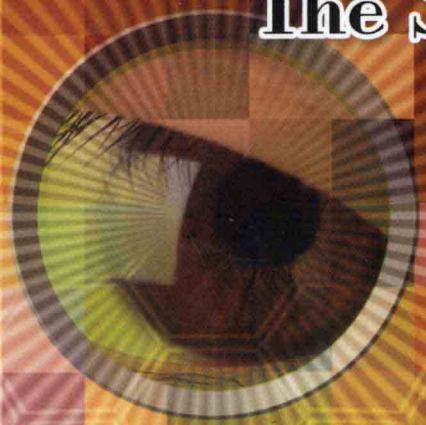
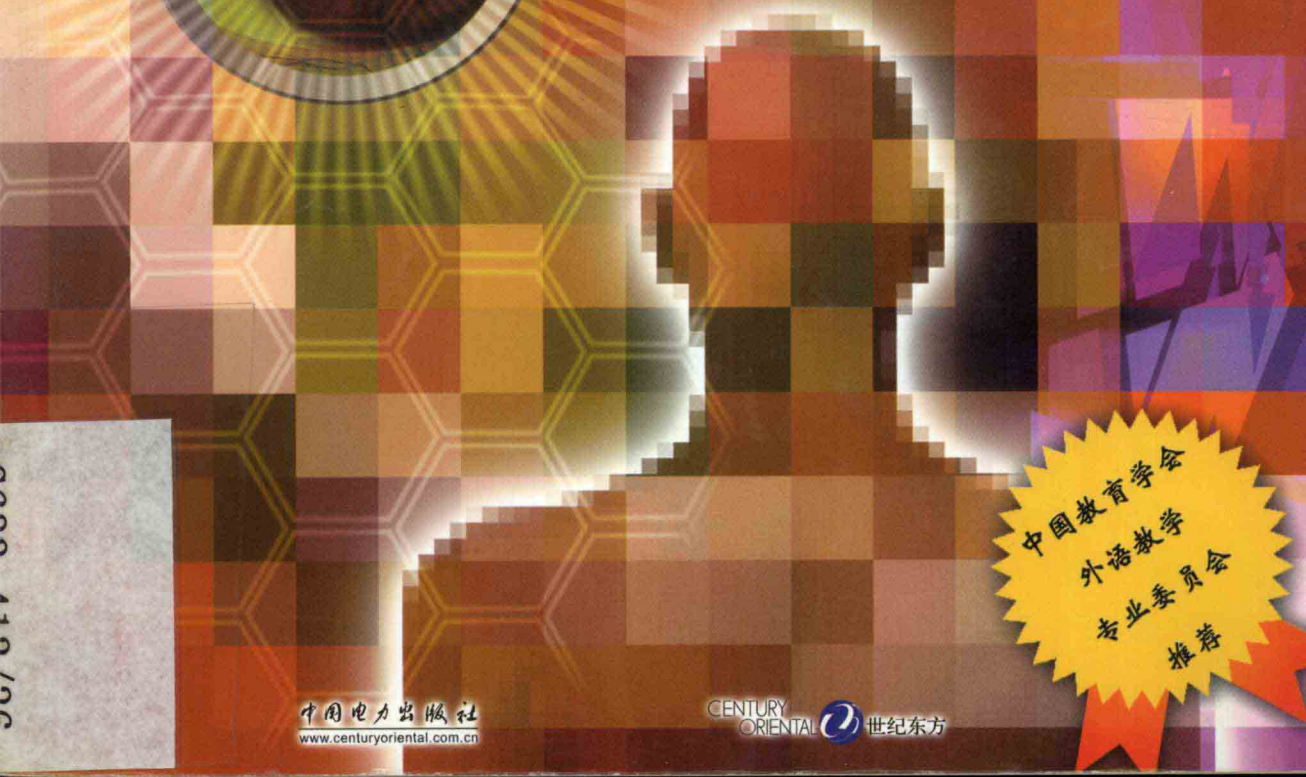
阅读空间 · 英汉双语主题阅读

间谍术

The Science of Spying





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赵 雪 译

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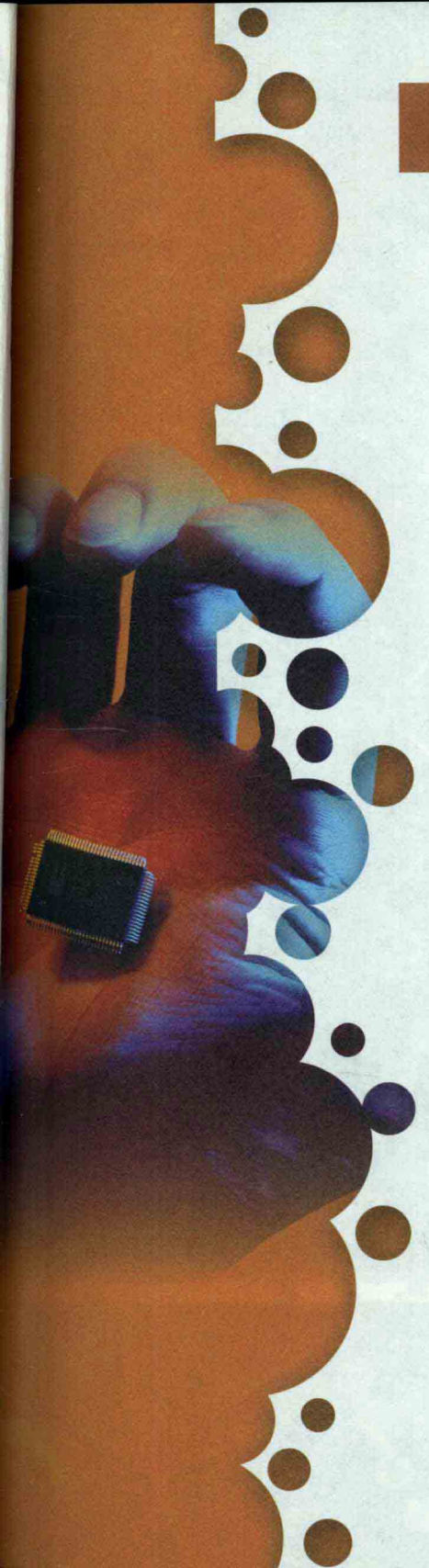

