

WORLD FAMOUS SCIENTISTS

世界著名科学家

小故事

Dennis Hagen

陈辉岳

编著



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上海外语教育出版社

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Leng Jie (Autumn) was the primary typist for the full manuscript. Janet Hagen, the author's wife, was the final editor.

Mr. Chen Huiyue, is my co-worker and friend. He has provided the opportunity for me to write books for students of English in China. I consider our partnership to be one of the great privileges for me as an American.

Preface

The great scientists of all history have given us an understanding of our world from their knowledge of the universe from the largest galaxy to the smallest insect. As you read about the discoveries and inventions of these men and women, you will have an inner sense of fascination.

Much of the vocabulary of science is specialized, which means students will have to learn the language of botany, physics or mathematics. The author has tried to minimize the amount of new words from these scientific experts. However, some ideas can only be identified or explained with a scientific vocabulary.

As you read, you will get a sense of awe concerning the intelligence of the scientists. It is our privilege to examine their research as we try to understand their various scientific fields. You will especially be interested in the history of Chinese inventors. They made many inventions of practical value that were not known in Europe for many centuries.

前 言

《世界著名科学家小故事》(World Famous Scientists)是《中学生英语文库》(English Library for Students)的第九本出版物。当你听、读本书时,你会了解到古今中外在科技的各个领域为人类文明作出杰出贡献的五十多位科学家、发明家。这些科学家生平并无显赫的权位,他们的财富就是本专业的丰富知识。他们的重大成就都直接或间接地造福于人类社会,也正是这些成就帮助构筑了我们的现代文明生活。书中有些发明或发现在我们今天看来显得较平凡,但是我们现代的科学技术正是在这些成就的基础上发展起来的。科技的发展,人类对美好生活的追求将永远是无止境的,但对为此作出贡献的科学家,我们将永远铭记在心。

本书中出现了一些常用的科技词汇,掌握后可以为你今后阅读科普文章打下坚实的基础。书中词汇凡超出教育部 2003 年 4 月制定的《普通高中英语课程标准(实验)》3500 词汇表的,在各课的 Words & Phrases 栏目中均用中文注释并加注国际音标。书后还附有总词汇表供你系统记忆、巩固用。每篇短文后有三个理解测试题,帮你检查自己的理解程度。

本书的配套录音带共四盒,由 Dennis Hagen 夫妇

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欢迎广大读者对本书及本丛书的编写提出宝贵意见。

陈辉岳

2003年9月1日于上海

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1. Chinese Astronomers

Zhang Heng (78 – 139 A. D.) was an unusual child. As a 5-year-old boy, he would observe the stars at night. His grandfather was astonished and said to him, "There are hundreds and thousands of stars in the sky. How can you count them?" Zhang recognized their positions and thought they were always in perfect order.

In 117A. D., Zhang built a spherical object on an axis that revolved just like the earth. It was called Hun Tian Yi and was driven by water.

In 132 A. D., he built a seismograph and called it Di Dong Yi. Eight dragon heads arranged in a circle had a small iron ball in each mouth. When the earth had a tremor, the ball in the dragon's mouth facing the earthquake would fall into a frog's mouth.

Zhang was the official astronomer of the Han emperor. He worked with an early form of the compass. He scientifically explained both the solar eclipse (sun) and the lunar eclipse (moon). He also refined the calculation of pi from 3.0 to 3.162. This

is important for precise calculation of the circumference of a circle in mathematics.

Zu Chongzhi (429 – 500 A.D.) was an astronomer who devised the best scientific calendar, which was called “Da Ming’s Calendar”. He also worked on the calculation of pi, improving its accuracy to the sixth decimal.

Guo Shoujing (1231 – 1316 A.D.) was appointed by the Yuan emperor Kubilai Khan to work with others to build an observatory. As Guo watched the stars, he worked on a new calendar. He studied 40 calendars from as early as the Han Dynasty. Then he devised the “Shou Shi Calendar”. He calculated the year as the length of 365.2425 days. This is the accepted length used today.

