

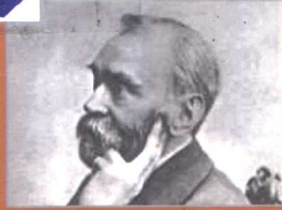
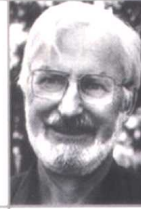
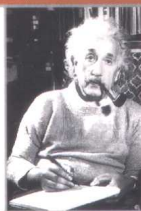
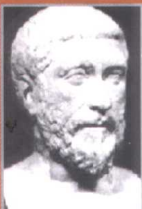
TOP 100 GLOBAL GREAT MASTERS OF
SCIENCE AND TECHNOLOGY WHO PROMOTED
THE SPEED OF HUMAN CIVILIZATION



推动人类文明进程的 100位科技巨匠

木君 著

中国方正出版社

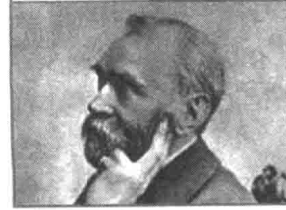
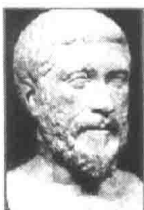


6.1

TOP 100 GLOBAL GREAT MASTERS OF
SCIENCE AND TECHNOLOGY WHO PROMOTED
THE SPEED OF HUMAN CIVILIZATION



推动人类文明进程的 100位科技巨匠



中国大百科全书出版社

图书在版编目(CIP)数据

推动人类文明进程的 100 位科技巨匠 / 木君著, —北京: 中国方正出版社, 2001.9

ISBN 7-80107-505-6

I. 推 … II. 木 … III. 科学家—生平事迹—世界
IV. K816 .1

中国版本图书馆 CIP 数据核字 (2001) 第 057797 号
本书封面若无特殊激光防伪标识, 则为盗版。

《推动人类文明进程的 100 位科技巨匠》

中国方正出版社出版发行 新华书店经销
(北京市西城区平安里西大街 41 号 邮编: 100813)
(发行部电话: 010-66187237 010-63094520)

北京外文印刷厂印刷

开本: 880×1230 毫米 1/32 印张: 9 字数: 220 千字

2002 年 1 月第 1 版 2002 年 4 月北京第 3 次印刷

印数: 33001—36000 册 定价: 20.00 元

序

馬嘉林

Preface

Ma manke

人类文明源远流长。回首历史，多少灿若星辰的科技巨匠，凭借其超凡的智慧，开启并推进着人类文明的进程。从原始的结绳记事到今天的击键输入，从最初的甲骨文到今天的电子信函，从古老的雕版印刷到今天的宽带传播，几千年的文明发展历程中，凝聚了人类无限的智慧。蔡伦、沈括、牛顿、爱迪生……这些人类智慧的杰出代表，用他们伟大的发现和发明，为我们揭示宇宙之无穷奥秘，导引人类步出迷茫蒙昧。

Human being has its long history of civilization. Traced back to the past, there were many of twinkling superstars of scientists and inventors who broke the path and promoted the steps of civilization by the right of their supernormal wisdom. From primary record knots to present-day input keys, from the earliest shell-and-bones writing to electronic mail, from archaic engraving printing to nowadays broad band transmission, the history of civilization has developed for several thousands years and agglomerated uncountable human beings' wisdom. Such distinguished representatives of human wisdom as CaiLun, ShenKuo, Newton and Edison, with their great discoveries and inventions, reveled the infinite mystery of the universe and led human beings out of ignorance and obscuraton.

纳凉于先祖的树荫下，我们追思巨匠的伟绩，沐浴文明科技的光芒，畅想神秘莫测的未来。我们知晓，人类文明来之不易。罗马广场的烈火，屠夫战犯的刀戈，玄道神怪的蛊惑，宗教裁判的专制，无不令人扼腕。在今天，自然灾害的此起彼伏，昧人邪教的死灰复燃，更加彰显出科学的可贵与必然。

我对科技涉猎不多，但每天我和广大民众都在享受着科技推动文明并由此带来生活的便利。今日湖湘大地举办纪念伟大发明家蔡伦的盛会，酝酿出创吉尼斯纪录的全球最大（版幅）书刊出版物“中国（耒阳）蔡伦科技发明节特辑”——《推动人类文明进程的100位科技巨匠》^①，听说还建了一座塑有100位科学家和发明家雕像的广场，这确是一件旷世盛事，其意

Enjoying the cool under the trees planted by our originators, taking a bath under the sunny light of the civilization of science and technology, we trace back the great explorations and plentiful contributions of the greatest masters, and forecast the unbeknown future. We know that the civilization doesn't come easily. It always makes people curl up wristband for a fighting against the fire in the Roman Square, the warlord's swords, cultic bewitch and the despotism of the Inquisition.