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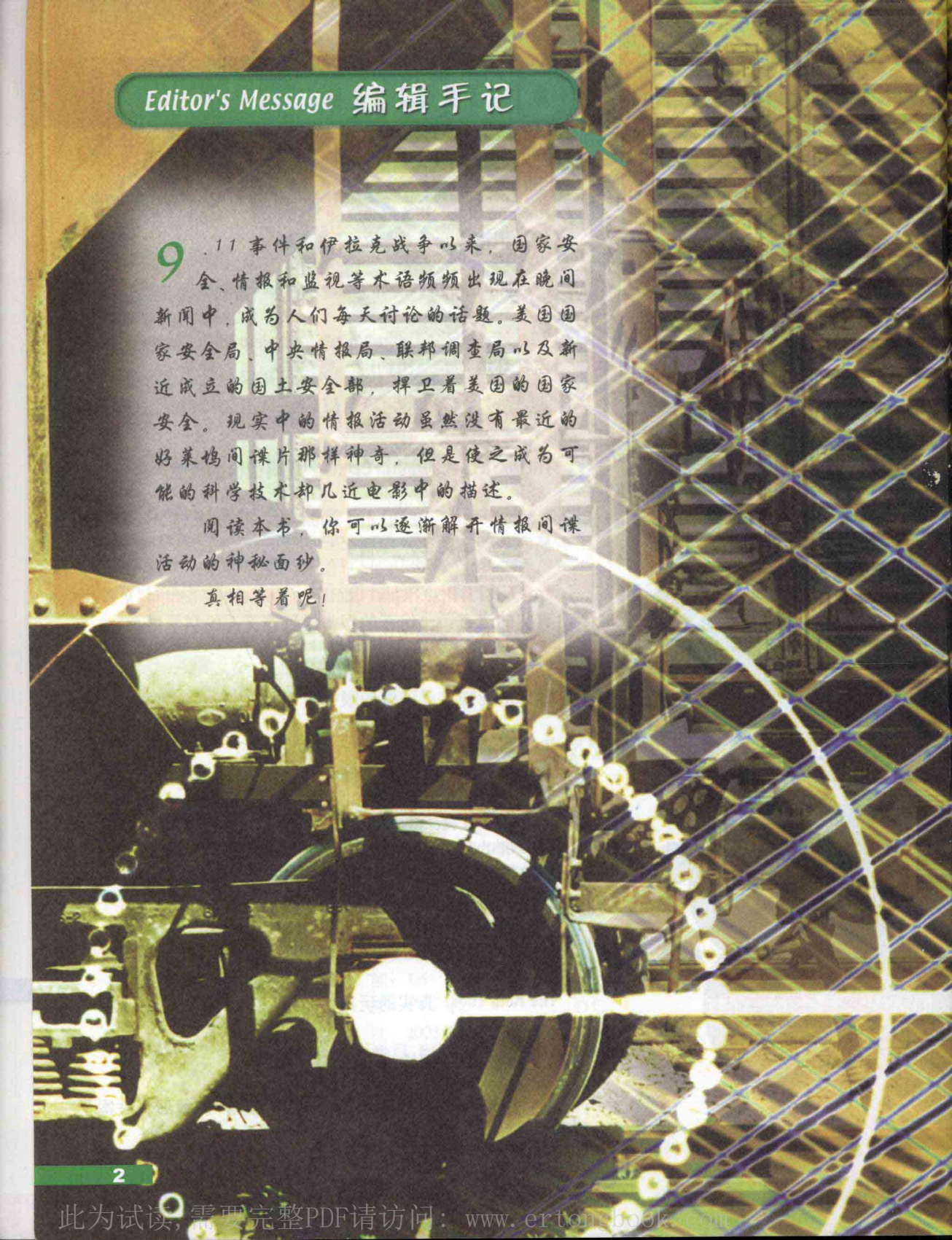
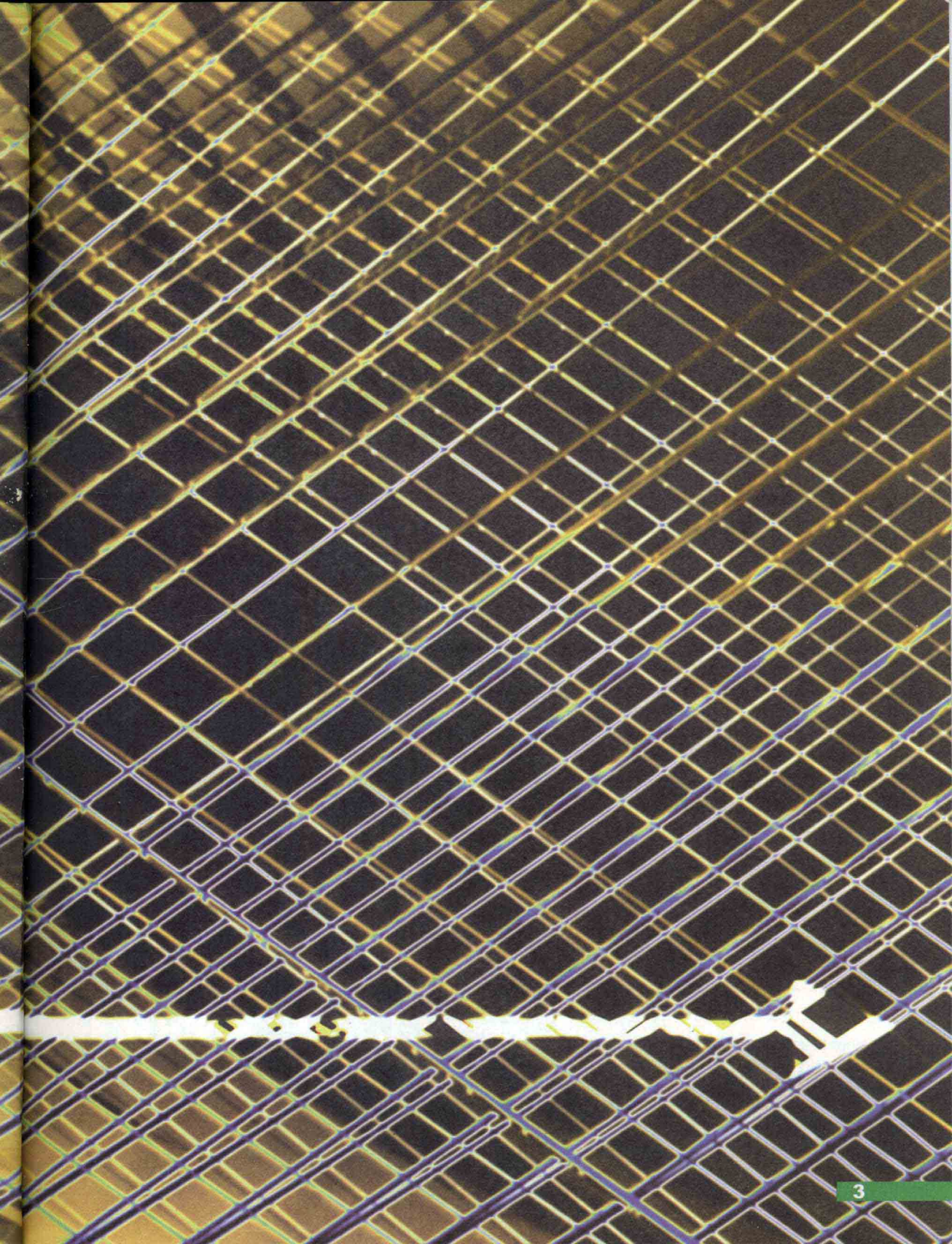


