

题源外刊 08 课堂笔记

题源外刊 08

视频定位
0:00~12:49

上节内容回顾:

单词测试

award v. 授予	upset v. 使..不高兴; 使..烦恼;
condemnation n. 谴责	adj. 烦恼的, 沮丧的, 不安的
crude adj. 粗糙的	object n. 宾语, 客体, 物体, 对象 (subject主语)
crude oil 原油 = petroleum	v. 反对 object to
hitherto adv. 迄今	objective adj. 客观的
sector n. 部门; 扇形	n. (=target/goal) 目标
agriculture sector 农业部	objection n. 反对
industry sector 工业部	e.g. The objective of this course is to help you be
accord n. 协定, 一致	successfully admitted to graduate school.
in the immediate vicinity of 紧邻着	commit oneself to... v. 致力于... 投身于...
	fragile adj. 脆弱的

Text 8: Basic Science Can't Survive without Government Funding

Paragraph 1&2

Q: Why does the author mention "Albert Einstein" in the opening paragraph?

- [A] To acclaim the achievements of Albert Einstein.
[B] To introduce the process of technological invention.
[C] To emphasize the importance of competition.
[D] To underscore the breakthrough of science.

On December 2, 2015, the centennial anniversary of the publication of Einstein's general theory of relativity (相对论), science fans everywhere reflected on this amazing act of genius. But the theory was not born, fully formed, in some eureka moment. Albert Einstein chipped away at it for years. He was finally driven to complete it by a fierce rivalry with mathematician David Hilbert.

(祈使句, 主语是you) Examine the detailed history of almost any iconic scientific discovery or technological invention—the lightbulb, the transistor, DNA, even the Internet—and you'll find that the famous names credited with (归功于) the breakthrough were only a few steps ahead of a pack of competitors. Recently some writers and elected officials have used this phenomenon, called parallel innovation, to argue against the public financing of basic research.

A: A错误, 选项是例子本身, 例子的目的是为了证明更大的概念, 不是为了证明例子本身。B选项说技术发明的过程, 概念扩大了。D选项中科学突破是不对的。C选型为正确选项, 爱因斯坦是在他的对手的竞争下发现相对论的, 文中多次提到竞争的近义词如 "rivalry""competitor" 等等。

本部分讲述了爱因斯坦的相对论的得出不是偶然的, 而是在对手的竞争下完成。很多著名的人都只是比竞争者多走了几步而已。

NOTE:

大板块

小板块

课后作业

题干关键词

补充知识

Notes:

admit "录取" 是一个动词, 要用副词修饰, 所以这里 "成功地" 应该用副词 "successfully" 。

Notes:

some 的不同种翻译:
some moments 一些时刻
some moment 某个时刻
some bread 一些面包

Notes:

finance n. 金融
v. 给.....提供资金

视频定位
12:49~38:30

重点词汇

centennial anniversary 第100周年纪念

reflect v. 思考 (on/upon sth.)

eureka exclam. 我找到了, 我发现了, 有了!

chip away 琢磨; 拆掉, 削掉

fierce adj. 激烈的

iconic adj. 符号的, 图像的

transistor n. 晶体管

credit v. 把...归于;

认为...的功劳 (with)

parallel adj. 平行的

对照翻译

On December 2, 2015, the centennial anniversary of the publication of Einstein's general theory of relativity, science fans everywhere reflected on this amazing act of genius. But the theory was not born, fully formed, in some eureka moment. Albert Einstein chipped away at it for years. He was finally driven to complete it by a fierce rivalry with mathematician David Hilbert.

2015年10月2日是爱因斯坦发表广义相对论一百周年纪念日, 全世界的科学爱好者都在思索这个震惊世界的天才之举。但是相对论并非是在某个灵光闪现的时刻诞生、完全成形的。阿尔伯特·爱因斯坦花了很多年, 一点一滴地攻坚克难。最后推动他完成理论的是和数学家大卫·希尔伯特激烈的竞争。

Examine the detailed history of almost any iconic scientific discovery or technological invention—the lightbulb, the transistor, DNA, even the Internet—and you'll find that the famous names credited with the breakthrough were only a few steps ahead of a pack of competitors. Recently some writers and elected officials have used this phenomenon, called parallel innovation, to argue against the public financing of basic research.

