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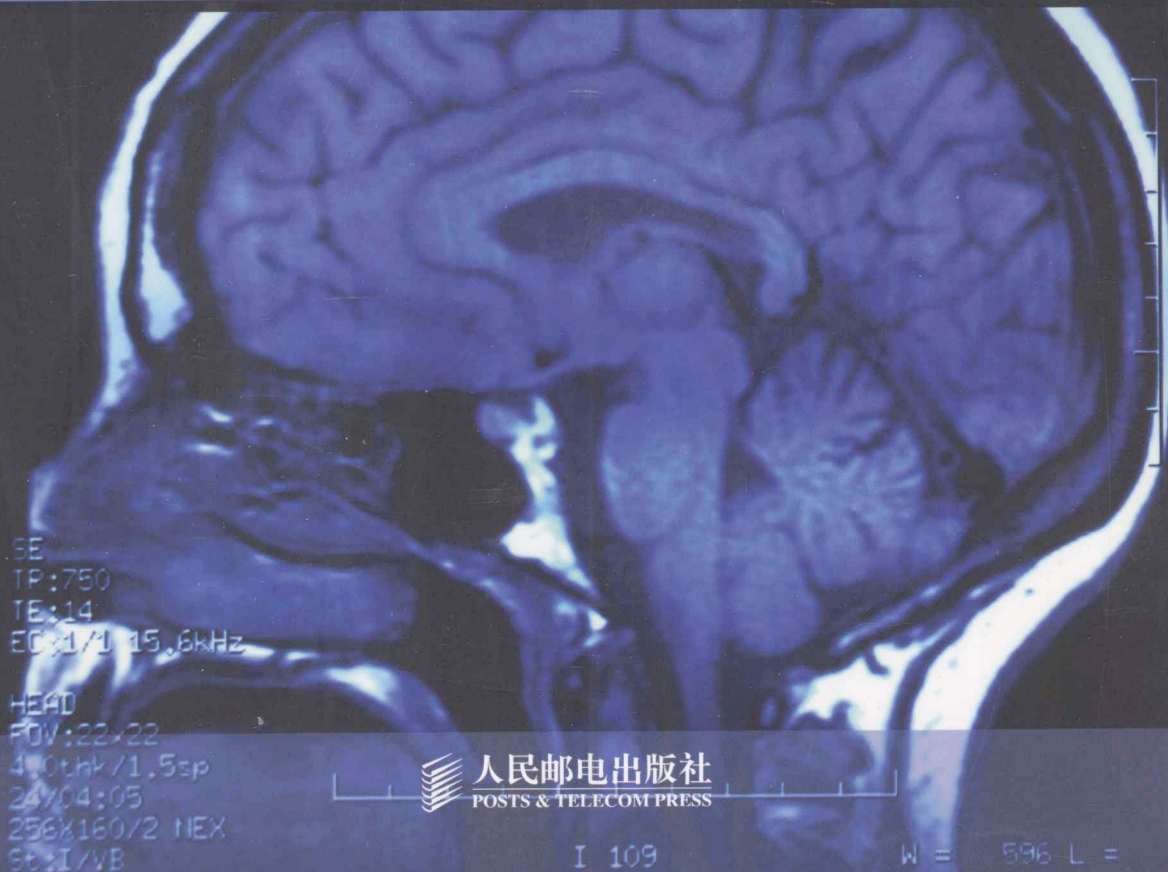
# 爱上科学