Editor's Message 编辑手记

9.11事件和伊拉克战争以来，国家安全、情报和监视等术语频频出现在晚间新闻中，成为人们每天讨论的话题。美国国家安全局、中央情报局、联邦调查局以及新近成立的国土安全部，捍卫着美国的国家安全。现实中的情报活动虽然没有最近的好莱坞间谍片那样神奇，但是使之成为可能的科学技术却几近电影中的描述。

阅读本书，你可以逐渐解开情报间谍活动的神秘面纱。

真相等着呢！



Keeping Our Nation Safe:

by Peter Earnest

Since the terrorist attacks of September 11, 2001, Americans – including young people like you – have been seriously concerned about the possibility of another assault on this nation. Countries and groups of individuals engaged in activities that could cause great damage to the United States and its citizens are a serious threat.

The safety of our country against such threats and actions is called our *national security*. The Central Intelligence Agency (CIA) and the Federal Bureau of Investigation (FBI) are responsible for determining when such threats exist. The CIA, founded in 1947, is responsible for worldwide intelligence gathering and ***counterintelligence*** abroad. The FBI, founded in 1924, is responsible for counterintelligence and other law enforcement duties in the United States.

How do our government's agencies learn that other countries are carrying out actions that threaten our national security? The answer is "intelligence."

We usually think that "intelligence" means how smart we are. We even have tests that are designed to

Counterintelligence
Trying to prevent individuals from spying on you by catching their spies; a duel of wits between contending networks of spies or "Spy vs. Spy."

自从2001年9月11日恐怖袭击以来，美国人——也包括你们这些年轻人——都密切关注着美国是否还会出现一次恐怖袭击事件。参与对美国及其国民造成巨大伤害的恐怖活动的国家或组织，都是一个严重的威胁。

国家安全或民族安全就是抵抗威胁和恐怖活动，维护国家安全。中央情报局(CIA)和联邦调查局(FBI)负责调查防范此类恐怖活动。中央情报局创建于1947年，主要负责全球范围内搜集情报，以及在国外开展反间谍活动。联邦调查局创建于1924年，主要负责在美国国内进行反间谍活动，以及执法。

美国政府的这些机构是如何获悉其他国家正在采取的威胁美国国家安全的信息呢？他们靠的就是“情报”。

通常，人们认为intelligence具有“智慧、智力”的意思，甚至还设计了测量人类智力水平高低的智商测试。不过，intelligence还有“情报”的意思，通常是指关于其他国家及其领导人、政策和军事力量方面的重要信息。人类开始搜集情报的活动要追溯到使用间谍和其他秘密手法的古

The Serious Spy Game

indicate the level of our intelligence. But "intelligence" also means a special kind of information, usually about another country and its leadership, politics, and military forces. The gathering of intelligence goes back to the Egyptians, Romans, and other early civilizations that used spies and other secret practices.

By the way, intelligence refers to both the practice of collecting information and the special information itself. For example, when George Washington was fighting the British during the American Revolution, he tried very hard to find out all about the enemy's military forces – how strong they were, and when and where they planned to attack. And because he was at war, Washington tried to collect this "intelligence" secretly so that the British would not know how much he had learned about them.

How did General Washington go about it? First, he sent out scouts ahead of his army to make direct observations of the British forces. He also recruited people loyal to the revolution who could get near the British and learn more about the enemy without giving themselves away. These people are called – you guessed it – spies or secret agents.

A famous case of spying during the revolution was that of the American general Benedict Arnold, who performed heroically on the battlefield only to later betray his own country by secretly joining the British forces as a spy.

