

标准英语分级读物·学生卷·第2级

天文学家 ASTRONOMERS

原版美国阅读教程

用英文阅读，学百科知识

完美实现国家新课程标准要求

童趣出版有限公司编译 人民邮电出版社出版

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Cover, Title Page, Pages 2, 6a, 7, 9, 10, 11, 14a, 14b, 15, 16, 20, 21, 22, 24, 26, 28a, 28b,
29a, 29b:

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Pages 4, 17: Roger Ressmeyer/CORBIS

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Maps by Mike Hortens

Illustrations by Albert Hanner

标准英语分级读物·学生卷·第2级

天文学家

项目经理: 孙蓓

责任编辑: 王新军 封面设计: 蔡颖

童趣出版有限公司编译

人民邮电出版社出版

北京市崇文区夕照寺街14号(100061)

新华书店总店北京发行所经销

北京慕来印刷有限公司印制

北京汉魂图文设计有限公司制版

开本: 787 × 1092 1/16 印张: 2

2003年6月第一版 2003年6月第一次印刷

图字: 01-2002-3581 印数: 1-5,000册

书号: ISBN 7-115-11419-6/G·986

本辑定价: 23.20元(共四册)

最佳学习安排

训练正确阅读习惯，提高理解分析能力

第一步，正式的学习开始之前，请先认真阅读封面封底，以了解本书的特点。

第二步，在开始阅读某一本书时，首先阅读目录页，然后粗略翻阅全书各页，看一看照片的图表。根据以上粗读所获信息判断出本书的基本内容和主题。

第三步，想一想你已经掌握了多少关于本书主题的知识。

第四步，开始阅读。阅读的重点放在与主题相关的新知识上。哪些是你通过阅读本书获得的新知识，用简洁的方式做上标记。

第五步，边读边标出你有切身体会的地方，你喜欢或支持的观点或做法。

第六步，遇到当页注释中没有的生词，要尽量根据上下文猜出它的意思，而不要马上查词典，以免打断阅读。将这些生词标出来，读后查词典印证你的猜测。

第七步，读完后，总结文章主要讲的是什么，并在文中找出具体内容支持你的判断。

掌握地道英文写作，学习纯正英语表达

第八步，完成阅读后，分析本书文章的写作方法，写出本书提要。

第九步，与同学们就本书主题展开讨论，并提出自己的观点和结论。

重要提示

利用词汇注释巩固和扩充词汇量

为扩充学生词汇量，超出高中课本范围的词汇在读本各页中做了注释，并汇总在书后词汇表中，以方便学习和记忆。

利用音标学习单词发音

为规范本读物的音标标注方法，并更充分地体现美式发音的特点，本读物采用标准的 Jones 国际音标和 K.K 音标，Jones 在前，K.K 在后，同时标注同一个单词。此两种音标为目前使用最多的音标系统，而 K.K 音标又能充分体现美式发音的特点。音标查证以商务印书馆的《牛津高阶英汉双解词典》（第四版）为准。