I have not dabbled much science and technology, but with the masses, I am daily feasting the civilized results come from the promotion of science and technology. Now, on the ground of Hunan province, a ceremony is held to commemorate the great inventor of Cai Lun, and a book, which is to create a new Guinness world record in the size of the book and titled Top 100 Global Great Masters of Science and Technology who promoted the speed of human civilization^①, is about to be finished and published. It was said that there had been set up 100 statues of inventors. I think it the most prosperous thing in history and its significance could compare to the high Mountain Nanyue and the vast Xiang River.

义当与巍巍衡岳，浩浩湘江相适矣。

本书收入之人物是科技史上的“百家精华”，作者进行了认真的遴选，不失为谦逊、严谨的“一家之言”。可以说是弘扬科学，传承文明之史诗，是辉煌今日，开启未来之典籍。本书及科技发明家广场的问世，并非简单的承前启后，而是对人类过去、现在和未来文明的一次大思考、大检阅、大传播——因为邓小平先生说得精彩：科学技术是第一生产力。关于第一生产力的历史回顾，精英展示，成果荟萃，其本身还创造了一项（出版物）世界纪录，可谓巨制鸿篇，世界瞩目，形式伟大，内容崇高。

这书值得一读么？

2001年9月8日

The masters in this book are the “supremel00” from the history of science and technology. The writers of the book selected them seriously and made it “one of the viewpoints” of modesty and preciseness. The book could be said to be an epic of developing science and succeeding civilization, a classic book of being refulgent for present and enlightening for the future. What this book and the inventor square come out is not simple work of making a link between past and future, but a broad thinking, review and spread about the past, present and future of the civilization. For Mr. Deng Xiao-ping said profoundly: science and technology are the first productive forces. The historic recall about the first productive forces, setting out the famed and gathering together their contributions, all of these create a world record of the publication, so this book could be told a huge pages and great articles. It would be attractive around the world with its greatest shape and eminently noble contents.

Is the book worth reading?

Sep. 8, 2001

① 本书最初是为纪念伟大的发明家蔡伦而策划选题的，且在‘2001 中国蔡伦科技发明节’上出版了该书珍藏本，以创吉尼斯纪录的篇幅（83cm × 56cm）成为“天下第一巨书”，引起了世人广泛的关注。该珍藏本的书版（胶片）已在公祭蔡伦大典（2001.9.8）上公开焚毁，为便于海外交流，珍藏本经国家新闻出版署批准出繁体字版，仅印2001本，每本皆以金箔编号，故问世以来便成为人们热衷收藏的绝版珍品。现出大32开通行本，以飨读者。此版本除将珍藏本的繁体转简及代序二的《祭蔡论文》附入正文中蔡伦一文之后外，基本上按巨书缩印。

① The book was plotted initially for the memory of Cai Lun, a great inventor, and its rare edition has been published at the ‘2001 China Cai Lun Science-Tech Invention Festival. The book is rewarded the title of “the biggest book in the world” with its huge size which created a Guinness record, thus arouse public great attention. The rare edition of the letters (film) has been destroyed publicly at the Public Memorial Ceremony of Cai Lun (held on Sept. 8th, 2001). For the sake of the overseas exchange, approved by the Press Publishing Office, the original complex form of a simplified Chinese character of the rare edition has been published. It printed only 2001 copies and each copy has a golden number. It has become a rare book of out of print for collectors since its publishing. In order to meet the needs of the readers, the general edition of 32mo is going to be published. Basically, this edition is the reprint book in a reduced format of the big book, except for transforming from the original complex form of a simplified Chinese character into the simplified Chinese character, and the Elegiac Address to Cai Lun in the appendix of the main body of the book.

