

高等学校试用教材

英 语

第三册

(工科各专业通用类)

上海交通大学外语教研室主编

高等教育出版社

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Lesson One

Text: Radar

Word Study: refer; round; in addition, in addition

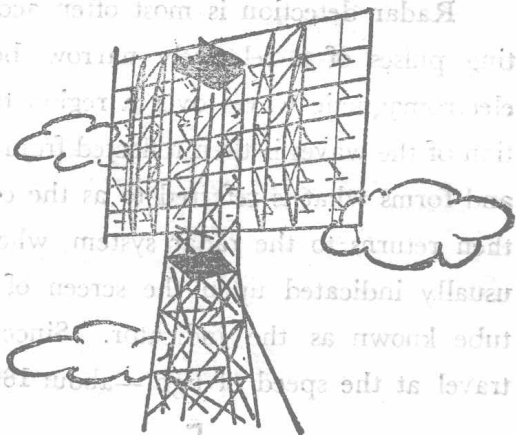
to, besides, except

Grammar: Uses of "It"

Text

Radar

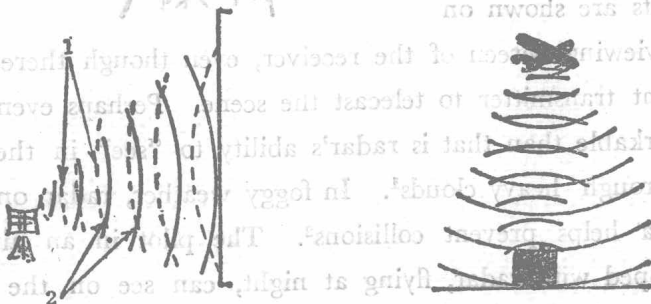
Television makes it possible for us to see a distant scene as a transmitter at the television studio telecasts the scene to our receiver. But by means of radar, the outlines of distant objects are shown on the viewing screen of the receiver, even though there is no distant transmitter to telecast the scene. Perhaps even more remarkable than that is radar's ability to "see" in the dark or through heavy clouds¹. In foggy weather, radar on ships at sea helps prevent collisions². The pilot in an airplane equipped with radar, flying at night, can see on the radar viewing screen distant buildings, or perhaps a dangerous



mountain peak that is miles ahead. At larger airports, the positions of all airplanes within a certain distance can be watched on a radar screen. Scientists also use radar to follow rockets during flight. And they can use radar to measure accurately the positions of the moon and planets.

The word radar stands for "radio detecting and ranging." It is a system by means of which it is possible to detect the presence of objects and to determine their velocity, direction, and range (distance). In addition, some types of radar systems also make it possible to roughly analyze the composition of the detected objects.

Radar detection is most often accomplished by transmitting pulses of a relatively narrow beam of high-frequency electromagnetic waves over a region to be searched. A portion of the waves is then reflected from the object encountered, and forms what is referred to as the echo signal. This signal then returns to the radar system, where it is received and is usually indicated upon the screen of a cathode-ray type of tube known as the indicator. Since electromagnetic waves travel at the speed of light—about 186,000 miles a second, the



1. Radar sends out these waves; 2. and then waits for them to be reflected.

time period that elapses between the transmission of the signal and the reception of its echo can be used to determine the range of the target object. Suppose the waves take 1/1,000 of a second³ to make a round trip to and from an object. They have travelled 186 miles. The distance to the object is half of this, or 93 miles.

New Words

- | | | | |
|-----------------------|---------------|-----|----------|
| 1. radar | ['reɪdər] | n. | 雷达 |
| 2. distant | ['dɪstənt] | a. | 远的 |
| 3. scene | [si:n] | n. | 景象, 场面 |
| 4. transmitter | [trænz'mɪtər] | n. | 发射机 |
| 5. studio | ['stju:diəʊ] | n. | 播音室, 演播室 |
| 6. telecast | ['telɪkɑ:st] | vt. | 用电视播送 |
| telecast 或 telecasted | | | |
| telecast 或 telecasted | | | |
| 7. receiver | ['rɪ'si:vər] | n. | 接收器 |
| 8. outline | ['aʊt-láɪn] | n. | 轮廓, 略图 |
| | | vt. | 概括, 略述 |
| 9. screen | [skri:n] | n. | 屏幕, 荧光屏 |
| 10. remarkable | ['rɪ'mɑ:kəbl] | a. | 异常的, 显著的 |
| 11. cloud | [klaʊd] | n. | 云 |
| 12. foggy | ['fɒgi] | a. | 有雾的 |
| 13. weather | ['weðə] | n. | 天气 |
| 14. sea | [si:] | n. | 海, 海洋 |
| 15. prevent | ['pri'vent] | vt. | 防止 |
| 16. collision | [kə'liʒən] | n. | 碰撞 |
| 17. pilot | ['paɪlət] | n. | 飞行员 |