Astronomers

天文学家

BY ROBERTA SILMAN

王金玉 李毅 注

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Early Astronomers

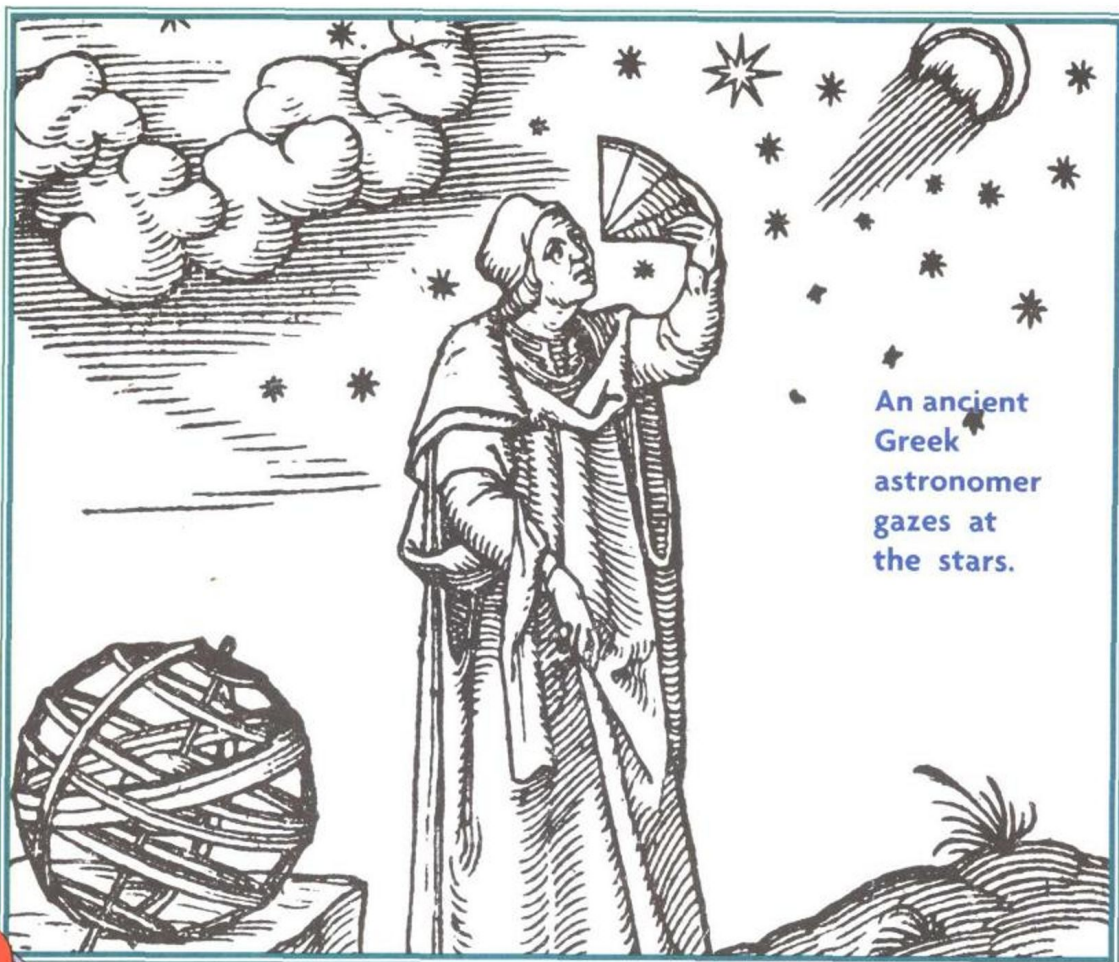
Astronomers are people who study the Sun, Moon, stars, planets, and other objects in the sky. The word “astronomer” comes from two Greek

words: “astro” meaning “star” and “nemein” meaning “arrange.” In ancient Greece, astronomers were thought of as “those who arrange the stars.”

astronomer [ə'strɒnəmə(r), ə'stranəmə] n. 天文学家

gaze [geɪz,gez] v. 注视, 盯

make sense 讲得通, 有意义



An ancient
Greek
astronomer
gazes at
the stars.



The ancient Greek astronomers believed that the Sun traveled around Earth. This seemed to make perfect sense considering that they could see the Sun moving across the sky and could not feel Earth moving.

SEE THE SUN “MOVE” FOR YOURSELF!

On the next clear day, go out early in the morning and locate the Sun in the sky. The easiest way to do this is to site it above a tree or a building. Then, go out a few hours later and locate the Sun again. Is it over the same tree or building? In fact, if you mark the location of the Sun every hour during the day, you’ll see that it will appear to move slowly westward across the sky. But the Sun is not really moving. The Earth is.



This photo was made by taking pictures of the Sun at different times of the day on the same piece of film. It shows how the Sun seems to move across the sky.



When the early Greek astronomers looked at the stars, they noticed that some of them made patterns. The astronomers called these patterns constellations. They also noticed that although these constellations moved around in the sky, the patterns they made always looked the same.

There was one problem, however. Of all the stars that the astronomers saw in the sky, there were five bright stars that did not stay in patterns. Instead, these five seemed to wander back and forth across the constellations. Sometimes these “wandering stars” would even stop for a while and then appear to move backward. Not knowing what these strange objects were, the Greek astronomers simply called them planets, which is the Greek word for “wanderer”!