INTRODUCING • 科技与发明系列  
INVENTION AND TECHNOLOGY

## 医学与健康

MEDICINE AND HEALTH 双语版

[英] Tom Jackson 编  
黄延峰 译  
熊雪亭 审



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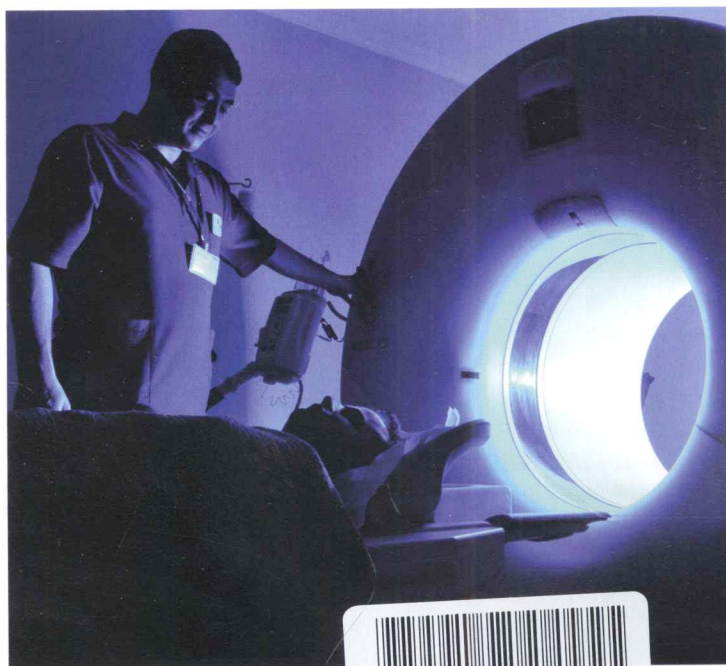
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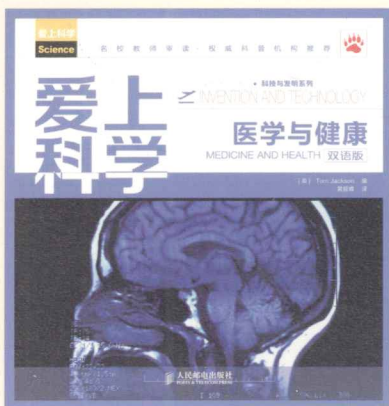
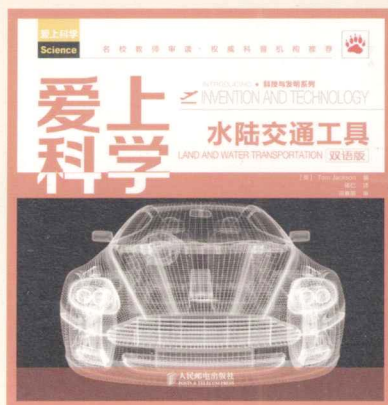
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## 内容提要

《爱上科学》系列科普丛书为读者全面地讲述了科学知识和原理，以通俗的文字、生动的图表为特色，每本书介绍一个或几个主题。从日常生活中有趣的现象出发，引导和培养读者学习的兴趣，扩宽读者的视野，同时还可以帮助读者学习英语词汇、练习英语阅读。丛书涵盖物理、化学、生物、科技与发明这4个系列。适合对科学知识感兴趣的广大科普爱好者阅读。

本书是科技与发明系列中的一本。科技与发明系列主要介绍各种科技成果以及相关发明，覆盖多个领域，包括建筑、交通、医学、军事、能源以及航空航天等，指导读者认知和学习各种科学技术，拓宽视野，引发思考，提高创新能力以及发明意识。

本书用青少年感兴趣的方式展示医学与健康，包括早期的医学、医学的科学性、医学药物、医学的诊断方法以及近现代的医学手术，以及生物医学角度的繁殖与遗传。书中含有“科学词汇”栏目，提取每章重点知识词汇。同时还有“试一试”栏目，包含丰富有趣的家庭小实验，有助于提高大家的动手能力。

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## 丛书序

这是一个科技新时代，我们曾经认为遥不可及的科学，时刻围绕在我们身边。你是否曾经怀疑过所谓的“2012，世界末日”，或者好奇过在地下高速飞驰的地铁，抑或每天都在关注着PM2.5……这说明科学已然走进了你的生活。学习科学，分享科学，爱上科学，让我们共同聆听来自科学的声音。

《爱上科学》系列科普丛书是一套引进版系列科普丛书，译自英国大型出版商棕熊图书（BROWN BEAR BOOKS）有限公司出版的著名科普图书《Facts At Your Fingertips》，其独特的科学解读视角、生动的科普画面、优美的图文设计，得到了欧洲读者的青睐，尤其是得到了欧洲青少年的极大欢迎。本丛书为读者全面地讲述了各个领域的基础科学知识和基本事实，以精彩的主题、通俗的文字、生动的画面为特色，从我们身边的素材和现象出发，激发和培养读者学习的兴趣。