And that raises an important question: Why do people

埃及人、古罗马人等早期文明。

顺便提一下，intelligence一词不仅指搜集情报的活动，还指这种特殊信息本身。例如，美国独立战争期间，乔治·华盛顿与英军作战时，极力利用各种途径，了解到敌军的军事状况——对方的军事力量到底有多强，以及他们要在什么时候从什么地方发动进攻。华盛顿通过一切方法秘密搜集这些“情报”，这样英军就搞不清他对自己的军事情况到底掌握了多少。

华盛顿将军是如何展开情报活动的呢？在部队到达前，他提前派出侦察兵对英军进行直接观察。此外，他还吸收忠于革命而且能够接近英军的人，他们可以搜集更多的信息而不会背叛。这些人被称为间谍或者特工人员。

美国独立战争中最著名的一宗间谍案就是美国将军本尼迪克特·阿诺德案。他在战场上冲锋陷阵，后来却偷偷投靠了英军，成了间谍，背叛了自己的国家。

这又引出了一个重要的问题：人们为什么要展开间谍活动？这是冒生命危险的事情啊！人们进行间谍侦探

维护国家安全：重要的间谍活动

spy? It's risky business. The answer is, for many different reasons. Some do it just for money or for revenge against their own country, while others spy for patriotic reasons because they believe their country is oppressed or unfairly controlled by another. For example, during World War II many people all over the world volunteered to spy for America and her allies against Germany, which was invading and oppressing other nations. The volunteer spies and others carried out ***sabotage*** and other actions aimed at driving the occupying German forces out of their countries. These active forces were referred to as the "resistance." Such activity is sometimes called "covert action."

But why are we doing a book on spying? Because the *tradecraft* – the tools and techniques of espionage, the other name for spying – relies heavily on technology.

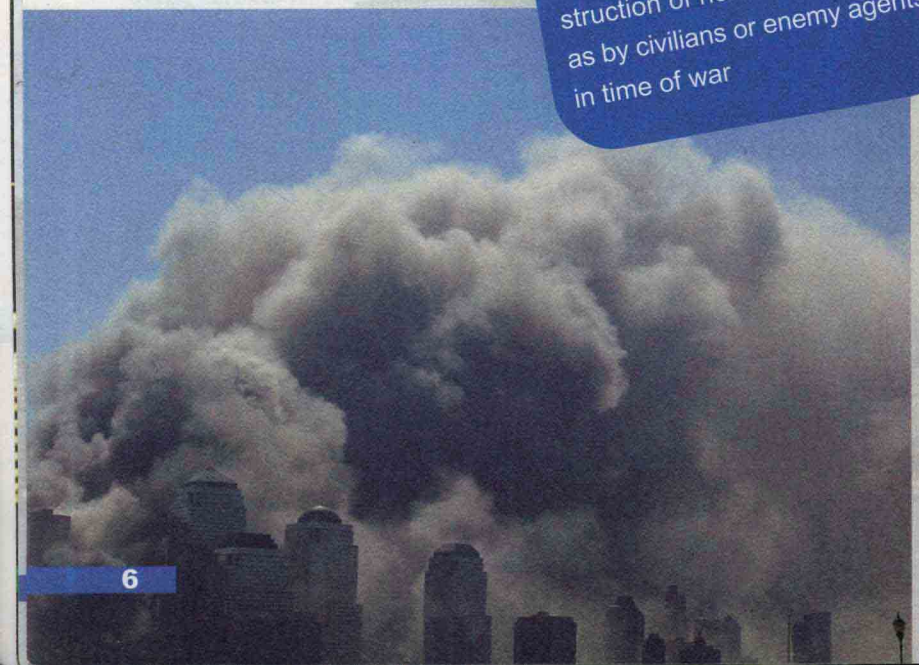
Throughout history, countries have developed new and innovative ways to spy on one another. During the two World Wars in the 20th century, countries developed ways of looking at their enemies from the sky by using hot-air balloons, aircraft, and eventually spy satellites circling the Earth and photographing selected

Sabotage
Destruction of property or obstruction of normal operations, as by civilians or enemy agents in time of war

活动的原因各异。有的是为了钱，或是为了报复自己的国家，而有些人是出于爱国之心，因为他们觉得自己的国家遭受到外国的压迫和非法控制。例如，二战期间，世界上有许多人自告奋勇为美国及其同盟做间谍，帮助他们抵抗德国，因为他们认为德国侵犯并压迫其他民族。这些自愿做间谍的人和其他间谍为把占领他们国家的德军赶走，开展破坏活动。这些采取行动的组织被称为“抵抗组织”。这些活动有时被称为“地下活动”。

为什么要出版关于间谍的书籍呢？因为间谍活动所用的手段，以及搜集情报时所用的工具和技术，都深深地依赖科学技术。

综观历史，每个国家都开发和革新过情报搜集手段。20世纪的两次世界大战期间，许多国家研究出新的侦察手段，通过热气球和飞机窥探敌军，尔后又发明了侦察卫星环绕地球，拍摄预定目标。有些



targets. Countries developed ways of secretly listening to private conversations by using hidden microphones ("bugs") and secretly photographing people and places without giving themselves away. Indeed, the tradecraft of spying and counterintelligence has grown highly sophisticated – and will continue to do so in the 21st century.

The accuracy of intelligence is crucial to national security. Each day, the latest intelligence picture of world developments is reported to the president and his close advisers. They must decide if action needs to be undertaken as a result of the latest intelligence; their decisions are called *policy*.

In this book, you'll discover how science and technology enable the CIA, the FBI, and the other 12 members of the intelligence community, including the new Department of Homeland Security, to collect, analyze, and present the most accurate and up-to-date intelligence picture. You'll learn how the tools of the craft – from overhead reconnaissance satellites to *polygraph* (lie detector) tests, high-tech disguises, and information warfare via the Internet – are helping intelligence agencies keep our nation safe. You'll also find out what it takes to be a spy. All is not what it seems!