只需研究一下几乎任何一项标志性的科学发现或者技术创新的详细历史——电灯泡、晶体管、DNA、甚至是互联网——你就会发现, 被冠以“突破者”称号的那些大名鼎鼎的人物只比大批的竞争对手抢先几步。最近, 一些作者和当选的官员利用这种叫做“平行创新”的现象, 反对政府投资基本科研项目。

视频定位

38:30~42:13

Paragraph 3

In his new book, *The Evolution of Everything*, for example, British science writer Matt Ridley claims that government just gets in the way of the natural evolution of science and invention. Many in the U.S. Congress agree. We spend too much taxpayer money on science, some politicians say. Government should leave it to companies to finance the research they need.

段落分析: 政府应该让公司自行投资所需要的研究。

重点词汇

Congress n. 国会

finance v. 给...提供资金

对照翻译

In his new book, *The Evolution of Everything*, for example, British science writer Matt Ridley claims that government just gets in the way of the natural evolution of science and invention. Many in the U.S. Congress agree. We spend too much taxpayer money on science, some politicians say. Government should leave it to companies to finance the research they need.

比如, 英国科学作家马特·里德利在他的新书《万物进化》中声称, 政府只会妨碍科学创造的自然进程。这个观点得到很多美国国会议员的赞同。一些政客说, 我们在科学上花掉太多纳税人的钱了。政府应该放手交给公司, 让他们自行投资所需要的研究。

Paragraph 4&5&6

Q: What is the author's attitude toward basic research and research in applied fields?

These arguments are dangerously wrong. (这里说明, 之前的观点都是错误的) Without government support, most basic scientific research will never happen. This is most clearly true for the kind of pure research that has delivered enormous prestige and great intellectual benefits but no profits, such as the work that brought us the Higgs boson, or the understanding that a supermassive black hole sits at the center of the Milky Way, or the discovery of methane seas on the surface of Saturn's moon Titan. Company research laboratories used to do this kind of work: experimental evidence for the big bang was discovered at AT&T's Bell Labs, resulting in a Nobel Prize. Now those days are gone.

Even in applied fields, such as materials science and computer science, companies now understand that basic research is a form of charity—so they avoid it. Scientists at Bell Labs created the transistor, but that invention earned billions for Intel (and Microsoft). Engineers at Xerox PARC invented the modern graphical user interface, although Apple (and Microsoft) profited the most.

If government were to leave it to the private sector to pay for basic research, most science would come to a screeching halt. What research survived would be done largely in secret, for fear of handing the next big thing to a rival. In that situation, Einstein might never have felt the need to finish his greatest work.

A: 作者赞同政府出资支持科学研究, 而不是公司。这三段分析了作者对研究的态度, 作者举出了很多物理领域的例子, 证明没有政府支持, 大部分基础科学研究永远无法开展。如果政府撤资, 让私营部门出资进行基础研究, 大部分科学研究会戛然而止。

重点词汇

prestige n. 威信, 声望
Higgs boson n. 希格斯玻色子
supermassive adj. 超大质量的
methane n. 甲烷
charity n. 慈善, 救济
screech v. 尖叫, 发出尖锐刺耳的声音
halt n. 停止=stop

对照翻译

These arguments are dangerously wrong. Without government support, most basic scientific research will never happen. This is most clearly true for the kind of pure research that has delivered enormous prestige and great intellectual benefits but no profits, such as the work that brought us the Higgs boson, or the understanding that a supermassive black hole sits at the center of the Milky Way, or the discovery of methane seas on the surface of

