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[美] V. F. 艾伦

英语阅读文选

科学技术文献出版社重庆分社

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第八册

〔美〕V·F·艾伦　编著

石孝殊　注释

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前　言

本注释本原书是美国坦普尔大学V·F·艾伦博士专为外国人学习英语而编写的一套系列阅读丛书（一九七四年至一九七八年出齐），适合用作我国高中，大学一、二年级学生及水平相当的同志学习英语的读物。该丛书自八十年代初期起在四川省内外大专学校广泛使用，反映良好。

全书共八册，分初、中、高三级。第一、二、三册为初级，初中毕业即可阅读；第四、五、六册为中级；第七、八册为高级。总词汇范围以三千词为基础。《丛书》材料精心编纂，词汇语法严格筛选，课文题材广泛，文体丰富多彩，语言生动活泼；每课课文之后还附有词汇、语法等练习；书后附有练习答案和词汇表。这套书的趣味性、知识性与科学性融为一体，做到了循序渐进，引人入胜。读者既可培养阅读能力，扩大词汇量，又可较全面地学习语法，逐步提高使用英语的技能。

为了适应中国人学习英语的特点，本注释本对课文、插图说明及练习中出现的生词、习语、重要的人名地名等专有名词，特别是疑难句和重点语法现象，均一一作了适当的注释。

本丛书第八册由石孝殊注释。

由于时间仓促，加之本人水平有限，书中可能存在错误或不妥之处，希望读者提出宝贵意见，俾于今后改进。

注释者

一九八七年一月

CONTENTS

READING 1

Understanding Thunderstorms

by Guy Murchie[1]

〔1〕 The first time I was personally introduced to lightning, I was flying between Puerto Rico and the American continent. Had I not been in an airplane, I might not be alive now to describe the experience[2].

〔2〕 We had just ridden through three minutes of violent storm. As I was beginning to wonder how much longer the wings of the airplane could stand the terrible tossing, suddenly it happened. The inside of the plane lit up like an electric light. The light lasted less than a thousandth of a second, yet huge green sparks jumped all over[3] the room. The radioman was knocked to the floor, and the hairs on the back of my head stood out stiffly.

〔3〕 The lightning bolt had evidently struck the trailing wire[4] of our radio and followed it to the tail of the airplane, then on to the radio itself, which was severely damaged.

〔4〕 what is the strange power behind such a bolt out of the seemingly unsubstantial sky? How is lightning related to thunder? What are the natural causes of thunderstorms?

〔5〕 The simplest way to explain a thunderstorm is to say that it is a violent expression of the clouds. More exactly[5], thunder is the result of great heat bursting forth from the cumulonimbus or thundercloud—a heavy, tall mass of cloud rising in formations resembling the shapes of

towers and mountains.

〔6〕 Even in ancient times, it was understood that great violence occurred in the cumulonimbus, but no one was able to measure the power of this cloud before the twentieth century. Only the airplane made it possible for man to enter the thundercloud to see what makes it roar.

〔7〕 After years of dangerous work in the sky, scientists were at last able to reveal the thunderstorm to have quite a complex nature. In some ways, it is similar to animal nature, since it has been discovered to be composed of cells that grow and join together and multiply[6].

〔8〕 The storm begins with a single cloud which develops what Horace A. Byers[7] of the University of Chicago has named the"mother cell[8]." This cell is at first just a very strong upward draft or current of air[9]. This updraft rises so fast that it meets the cold upper air before it has had time to cool. The updraft changes into a cloud so rapidly that the change produces a lot of heat. Therefore a kind of chain reaction[10] excites the rising cloud, producing more and more heat in relation to[11] the surrounding air as the cloud grows larger.

〔9〕 By the time the mother cell has attained a size of four miles across, the updraft may be rising at a rate of 160 miles an hour[12]. Its rising drops of moisture, having passed the freezing level[13], begin to join with ice crystals[14], forming rain or hail. And when the raindrops or hailstones have grown too big to be supported by the updraft, they start to fall—first in the weaker part of the rising cloud, then spreading to the whole cell.

〔10〕 The descending motion of cool raindrops and hailstones

naturally pulls a good deal of air along with it, creating a cold downdraft right in the middle of the hot updraft. What follows is a wild battle between hot and cold winds, violent upwinds and downwinds so close together that they can turn an airplane upside down in a single second[15].