国家发明了秘密藏入扩音器里、能够窃听私人谈话的窃听器，以及秘密拍摄他人和场所而又不会暴露自己的设备。实际上，间谍和反间谍活动运用的各种手段已经变得越来越尖端精良了，在21世纪必将会进一步地发展。

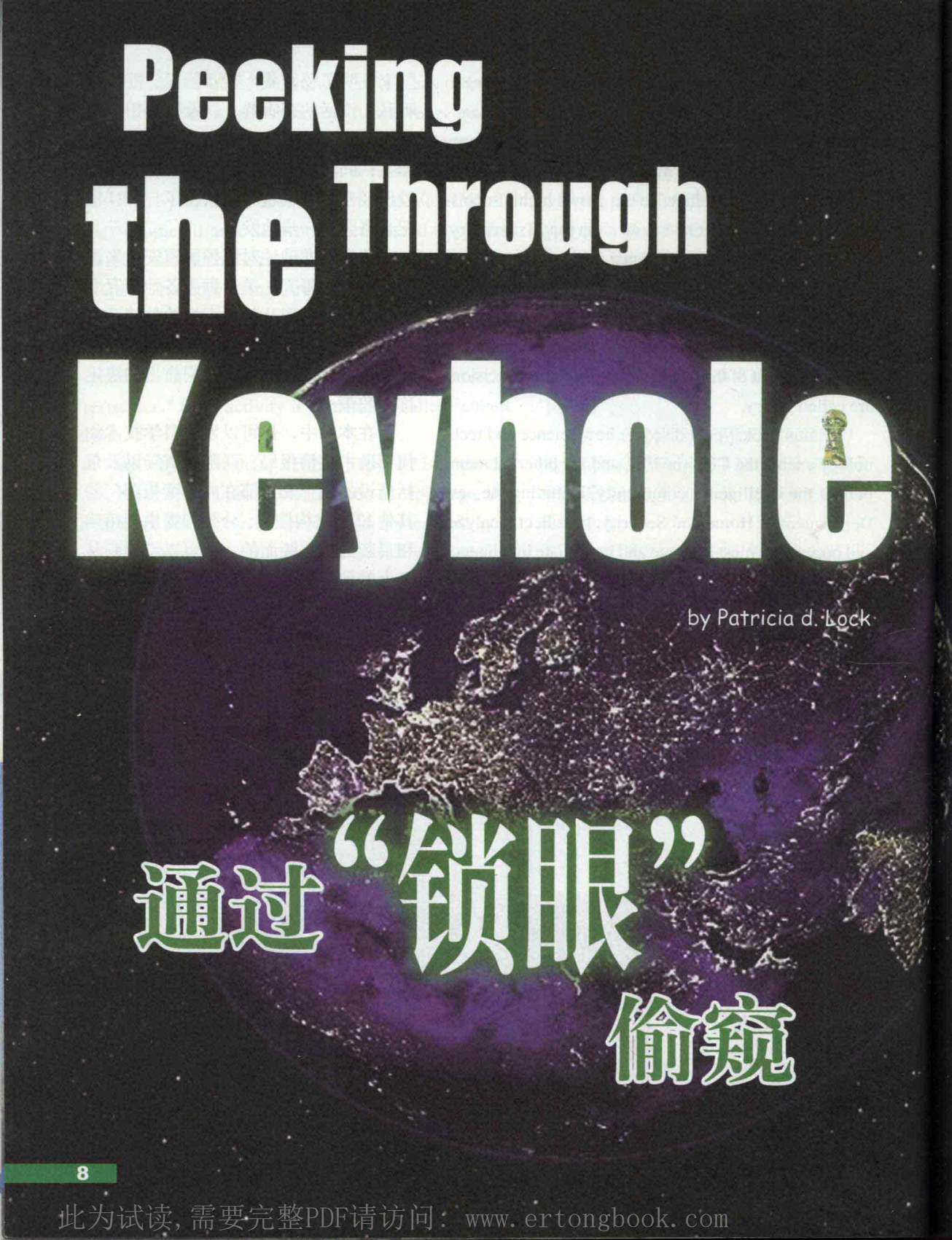
情报的准确性对维护国家安全来说至关重要。每天，关于世界各地情况变化的最新情报图片都会汇报给总统及其最信赖的顾问。根据最新情报，他们裁决是否需要采取行动。他们作出的决定称为政策。

在本书中，你可以发现科学技术如何帮助中央情报局、联邦调查局以及包括新设的国土安全部在内的情报部门的其他12个机构搜集、分析和提供最精确和最新的情报画面的。你可以了解到从天上的侦察卫星，到测谎器、高科技的伪装术和通过互联网信息战等间谍技术是如何协助情报组织维护国家安全的，你还会知道怎样做一名间谍。并非一切都是表面上看到的那样！

Peeking Through the Keyhole

by Patricia d. Lock

通过“锁眼”偷窥



Have you ever tried to spy on someone or eavesdrop on a conversation? A hundred years ago, doors and locks were different. The lock was separate from the knob and had a large key. The hole for the key went all the way through the door, so if you put your eye to the keyhole, you could see through to the other side. This is how the KEYHOLE series of spy satellites got its name.

SPYING FROM SPACE

Reconnaissance, from the French and Latin words for "to get to know" and "to see," means to have a look before entering, in secret, and usually for military reasons. Space reconnaissance means looking from a spacecraft.