18. equip	[i'kwip]	vt.	装备
19. night	[nait]	n.	夜, 黑夜
20. mountain	['mauntin]	n.	山
21. peak	[pi:k]	n.	山峰, 顶端
		a.	最高的
22. ahead	[ə'hed]	a., ad.	在前
23. airport	['eə-pɔ:t]	n.	机场
24. range	[reindʒ]	n.	范围; 距离
		vt.	测距
25. presence	['prezn]	n.	存在
26. determine	[di'tə:min]	vt.	测定, 确定
27. velocity	[vi'lsiti]	n.	速度; 速率
28. addition	[ə'diʃən]	n.	加, 增加
29. roughly	['rʌfli]	ad.	粗略地
30. analyze, analyse	['ænəlaiz]	vt.	分析, 解析
31. detection	[di'tekʃən]	n.	探测, 检测; 检波
32. pulse	[pʌls]	n.	脉冲, 脉动
33. relatively	['relativli]	ad.	相对地, 比较地
34. region	['ri:dʒən]	n.	范围; 地区, 地带
35. search	[sə:tʃ]	vt., vi., n.	搜索; 探测; 研究
36. encounter	[in'kauntə]	vt.	遇到
37. refer	[ri'fə:]	vt.	指点
		vi.	提到; 涉及; 参考
38. echo	['ekəu]	n.	回波, 回声
39. indicate	['indikait]	vt.	指出; 指示; 表明
40. cathode	['kæθəd]	n.	阴极
		n.	阴极射线
41. indicator	['indikaitə]	n.	指示器, 指示物

42. elapse	[i'ləps]	vi.	(时间)过去, 消逝
43. target	['tɑ:git]	n.	目标, 对象
44. suppose	[sə'pəuz]	vt.	假定
45. trip	[trip]	n.	旅行; 旅程, 行程

Phrases and Expressions

- | | |
|----------------------|----------|
| 1. by means of | 用; 依靠 |
| 2. viewing screen | 荧光屏 |
| 3. be equipped with | 装备有 |
| 4. in addition | 此外, 另外 |
| 5. be referred to as | 称为; 被认为是 |
| 6. round trip | 往返的旅程 |

Notes

1. Perhaps even more remarkable than that is radar's ability to "see" in the dark or through heavy clouds.

也许比这更令人惊奇的是雷达能在黑暗中或透过浓云“看到”东西。

这句的主语是 ability, 谓语是 is more remarkable, that 一词指的是上一句子的内容。

2. In foggy weather, radar on ships at sea helps prevent collisions.

船上的雷达可使船只在海上有雾的天气中避免碰撞。

help 后的不定式(做宾语)可省去 to.

3. 1/1,000 of a second 读作 one thousandth of a second.

Word Study

1. refer

- 1) *vt.* 把……归诸; 认为……起源于

The invention of gunpowder is referred to China.

火药是中国发明的。

- 2) *vt.* 指点; 使向……请教

He was referred to the information desk.

人家叫他到问讯处去问。

The teacher referred him to the appendix ([ə'pendiks]

附录).

教师叫他去查附录。

- 3) *vi.* 提到; 涉及; 查阅; 参考; 指

The book refers to electricity.

这本书讲有关电的问题。

Please refer to the vocabulary ([və'kæbjuləri] 词汇表).

请查阅总词汇表。

The numbers refer to pages.

数字系指页数。

- 4) *refer to ... as* 把……称为

Coal is usually referred to as a fossil fuel ([fɒsl] [fjuəl]

矿物燃料).

煤通常被称为矿物燃料。

2. round

- 1) *a.* 来回的; 圆的

The electromagnetic waves took 1/1,000 of a second to make a round trip to and from the object.

电磁波发射到该物体并返回花了千分之一秒时间。

Is the orbit round?

轨道是圆的吗?

2) *prep.* 围绕 (也可用 *around*)

The rocket is travelling round the earth.

火箭正在绕地球运行。

3) *ad.* 回转地, 循环地

The wheels are going round.

轮子在转着。

The machine runs all the year round.

这台机器全年运转。

3. in addition, in addition to, besides, except

1) in addition (=besides) 此外

By means of radar we can detect the presence of an object, and determine its direction and range.

In addition (besides), we can also identify its character.

我们可以用雷达探测物体的存在, 确定它的方向和距离。

此外, 我们还能辨别它是什么。

2) in addition to (=besides) 除……之外; 又

In addition to (besides) learning English, he studies physics and other subjects.