编写说明

在人类文明史上,全世界有成千上万的科学技术巨匠为人类的进步作出了卓越的贡献。单是20世纪获得过诺贝尔奖的就有320多位。James F. Maurer先生1981年主编并出版的《简明科学家传记辞典》(Concise Dictionary Of Scientific Biography)收入的科学家人数就超过了5000人。考虑到篇幅和阅读者的兴趣,我们纵观历史,横看全球,只能选择其中100名最具影响力的科学家、发明家作一个简要的介绍。为此,我们制定了如下入选条件:

1、知识权属优先。被入选的科学家或发明家必须拥有至少一项明显属于自己的科学成就,而且这项成就的权属已经得到了世界性的公认。因此,本书坚持以项目决定人选,而不以人选决定项目。对于那些项目权属不清的,我们一律不予以入选。中国古代不重视科学技术活动,更加不重视知识产权。因此,中国古代的一些本可以入选的科学发现和技术发明,由于知识权属不明晰,而无法落实到人入选。比如,指南针就是例子。虽然,它被记载

Notes For the Entry Selection

In the history of human civilization, there were thousands upon thousands masters of science and technology who devoted their prominent contributions to the progress of the civilization. For example, there were more than 320 Nobel Prize laureates in the 20th century. In 1981, Mr. James F. Maurer, as a managing editor, published his "Concise Dictionary of Scientific Biography", in which there were over 5000 name boldface entries. Having considered the limited space of the book, we review the history and horizontally view the globe, then have to limit our selections and brief introductions within 100 entries of top masters of science and technology that have the most influence in the history. For the entry selection, we regulated the entry qualifications as below:

1. Precedence for intellectual priority.

The selected entries of scientists and inventors must have evidently at least one item scientific contribution, furthermore, the right of the priority has been universally recognized in the world. Therefore, we decide the entries in dependence of items not of fame. We have not selected all people whose intellectual priority is bewildering now. Take the compass as an example, in spite that it had been recorded, the person of the recordation did not win the intellectual priority of the invention, so we could not select him to be entered in this book.

2. Precedence for scientific thoughts.

过，但记载它的人并不享有对应的知识产权，所以，我们不能将它入选。


2、科学思想优先。考虑到知识的全面进步，尤其是科学规范的建立和科学方法论的变革对于科学技术本身的影响，我们入选了几位科学哲学家。我们认为，他们的科学哲学思想在人类文明进步中的作用，比单纯的科学技术所起的作用还要大。此外，美国科普作家卡尔森，因为发表《寂静的春天》一书，提出“环境保护”的概念而成为20世纪最具影响力的作家之一。虽然她本人并不是科学家和发明家，但她却以自己创造性的科普活动，尤其以“环境保护”概念极大地推动了科学和人类文明的进步。要使科学成为人类进步的推动力量，我们需要更多这样的科普作家。这就是我们入选卡尔森的原因。

3、价值优先。在科学家中，我们尽量选择那些在科学史上完成过开创性、导向性和革命性成就的科学家，他们通常在世界科学史上具有里程碑的意义。正是基于这一点，20世纪许多获得过诺贝尔奖的人也没有能够收入本书。此外，一些曾经很有影响，由于其对人类社会负面效果而受淘汰的技术发

Having considered the whole progress of knowledge, especially the influence of the establishment of scientific norm and the change of scientific methodology on science and technology, we entered several philosophers of science. In our opinion, their philosophical points of science had played more important roles in the progress of civilization than what a single science or technology had done. In addition to this, American female writer Rachel Carson was selected for an entry in this book because of her famous book "*Silent Spring*", which gave the conception of "protecting environment" for the first time, and for this reason, she became one of the most influential writers in the 20th century world. Although she is neither properly a scientist nor an inventor, her full creative activity of scientific composition, especially the conception of "protecting environment" expedited the progress of the civilization. In order to make science be a power for the civilization progress, we need more and more the people of a Rachel Carson. This is the reason why we selected Rachel Carson.

3、Precedence for scientific value.

We selected as those people who finished an initiative, orientative, revolutionary study of science and technology in the history as possible, and their contributions, according to our evaluations, are milestones in the history of science. Just based on this evaluation, many Nobel Prize laureates have not been selected to enter into this book. Otherwise, some very influential inventions, agricultural chemical pesticide and herbicide as examples, will not be