丛书涵盖物理、化学、生物、科技与发明四大系列。物理系列阐释和说明了物理学知识及其发展史，包含对物理学发展史许多重大的物理发现以及著名的物理学家的介绍。化学系列主要阐释现代化学的基本概念，涵盖化学反应、有机化学、生物化学、金属、非金属、分子、原子、物态等多方面内容。生物系列主要阐释生命科学的基本概念，并探讨有关生物学的各个方面，包括植物学、微生物学、动物和人类、遗传学、细胞生物学以及生命形式等。科技与发明系列主要介绍各种科技成果以及相关发明，覆盖多个领域，包括建筑、交通、医学、军事、能源以及航空航天等，指导读者认知和学习各种科学技术，拓宽视野，引发思考，提升创新能力以及发明意识。

本丛书还具有中英双语的独特设计，让读者在阅读中文时，能对照性地阅读英语原文，为他们提高科学领域的英文阅读能力以及扩展科学类英语词汇量提供了很好的帮助。

丛书中还有“试一试”栏目，该栏目包含了丰富有趣的家庭小实验，为大家在生活实践中验证科学知识提供了更多的选择。

学无止境，让我们一起爱上科学！



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# EARLY MEDICINE

Medicine as we know it today is a well-developed and sophisticated area of science. But its humble beginnings can be traced back thousands of years to prehistoric society.

**Most prehistoric peoples** lived in small groups and wandered from place to place, using materials such as bone, wood, and stone to construct simple tools. The study of their skeletons reveals that they could reset broken bones and perform minor operations with a reasonable success rate. However, when

## SUPERNATURAL CURES

It was not only prehistoric peoples who thought diseases could be caused by magic and spirits. The ancient Egyptians, whose civilization began around 3000 B.C., were also firm believers in the supernatural. They often wore charms to keep evil spirits away, and if they did become ill, they usually turned to magic and their gods to cure them. The ancient Greeks and Romans constructed temples to Asclepius, the god of healing, to which the sick were often brought to receive miracle cures.

Throughout the Middle Ages, when Christianity had become the main religion in Europe, sick people often went on pilgrimages to holy sites, hoping for relief. Even today supernatural cures and witch doctors—who often practice herbal medicine—are important in many parts of the world.

*Asclepius, the Greek god of healing, had a staff entwined with a snake. This symbol is used by medical institutions to this day.*



*All illness was potentially deadly before modern medicines were invented, but calling for a doctor was expensive and so was often a last resort.*

an illness was more serious, they probably believed that the sufferer was possessed by an evil spirit.

Prehistoric people performed one major operation: trepanning, or cutting a hole in the skull of a person while they were still alive. Trepanned skulls have been found in every part of the world. Many of the skulls have new bone growth around the edges of the hole, showing that the person probably lived on for many years after the operation.





## Herbal remedies

Ancient cures were often a combination of herbal and magical elements. Chest conditions were treated by making the patient inhale steam, while cuts and burns were treated with ointments. Often the doctor would read incantations or perform ceremonies as the treatment was administered. Egyptian records show that if a treatment worked, people continued to use it, while those treatments that failed were soon forgotten. In this way, the ancient Egyptians built up a lot of medical knowledge, and many of their treatments are still used in some parts of the world.

From the periods of Greek and Roman civilization to the end

## THE BOOKS OF THOTH

The most important early Egyptian medical books were the *Books of Thoth*, kept by priests at the temple to Thoth, the Egyptian god of wisdom. Although none of these works has survived, researchers have found a medical book from around 1500 B.C. that was probably based on them. It contains detailed instructions on how to deal with many common illnesses.

of the 18th century, herbal cures were very widely used. New herbal treatments were always being added to the growing body of medical knowledge. There was little science involved in this area of medicine, and no one knew why the treatments worked. For example, it has been known for hundreds of years that the bark of certain trees cures headaches when chewed. However, it was only in the 19th century that the substance