他除了学英语外, 还学物理和其他课程。

3) *except prep.* 除……之外 (与 *besides* 不同)

We all went except him.

除他以外, 我们都去了。

试比较:

We all went besides him.

除他去以外, 我们大家也都去了。

Grammar

Uses of "It"

1. 用作代词

a) 代替上下文提到的事物

- 1) Laser-produced light is different from incoherent light. *It* is essentially of one frequency.

激光器产生的光与非相干光不同，它实质上只有一个频率。

- 2) When the term "engine" is used, *it* almost always means a heat engine.

使用“发动机”这一术语时，几乎总是指热机。

- 3) Before *it* can do any job for us, a computer must be given a program.

计算机必须先排列程序才能工作。

b) 代替上文提到的某件事，有时代替上面的一个句子

- 1) That object consists of silicon, but doesn't look *it*.

那物体由硅所组成，但看起来不象。

- 2) There is too much friction between these machine parts, and the operator knows *it*.

这些机器部件间摩擦太大，这一点操作者是清楚的。

- 3) Why are electrons more mobile than protons or neutrons? *It* is because they have lighter mass and less firm binding.

为什么电子比质子或中子活动性大？这是因为电子质量轻，结合力弱的缘故。

c) 表示时间、距离、天气等

- 1) What day is today? *It* is Monday.

(四) 今天星期几? 今天星期一。

2) *It is only two miles to the broadcasting station.*

到广播电台只有两英里。

3) *It will snow ([snəu] 下雪) before long.*

很快就要下雪了。

d) 指心目中的人或事物

1) *Who is it? It's me.*

谁(敲门)啊? 是我。

2) *That's it!*

就是这么回事!

3) *The vehicle could not even be started if it were not for the friction exerted between the tires and the road.*

若不是由于轮胎和路面之间有摩擦力, 车辆甚至不能开动。

2. 用作引导词

a) 作形式主语 *it* 在句中用作形式主语, 而真正主语(通常为不定式短语、动名词短语或从句)放在谓语后面。

1) *It is easier to roll something over a surface than to slide it.*

在任一表面上滚动一个物体比滑动容易。(it 代替不定式短语)

2) *It will be useless learning a theory without practice.*

学习理论而不实践是没有用的。(it 代替动名词短语)

3) *It is known that rusting is a common example of corrosion.*

大家知道生锈是腐蚀的一个普通例子。(it 代替从句)

4) *It is required that the amount of waste energy in a machine should be reduced as much as possible.*

必须尽量减少机器中的能量损耗。(it 代替从句)

b) 作形式宾语 凡用不定式短语、动名词短语或从句作宾语，其后并有宾语补足语时，通常将 it 放在动词和宾语补足语之间，作形式宾语，而真正宾语则放在宾语补足语的后面。

1) In education, closed-circuit TV makes it easy for a whole class to see everything a teacher is demonstrating.
在教学中，闭路电视使全班学生易于看到教师演示的一切。

2) The development of integrated circuits made it possible for electronic devices to get smaller and smaller.
集成电路的发展使电子器件可以做得越来越小。

3) We find it useless employing radar to detect objects in water.

我们发现使用雷达探测水下目标是不行的。

4) People consider it true that all types of radiant energy move through a vacuum at the speed of light.

人们认为各种辐射能确实都是以光速通过真空的。

3. 用于 “It is (was) ... that (which, who) ...” 的强调句型中

1) It is the heat from burning fuel that makes a locomotive run.

正是燃料燃烧产生的热使机车运行。

2) It is a diesel engine which we have employed to pump water.

我们用来抽水的机器是一台柴油机。

3) It is to reduce friction that roller bearings are used.

正是为了减少摩擦我们才使用滚柱轴承。

4) It is only when a rocket attains a speed of about five miles per second that it can put a satellite in orbit.

只有当火箭达到每秒五英里左右的速度时才能把卫星送入轨道。

5) *It was not until 1886 that aluminum came into wide use.*

直到1886年铝才得到广泛应用。

6) *It was Galileo who first discovered the law of freely falling bodies.*

首先发现自由落体定律的是伽利略。

Exercises

1. Put the following expressions into Chinese:

- 1) a distant object to be detected
- 2) a cathode-ray tube indicator
- 3) a simple method of determining range by means of radar
- 4) make remarkable achievements
- 5) prevent airplanes from coming into collision against mountain peaks
- 6) equip a ship with a nuclear-power plant
- 7) analyze a complicated technical problem
- 8) indicate the velocity and direction of the detected target
- 9) make a trip round the world
- 10) help reduce the friction in moving parts

2. Mark T if the sentence is true and F if false, then correct the false statements:

- 1) In television, it is the transmitter at the television studio that telecasts the scene to our receiver. []