明,比如说,化学农药的发明之类,我们也不予以收入。


4、知识形态优先。在知识形态的要求上,我们坚持基本的科学规范,不以猜测性、经验性、思辨性,以及因果关系尚不十分明确的成就作为被选择的参考。鉴于此,一些曾经被夸大而实际上并不具备科学形态的经验性、猜测性、思辨性知识成果,在入选考量时,将被筛选掉。比如,富兰克林进行的电鸢实验,是一种纯粹的经验冒险,并不能认为这个实验揭示了避雷针的原理。从严格的知识形态上分析,富兰克林进行的电鸢实验不具备科学知识应该具备的特征。所以,我们把它筛选下去了。再比如,中国晋代的祖冲之曾经得到了一个精确到小数点之后7位的 π 值。但他所使用的“缀术”究竟是什么?怎样用“缀术”计算 π 值?这样的逻辑过程至今不明。另一方面,某些科学史家的研究已经向我们揭示了,阿基米德先于祖冲之约700年理论计算(不是测量计算) π 值的逻辑过程。虽然他的实际应用 π 值为 3.1418 ± 0.0002 ,但它的分数表达却达到了 $223/71 < \pi < 22/7$ 的精确度。为此,我们选择了阿基米德,而没有选择祖冲之。还有,德谟克里

selected in the book for their negative effects on the human beings.

4、Precedence for knowledge form.

As for the requirement of scientific form, we insist the basic scientific norm and do not consider the one that only has a surmising, empiristic, reflective or bewildering relation of causality. Herein, the book will filtrate out some intellectual contributions that had been aggrandized, without any scientific form in fact but a surmising, empirical, reflective or bewildering relation of causality. For example, that Franklin carried through an electric experiment by flying a kite is absolutely empirical without any form of science at all in strictly analysis in the knowledge form. So, we can't take it as an experiment of opening out the principle of lightning rod. Hence we will filtrate Benjamin Franklin out of the candidates of the top 100 masters. Another example is Zu Chongzhi, an ancient Chinese mathematician in the Jin Dynasty. In spite he gained the value of π exactly to a 7-digit decimal, his so-called Zhui-shu and the way to use Zhui-shu to calculate theoretically the value of π haven't been logically reasonable today. Whereas some historian of science have confirmed us that Archimedes, about 700 years ahead of Zu Chong-zhi, had theoretically (not empirically) calculated out the value of π by a logical process. Although the value of π was adopted practically within 3.1418 ± 0.0002 , its fractional expression had gotten a exactitude of $223/71 < \pi < 22/7$. Therefore we select Archimedes, not Zu Chong-zhi, for the





特的原子论，因为只具有自然哲学形态，而不具有通常的自然科学形态，也没有被入选到本书。

5、原理优先。最早阐明或实现一种原理的科学家或发明家将被优先入选。比如，1932年，马可尼研制的世界上第一台微波无线电话将梵蒂冈与教皇寝宫甘多佛城堡(Castel Gandolfo)联系在一起。此后，微波无线电通讯的原理在航海、雷达、天文学等方面都有很大的拓展，现代生活中的移动电话，也是这一原理发展的结果。因此，当我们选入了马可尼作为无线电通讯的最早贡献者之后，我们就不再考虑其他相关的人选了。同样，我们入选了瓦特作为蒸汽动力机的发明家之后，蒸汽动力机更广泛的工业化应用，如由蒸汽动力机推动的车床、钻床、锻压机械、汽车等，我们原则上均不再收入。

6、技术规范优先。在入选技术发明家时，我们按照基本技术规范优先原则选取。中国张衡发明的候风地动仪，苏颂发明的水运仪象台(西方学者把它误译为“天文钟”)都没有形成相应的技术规范，无论在当时，还是在后来，没有一样对应的仪器是基于这些发明的。本书没有入选诸如此类的发明。


entry. In addition to the two examples, Democritus' theory of atom as another one, it will be filtrated out also because that it had not a scientific form but a philosophical form of nature.

5、Precedence for principle.

The scientists or inventors who set forth or realized a principle first will be precedentially selected for a candidate of entries. For example, in 1932 Guglielmo Marchese Marconi developed the first microwave radiophone that covered between the stations of the Vatican Town and Castle Gandolfo. Then, the principle of microwave wireless communication was further developed into navigation, radar, astronomy and so on. Even a mobile telephone in modern life is also a developed form of its principle. Therefore, when we selected Marconi as the earliest contributor of wireless communication, the others will be filtrated out, and the same, James Watt was entered into this book, the corresponding contributors, such as of lathe, drill press, forging machines, automobile and so on, all of them with a steam engine, were not selected to be entered.