*A prehistoric human skull has a hole in it from a trepanning procedure.*





诚如我们今天所知道的，医学是一个发达而深奥的科学领域。但医学的起点并不高，可以追溯到几千年前的史前社会。

大多数史前人类生活在小的群落里面，从一个地方流落到另一个地方，使用骨、木和石这样的原材料制作简单的工具。据对史前人类的骨骼进行的研究揭示，他们已经能够重新接好断骨，实施小型

## 超自然的治疗

并非只有史前人类认为疾病可能是由妖魔鬼怪造成的。文明始于大约公元前3 000年的古埃及人也是超自然力量的坚定信仰者。他们常常佩戴着护身符，为的是让恶魔邪灵远离自己，如果他们生病了，他们通常会求助于魔法和神灵为他们治疗。古希腊人和古罗马人为医神阿斯克勒庇俄斯（Asclepius）建造了神庙，病人常常被送往神庙接受神力的治疗。整个中世纪时期，基督教成了欧洲的主要宗教，病人常常会去圣地朝圣，期盼着能够解除痛苦。即使到了今天的社会，超自然治疗和常常使用草药的巫医在世界很多地方仍然还有地位。



希腊医神阿斯克勒庇俄斯，手持一根缠绕着一条蛇的手杖，今天的医学机构常常用它作标志。



在现代医学创立之前，所有的疾病都有潜在的致命性，但是，请医生的费用很高，所以，请医生是最后迫于无奈的选择。

的手术，并且具有一定的成功率。然而，当某种疾病非常严重时，他们认为忍受疾病折磨的人大概是被恶魔附体了。

史前人类实施过一种大手术，即开颅手术，他们在一个仍然活着的人的颅骨上切开一个圆孔。世界各地都发现过这种开过孔的头骨。许多头骨在开孔的边缘还有新骨生长的痕迹，表明这个人在手术





之后可能又生活了很多年。

## 草药治疗

古代人的治疗往往是将草药和魔力结合起来使用的联合治疗。胸部疾病通过让病人吸入气雾来治疗，而割伤和烧伤则用药膏来治疗。在实施治疗时，医生常常口念咒语，或者举行某种仪式。埃及人留下的记载表明，如果一种治疗方法有效，人们会继续使用它，而那些不起作用的治疗方法则很快会被人们忘记。利用这种方式，古埃及人逐渐获得了大量的医学知识，他们的许多治疗方法仍在世界

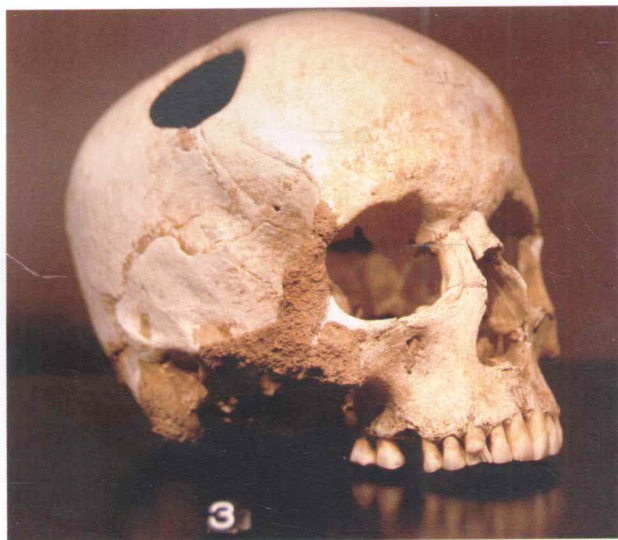
## 《透特之书》

透特(Thoth)是古埃及的智慧之神，早期埃及人最重要的医学书籍为《透特之书》(*The Book of Thoth*)，它由透特神庙中的祭司保管。这些著作没有一本能够保存下来，但研究人员发现了一本约公元前1500年的医学书籍，它可能就是基于这些医学书籍撰写的。这本书对许多常见疾病的治疗方法进行了详细的说明。

某些地方被采用。

从古希腊和古罗马文明时期到18世纪末，草药治疗得到了广泛的使用。新的草药治疗方法不断地被添加到越来越庞大的医学知识体系中。在这一医学领域中，几乎看不到科学的身影，没有人了解为什么这些治疗方法会奏效。例如，咀嚼某种树的树