back and forth 来来回回

Big Dipper 北斗七星

constellation [ˌkɒnstəˈleɪʃn, ˌkɒnstəˈleɪʃən] n. 星座

Jupiter [ˈdʒuːpɪtə(r), ˈdʒʊpətə] n. 木星

magnification [ˌmæɡnɪfɪˈkeɪʃən, ˌmæɡnəfəˈkeɪʃən] n. 放大

Mars [mɑːz, mɑːrʒ] n. 火星

Mercury [ˈmɜːkjʊri, ˈmɜːkjəri] n. 水星

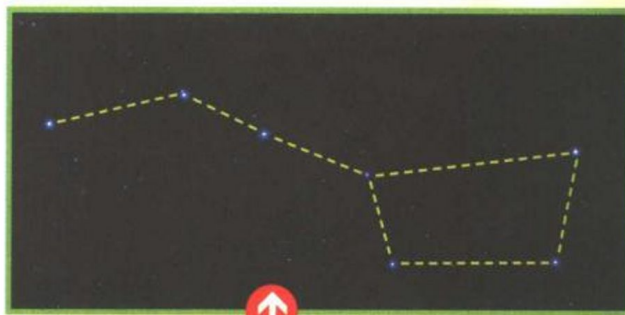
pattern [ˈpætn, ˈpætən] n. 模型, 式样

Saturn [ˈsætən, ˈsætən] n. 土星



THE FIRST FIVE PLANETS

The telescope was not invented until the early 1600s. Before that time, astronomers believed that there were only five planets because that was all they could see without using magnification. The five planets they knew of were Mercury, Venus, Mars, Jupiter, and Saturn.



The Big Dipper is one of the easiest constellations to find in the sky.

telescope [ˈtelɪskəʊp, ˈteləˌskop]
n. 望远镜

Venus [ˈvɪːnəs, ˈvɪnəs] n. 金星

wander [ˈwɒndə(r), ˈwɒdə]

v. 徘徊, 漫游



This drawing illustrates Ptolemy's view of how the Sun, Moon, and five planets circled Earth.

In about 140 A.D., the famous Greek astronomer Ptolemy made a model of what he thought the universe looked like. Borrowing ideas from other astronomers, he put Earth at the center and everything else—the Sun, Moon, stars, and the five known planets—moving

around Earth in perfect circles.

For more than 1,300 years, most people accepted this view of the universe. It was not until Nicolaus Copernicus finally questioned it in the 1500s that things began to change.

Copernicus [kə'pɜːnikəs, kə'pɜːnikəs] 哥白尼
illustrate ['ɪləstreɪt, 'ɪləstret] v. 说明
model ['mɒdl, 'mɒdl] n. 模型

Ptolemy ['tɒləmi]
n. (古希腊天文学家) 托勒密
universe ['juːnɪvɜːs, 'junəvɜːs] n. 宇宙

Nicolaus Copernicus



← Nicolaus Copernicus
(1473-1543)



