绸，我感到十分惊奇。”官吏听后，失声大笑，伸出胳膊，说：“请你数数吧，看我穿了几件衣服？”那商人数过，竟然穿了五件之多，黑痣正是透过这五层丝绸衣服显现出来的。外商惊得目瞪口呆，官吏说：“我穿的丝绸还不算是最好的，总督穿的要更精美。”

——书中关于茶（他们叫干草叶子）的记载，可见阿拉伯国家当时还没有喝茶的习惯。书中记述：“中国国王本人的收入主要靠盐税和泡开水喝的一种干草税。在各个城市里，这种干草叶售价都很高，中国人称这种草叶叫‘茶’，这种干草叶比苜蓿的叶子还多，也略比它香，稍有苦味，用开水冲喝，治百病。”

——他们对中国的医疗条件十分羡慕，书中记载道：“中国人医疗条件很好，穷人可以从国库中得到药费。”还说：“城市里，很多地方立一石碑，高10肘，上面刻有各种疾病和药物，写明某种病用某种药医治。”

——关于当时中国的京城，书中作了生动的描述：中国的京城很大，人口众多，一条宽阔的长街把全城分为两半，大街右边的东区，住着皇帝、宰相、禁军及皇家的总管、奴婢。在这个区域，沿街开凿了小河，流水潺潺；路旁，葱茏的树木整然有序，一幢幢宅邸鳞次栉比。大街左边的西区，



住着庶民和商人。这里有货栈和商店，每当清晨，人们可以看到，皇室的总管、宫廷的仆役，或骑马或步行，到这里来采购。

此后的史籍对西人来华的记载，渐渐多了起来。13世纪意大利旅行家马可·波罗，尽管有人对他是否真的到过中国持怀疑态度，但他留下一部记述元代事件的《马可·波罗游记》却是确凿无疑的。这部游记中的一些关于当时中国的描述使得西方人认为是“天方夜谭”。总之，从中西文化交流史来说，这以前的时期还是一个想象和臆测的时代，相互之间充满了好奇与幻想。

从16世纪末开始，由于航海技术的发展，东西方航路的开通，随着一批批传教士来华，中国与西方开始了直接的交流。沟通中西的使命在意大利传教士利玛窦那里有了充分的体现。利玛窦于1582年来华，1610年病逝于北京，在华20余年。除了传教以外，做了两件具有历史象征意义的事，一是1594年前后在韶州用拉丁文翻译《四书》，并作了注释；二是与明代学者徐光启合作，用中文翻译了《几何原本》。

西方传教士对《四书》等中国经典的粗略翻译，以及杜赫德的《中华帝国志》等书对中国的介绍，在西方读者的眼前展现了一个异域文明，在当时及稍后一段时期引起了一场“中国热”，许多西方大思想家的眼光都曾注目中国文化。有的推崇中华文明，如莱布尼兹、伏尔泰、魁奈等，有的对中华文明持批评态度，如孟德斯鸠、黑格尔等。莱布尼兹认识到中国文化的某些思想与他的观念相近，如周易的卦象与他发明的二进制相契合，对中国文化给予了热情的礼赞；黑格尔则从他整个哲学体系的推演出发，认为中国没有真正意义上的哲学，还处在哲学史前的状态。但是，不论是推崇还



是批评，是吸纳还是排斥，中西文化的交流产生了巨大的影响。随着先进的中国科学技术的西传，特别是中国的造纸、火药、印刷术和指南针四大发明的问世，大大改变了世界的面貌。马克思说：“中国的火药把骑士阶层炸得粉碎，指南针打开了世界市场并建立了殖民地，而印刷术则变成了新教的工具，变成对精神发展创造必要前提的最强大的杠杆。”英国的哲学家培根说：中国的四大发明“改变了全世界的面貌和一切事物的状态”。

三

大千世界，潮起潮落。云散云聚，万象更新。中国古代产生了无数伟大科学家：祖冲之、李时珍、孙思邈、张衡、沈括、毕升……，产生了无数科技成果：《齐民要术》、《九章算术》、《伤寒杂病论》、《本草纲目》……，以及保存至今的世界奇迹：浑天仪、地动仪、都江堰、敦煌石窟、大运河、万里长城……。但从 15 世纪下半叶起，风水似乎从东方转到了西方，落后的欧洲只经过 400 年便成为世界瞩目的文明中心。英国的牛顿、波兰的哥白尼、德国的伦琴、法国的居里、德国的爱因斯坦、意大利的伽利略、俄国的门捷列夫、美国的费米和爱迪生……，光芒四射，令人敬仰。