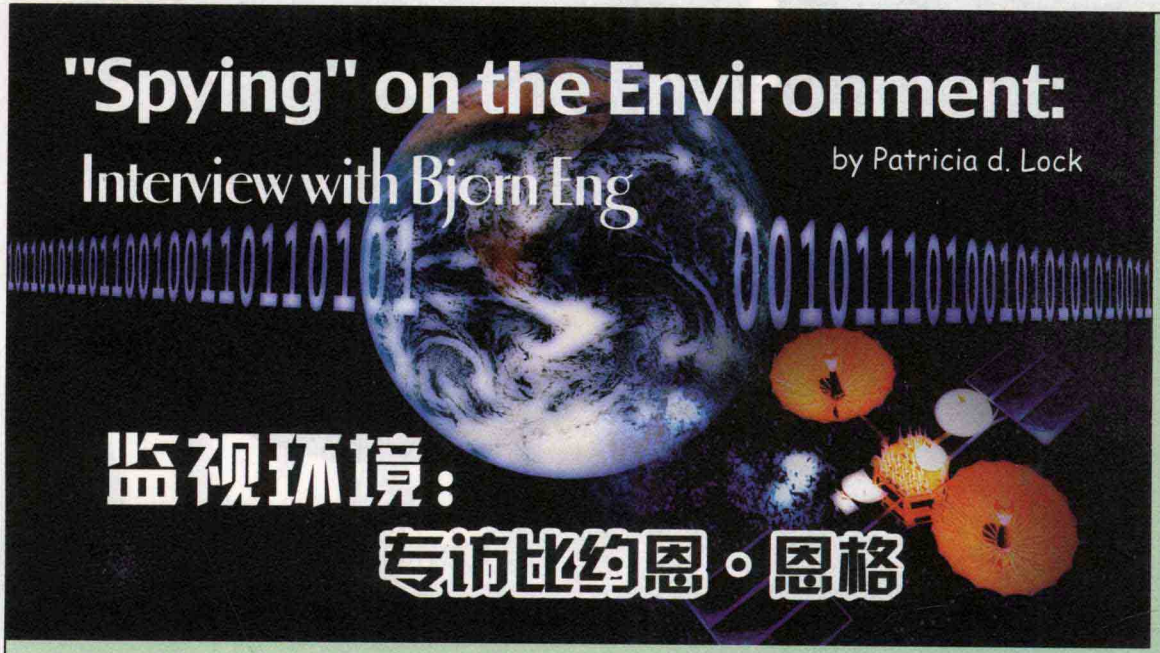
你曾试图监视别人或偷听他人谈话吗？一百年以前，门锁与现在的不同。锁与门把手是分开的，且钥匙较大。锁眼凿通了门，透过锁眼，可以看见屋内的一切。锁眼系列侦察卫星从而得名。

从太空侦察

“reconnaissance”一词来源于法语和拉丁语中的“了解”和“察看”。它的意思是进入某地前先秘密地侦察一番，通常出于军事目的。太空侦察就是指从宇宙飞船上侦察。

After World War II, the Cold War developed between the United States and the Union of Soviet Socialist Republics (U.S.S.R.). The *Cold War* was a war without battles, fought by spying and competing

二战后，美国和苏联进入了冷战。冷战就是取代大规模战争，进行间谍活动，竞相开展大规模武器制造。双方纷纷研制并测试核武器，并隐藏在各自国家的各处。美国



"Spying" on the Environment:

Interview with Bjorn Eng

by Patricia d. Lock

监视环境：

专访比约恩·恩格

The reporter spoke with ASTER Project Manager Bjorn Eng about how satellites observe our planet and monitor its health and well-being. ASTER is an imaging instrument on the *Terra* satellite, part of NASA's Earth Observing System. A joint effort of the United States and Japan, ASTER is now in its fourth year of operations. Eng works with ASTER at NASA's Jet Propulsion Laboratory (JPL) in Pasadena, CA.

记者对ASTER项目经理比约恩·恩格进行了专访，探讨了在观测地球、监控地球环境方面卫星是如何发挥作用的。ASTER是作为国家航空航天局(NASA)地球监测系统一部分的“地球”卫星上的一种成像装置。在美日两国的协作下，ASTER目前已在太空运行五个年头了。恩格目前在加利福尼亚州洛杉矶帕沙迪纳市的国家航空航天局喷气推进实验室从事ASTER的研究工作。

How closely does ASTER observe the Earth?

ASTER观察地球的成像效果如何？

ASTER's best resolution is 15 meters (49 ft.). This means that you could see grocery stores but not individual houses, or airplanes on runways but not individual cars or trucks. When Aster takes an image, it receives so much data that its memory can get too

ASTER最高分辨率为15米（49英尺）。这就是说，在照片上，你可以看清一个个杂货店，但看不清一座座房子；可以看清跑道上待飞的飞机，却看不清一辆辆小汽车或卡车。ASTER成像时，会接受到很多数据，所以它的内存会被全部占满。ASTER16分钟

to build the biggest weapons. Nuclear weapons were developed and tested by both sides and hidden around each country. The United States believed that the U.S.S.R. might use their weapons first, so to protect itself, full. What the instrument takes in 16 minutes takes three hours to download! We need to give the other *Terra* instruments a chance, too.

认为苏联可能会首先使用核武器，因此，为了保护国家安全，美国必须了解苏联的一举一动。

二战期间，有的侦察行动是通过乘坐内搜集的数据，要花费三个小时下载！我们还要为“地球”卫星装备其他的设备。

What has ASTER seen that was surprising?

From the ASTER images, we discovered that what was thought to be a dormant Chilean volcano was actually active and had hot spots. Luckily, this volcano is far from any cities.

ASTER 有何惊人发现？

利用 ASTER 拍摄的图像，我们发现，智利的一座火山一直以来被认为是休眠火山，其实它是座活火山，有热点显示。幸运的是，这座火山远离城市。

Does the military use ASTER images?

The Department of Defense is very interested in ASTER data, and we receive many requests from them. They like the ***multispectral*** images for purposes of cave identification and geologic mapping. We also use an Air Force atmospheric correction ***algorithm*** to enhance the images.