6、Precedence for a technological norm

When we consider candidates who could be entered into the book, we precedentially select those who created the earliest technological norm. Because of this entry qualification, Zhang Heng, who invented Houfeng Didongyi (a seismoscope with eight dragon heads and eight frogs), and Su Song, who designed Shui Yun Yi Xiang Tai (an astronomical clock tower), will not be selected, for they did not forme a



7、历史影响优先。我们强调历史上技术发明成果在满足生产、科学研究、和平、安全、生活便捷、健康等目的方面发挥了明显的、至今还有影响的作用。不考虑那些虽然可以算作历史上的一项发明，但它却对后世没有产生较为持久的影响的发明项目，也不予以入选。

8、时间优先。在满足上述条件的同时，在类似或相近的项目中，我们选择时间上更早的项目入选。

9、最新事实优先。以现有科学史研究成果为基本的参照，剔除过去的误解、夸大、吹捧和张冠李戴。比如，过去我们把物质不灭定律归功于俄国科学家、教育家、文学家、诗人罗蒙洛索夫。现在研究发现，罗蒙洛索夫不具有物质不灭定律的发现权。于是，根据多方比较，尤其是与历史上其他科学家的比较，我们没有入选这位曾经在中国名声很响的科学家。另一方面，中国著名生物学家朱洗曾经于1959年3月通过体细胞核移植培育出世界上第一只克隆动物：“无父”母青蛙。第二年，这只青蛙曾经产卵并生出了不少小蝌蚪，即“没有外公的青蛙”。这一成就完全具有世界领先水平，却被轰轰烈烈的总路线、大跃进和人民公社化运动掩盖

technological norm. In fact, whether then or in the late no other corresponding devices have been developed based on them. So this book will filtrate out such inventors.

7、Precedence for a historical effect.


As to selection, we insist that the contributions in the history should have their obvious and continuous effects on the meeting people's purposes of production, study, peace, security, convenience and health. Those inventions for want of any continuous or developing effect on the historical process, will be not entered into the book.


8、Precedence for an earlier time

Among all the similar candidates who meet the qualifications mentioned above, we select the one in an earlier time.

9、Precedence for new facts


Our selections will consult new facts from the history of science and eliminate the mistakes, exaggerations, bombast, and confusion. For example, in the past, we owe the discovery of the law of substance conversation to Russian educator, scientist, litterateur, poet Mikhail Vasilyevich Lomonosov, but new facts have denied the priority of Lomonosov. So, having made much comparison with other scientists in the history, we have not selected him in the entries, in spite of his great fame in china. For another example, in the March of 1959, Zhu Xi, a famous Chinese biologist, bred successfully a "female frog without father" by repotting the body karyon, and the next year the female frog produced many pollywogs; this was on the top all over the world then, but, unfortunately it had been concealed by





下去了。为了不忘记历史，我们在本书中，将最早克隆动物的荣誉归功于在科学史上默默无闻的我国科学家朱洗，而不是名声很响的英国科学家维尔穆特。

10、平等原则。上述入选条件不论种族、民族、性别、国籍、阶级、宗教信仰，一律平等。入选的100位巨匠不列排行榜，只按生年排序。



毋庸讳言，上述入选条件的合理性和我们执行这个条件的有效性与客观性，是一个见仁见智，可以进一步讨论的问题。大约，这样的讨论也难于由某个权威机构或某些权威人士去做最后的决断。考虑到这一事实，为了使本书得以顺利出版，我们只能在征求多方（包括国家科学院、工程院院士）意见后，按照我们的理解进行工作，搁置暂时还不会有任何明确结果的争论。因此，这本书的人物选择，基本上是一家之言，一孔之见。我们真诚地欢迎读者对我们的这个一家之言，一孔之见提出商榷意见，以便在这本书再版时得以纠正。为此，我们把广泛的讨论留在了本书出版之后。

"the great movement of three red flags" (general lines, big leap, people's commune) in China. Not to forget the history, in this book we owe the priority of clone to Prof. Zhu Xi, in spite of his fame unknown to the world, not to British scientist Ian Wilmut, in spite of his crack fame.

10、principle of equality.

The execution of the entry qualifications will be equal to every scientist, regardless of his/her race, nationality, gender, nation, class, faith, etc. The selected masters are not lined up. They're only listed according to their birthdays.

There is no doubt that the opinions about the validity and objectivity of our execution for the qualifications will be different from each other, and it's a problem worthy of more discussion. Probably, there is no last word of any authority organization or person for the discussion. Have considering the consequence, in order to publish the book smoothly, after consulting many academicians from the national Academy of Science and the Engineering Institute, we can but do first our work as our comprehension and put the controversy without any last word aside for a while. Therefore our selections could be from a peephole view and out of one of selectable schemes. We honestly welcome more deliberate discussion to the book so that we could correct some of them in a future edition. So we leave the comprehensive discussion behind.

