

<<中国古代科技史>>

图书基本信息

书名：<<中国古代科技史>>

13位ISBN编号：9787119057545

10位ISBN编号：7119057545

出版时间：2009-8

出版时间：外文出版社

作者：中国科学院自然科学史研究所

页数：632

译者：外文出版社英文部

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前言

For 2,000 years the Chinese people had a most remarkable record in science and technology. Then from two to three centuries ago a decline set in. Commenting on ancient Chinese technological discoveries and inventions, Dr. Joseph Needham writes in the preface to his great work *Science and Civilisation in China* that they were "often far in advance (as we shall have little difficulty in showing) of contemporary Europe, especially up to the 15th century".¹ Scientific and technological achievements are without exception most vividly reflected in various activities of mankind. An original idea in science or a technological invention is no achievement unless it is verified in human practice and becomes a motive force of history. We are pleased to be able to say that all the achievements dealt with in this book qualify according to the above definition, that they are achievements in the true sense of the word. Except for a few short periods, China has been a political entity from ancient times. The Chinese nation has stood firm on earth for the past 4,000 years and has been steadily prospering. A major reason for this is that China has achieved brilliantly in science and technology as outlined in part in this book. The impact of China's science and technology on the rest of the world has been great. Early in the Han Dynasty, from 138 B.C., Zhang Qian in the capacity of a diplomatic envoy blazed the trail which was the "Silk Road" leading to Middle and West Asian countries. And there were other early Chinese explorers who carried China's advanced culture and science abroad, and returned with cultural achievements from other lands.

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内容概要

Catalogued according to different scientific fields, the book draws wisdom from authoritative experts in the institute of the History of Natural Sciences (IHNS) from the Chinese Academy of Sciences (CAS), and comprehensively introduces ancient Chinas scientific and technological achievements in such fields as astronomy, mathematics, physics, chemistry, geology, biology, agriculture, medicine, printing, spinning and weaving, metal-lurgy and foundry, machinery, architecture, ship-building and navigation, and military technology, etc. This book is Of high academic quality yet writ- ten in the simplest language possible, and thus is a very readable popular science collection.

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作者简介

中国科学院自然科学史研究所，Founded in 1957, the Institute of the History of Natural Sciences (IHNS) , of the Chinese Academy of Sciences (CAS) , is the sole comprehensive and multi-disciplinary organization devoted to research on the history of science and technology and its law of development, the relationship between science and other fields such as sociology, economics, thought and culture, and the relative development strategies of science and technology. Since its founding, IHNS researchers have published more than 400 research works and more than 3,800 papers. Among them, some recent outstanding achievements include: General Collection of Works in Ancient Chinese Science and Technology (10 volumes, Comprising 50 books) , Comprehensive History of Chinese Culture. Science and Technology (10 volumes) , Contemporary and Modern History of Chinese Science, and Contemporary, and Modern History, of Chinese Technology; as well as astronomical dynastic research represented by Dynastic Project of the Xia, Shang and Zhou, research on world famous laboratories, and research on the origin and spread of the art of printing.

书籍目录

PREFACERECORDS OF ASTRONOMICAL EVENTSASTROMETRY AND ASTROMETRIC INSTRUMENTSCHINESE CALENDARSMATHEMATICAL CLASSICSTHE DECIMAL PLACE-VALUE NUMERATION AND THE ROD AND BEAD ARITHMETICSTHE OUT-IN COMPLEMENTARY PRINCIPLEMETHOD FOR DETERMINING SEGMENT AREAS AND EVALUA- TION OFTHE CHINESE REMAINDER THEOREMTHE NUMERICAL SOLUTION OF HIGHER EQUATIDNS ANDTHE TIANYUAN METHODMECHANICSACOUSTICSMAGNETISM AND THE COMPASSOPTICSTHE INVENTION AND DEVELOPMENT OF PAPERMAKINGGUNPOWDER AND FIREARMSPORCELAINLACQUER AND LACQUER TECHNIQUEALCHEMY IN ANCIENT CHINAPHENOLOGICAL CALENDARS AND KNOWLEDGE OF PHE- NOLOGYWATER CONSERVANCY PROJECTS AND KNOWLEDGE OFHYDROLOGYMAPS 2,000 YEARS AGO AND ANCIENT CARTOGRAPHICAL RULESROCKS, MINERALOGY AND MININGEARTHQUAKE FORECASTING,PRECAUTIONS AGAINST EARTHQUAKES AND ANTI-SEISMIC MEASURESRESEARCHES IN HEREDITY AND BREEDINGSOME OUTSTANDING WORKS ON AGRICULTURESERICULTUREHORTICULTURETEATWO CELEBRATED MEDICAL WORKSACUPUNCTURE AND MOXIBUSTIONACHIEVEMENTS IN ANCIENT CHINESE PHARMACOLOGYDIAGNOSIS BY PULSE FEELING IN CHINESE TRADITIONAL MEDICINE.....

章节摘录

插图：Between the 5th and 3rd century B.C. when the quarter-remainder calendar was in use, the winter solstice point was set at the entrance to the lunar mansion Qianniú or the region approaching Giedi (Capricorn). The Zhuānxu Calendar of 221 B.C. did the same, and this may be accepted as China's earliest such datum obtained through actual observations. As it was impossible to ascertain the sun's relative position by direct observation, the ancient astronomers resorted to indirect means. They identified the day of the winter solstice, ascertained its midnight by using the clepsydra and found out the distance of the star at the zenith to the nearest lunar-mansion determinative star. They could thus tell the location of the sun, which stood directly opposite that star. The data obtained were inevitably inaccurate because the clepsydra was hardly a satisfactory chronometer. The Chinese astronomers were ignorant of the precession until the 3rd century. Before that they thought the sun made an exact round trip along its orbit in the celestial sphere between winter solstices. That was why they fixed the tropical year at 365.25 days and divided the natural celestial sphere into as many degrees. As far as they knew the winter solstice point was fixed, and the notion that the point was in the region approaching Giedi remained. Makers of the Taichu Calendar of 104 B.C. virtually based themselves on the same data. In A.D. 7 Liu Yin noted, if vaguely, the wavering of the winter solstice point.

后记

The articles that have been presented here are selected from Achievements in Science and Technology in Ancient China, published in Chinese by the China Youth Publishing House in March 1978. Certain mistakes and inaccuracies in the original were discovered during translation and have been corrected by the authors. The translation of a book of this type is a challenging task given the diversity of fields covered and the classical Chinese language (including technical terms peculiar to ancient Chinese science and technology) used to describe them. We are deeply grateful to Mao Yisheng, Vice-President of the China Science and Technology Association and Director of the Railway Research Academy, who revised and approved the Preface and showed sincere concern for the translation of the book; and to Chen Yousheng, who edited the Chinese original for English-speaking readers; to Liu Zuwei, Du Youliang, Li Tiansheng, Liu Naiyuan and Fu Zhengyuan, who translated the articles into English; and to Tang Bowen, Betty Chandler and Zhao Shuhan, who edited the English text. It is our hope that by informing readers abroad on ancient China's culture, science and technology the present book will in its way contribute towards promoting cultural exchange in science and technology between China and other countries. The book has been compiled by the Institute of the History of Natural Sciences, Chinese Academy of Sciences. Among those responsible for the work are Du Shiran, Fan Chuyu, Jin Qiupeng, Chen Meidong and He Shaogeng.

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编辑推荐

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