Zhang Yuzhe (1902 – 1986) studied at Tsinghua University and Chicago University in the U. S. A. He found the 1,125th minor planet, which was called “China”. He also found the 2,051th minor planet, which was named “Chang”. He served many positions in science as well as the Director of the Chinese Academy of Sciences Observatory.

Dai Wensai (1911 – 1979) coined the word “cosmic” and suggested a theory of the origination of the solar system. He was an author of many books including *Star Astronomy* and *Evolution of Astronomy*.

Questions

1. Dragons and frogs were used by Zhang Heng to explain the ____.

- A. solar eclipse
 - B. earth's rotation
 - C. direction of earthquakes
 - D. calculation of pi
2. Guo Shoujing calculated the length of the year as _____.
- A. less than 366 days
 - B. more than 365 days
 - C. about 365.5 days
 - D. about 365.25 days
3. "China" and "Chang" are names of _____.
- A. minor planets
 - B. distant stars
 - C. near stars
 - D. new comets

Words & Phrases

astronomer [ə'strɒnəmə] *n.* 天文学家

spherical ['sfɪrɪkəl] *a.* 球的, 球形的

axis ['æksɪs] *n.* 轴; 轴线

revolve [rɪ'vɒlv] *vi.* 旋转; 绕转

seismograph ['saɪzməgrəf] *n.* 地震仪

tremor ['tremə] *n.* 震颤; 发抖

compass ['kæmpəs] *n.* 罗盘, 指南针

solar ['səʊlə] *a.* 太阳的, 日光的

eclipse ['ɪk্লɪps] *n.* (天)食

solar eclipse (天)日食

lunar eclipse (天)月食

lunar ['lʊnə] *a.* 月的, 太阴的; 新月形的

refine [rɪ'faɪn] *vt.* 精炼, 提纯; 精制

pi [paɪ] *n.* (数)圆周率(π)

precise [prɪ'saɪs] *a.* 精确的, 准确的

circumference [sə'kʌmfərəns] *n.* 圆周, 周围; 周线, 圆周

线

devise [dɪvaɪz] *vt.* 设计, 发明

accuracy [ˈækjʊrəsi] *n.* 准确, 精确

decimal [ˈdesɪməl] *n.* (数) 小数(十进小数) *a.* 小数的, 十进位的

observatory [əbzərvətəri] *n.* 天文台

minor [ˈmaɪnə] *a.* 较小的, 较少的; 较年幼的, 较次要的

academy [əˈkædəmi] *n.* 研究院; 学会

Chinese Academy of Sciences 中国科学院

coin [kɔɪn] *vt.* 创造, 杜撰(新词, 新语等)

cosmic [ˈkɒzmɪk] *a.* 宇宙的; 广大无边的

origination [ˌərɪdʒɪneɪʃən] *n.* 发源, 发生

evolution [ˌiːvəluːʃən] *n.* 发展, 演变

For Your Reference

Zhang Heng 张衡(78—139), 东汉科学家, 文学家, 精通天文历算, 天文著作有《灵宪》。

Zu Chongzhi 祖冲之(429—500), 南北朝时代南朝的科学
家, 编制了《大明历》, 著有《缀术》和《九章算术注》。

Guo Shoujing 郭守敬(1231—1316), 元天文学家、水利学
家、数学家, 与王恂、许衡等编制《授时历》。

Zhang Yuzhe 张钰哲(1902—1986), 天文学家。1928 年
在美发现一颗小行星, 命名为“中华”, 编著有《小行星漫谈》。

Dai Wensai 戴文赛(1911—1979), 天文学家, 著有《恒星天文学》、《天体的演化》和《太阳系演化学》, 主编有《天文学教程》和《英俄中天文学词汇》等。有《戴文赛科普文集》。

Hun Tian Yi 浑天仪, 我国古代测定天体位置的一种仪器。

Di Dong Yi 地动仪, 东汉张衡发明的地震仪, 发明于公元 132 年, 比外国地震仪早 1700 多年。

Da Ming's Calendar 《大明历》, 南北朝祖冲之创制的历

法,成历于公元 463 年。

Shou Shi Calendar 《授时历》,为我国历史上施行最久的历法,历时 364 年。