学 科 索 引(可据生年查目录)

科学思想

- [古希腊]毕达哥拉斯(Pythagoras, 约公元前584—公元前504)
[古希腊]柏拉图(Platon, 公元前427—公元前347)
[古希腊]亚里士多德(Aristotle, 公元前384—公元前322)
[英]培根(Francis Bacon, 1561—1626)
[法]笛卡尔(Ren- Descartes, 1596—1650)
[美]卡尔森(Rachel Carson, 1907—1964)

数学及信息科学

- [古希腊]阿基米德(Archimedes, 公元前287—公元前212)
[古埃及]欧几里得(Euclid, 公元前325—公元前265)
[乌兹别克斯坦]阿尔-嘎利吉米(Muhammad Bin Musa Al-Khwarizmi, 770—840)
[德]莱布尼茨(Gottfried Wilhelm Leibniz, 1646—1716)
[瑞士]欧勒(Leonhard Euler, 1707—1783)
[德]高斯(Carl Friedrich Gauss, 1777—1855)
[英]阿达(Ada Byron, 1815—1852)
[美籍匈裔]冯·诺依曼(John von Neumann, 1903—1957)
[英]图林(Alan Turing, 1912—1954)
[美]山农(Claude E·Shannon, 1916—2001)

物理科学

- [意]伽利略(Galileo Galilei, 1564—1642)
[法]帕斯卡(Blaise Pascal, 1623—1662)
[荷]惠更斯(Christiaan Huygens, 1629—1695)
[英]牛顿(Isaac Newton, 1642—1727)
[英]卡文迪许(Henry Cavendish, 1731—1810)
[意]伏打(Alessandro Volta, 1745—1827)
[英]法拉第(Michael Faraday, 1791—1867)
[英]焦耳(James Prescott Joule, 1818—1889)
[德]赫姆霍兹(Hermann Ludwig Ferdinand von Helmholtz, 1821—1894)

- [埃及]托勒密(Ptolemy, 85—165)
[波兰]哥白尼(Nicolaus Copernicus, 1473—1543)
[丹麦]第谷(Tycho Brahe, 1546—1601)
[德]刻卜勒(Johannes Kepler, 1571—1630)
[美]哈勃(Edwin Powell Hubble, 1889—1953)

地球科学

- [古埃及]埃拉托色尼(Eratosthenes of Cyrene, 公元前276—公元前194)
[中]沈括(Shen Kuo, 1033—1097)
[德]洪堡(Baron Alexander von Humboldt, 1769—1859)
[英]赖尔(Charles Lyell, 1797—1875)
[德]魏格纳(Alfred Lothar Wegener, 1880—1930)
[美]里希特(Charls Francis Richter, 1900—1985)

生命科学

- [古罗马]盖仑(Galen, 129—200)
[荷]列文虎克(Antony van Leeuwenhoek, 1632—1723)
[法]拉马克(Chevalier de Lamarck, 1744—1829)
[英]达尔文(Charles Robert Darwin, 1809—1882)
[德]施旺(Theodor Schwann, 1810—1882)
[德]施莱登(Mathias Jacob Schleiden, 1804—1881)
[奥地利]孟德尔(Johann Gregor Mendel, 1822—1884)
[美]布尔班克(Luther Burbank, 1849—1926)
[美]摩根(Thomas Hunt Morgan, 1866—1945)
[中]朱洗(Zhu Xi, 1900—1982)
[英]克利克(Francis Harry Compton Crick, 1916—)
[美]贝格(Paul Berg, 1926—)
[中]袁隆平(Yuan Long ping, 1930—)

医学及生理科学

- [古希腊]希波克拉底(Hippocrates, 公元前460—公元前377)
[中]扁鹊(Bian Que, 公元前401—公元前310)
[乌兹别克斯坦]阿维森纳(Avicenna, 981—1037)
[法]巴斯德(Louis Pasteur, 1822—1895)

学 科 索 引

- [英] 麦克斯韦 (James Clerk Maxwell, 1831—1879)
[奥地利] 马赫 (Ernst Mach, 1838—1916)
[德] 伦琴 (Wilhelm Conrad Rontgen, 1845—1923)
[法] 贝克勒尔 (Antoine Henri Becquerel, 1852—1908)
[荷] 昂纳斯 (Heike Kamerlingh Onnes, 1853—1926)
[德] 赫兹 (Heinrich Rudolph Hertz, 1857—1894)
[德] 普朗克 (Max Planck, 1858—1947)
[波兰] 居里夫人 (Marie Curie, 1867—1934)
[英] 卢瑟福 (Ernest Rutherford, 1871—1937)
[德] 爱因斯坦 (Albert Einstein, 1879—1955)
[丹麦] 玻尔 (Niels Henrik David Bohr, 1885—1962)
[英] 查德威克 (James Chadwick, 1891—1974)
[美籍意裔] 费米 (Enrico Fermi, 1901—1954)
[德] 鲁斯卡 (Ernst August Friedrich Ruska, 1906—1988)
[日] 汤川秀树 (Hideki Yukawa, 1907—1981)
[瑞士] 罗雷尔 (Heinrich Rohrer, 1933—)
[德] 宾尼格 (Gerd Karl Binnig, 1947—)