军方使用 ASTER 成像吗？

美国国防部对 ASTER 搜集的数据非常感兴趣，多次给我们提出要求。他们喜欢用多谱成像来搜索窑洞，绘制地形图。此外，我们也使用空军大气纠正算法来提高成像准确度。

You've been doing this work for almost a decade. Is it fun?

This job is both fun and rewarding. One neat thing about it is that we get to respond to real-time events like the tornado that hit Maryland last year. ASTER took pictures of the damage to help the disaster management people. When part of a glacier in the ***Caucasus*** broke off and buried a town, ASTER images helped disaster management teams know where to search for survivors. The images we take are also very, very beautiful!

你从事这项工作已近十年，有趣吗？

从事这项工作不仅有乐趣，而且很有收获。其最重要的成效就是能使我们对实时发生的事件作出反应。例如，2002 年，马里兰州遭受到龙卷风的袭击，ASTER 拍下当地受灾实况的照片，为赈灾机构提供了很大的帮助。当年，高加索山脉的一条冰河崩裂并掩埋了一个城镇，ASTER 拍摄的照片告诉救灾人员到哪里去抢救幸存者。我们拍摄下来的这些图片景色也非常非常漂亮！

multispectral
Able to take images or other data in different wavelengths of light (across the spectrum) – visible light, infrared, ultraviolet, etc.

Algorithm
A step-by-step computational problem-solving procedure, now usually a small computer program

Caucasus
A region between the Black and Caspian seas that includes Georgia, Azerbaijan, Armenia, and part of Russia – and vast oil reserves

Can You Keep a Secret? 你能保守秘密吗？

by Patricia d. Lock

In the early years of space reconnaissance, government organizations argued over who should control it. To stop this "sibling rivalry," the National Reconnaissance Organization, or NRO, was created in 1960. To properly analyze and share the NRO's products, the National Photographic Interpretation Center (NPIC) was created. It was outside of the competing organizations, yet "borrowed" its staff from them. So, Air Force mapping specialists might sit next to CIA intelligence analysts, and share photographs as well as expertise. When the reconnaissance missions became classified, projects and launches were no longer announced. The people working on them or looking at the products were "cleared" (authorized after a security check) to do only their specific work assignments and could not discuss their jobs.

Years later, in 1996, the National Imagery and Mapping Agency (NIMA) was formed through the consolidation of NPIC and the organizations that had used the NRO photos. At that time, the existence of NRO and NIMA was declassified and the pictures from several reconnaissance programs were released to the public.

太空侦察初期，政府各机构组织就对该项目的控制权的问题争论不休。为了制止这场“兄弟残杀”，1960年成立了国家侦察局（NRO）。为恰当地分析并共享国家侦察局的研究成果，随后成立了国家侦照判读中心（NPIC）。它独立于那些相互竞争的机构，但是它从那些机构“借调”工作人员。这种情况下，空军的绘图专家可能坐在中央情报局情报分析家旁边，双方分享这些图片和技术。当侦察使命进入保密阶段，研究项目和发射事宜不再对外公布。从事这方面的研究人员或看到研究成果的人员，经过安全检测后被批准，只去从事他们各自委派的任务，不能议论他们的工作内容。

数年后，1996年，通过合并国家写真解析中心和其他利用国家勘测局图片进行研究的机构，成立了国家图像和测绘局（NIMA）。此时，国家侦察局和国家图像和测绘局的存在被解密，一些侦察计划得以向公众透露。

it had to know what the U.S.S.R. was doing.

During World War II, some reconnaissance was done using cameras in airplanes. This was useful, but unreliable – photography through clouds didn't work, and you just can't photograph much at night. During the Cold War, engineers studied whether satellites were possible. They decided they were, but no one wanted to invest the money to design, build, and test them. In October 1957, this changed when the U.S.S.R. launched *Sputnik I*, the first satellite.

"Sputnik" means "traveling companion".

飞机拍摄照片展开的。虽然，这种方法很有用，但是并不可靠，因为云层中并不能摄影，而且夜间很难拍摄到多少东西。冷战期间，工程师们研究，卫星是否可行。他们认为卫星可以侦察，可是却没有人愿意投资设计、建造和测试侦察卫星。然而，1957年10月苏联成功地发射了第一枚人造地球卫星时，这种情况就变了。

“锁眼”偷窥

很快，美国急忙建造自己的卫星，1958年1月，“花冠”工程诞生了。“花冠”

A KEYHOLE TO PEEK THROUGH

Quickly, the United States rushed to build its own satellite, and in January of 1958, Project CORONA was born. CORONA was a series of photo reconnaissance satellites with recoverable film canisters. After a few days of taking photographs, the satellite ejected the canister, which was then snagged out of the air by an airplane as it parachuted down. As the pile of CORONA photographs grew, the value of space reconnaissance became clear.

Classified
Available to authorized persons only, for reasons of national security

Of course, it is no fun spying on someone if they know you are watching, so in 1960, the entire space reconnaissance program was ***classified***, and all photographic satellites were code-named KEYHOLE (KH).

20/20 VISION

The CORONA satellites mapped all of the U.S.S.R. at 50- to 100-foot resolution – the size or area of an object that could be seen clearly – and found the nuclear missiles it was looking for. Upgrades to the CORONA system improved resolution to 10 feet. Subsequent KEYHOLE satellites could take close-ups at 18-inch resolution over a small area.