↑ Poland

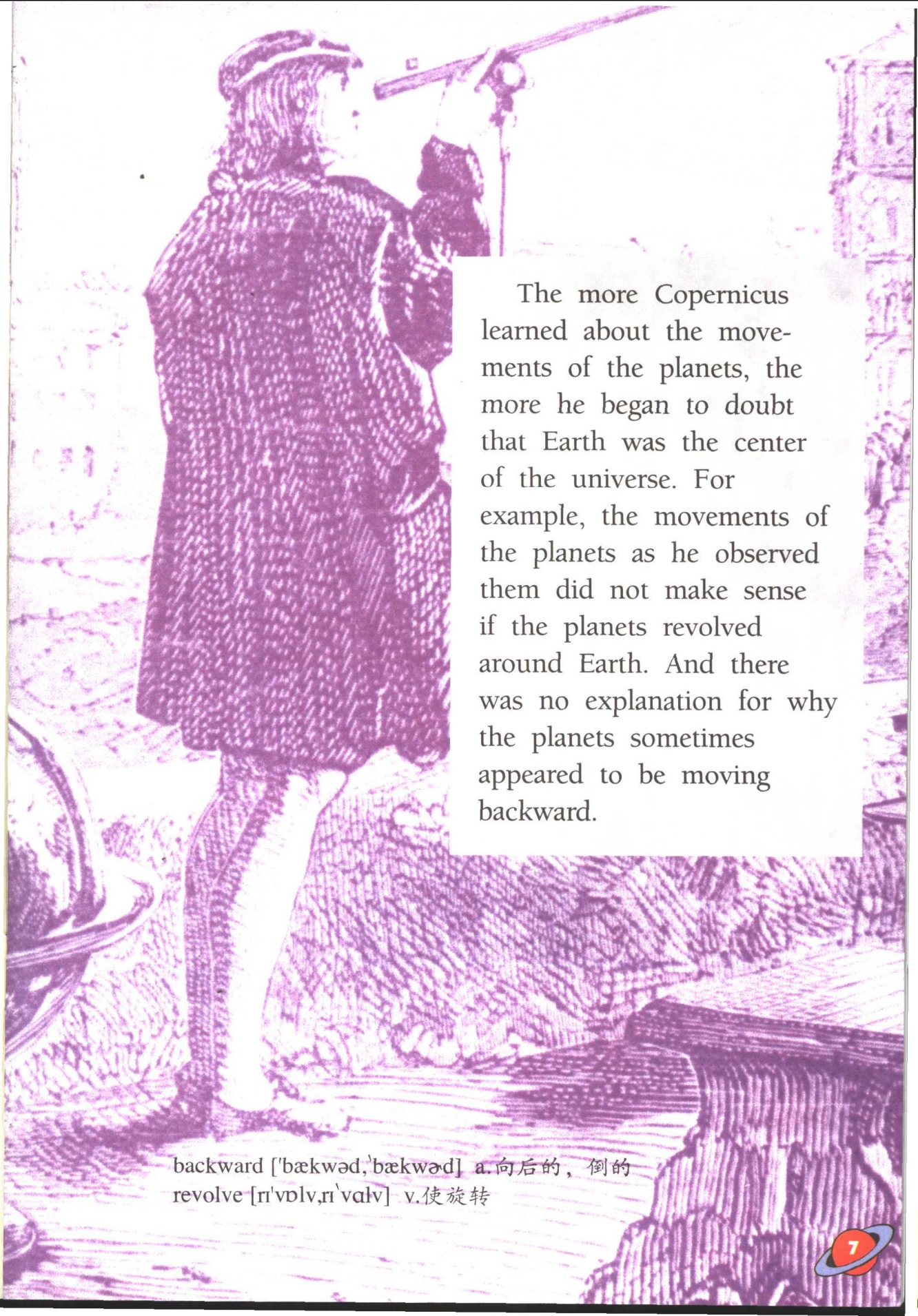
➔ Nicolaus Copernicus
looks through a
telescope on the
rooftop of his
observatory.

Nicolaus Copernicus was born in Poland in 1473. The son of a trader, Copernicus was raised by a rich uncle. His uncle encouraged him to go to schools in Poland and Italy to study law, art,

mathematics, and medicine. At school, astronomy fascinated Copernicus. He began to spend a lot of time studying the planets and the ways in which they moved in the sky.

fascinate ['fæsmɪnt, 'fæsɪ,et] v. 迷住

observatory [əb'zɜ:vətɹi, əb'zɜ:və,tɔ:ri] n. 天文台



The more Copernicus learned about the movements of the planets, the more he began to doubt that Earth was the center of the universe. For example, the movements of the planets as he observed them did not make sense if the planets revolved around Earth. And there was no explanation for why the planets sometimes appeared to be moving backward.

backward ['bækwəd, 'bækwəd] a. 向后的, 倒的
revolve [rɪ'vɒlv, rɪ'vʌlv] v. 使旋转


Think
it**over!**

The next time you're driving in a car on the highway, you can see what Copernicus meant when he observed that the planets sometimes seemed to be moving backward. Ask the person who is driving to pull alongside a car and match its speed for a few seconds. Then, ask your driver to slowly pass that car. From where you are sitting, the other car will look as if it is moving backward!

Copernicus believed that Earth and the other planets revolved around the Sun.



While reading books about the ancient Greeks, Copernicus learned that in 260 B.C. someone had suggested that Earth revolved around the Sun. Although no one had believed it at the time, Copernicus became curious about this possibility. He began to look for data to support it.

Copernicus discovered that the movements of the planets made sense if the planets were revolving around the Sun rather than around Earth. He also realized that this would explain why the planets sometimes seemed to be moving backward in the sky. The planets were not actually moving backward; Earth was just passing them as it, too, revolved around the Sun.

curious ['kjuəriəs, 'kjuriəs] a.好奇的

data ['deɪtə, 'dætə] n.数据纪录

religious [rɪ'lɪdʒəs, rɪ'lɪdʒəs] a.宗教的

wisely ['waɪzli, 'waɪzli] ad.明智地, 聪明地



Now Copernicus was sure that the Sun was the center of the universe. In 1515, he started working on a book to explain his ideas.