天文学

- [英] 波义耳 (Robert Boyle, 1627—1691)
[英] 普利斯特列 (Joseph Priestley, 1733—1804)
[法] 拉瓦锡 (Antoine Laurent Lavoisier, 1743—1794)
[英] 道尔顿 (John Dalton, 1766—1844)
[英] 戴维 (Humphry Davy, 1778—1829)
[瑞典] 柏尔采留斯 (Johann Jakob Berzelius, 1779—1848)
[德] 李比希 (Justus von Liebig, 1803—1873)
[俄] 捷列夫 (Dimitry Ivanovich Mendeleyev, 1834—1907)

- [英] 利斯特 (Joseph Lister, 1827—1912)
[俄] 巴甫洛夫 (Ivan Petrovich Pavlov, 1849—1936)
[奥地利] 兰德斯泰纳 (Karl Landsteiner, 1868—1943)

技术发明

- [中] 蔡伦 (Cai Lun, 约 63—121)
[中] 毕升 (Bi Sheng, 约 1000—约 1051)
[德] 谷登堡 (Johann Gutenberg, 约 1400—1468)
[法] 达盖尔 (Louis Jacques Maude Daguerre, 1787—1851)
[英] 瓦特 (James Watt, 1736—1819)
[英] 史蒂芬森 (George Stephenson, 1781—1848)
[美] 莫尔斯 (Samuel F.B. Morse, 1791—1872)
[德] 西门子兄弟 (兄) 维纳 (Werner von Siemens, 1816—1892) (弟) 维赫姆 (Wilhelm Siemens, 1823—1883)
[瑞典] 诺贝尔 (Alfred Bernhard Nobel, 1833—1896)
[美] 富尔顿 (Robert Fulton, 1765—1815)
[英] 贝尔 (Alexander Graham Bell, 1847—1922)
[美] 爱迪生 (Thomas Alva Edison, 1847—1931)
[美] 莱特兄弟 (兄) 维尔布·莱特 (Wilbur Wright, 1867—1912) (弟) 奥维尔·莱特 (Orville Wright, 1871—1948)
[意] 马可尼 (Guglielmo Marchese Marconi, 1874—1937)
[德] 冯·布劳恩 (Wernher von Braun, 1912—1977)
[俄] 茨沃里津 (Vladimir Kosma Zworykin, 1889—1982)
[美] 戈尔德 (Gordon Gould, 1920—)



目 录 (按出生年代)

〔古希腊〕毕达哥拉斯(Pythagoras, 约公元前 584—公元前 504) / 1

最早倡导数学上和谐的自然观和科学观,率先在古希腊打破了神秘主义和经验主义的思维传统,实现了自然观和科学观的深刻转变。还发现勾股定律、琴弦定律以及对奇数、偶数和质数的区别方法。

He was the first to propose the view of mathematical harmony in nature and in sciences. He took the lead in breaking free from mysticism and empiricism thinking conventions in ancient Greece and realized an intensive change of natural and scientific viewpoints and discovered the Pythagorean theorem, the string theorem and the method to distinguish even, odd and prime number.

〔古希腊〕希波克拉底(Hippocrates, 公元前 460—公元前 377) / 4

西医鼻祖,最早主张以自然的方式理解疾病和治疗,反对巫术、猜测和迷信,以誓言的形式提出较完整的医疗职业道德准则。

The originator of western medicine Hippocrates claimed first to comprehend and treat diseases naturally, against necromancy, surmise and superstition; made moral rules for professional doctors in "The Oath of Hippocrates".

〔古希腊〕柏拉图(Platon, 公元前 427—公元前 347) / 7

倡导科学的形式化研究,主张把科学建立在理性的基础上;第一个创办研究机构培养研究生,从而奠定了大学的雏形。

Proposed formalization studying in science and advocated basing the science on rationality. He was the first to establish research institute and train students, and thus, laid a foundation for an embryo college.