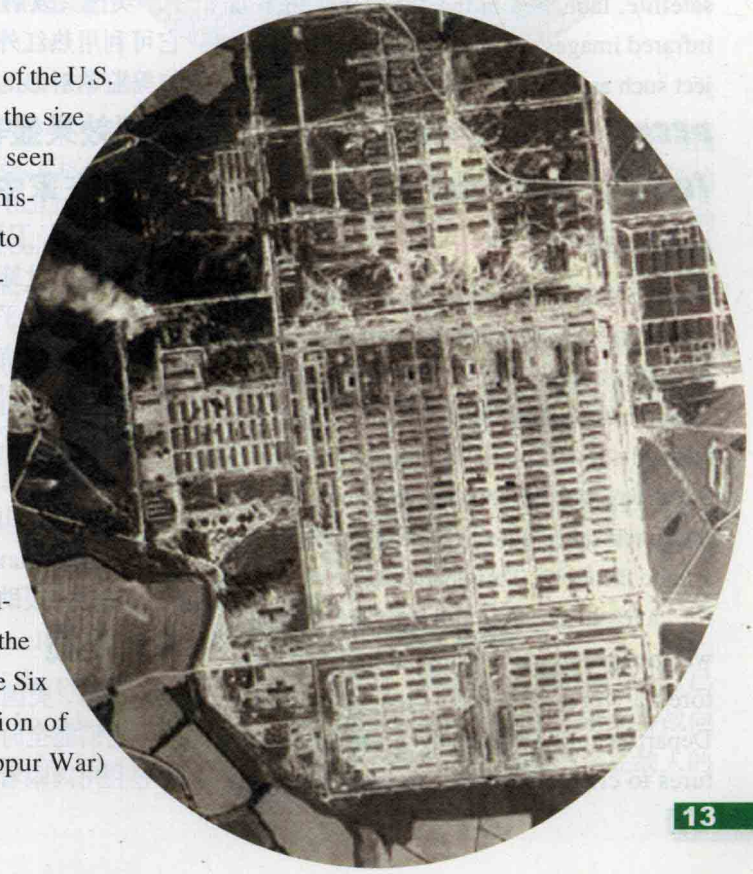
The KEYHOLE satellites were very successful, but still had a big problem. It could take a month to get a photograph back, so no "real-time" information was available. In the '60s and '70s, several wars (e.g., the Six Days War, the U.S.S.R.'s invasion of Czechoslovakia, and the Yom Kippur War)

是地球可获得胶卷盒的一系列型号的图片拍摄型侦察卫星。卫星拍摄数天图片后，抛下胶卷盒，在搭降落伞下降过程中，飞机可以将其截获。随着“花冠”拍摄的图片越来越多，太空侦察的重要价值逐渐显现出来。

当然，如果对方知道自己在被他人监视，开展间谍行动也就没有任何必要了。于是，1960年，整个太空侦察计划被列入国家机密，所有拍摄型卫星代号为“锁眼”（KH）。

20/20成像

“花冠”卫星以50到100英尺的分辨率拍摄苏联全境，图片中物体的大小形状看得非常清楚，此外，它还可以探测到它在寻觅的核导弹的位置。升级后的“花冠”系统分辨率提高到10英尺。随后的“锁眼”卫星还能够拍摄分辨率为18英寸的特写镜头。



began and ended before the United States could see what was happening! Enter the KH-11 series.

Launched in December 1976, the KH-11 was the first KEYHOLE satellite to use a CCD camera. Its resolution was six inches, and analysts received the digital images in just 90 minutes. Another Keyhole satellite, the LACROSSE radar satellite, was launched in December 1988. It had a resolution of five to 10 feet and took images by bouncing high-frequency radio waves off the target. By measuring the strength of the signals that came back, you could figure out the object's size and shape. With radar, clouds and camouflage designed to fool photographic satellites were no longer a concern. An even more advanced KEYHOLE satellite, launched in the '90s, takes thermal infrared images, measuring the heat of an object such as a tank or a body.

PEEKING PAYS OFF (DON'T TRY THIS AT HOME!)

The KEYHOLE satellites discovered missile capabilities, nuclear test facilities, and submarine shipyards in both the U.S.S.R. and China. Their pictures helped make lasting peace treaties and allowed both the United States and U.S.S.R. to get rid of many nuclear warheads. Our reconnaissance satellites still watch events around the globe. This year, satellites searched for caves in the mountains of Afghanistan, watched troops moving around Iraq, and monitored a North Korean nuclear reactor. The Department of Defense even uses some pictures to create maps that forest rangers and

“锁眼”卫星成效显著，但仍存在着一个严重的问题。它需要一个月的时间才能将图片反馈回来，因而不能提供“实时”信息。20世纪60年代和70年代的几场战争，例如六日战争、苏联入侵捷克斯洛伐克和赎罪日战争，在美国获得图片之前，这几场战争早已爆发并结束了！随后，美国推出了锁眼—11系列卫星。

1976年12月，锁眼—11卫星成功发射，它是第一个使用电荷耦合装置照相机的“锁眼”卫星。其图像分辨率为6英寸，分析人员在短短90分钟之内就可获得数字图像。另一型号的锁眼卫星“长曲棍球”雷达卫星在1988年12月发射成功。该卫星图像分辨率为5到10英尺，通过发射高频无线电波，被目标物体反射成像。通过测量反射信号的强度，可以计算出目标物体的大小和形状。用了雷达，云和被对方用来欺骗拍摄型卫星伪装手段再也形成不了威胁了。20世纪90年代，美国又发射了一颗更为先进的“锁眼”卫星，它可利用热红外线成像，测量坦克或目标中心部位等监测对象的热度。

窥视效果显著（可别在家中尝试哟！）

“锁眼”卫星探测到了苏联和中国的导弹能力、核试验设施和潜艇制造厂。拍摄的图片有助于签订持久和平条约，并使得美苏拆毁了许多核弹头。美国的侦察卫星还侦察着全球局势。2003年，卫星搜索阿富汗山区的山洞，侦察在伊拉克境内军队的情况，监视北朝鲜核反应堆的进展情况。国防部甚至利用其中的一些图片绘制指引森林护林员和登山者的地图。我们与战略同盟共享这些图片信息，向联合国证实美国随时随地都会向他国伸出援助之手。

未来一窥

目前，美国正计划建造分辨率更高的新型卫星，它们能全时监视目标物体。还有人提议建造能够利用肉眼看不见的光波成像的卫星以及微型