史前人类的头骨，上面有一个开颅手术留下的圆孔。



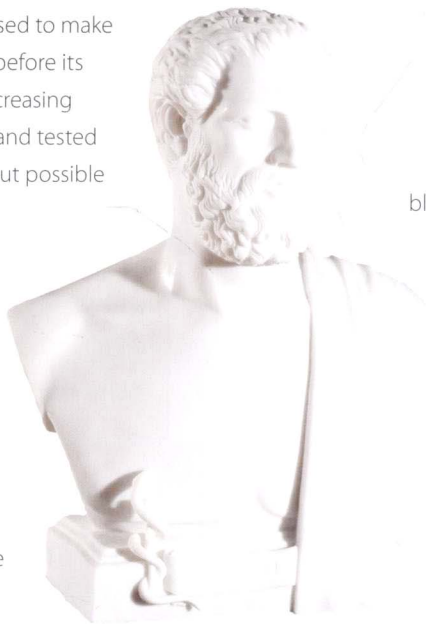


# EARLY MEDICINE

responsible for this effect, salicylic acid (now used to make aspirin), was isolated. Another century passed before its method of action was discovered. Today an increasing number of people are reverting to these tried and tested herbal remedies because they are worried about possible side effects of modern drugs.

## Theories of disease

The ancient Egyptians were the first people to devise a theory of disease, allowing them to develop treatments for serious illnesses in a systematic manner. Influenced by the seasonal rise and fall of the Nile River, which was very important to Egyptian people, doctors thought that the human body must be full of channels for blood and other fluids. The



*Hippocrates, the founder of modern medicine, rejected the idea that diseases had a supernatural cause—and that magic was an important part of treatment.*

blockage of one of these channels would lead to illness, and treatments such as emetics (substances that cause vomiting), laxatives, and bleeding (drawing out blood) were widely used to clear blockages and cure the patient.

One of the greatest individual contributors to medical knowledge was a Greek physician called Hippocrates, who lived from around 460 B.C. to 377 B.C. We know very little about

## CLINICAL OBSERVATION AND DIAGNOSIS

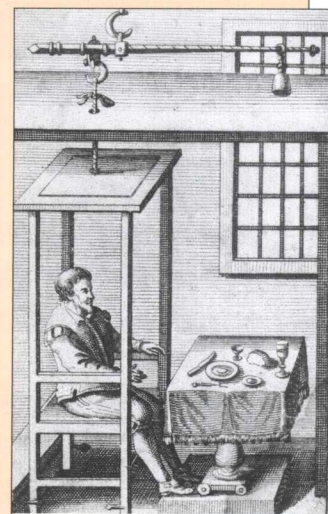
Hippocrates set out the principles of diagnosis. He observed symptoms to predict the course of the disease. Once a prognosis (prediction) had been made, he administered treatment while monitoring the patient. Modern doctors still use this approach, known as clinical observation.

Later doctors invented tests that made the diagnosis more precise. Temperature can be used to gauge illness, for example. In 1626 an Italian physician called Santorio (1561–1636) invented a water thermometer that allowed doctors to measure temperature with greater

accuracy. Medieval doctors listened to a patient's lungs and heart. A technique called percussion was developed by Austrian Leopold Auenbrügger (1722–1809). He tapped a patient's abdomen to listen to other internal organs as well.

The microscope was first used to study disease by Athanasius Kircher (1602–1680) in the late 1600s, but its true medical potential did not become apparent for another century.

*Santorio used a simple weighing experiment to show that the body extracted substances from food before expelling waste material.*





*During Europe's Black Death epidemics, plague victims were collected each night for immediate burial, lest the then-mysterious disease spread to the living.*

Hippocrates himself, but he is associated with a collection of medical texts written around 430 B.C. Hippocrates devised his own theory of disease. He thought that the body was made up of four humors—blood, phlegm, black bile, and yellow bile. He suggested that in a healthy body the humors are all finely balanced, but if this balance is disrupted, illness results. His theory of disease was widely used by European doctors, throughout the Middle Ages.