〔11〕 The cold downdrafts in thunderstorms were not formerly so well known as the more obvious updrafts, but it is the cold downdrafts that do most of the damage on the earth. They also finally win the battle of up against down with the help of the hail, snow, or rain[16]. These downdrafts steadily increase in size and strength, crowding the updrafts and growing more violent as they descend to the ground with their thondering downpour[17]. They then move out along the earth beyond the rain with winds that often reach the speed of sixty or seventy miles an hour. Their cold-air mass[18] is shaped something like a foot—the toes reaching out several miles ahead of the storm, the heel following close behind.

〔12〕 This explains, in a general way[19], the cloud development and the wind and rain of a thunderstorm. But what of the thunder and lightning?

〔13〕 So much work is being done in this area that it is hard to generalize without making serious errors[20]. However, some of the principal facts are becoming clearer.

〔14〕 The sudden upthrust of warm,moist air into the terrible cold of the frozen heights is what creates thunder. The sudden stronger rubbing together of two unlike forces(very warm air against very cold air) develops a kind of electricity called"static electricity[21]." Its charges produce

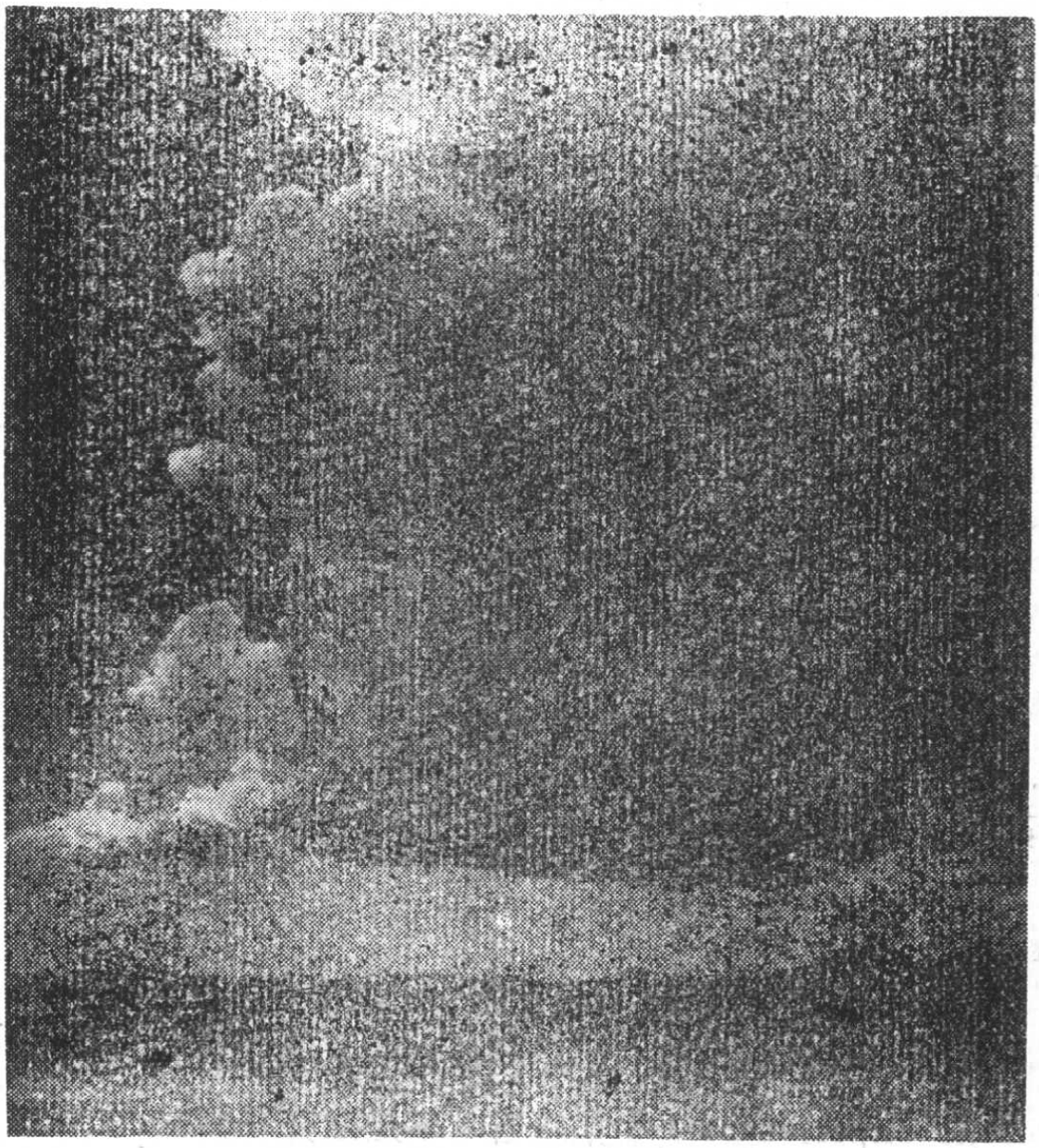
lightning and thunder. Thus the violence of the thunderstorm is an almost direct result of millions of warm water drops being thrown into comparable masses of ice crystals—hitting them, rolling over them, melting them, or being frozen by them into snow or hail.