At that time, however, most people were not open to the idea that the planets revolved around the Sun. They liked the idea that Earth was the center of

the universe. It made them feel special. Powerful religious leaders had even gone so far as to make the idea part of church law. And, at the time, anyone who disobeyed church law could be put to death! Wisely, Copernicus planned to share his ideas only with his closest friends.

be open to 愿接受 (考虑)的
 closest ['kləʊzɪst, 'kloʊzɪst] a. 最亲密的
 disobey [ˌdɪsə'beɪ, ˌdɪsə'beɪ] v. 不服从, 违抗 (某人, 法律等)





WATCH WHAT YOU SAY!

People who disagreed with the religious leaders were called heretics. Often, they were put on trial and, if they did not change their beliefs, they were tortured, thrown in jail, and even burned at the stake!



In 1530, however, some religious leaders found out about Copernicus's book. When they questioned him about it, he explained that he was simply wondering about things, not stating facts. He assured them that he was not disagreeing with church law, so they let him go.

Over the next twelve years, Copernicus wrote another book that explained his ideas in greater detail. Again, he did not plan to publish it, but a friend persuaded him to.

In May 1543, Copernicus's book was published. Unfortunately, this great astronomer never got the chance to defend his work. He died soon after the book was published.

It would be left up to another man, by the name of Galileo Galilei, to defend Copernicus's work.

assure [ə'ʃʊ:(r), ə'ʃʊr] v. 使确信, 使放心

heretic ['herətɪk, 'herətɪk] n. 异教徒

jail ['dʒeɪl, 'dʒel] n. 监狱

philosopher [fɪ'lɒsəfə(r), fə'lasəfə] n. 哲学家

stake [steɪk, stek] n. 火刑柱

state [steɪt, stet] v. 声明, 说明

torture ['tɔ:tʃə(r), 'tɔrtʃə] v. 拷问, 折磨

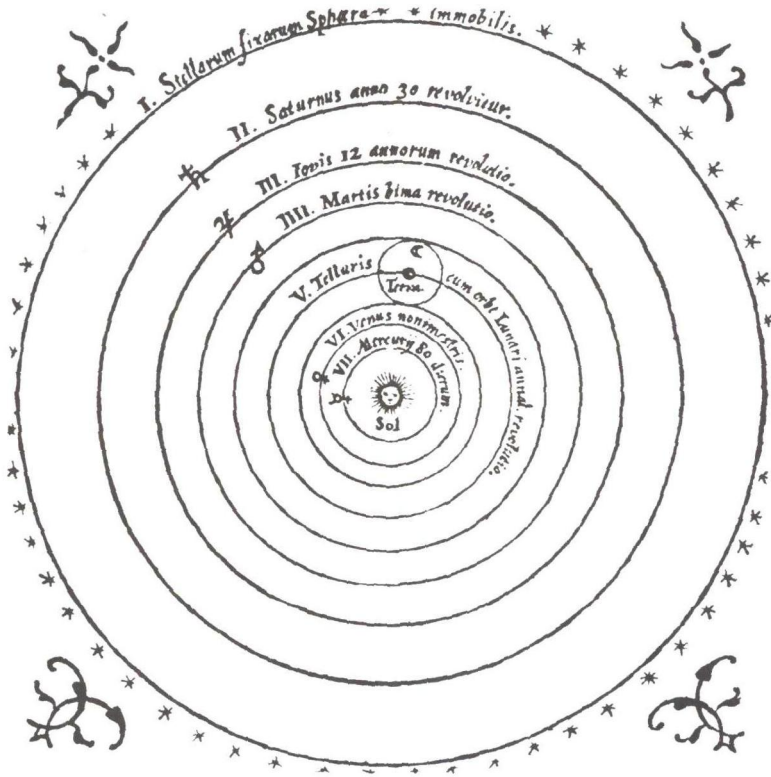
trial ['traɪəl, 'traɪəl] n. 审判

← **Giordano Bruno (1548-1600), an Italian philosopher, was burned at the stake in 1600 because he openly stated that the Sun was the center of the universe.**

REVOLVTIONVM LIB. I.