中华民族开始思考了。潮起潮落究竟是什么原因？中国人发明的火药，传到欧洲，转眼之间反成为欧洲列强轰击中国大门的炮弹，又是因为什么？

鸦片战争终于催醒了中国人沉睡的迷梦，最先“睁眼看世界”的一代精英林则徐、魏源迈出了威武雄壮的一步。曾国藩、李鸿章搞起了洋务运动。中国的知识分子喊出“民主



与科学”的口号。中国是落后了，中国的志士仁人在苦苦探索。但落后中饱含着变革的动力，探索中孕育着崛起的希望。“向科学进军”，中华民族终于又迎来了科学的春天。

今天，世界毕竟来到了 21 世纪的门槛。分散隔绝的世界，逐渐变成联系为一体的世界。现在，全球一体化趋势日益明显，人类历史也就在愈来愈大的程度上成为全世界的历史。当今，任何一种文化的发展都离不开对其它优秀文化的汲取，都以其它优秀文化的发展为前提。在近现代，西方文化汲取中国文化，不仅是中国文化的传播，更是西方文化自身的创新和发展；正如中国文化对西方文化的汲取一样，既是西方文化在中国的传播，同时也是中国文化在近代的转型和发展。地球上所有的人类文化，都是我们共同的宝贵遗产。既然我们生活的各个大陆，在地球史上曾经是连成一气的“泛大陆”，或者说是一个完整的“地球村”，那么，我们同样可以在这个以知识和学习为特征的网络时代，走上相互学习、共同发展的大路，建设和开拓我们人类崭新的“地球村”。

西学仍在东渐，中学也将西传。各国人民的优秀文化正日益迅速地为中国文化所汲取，而无论西方和东方，也都需要从中国文化中汲取养分。正是基于这一认识，我们组织出版汉英对照版《大中华文库》，全面系统地翻译介绍中国传统文化典籍。我们试图通过《大中华文库》，向全世界展示，中华民族五千年的追求，五千年的梦想，正在新的历史时期重放光芒。中国人民就像火后的凤凰，万众一心，迎接新世纪文明的太阳。

1999 年 8 月



PREFACE TO THE LIBRARY OF CHINESE CLASSICS

Yang Muzhi

The publication of the *Library of Chinese Classics* is a matter of great satisfaction to all of us who have been involved in the production of this monumental work. At the same time, we feel a weighty sense of responsibility, and take this opportunity to explain to our readers the motivation for undertaking this cross-century task.

1

The Chinese nation has a long history and a glorious culture, and it has been the aspiration of several generations of Chinese scholars to translate, edit and publish the whole corpus of the Chinese literary classics so that the nation's greatest cultural achievements can be introduced to people all over the world. There have been many translations of the Chinese classics done by foreign scholars. A few dozen years ago, a Western scholar translated the title of *A Dream of Red Mansions* into "A Dream of Red Chambers" and Lin Daiyu, the heroine in the novel, into "Black Jade." But while their endeavours have been laudable, the results of their labours have been less than satisfactory. Lack of knowledge of Chinese culture and an inadequate grasp of the Chinese written language have led the translators into many errors. As a consequence, not only are Chinese classical writings widely misunderstood in the rest of the world, in some cases their content has actually been distorted. At one time, there was a "*Jin Ping Mei* craze" among Western scholars, who thought that they had uncovered a miraculous phenomenon, and published theories claiming that China was the "fountainhead of eroticism," and that a Chinese "tradition of permissiveness" was about to be laid bare. This distorted view came about due to the translators of the *Jin Ping Mei* (*Plum in the Golden Vase*) putting one-sided stress on the



raw elements in that novel, to the neglect of its overall literary value. Meanwhile, there have been many distinguished and well-intentioned Sinologists who have attempted to make the culture of the Chinese nation more widely known by translating works of ancient Chinese philosophy. However, the quality of such work, in many cases, is unsatisfactory, often missing the point entirely. The great philosopher Hegel considered that ancient China had no philosophy in the real sense of the word, being stuck in philosophical "prehistory." For such an eminent authority to make such a colossal error of judgment is truly regrettable. But, of course, Hegel was just as subject to the constraints of time, space and other objective conditions as anyone else, and since he had to rely for his knowledge of Chinese philosophy on inadequate translations it is not difficult to imagine why he went so far off the mark.