[15] Exactly how the electric charge[22] is developed by the many and complex forces of this battle of heat and cold is still a matter of opinion[23]. Some scientists think the action of wind against the rain is the principal factor. These scientists believe the wind tears off the outer surface of each falling drops, like pulling a sweater over a child's head, making a fine negative charge[24] while leaving the main part of the raindrop positive. Other scientists believe that the friction of snow crystals breaking in the wind sets up the electrical charge. In reality[25] it may well be all these factors—and more—that combine to do the work.

[16] In any case[26], huge masses of electrically-charged raindrops and hailstones become sorted into positive and negative reserves of electrical energy at different parts of the thundercloud, creating between them fields of very great extrems[27]. When the resistance between these fields breaks down, the energy that is suddenly discharged is lightning.

[17] I do not know of any case of lightning directly causing an airplane accident. Cattle and sheep are more likely to be struck by lightning than are airplanes or houses[28]. There is a recorded case that occurred on a mountainside in the western part of the United States in which one bolt of lightning killed 835 sheep. Evidently the hard,

dry earth offered more resistance to the lightning than the route of traveling from the ground, up one leg of an animal, through its moist body, and down another leg[29].



Cumulonimbus or thundercloud

〔18〕 A person's chances of being killed by a thunderstorm are not very great. In the United States an average of[30] one person in 265,000 dies as a result of[31] a thunderstorm. Today's houses, ships, airplanes, and electric power lines[32]

are well protected against lightning, and the risk is decreasing. Even a man whose work exposes him almost daily to lightning can do something about it. Despite the saying that one never knows if lightning strikes him, a person can sometimes feel the bolt coming and, if quick enough, take protective action[33] in time. I know one man who actually did this. One afternoon he was working on an electric power line, high on a pole, when he suddenly realized his hair was standing on end[34]. Knowing what this meant, he quickly untied his belt and threw himself full length upon the nearest cross arm[35]. Just then the lightning struck the pole and leaped to another pole and from there to the ground. The lineman was knocked unconscious, but his prompt action had saved his life.

〔19〕 Thunderstorms are part of the great mystery of the electric forces of nature. Fortunately, these are forces that are beginning to be understood.

Approximately 1,280 words

Notes

1. Guy Murchie〔'gai 'mə:tʃi:〕 盖伊·默基（姓名）
2. Had I not been…, I might not be alive now… the experience. 如果我当时不是坐在飞机里，可能现在就不会活着叙述这段经历了。

全句为虚拟语气，从句Had I not been 与过去事实相反，主句与现在事实相反。例：

a. Had we not slept (=If we had not slept) in the open during the earthquake that night, we would

not be able to attend your lectures now. 那天夜里地震时，要不是我们在露天睡觉，我们现在就不可能听你的课了。

b. Had I made (=If I had made) adequate preparations, I might have passed the examination. 要是准备充分的话，我本来是可以通过考试的。