## Anatomy

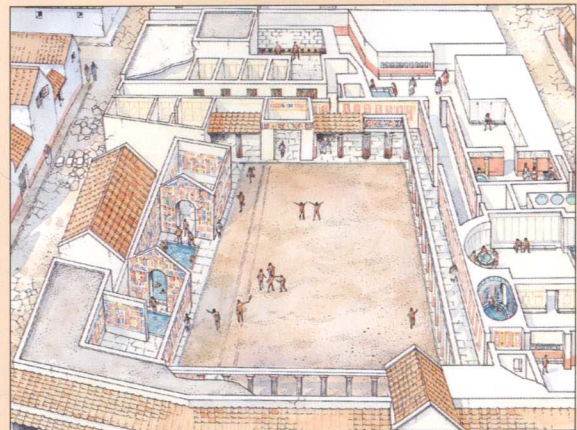
The ancient Egyptians made several advances in anatomy—the study of the structure of the body—while learning how to preserve, or mummify, dead bodies, which they believed were still needed in the afterlife.

## HEALTH AND LIFESTYLE

The connection between cleanliness and health was probably first made by the ancient Egyptians, who washed both their clothes and their bodies regularly. Toilets and baths were common among the rich, and some Egyptians even slept under mosquito nets! Like the Egyptians, the Greeks and Romans knew of the benefits of a healthy lifestyle. Greek physician Diocles, who lived in the 4th century B.C., advocated washing with pure water every day and even cleaning the teeth with peppermint-flavored powder. The Romans turned bathing into a social event, building great public baths in many of their cities.

With the fall of the Roman Empire sewers and aqueducts (channels that carried fresh water into towns and cities) fell into disrepair, and living standards declined. Filthy streets and poor food and water hygiene led to outbreaks of plague and other infectious diseases during the Middle Ages. It was not until the Industrial Revolution during the 19th century that conditions began to improve.

*A public bath was a central part of a Roman city. Bathers plunged into pools of different temperatures, and used olive oil to clean the skin. Soap had yet to be invented.*





皮会治愈头痛，这一点人们已经知道了几百年。然而，直到19世纪，产生这种疗效的物质水杨酸（现在用于制造阿司匹林）才被分离出来。又经过一个世纪的时间，人们才发现它产生作用的机理。今天，因为人们担心现代药物可能带来副作用，越来越多的人又开始重新使用那些经过反复验证的草药治疗方法。

## 疾病理论

古埃及人是首先创立疾病理论的人，他们以一种系统的方法拓展了治疗严重疾病的方法。尼罗河对于埃及人非常重要，由于受尼罗河水季节性涨落的影响，医生们认为人体也必定布满了血液



希波克拉底是现代医学的奠基人，他否定有一种超自然的原因导致了疾病的观念，不相信魔法是一种重要的治疗方法。

和其他液体的管道。任何一个管道的发生堵塞都会致病，因此像让人呕吐的催吐药、泻药和放血这样的治疗方法被广泛用来清除阻塞物，从而治愈病人。

希腊医生希波克拉底（Hippocrates）生活在公元前460年至377年，他是对医学知识做出贡献最大的人之一。我们对希波克拉底本身知之甚少，但他与约公元前430年编写的一部

## 临床观察和诊断

希波克拉底确定了诊断的原则。他通过观察症状推测致病的原因。一旦对病因做出预判，他就会一边观察病人，一边进行治疗。现代医生仍旧在使用这种方法，称之为“临床观察”。

后来的医生发明了检查的方法，使得诊断更加精确，比如体温可以用作判断疾病。1626年，意大利医生圣托里奥（Santorio）（1561—1636）发明了水温计，医生们得以更加准确地测量体温。中世纪时的医生会听病人的肺部声音和心跳。奥地利人

利奥波德·奥恩布鲁格尔（Leopold Auenbrugger）（1722—1809）练就了一种叫作叩诊的技术。他轻敲患者的腹腔来听取其他内脏的声音。

17世纪晚期，显微镜首先被阿萨内修斯·基歇尔（Athanasius Kircher）（1602—1680）用于研究疾病，但是，又经历了一个世纪之后，显微镜真正的医学潜力才得以发挥出来。

利用一个简易的称重设备，意大利医生圣托里奥证明在食物变成排泄物排出之前，人体从中吸收物质。