21

30 anno suum complet circuitum. Post hunc Iupiter duodeccennali revolutione mobilis. Deinde Mars, qui biennio circuit. Quartum in ordine annua revolutio locum obtinet, in quo terram cum orbe



lunari tanquam epicyclo contineri diximus. Quinto loco Venus nono mense reducitur. Sextum denique locum Mercurius tenet, octuaginta dierum spacio circumcurrens. In medio vero omnium residet Sol. Quis enim in hoc pulcherrimo templo lampadem hanc in alio vel meliori loco poneret, quam unde totum simul possit illuminare? Siquidem non inepte quidam lucernam mundi, alij mentem, alij rectorem vocant. Trimegistus *visibilem Deum*, Sophoclis *Electra insuens omnia*. Ita profecto tanquam in solio regali Sol

*Solis non regis
sua attribuita.*

F 5020.

C 3

relidens



This page from a book by Copernicus illustrates his view of the solar system.

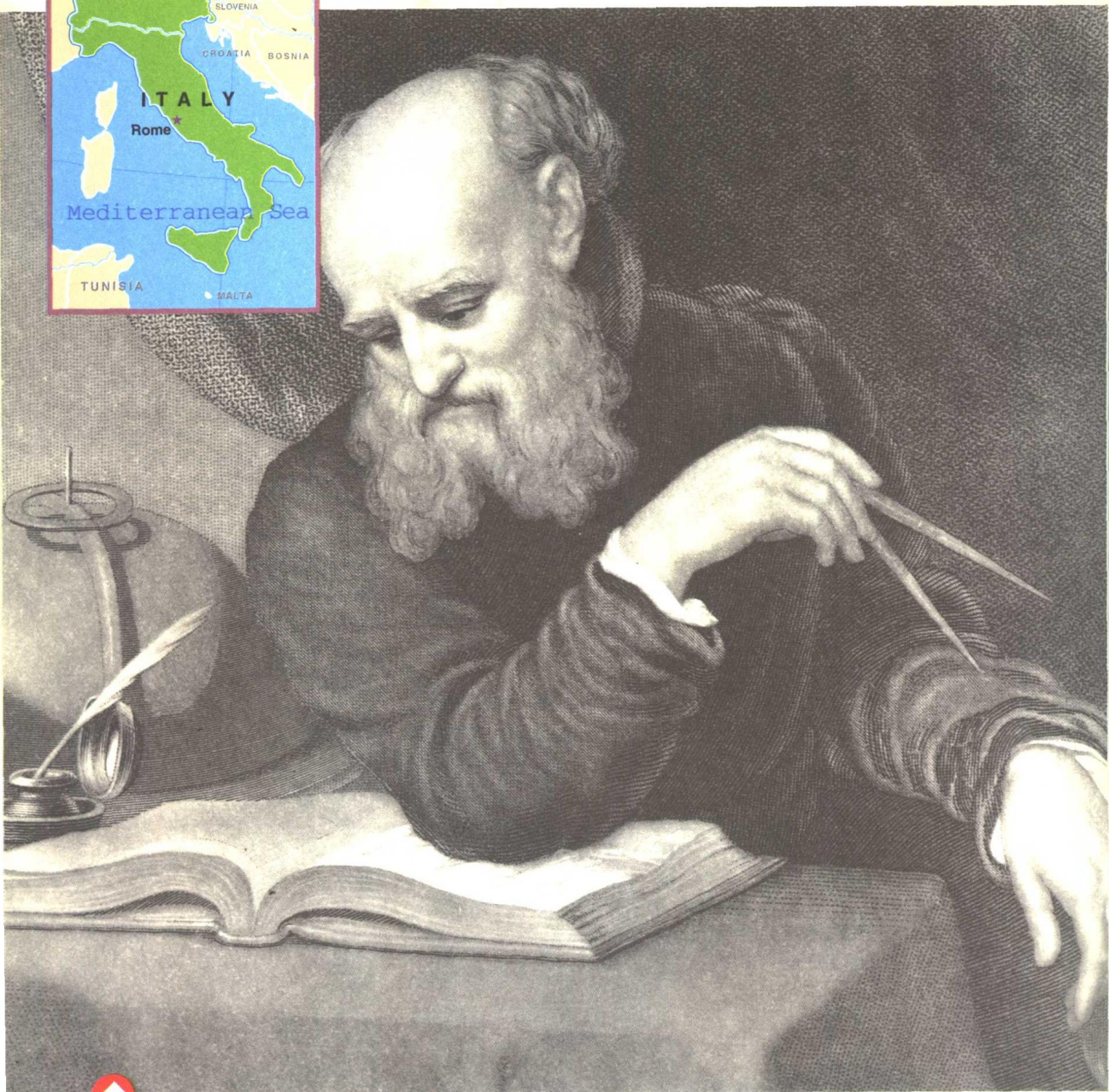


Galileo Galilei



Italy

This painting shows Galileo observing how a chandelier swings back and forth.