〔中〕扁鹊(Bian Que, 公元前 401—公元前 310) / 10

中国传统医学的鼻祖,首创了中医诊断和治疗的基本规范,以及以“仁术”为核心的医疗道德准则。

The originator of Chinese traditional medicine who formulated a basic model of diagnosis and treatment for Chinese traditional medicine and moral rules for professional doctors with the kernel of "ren shu" (kind techniques).

〔古希腊〕亚里士多德(Aristotle, 公元前 384—公元前 322) / 12

古希腊文明的集大成者。倡导以事物内部具体的实体作为科学的对象,把科学建立在严格的经验观察的基础上。此外,在生物学、逻辑学、哲学、气象学、地质学、天文学、力学等方面还有具体的科学贡献。

The most successful man in ancient Grecian culture. He initiated that the concrete being in natural things was considered as scientific object and that science was built on the basis of strict empirical observations. Otherwise, he made particular scientific contributions to biology, logic, philosophy, meteorology, geology, astronomy and mechanics.

〔古埃及〕欧几里得(Euclid, 约公元前 325—公元前 265) / 15

创立欧几里得几何学和科学研究的演绎法则。这是人类文明史上第一个最严谨的知识体系。其代表作《几何原本》是世界上最早公理化的数学著作。它为科学在逻辑上的严谨性树立了楷模。

Founded Euclid geometry and deductive method for scientific studying, which is the first strictest knowledge system in human culture. His representative work "The Elements" is the first axiomatic math work which set an example for logically strict science.



目 录

〔古希腊〕阿基米德(Archimedes, 公元前 287—公元前 212) / 18

卓越的希腊数学家、发明家。写过大量的讨论平面几何、立体几何、算术和力学方面的著作。主要发现有：“杠杆定律”、“阿基米德定律”；发明有：螺旋式绞水机、抛石机、滑轮组起重机等。

Famous Grecian mathematician and inventor who has published a lot on plane geometry, solid geometry, math and mechanics. His chief discoveries are: "Lever law" and "Archimedes law". His inventions included threading water wind, stone throwing machine and crane with pulley blocks.

〔古埃及〕埃拉托色尼(Eratosthenes, 公元前 276—公元前 194) / 21

古希腊地理学家、天文学家、数学家和诗人。首次测算出黄赤道交角，用测地法测定了地球的大小，第一个应用经纬网绘制地图，从而奠定了数理地理学的初步基础。

Ancient Grecian Geologist, astronomer, mathematician and poet who measured first the angle of intersection of elliptic and equator in heaven sphere, mensurated the size of earth and protracted a map with net of longitudes and latitudes, the latter laid primarily a foundation of mathematical geology.

〔中〕蔡伦(Cai Lun, 约 63—121) / 23

发明中国古代的造纸术，形成影响至今的造纸技术规范。

Invented ancient Chinese papermaking and formed technical specifications of papermaking.

〔埃及〕托勒密(Ptolemy, 85—165) / 28

创建第一个具有科学形态的太阳系构造模型，最早把天文学引上了科学的轨道。

Created the first constructive model of solar system with scientific pattern and led first astronomy-studying to a scientific path.

〔古罗马〕盖伦(Galen, 129—200) / 31

继希波克拉底之后古代最杰出的医生。他对动物进行的解剖学研究和对人体器官功能的观察，主宰欧亚大陆医学的理论与实践达 1400 年。

After Hippocrates, Galen was the most outstanding doctor. His anatomic study of animals and observations of human organs dominated the field of medical theory and practices for 1400 years.

〔乌兹别克斯坦〕阿尔—嘎利吉米(Muhammad Bin Musa Al-Khwarizmi, 770—840) / 33

代数学和算法的奠基人。第一个采用阿拉伯数字，并把“0”引入计数系统。他还主持绘制了世界上第一张世界地图。

Founder of algebra and algorithm who first adopted algorism and brought zero to the counting system. He also took charge of drawing the first map of the world.

〔乌兹别克斯坦〕阿维森纳(Avicenna, 981—1037) / 35

出生在乌兹别克斯坦的阿拉伯医学家、哲学家、自然科学家，著有五卷本《医典》，并广泛在欧洲和中亚地区流传。

Arabian medical scientist, philosopher and naturalist born in Uzbekistan, He published a five-volume book of "al-Qanun fi al-Tibb" which went around all over Europe and the area of central Asia.

〔中〕毕升(Bi Sheng, 约 1000—约 1051) / 38