3. all over *prep., adv.* 整个，遍及

4. trailing wire 拖尾（天）线

5. more exactly 更确切地说

6. In some ways…since…and multiply. 由于已发现，雷雨是由各单体组成并且长大、聚集和增殖，所以在某些方面与动物的天性相似。

7. Horace A. Byers ['hɔrəs 'ei 'baiəz] 霍勒斯·A·拜尔斯（姓名）

8. mother cell （生物学）母细胞；母单体

9. upward draft or current of air 上升气流

10. chain reaction 链锁反应

11. in relation to 就……而论，关于

12. By the time…160 miles an hour. 母单体面积达到四英里宽时，上升气流则可能以每小时160英里的速度上升。

13. freezing level 结冰层

14. ice crystal 冰晶体

15. What follows is…in a single second 接着就是冷热风之间的激烈斗争：猛烈的上升气流和下降气流十分靠近，可以在一瞬间掀翻一架飞机。

What follows是主语从句，用作主句的主语。

16. They also finally…with the help of…or rain. 下降气流还借助于冰雹、雪或者雨，最后赢得了升降气流之间斗争的胜利。

17. thundering downpour 大雷雨；打雷的倾盆大雨

18. cold-air mass 冷气团

19. in a general way 一般说来

20. It is hard to generalize without making serious errors. 要进行归纳，难免不犯严重错误。

21. static electricity 静电

22. electric charge 电荷

23. a matter of opinion——a subject on which different persons may think differently. 有争论余地的问题。 例：

Whether there really exists the Snowman remains～. 是否真有雪人尚属有争论的问题。

24. negative charge 阴（电）荷
positive charge 阳（电）荷

25. in reality 事实上，实际上

26. in any case——whatever happens 无论如何，总之
例：
In any case, catch the train tomorrow morning. 无论如何，明天早上都要赶上火车。

27. fields of very great extrems 两极值十分巨大的电场

28. Cattle and sheep are more likely to be struck by lightning than are airplanes or houses. 牛羊比飞机、房屋更可能遭到闪电的打击。

29. Evidently the hard, dry earth…and down another leg. 显然，干硬的大地对闪电的电阻要比动物对闪电的电阻大，这样闪电就从地面进入动物的一条腿，通过潮湿的躯体再沿另一条腿走出。

30. an average of 平均

31. as a result of 由于……的结果，作为……的结果

32. (electric) powel lines 电力线，输电线

33. take action 采取行动

34. stand on end 竖起，竖立

35. Knowing what this meant,…cross arm. 他懂得这意味着什么，就迅速解下安全带，卧倒在最近的电线杆横木上。

full length （本文）平卧地

cross arm 电线杆上的横木

Exercises

A. Complete the following sentences by matching the sentence parts in column I with the sentence parts in column II.

Column I	*Column I*
1. The simplest way to explain a thunderstorm	a. are more likely to be struck than airplanes and houses.
2. Only the airplane	b. which develops a"mother cell."
3. The storm begins with a single cloud	c. are not very great.
4. A cold downdraft is created	d, in the middle of the hot updraft.
	e. made it possible for man

5. Cattle and sheep		to enter the thundercloud.
6. A person's chances of being killed by a thunderstorm	f.	had saved his life.
	g.	the lightning bolt coming.
7. One can sometimes feel	h.	is to say that it is a violent
8. The lineman's prompt action		expression of the cloud.

B. Change each of the *If* clauses in the following sentences to a contrary-to-fact *Had* clause.

Example: If I had not been careful, I might not be alive now.

Had I not been careful, I might not be alive now.

1. If the lineman had not acted promptly, he would not have been saved.
2. If the cattle had not been on the mountainside, they might not have been killed.
3. If airplanes had not been invented, we would not understand thunderstorms.
4. If ancient people had understood electricity, they might not have feared thunderstorms.
5. If we had been traveling by bus, we would not have arrived before the storm began.
6. If their house had been protected against lightning, they might have enjoyed the beauty of the storm.
7. If the children's mother had not revealed her fear of storms, the children might not have feared them.
8. If those two unlike forces had not come into sudden contact, static electricity would not have been produced.

C. Change each of the following direct questions into an indirect question beginning with *Do you know.*

Example, Why is thunder so loud?

Do you know why thunder is so loud?

1. Why is lightning so bright?
2. How is a thundercloud similar to an animal?
3. Why do raindrops fall from the sky?
4. How is static electricity produced?
5. How many people were struck by lightning last year?
6. How can we protect ourselves against lightning?
7. What did ancient people believe about thunderstorms?
8. When did the importance of downdrafts begin to be understood?
9. Where should you try to go before a thunderstorm starts?
10. What does the rubbing together of unlike forces produce?

D. Complete each of the following sentences by inserting the needed form of the verb

1. (ride) We had just_____through a violent storm.
2. (strike) The lightning had evidently_____the wire.
3. (burst) Great heat had_____from the thundercloud.
4. (rise) The updraft had_____to meet the cool upper air.
5. (grow) The rising cloud had_____much larg-

er.

6. (fall) Hailstones had _____ through the weaker part of the cloud.
7. (throw) Millions of water drops were being_____ into the ice crystals.
8. (freeze) The raindrops will soon be_____into snow or hail.