

**Selected Articles
on Science &
Technology from
American &
British Press
Volume II**

美英报刊 科技文章选读

(英汉对照)

第二册

陈羽纶 张 明 选编

北京大学出版社



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前 言

《美英报刊科技文章选读》(第二册)是大学三年级以上同学课外英语读物,也可供具有相应英语程度的科技翻译者或对科技英语感兴趣的读者自学之用。编者相信,通过阅读此书后定能较快地提高理解、阅读和翻译能力,为独立阅读和翻译这类科技英语书刊打下基础。

本书共选 55 篇,按内容分为 4 部分:高科技发展一瞥;太空纵横谈;科技与生活;美好的明天。这些文章融知识性、科学性、可读性、思想性和时代感于一体,向广大读者提供了当今世界新科技发展的趋势和成果。

本书的科技文章主要选自美英较有影响、受到国际上普遍重视的报刊,如《时代》周刊、《新闻周刊》、《美国新闻与世界报导》、《国际先驱论坛报》、《星期日泰晤士报》、《读者文摘》、《科学世界》、《未来学家》和《新科学家》等。

55 篇科技文章的译文均出自我国科技专家、教授、学者之手,译者对难懂、一般词典难以查到的词语都作了注解,并对科技词汇的译法也作了适当的说明,可说译文各具特色。

由于本书文章均选自《英语世界》杂志,我们向译者表示感谢。

在成书时由于编排等原因,我们一方面不得不对有的注释作了适当的更动。另一方面为了尊重译注者,我们尽可能保留原有注释的特点,没有强求统一。

本书如有疏漏和不足之处,望读者批评指正。

编 者

1997 年 5 月 1 日

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1. Mathematics Put Forefront

of Gulf War

Part I

Bill Halpern

A Brief Survey of the Development of the Advanced Science and Technology

第一部分

高科技发展一瞥

[4] The technology employed in the allied air attack is firmly based on complex theorems and algorithms. If World War I was the chemical war because of the poisonous gases used and World War II the physicist's war because of the atomic bomb, then this war could be justifiably called the mathematician's war.

[5] Virtually every mathematical discipline seems to be finding ingenious applications in Operation Desert Storm.

● Control theory, a mathematical technique dealing with the control of mechanical systems, used in missile guidance and targeting systems.

● Coding theory, used in signal and image processing to enhance degraded radar and satellite data.

1. Mathematics *at Forefront of¹ Gulf War

Bill Hafferty

LIKE parents looking on in *startled wonder² at the works of their children, knots of mathematicians clustered last week around television sets in the San Francisco Hilton Hotel to watch the war against Iraq unfold.

[2]The 4,000 mathematicians were attending joint meetings of the American Mathematical Society, the Mathematical Association of America and the Society for Industrial and Applied Mathematics.

[3]While the world *marveled at³ films of missiles striking Iraqi targets with uncanny accuracy, the mathematicians may have been the only watchers who understood the role they had played in the bombardment.

[4]The technology employed in the allied air attack is firmly *rooted in⁴ complex theorems and algorithms. If World War I was the chemist's war because of the poisonous gases used and World War II the physicist's war because of the atomic bomb, then this war could be (justifiably⁵) called the mathematician's war.

[5]Virtually⁶ every mathematical discipline seems to be finding some application in Operation Desert Storm!

●Control theory, a mathematical discipline dealing with the control of mechanical systems, used in missile guidance and targeting systems.

●Coding theory, used in signal and image processing to understand radar and satellite data.

海湾传捷报 数学居首功

〔美〕比尔·哈弗蒂

孙瑞禾 译注

就 像父母惊讶地看着孩子们做出的工艺品一样,上星期一群群的数学家在旧金山希尔顿旅馆围着电视机聚精会神地观看反伊拉克战争的展开。

〔2〕这4000名数学家都是来参加美国数学会、美国数学协会和工业、应用数学学会举办的联合会议的。

〔3〕虽然全世界人们都因从电视上看到导弹命中伊拉克目标精确得出奇而惊讶不止,但观看者中也许只有这些数学家们才理解他们在轰击中所起的作用。

〔4〕盟军空袭所使用的技术是以复杂的数学定理和算法为牢固基础的。如果说第一次世界大战因使用了毒气可说是化学家的战争,第二次世界大战因使用了原子弹可说是物理学家的战争,那么,这一次战争就有理由称作是数学家的战争。

〔5〕在“沙漠风暴行动”中几乎每一门数学学科似乎都用上了:

●控制理论——这是关于机械系统控制的一门数学学科——用于导弹制导和瞄准的系统方面。

●编码理论,用于信号及图象处理,以理解

Notes

1. at the forefront of 或更常见的 in the forefront of 都作处在最前线(最重要地位;领先地位)解。此处因系文章标题,故把“the”略去了。即 Gulf War 之前的“the”也略去了。

2. wonder 加了 startled, 就不但惊奇,而且有震惊之意

3. marvel 和 wonder 一样,后面都跟 at,前者较后者语音重些

4. 扎根于

5. 有理由地

6. 从“实际上”转为“几乎”

● Cryptography and cryptanalysis, used to encode allied communications and decipher enemy transmissions. 3/8/81

● Statistics, used to plan the logistics of such a massive deployment of personnel and supplies. 10/8/81

[6] Dr. Andre Manitius, a professor of electrical and computer engineering at George Mason University in Fairfax, Va., was struck⁷ by the precision bombing. 10/8/81

[7] "What we are seeing is a direct result of the implementation of control theory," he said. "Mathematics here could be said to be actually saving lives because of the precision and accuracy made possible."