China cannot be separated from the rest of the world; and the rest of the world cannot ignore China. Throughout its history, Chinese civilization has enriched itself by absorbing new elements from the outside world, and in turn has contributed to the progress of world civilization as a whole by transmitting to other peoples its own cultural achievements. From the 5th to the 15th centuries, China marched in the front ranks of world civilization. If mankind wishes to advance, how can it afford to ignore China? How can it afford not to make a thoroughgoing study of its history?

2

Despite the ups and downs in their fortunes, the Chinese people have always been idealistic, and have never ceased to forge ahead and learn from others, eager to strengthen ties of peace and friendship.

The great ancient Chinese philosopher Confucius once said, "Wherever three persons come together, one of them will surely be able to teach me something. I will pick out his good points and emulate them; his bad points I will reform." Confucius meant by this that we should always be ready to learn from others. This maxim encapsulates the principle the Chinese people have always followed in their dealings with other peoples, not only on an individual basis but also at the level of state-to-state relations.

After generations of internecine strife, China was unified by Emperor



Qin Shi Huang (the First Emperor of the Qin Dynasty) in 221 B.C. The Han Dynasty, which succeeded that of the short-lived Qin, waxed powerful, and for the first time brought China into contact with the outside world. In 138 B.C., Emperor Wu dispatched Zhang Qian to the western regions, i.e. Central Asia. Zhang, who traveled as far as what is now Iran, took with him as presents for the rulers he visited on the way 10,000 head of sheep and cattle, as well as gold and silks worth a fabulous amount. In 36 B.C., Ban Chao headed a 36-man legation to the western regions. These were missions of friendship to visit neighbours the Chinese people had never met before and to learn from them. Ban Chao sent Gan Ying to explore further toward the west. According to the "Western Regions Section" in the *Book of Later Han*, Gan Ying traveled across the territories of present-day Iraq and Syria, and reached the Mediterranean Sea, an expedition which brought him within the confines of the Roman Empire. Later, during the Tang Dynasty, the monk Xuan Zang made a journey fraught with danger to reach India and seek the knowledge of that land. Upon his return, he organized a team of scholars to translate the Buddhist scriptures, which he had brought back with him. As a result, many of these scriptural classics which were later lost in India have been preserved in China. In fact, it would have been difficult for the people of India to reconstruct their own ancient history if it had not been for Xuan Zang's *A Record of a Journey to the West in the Time of the Great Tang Dynasty*. In the Ming Dynasty, Zheng He transmitted Chinese culture to Southeast Asia during his seven voyages. Following the Opium Wars in the mid-19th century, progressive Chinese, generation after generation, went to study the advanced scientific thought and cultural achievements of the Western countries. Their aim was to revive the fortunes of their own country. Among them were people who were later to become leaders of China, including Zhu De, Zhou Enlai and Deng Xiaoping. In addition, there were people who were to become leading scientists, literary figures and artists, such as Guo Moruo, Li Siguang, Qian Xuesen, Xian Xinghai and Xu Beihong. Their spirit of ambition, their struggles and their breadth of vision were an inspiration not only to the Chinese people but to people all over the world.

Indeed, it is true that if the Chinese people had not learned many



things from the surrounding countries they would never have been able to produce the splendid achievements of former days. When we look back upon history, how can we not feel profoundly grateful for the legacies of the civilizations of ancient Egypt, Greece and India? How can we not feel fondness and respect for the cultures of Europe, Africa, America and Oceania?

The Chinese nation, in turn, has made unique contributions to the community of mankind. Prior to the 15th century, China led the world in science and technology. The British scientist Joseph Needham once said, "From the third century A.D. to the 13th century A.D. China was far ahead of the West in the level of its scientific knowledge." Paul Kennedy, of Yale University in the U.S., author of *The Rise and Fall of the Great Powers*, said, "Of all the civilizations of the pre-modern period, none was as well-developed or as progressive as that of China."