这些说法错误至极, 危险之至。没有政府支持, 大部分基础科学研究永远无法开展。最明显真实的例子是那些带来巨大声誉和知识利益, 但是没有经济利益的纯理论研究, 比如希格斯玻色子的研究, 或者是银河系中心是超大黑洞的想法, 或者是土星卫星泰坦上面有甲烷海的发现。在过去, 公司的研究实验室做这样的研究: 宇宙

<p>Saturn's moon Titan. Company research laboratories used to do this kind of work: experimental evidence for the big bang was discovered at AT&T's Bell Labs, resulting in a Nobel Prize. Now those days are gone.</p>	<p>大爆炸的实验证据就是在AT&T's的贝尔实验室发现的，结果获得了诺贝尔奖。现在，这样的日子一去不返了。</p>
<p>Even in applied fields, such as materials science and computer science, companies now understand that basic research is a form of charity—so they avoid it. Scientists at Bell Labs created the transistor, but that invention earned billions for Intel (and Microsoft). Engineers at Xerox PARC invented the modern graphical user interface, although Apple (and Microsoft) profited the most.</p>	<p>即使在应用领域，比如材料科学和计算机科学，各大公司现在也明白，基础研究是一种慈善行为——所以他们唯恐避之不及。贝尔实验室的科学家发明了晶体管，但这一发现却让英特尔公司（和微软）赚了几十亿。施乐帕克研究中心的工程师发明了现代图形用户界面，可是苹果公司（和微软）获益最多。</p>
<p>If government were to leave it to the private sector to pay for basic research, most science would come to a screeching halt. What research survived would be done largely in secret, for fear of handing the next big thing to a rival. In that situation, Einstein might never have felt the need to finish his greatest work.</p>	<p>如果政府撤资，让私营部门出资进行基础研究，大部分科学研究会戛然而止。侥幸留下的研究很大程度上会秘密进行，因为担心下一个重大发现会拱手送给竞争对手。在那种情况下，爱因斯坦可能永远不会觉得有必要去完成他最伟大的工作。</p>

视频定位

1:06:08~1:09:33

Paragraph 7

Einsteins are **few and far between**. (很稀少) But we don't have to wait for a rare genius as long as we stoke the competitive instincts of the smartest people around and persuade them to share their discoveries, in exchange for a shot at glory and riches.

段落分析：我们需要激发天才竞争的本能，让他们来分享发现。

重点词汇

few and far between 稀少的

rare adj. 少见的

stoke v. 给...添加燃料；煽动

instinct n. 本能

a shot at 尝试

glory n. 荣耀，荣誉

对照翻译

<p>Einsteins are few and far between. But we don't have to wait for a rare genius as long as we stoke the competitive instincts of the smartest people around and persuade them to share their discoveries, in exchange for a shot at glory and riches.</p>	<p>爱因斯坦是凤毛麟角的天才。但是我们不必苦等下一个旷世奇才降世，我们只需要鼓动起周围那些最聪明的人的竞争本能，说服他们分享其发现，以争取荣誉和财富。</p>
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视频定位

1:09:33~1:13:46

语法知识点8

虚拟语气

1. Without them to power its growth, America's stock market would have fallen this year.
2. In that situation, Einstein might never have felt the need to finish his greatest work.
3. If government were to leave it to the private sector to pay for basic research, most science would come to a screeching halt.

	主句(would)	从句
过去	would have done / been	had been/ had done
现在	would do	were/did
将来	would do	were to/should do

课后作业:

1. 句子分析

①Examine the detailed history of almost any iconic scientific discovery or technological invention--the lightbulb, the transistor, DNA, even the Internet--and you'll find that the famous names credited with the breakthrough were only a few steps ahead of a pack of competitors.

②This is most clearly true for the kind of pure research that has delivered enormous prestige and great intellectual benefits but no profits, such as the work that brought us the Higgs boson, or the understanding that a supermassive black hole sits at the center of the Milky Way, or the discovery of methane seas on the surface of Saturn's moon Titan.

2. 复习文章和词汇自测