[8] For example, he said, the Patriot system requires a tremendous amount of mathematical computations to hit an incoming Scud missile. Trajectory data retrieved from radar and satellites contain many errors that have to be ^{*}cleaned up.⁸ And the changing positions of the incoming missile and the intercepting Patriot missile must be calculated forward⁹ in three dimensions.

[9] All of this involves the use of complex algorithms, or mathematical recipes of computation steps that tell the missile's computer what to do.

[10] Mathematics and the military are not new acquaintances, and government funding for math research has grown steadily since World War I. The National Security Agency is reportedly the largest employer of mathematicians in the United States. But many of the mathematicians gathered at the conference challenged their¹⁰ roles in weapons development.

[11] Dr. Samuel Anderson, a mathematician at the New School of Social Research in New York, even suggested that mathematicians involved in Department of Defense research should ^{*}"cease and desist"¹¹ that activity.

[12] ^{*}For better or for worse,¹² mathematics appears ^{*}linked inexorably with¹³ military technology. Said Dr. Samuel

雷达和卫星数据。

●密码术及密码分析,用以给盟军通讯编码和破译敌军信息。

●统计学,用以为庞大的人员、物资调度规划后勤。

[6]安德烈·马尼修斯博士是弗吉尼亚州费尔法克斯市乔治·梅森大学的一位电机和计算机工程学教授,他就为这样的精确轰炸而吃惊。

[7]他说,“我们所看到的就是实现控制理论的直接结果。由于能做到这样精密和准确,数学在这里可以说实际上拯救了许多生命。”

[8]例如,他说,“爱国者”导弹系统,为要击中入侵的“飞毛腿”导弹,必须经大量的数学计算。从雷达和卫星回收到的弹道数据含有许多误差,必须加以清除。而且对入侵的导弹和用以拦截的“爱国者”导弹的不断变化的位置都必须在三维空间中先行算出。

[9]所有这一切都需要使用复杂的算法,或计算步骤的数学方法,以命令导弹的计算机怎么干。

[10]数学和军方绝不是初相识了。第二次世界大战以来,美国政府对数学研究的拨款就一直在上升。据报道,在美国,国家安全局是雇用数学家最多的机构。但是参与这次会议的许多数学家对他们在武器发展方面所担任的角色却提出了异议。

[11]塞缪尔·安德森博士,纽约新设社会研究院的一位数学家,甚至提出,参与国防部研究的数学家们应该停止这种活动。

7. strike 的过去分词,作“为之惊奇震动”解

8. 原为“打扫干净”转为“清除”,“除掉”

9. 提前

10. their 指 mathematicians 而言

11. “and desist”实则多余,单用“cease”即够

12. 习语:不管结果是好是坏

13. linked with 与……相联系的; inexorably 不可改变地(原意为“说也说不动地”)

14. ['wustə]

译自 1991 年 1 月 22 日
〔美〕圣何塞市《使者报》
巫宁坤教授自美寄来选
材

Rankin, head of the mathematical sciences department at Worcester Polytechnic Institute in Worcester¹⁴, Mass. : "The further you go out into the scientific and technological frontiers, especially in the kinds of things we are seeing today, you are going to find mathematics. "

From San Jose *Mercury News*, Jan. 22, 1991

Lucy Chang

There is little doubt that human beings and computers are getting friendlier. These days bank customers have learned to accept "an automated teller" wishing them good day or "explaining" that a transaction can't go through right now. Smiling pleasantly after losing at computer games, people gamely "give it another try." And even a computerized robot on an assembly line is more of a threat than it used to be.

[2] But computer scientists aren't satisfied with keeping people's relationships with machines on such a superficial level. A branch of their research called artificial intelligence is trying to teach computers to simulate the human thinking process. Along the way, researchers believe they are unraveling more secrets of how the mind works—with the computer's help. And that new information, in turn, is being used to push toward a breakthrough in developing machines with genuine (or, at least, simulated) reasoning skill—the power first to see and hear, then to infer, argue or answer queries presented to them in simple language.

[3] Since the human mind is the only thinking thing that scientists know, it isn't surprising that researchers have tried to use the human thought process as a model ever since the days of the first "electronic brains"—the room-sized computers of the late 1940s. Decades later, popular conceptions about the brain have evolved, and now "the computer often provides a metaphor for the mind."

[4] But as machines increasingly have been taught to simulate