Foreigners who came to China were often astonished at what they saw and heard. The Greek geographer Pausanias in the second century A.D. gave the first account in the West of the technique of silk production in China: "The Chinese feed a spider-like insect with millet and reeds. After five years the insect's stomach splits open, and silk is extracted therefrom." From this extract, we can see that the Europeans at that time did not know the art of silk manufacture. In the middle of the 9th century A.D., an Arabian writer includes the following anecdote in his *Account of China and India*:

"One day, an Arabian merchant called upon the military governor of Guangzhou. Throughout the meeting, the visitor could not keep his eyes off the governor's chest. Noticing this, the latter asked the Arab merchant what he was staring at. The merchant replied, 'Through the silk robe you are wearing, I can faintly see a black mole on your chest. Your robe must be made out of very fine silk indeed!' The governor burst out laughing, and holding out his sleeve invited the merchant to count how many garments he was wearing. The merchant did so, and discovered that the governor was actually wearing five silk robes, one on top of the other, and they were made of such fine material that a tiny mole could be seen through them all! Moreover, the governor explained that the robes he was wearing were not made of the finest silk at all; silk of the highest



grade was reserved for the garments worn by the provincial governor.”

The references to tea in this book (the author calls it “dried grass”) reveal that the custom of drinking tea was unknown in the Arab countries at that time: “The king of China’s revenue comes mainly from taxes on salt and the dry leaves of a kind of grass which is drunk after boiled water is poured on it. This dried grass is sold at a high price in every city in the country. The Chinese call it ‘cha.’ The bush is like alfalfa, except that it bears more leaves, which are also more fragrant than alfalfa. It has a slightly bitter taste, and when it is infused in boiling water it is said to have medicinal properties.”

Foreign visitors showed especial admiration for Chinese medicine. One wrote, “China has very good medical conditions. Poor people are given money to buy medicines by the government.”

In this period, when Chinese culture was in full bloom, scholars flocked from all over the world to China for sightseeing and for study. Chang’an, the capital of the Tang Dynasty was host to visitors from as far away as the Byzantine Empire, not to mention the neighboring countries of Asia. Chang’an, at that time the world’s greatest metropolis, was packed with thousands of foreign dignitaries, students, diplomats, merchants, artisans and entertainers. Japan especially sent contingent after contingent of envoys to the Tang court. Worthy of note are the accounts of life in Chang’an written by Abeno Nakamaro, a Japanese scholar who studied in China and had close friendships with ministers of the Tang court and many Chinese scholars in a period of over 50 years. The description throws light on the exchanges between Chinese and foreigners in this period. When Abeno was supposedly lost at sea on his way back home, the leading poet of the time, Li Bai, wrote a eulogy for him.

The following centuries saw a steady increase in the accounts of China written by Western visitors. The Italian Marco Polo described conditions in China during the Yuan Dynasty in his *Travels*. However, until advances in the science of navigation led to the opening of east-west shipping routes at the beginning of the 16th century Sino-Western cultural exchanges were coloured by fantasy and conjecture. Concrete progress was made when a contingent of religious missionaries, men well versed in Western science and technology, made their way to China, ushering in an era of



direct contacts between China and the West. The experience of this era was embodied in the career of the Italian Jesuit Matteo Ricci. Arriving in China in 1582, Ricci died in Beijing in 1610. Apart from his missionary work, Ricci accomplished two historically symbolic tasks — one was the translation into Latin of the “Four Books,” together with annotations, in 1594; the other was the translation into Chinese of Euclid’s *Elements*.

The rough translations of the “Four Books” and other Chinese classical works by Western missionaries, and the publication of Père du Halde’s *Description Geographique, Historique, Chronologique, Politique, et Physique de l’Empire de la Chine* revealed an exotic culture to Western readers, and sparked a “China fever,” during which the eyes of many Western intellectuals were fixed on China. Some of these intellectuals, including Leibniz, held China in high esteem; others, such as Hegel, nursed a critical attitude toward Chinese culture. Leibniz considered that some aspects of Chinese thought were close to his own views, such as the philosophy of the *Book of Changes* and his own binary system. Hegel, on the other hand, as mentioned above, considered that China had developed no proper philosophy of its own. Nevertheless, no matter whether the reaction was one of admiration, criticism, acceptance or rejection, Sino-Western exchanges were of great significance. The transmission of advanced Chinese science and technology to the West, especially the Chinese inventions of paper-making, gunpowder, printing and the compass, greatly changed the face of the whole world. Karl Marx said, “Chinese gunpowder blew the feudal class of knights to smithereens; the compass opened up world markets and built colonies; and printing became an implement of Protestantism and the most powerful lever and necessary precondition for intellectual development and creation.” The English philosopher Roger Bacon said that China’s four great inventions had “changed the face of the whole world and the state of affairs of everything.”

3

Ancient China gave birth to a large number of eminent scientists, such as Zu Chongzhi, Li Shizhen, Sun Simiao, Zhang Heng, Shen Kuo and Bi