Galileo Galilei (1564-1642)

chandelier [ˌʃændəˈliə(r), ˌʃændl̩ˈɪr] n. 枝形吊灯
swing [swɪŋ, swɪŋ] v. 摇摆, 摆动



Galileo Galilei, often known only by his first name, was born in Italy in 1564, twenty-one years after Copernicus died. Galileo's father was a merchant and a musician. He sent Galileo to school to study medicine, but Galileo soon became interested in science and mathematics.

Galileo made his first important discovery in 1583 when he was only

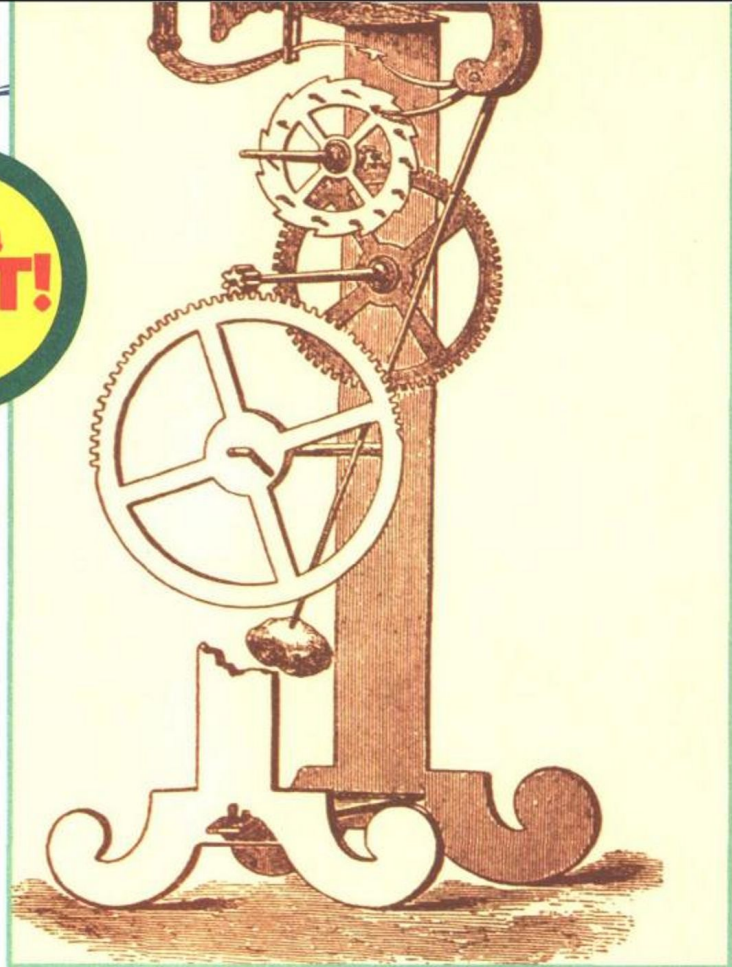
nineteen years old. Sitting in a church, Galileo watched a chandelier swing back and forth. He used his pulse to time the swings of the chandelier. Soon he began to notice something important. Regardless of whether the chandelier took a very long swing or a very short swing, it always took the same number of heartbeats for it to return to its starting point.

heartbeat ['hɑ:tbi:t, 'hɑ:tbit] n. 心搏, 心跳声
merchant ['mɜ:tʃənt, 'mɜ:tʃənt] n. 商人

pulse [pʌls, pʌls] n. 脉搏
regardless of 不管

**It's a
FACT!**

Did you know that the pendulums inside grandfather clocks are always thirty-nine inches long? That's because a thirty-nine-inch pendulum swings sixty times a minute. This makes it easy to keep track of the seconds.



Galileo called the chandelier a pendulum. He suggested that the regular swing of a pendulum could be used to measure time. His idea later led to the invention of the first reliable clock.

Galileo was good at mathematics and was soon offered a job teaching it. As a teacher, he soon became famous for doing experiments.

grandfather clock (装于高木匣中的) 落地式大摆钟
keep track of 记录

pendulum ['pendjʊləm, 'pendzələm] n. (钟) 摆

reliable [rɪ'laɪəbl, rɪ'laɪəbl] a. 可靠的, 可信赖的