

# THE STRANGE WORLD OF ELECTRICITY

## 奇妙的电学世界

张守樟 李林圃 编  
锁 铮 顾骏声

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## 说 明

本书可以使您学到 900 多个新单词，46 课具有生动的电学知识的课文，均选自最新英美原版书刊，配有详细的语法分析及 255 个句型和有趣的插图，课后的练习和书后的答案可以帮助您巩固学过的内容。

本书的译文经西安交通大学无线电系教师孟中岩和电机系教师肖衍明两同志校阅，在此表示感谢。

R  
Resonant

## CONTENTS

Lesson 1	The Importance of Electricity (电的重要性) .....	( 1 )
Lesson 2	Electricity (电) .....	( 8 )
Lesson 3	What Is Electricity? (电是什么?) ...	( 14 )
Lesson 4	Electric Current (电流) .....	( 22 )
Lesson 5	Movement of Electricity 电的运动...	( 28 )
Lesson 6	Voltage (电压) .....	( 34 )
Lesson 7	<u>Resonant</u> Circuits (谐振电路) .....	( 41 )
Lesson 8	Insulators (绝缘体) .....	( 48 )
Lesson 9	Transformers (变压器) .....	( 54 )
Lesson 10	Transmission of Electricity (输电)...	( 61 )
Lesson 11	Andre Marie Ampere (安德烈·玛丽·安培) .....	( 69 )
Lesson 12	Magnetic Forces and Fields (磁力与磁场) .....	( 74 )
Lesson 13	Interaction between Electricity and Magnetism (电和磁的相互作用) .....	( 81 )
Lesson 14	Why Is Alternating Current Used? (为什么使用交流电?) .....	( 86 )
Lesson 15	Ac and Dc Circuits (交流和直流电路) .....	( 91 )
Lesson 16	The Conservation of Electric Charge (电荷守恒) .....	( 95 )

Lesson 17	Georg Simon Ohm (乔治·西蒙·欧姆) .....	(100)
Lesson 18	The Resistance of Wire (电线的电阻) .....	(106)
Lesson 19	The Kilowatt-Hour (千瓦小时) ...	(111)
Lesson 20	Michael Faraday 迈克尔·法拉第 ...	(118)
Lesson 21	Electric Motors (电动机) .....	(128)
Lesson 22	Generators (发电机) .....	(133)
Lesson 23	Electric Generators (发电机) .....	(141)
Lesson 24	Comparison of Motors and Generators (电动机和发电机的比较) .....	(147)
Lesson 25	Power (功率) .....	(152)
Lesson 26	Series Power Sources (串联电源) ...	(157)
Lesson 27	Short Circuits (短路) .....	(162)
Lesson 28	The Load (负载) .....	(167)
Lesson 29	Thomas Alva Edison (托马斯·阿尔瓦·爱迪生) .....	(171)
Lesson 30	The Incandescent Light (白炽灯) ...	(178)
Lesson 31	How Do We Use Energy for Communication? (我们怎样用能量通讯?) .....	(185)
Lesson 32	How the Telegraph Works (电报机是怎样工作的) .....	(190)
Lesson 33	How Does the Telephone Work? (电话是怎样工作的?) .....	(197)
Lesson 34	How Television Works (电视怎样工作) .....	(207)
Lesson 35	Playing the Record Back (播放唱片) .....	(214)

generator  
motor

Lesson 36	Playing a Tape Recording (播放磁带录音)	(219)
Lesson 37	Radar (雷达)	(225)
Lesson 38	Sonar (声纳)	(230)
Lesson 39	Resistor Failures (电阻器故障)	(235)
Lesson 40	Failure of Auxiliary Devices (辅助设备的故障)	(240)
Lesson 41	Waves (波)	(245)
Lesson 42	Kinds of Waves (波的种类)	(250)
Lesson 43	How Waves Behave (波的性能)	(255)
Lesson 44	Loudspeakers (扩音器)	(261)
Lesson 45	The Light That Carries Sound (传播声音的光)	(268)
Lesson 46	Sound, Light, and Electrical Energy (声、光和电能)	(274)
Appendix 1	Translations (附录 1. 参考译文)	(281)
Appendix 2	Key to the Exercises (附录 2. 练习答案)	(330)

resonant  
loudspeakers

# Lesson 1

*convenient*

## New words and Expressions

1. convenient [kən'vi:njənt] a. 方便的
2. television ['telivɪʒən] n. 电视
3. communication [kəmju:nɪ'keɪʃən] n. 通信
4. service ['sɜ:vɪs] n. 设施; 服务
5. go without 在缺少…的情  
况下也过得去
6. household ['haushəʊld] a. 家常的
7. appliance [ə'plaiəns] n. 用具; 装置
8. addition [ə'dɪʃən] n. 附加  
in addition 另外
9. transportation [ˌtræns'pɔ:'teɪʃən] n. 运输 (工  
具); 搬运
10. type [taɪp] n. 类型
11. vehicle ['vi:ɪkl] n. 车辆; 交通工具
12. think about 想到……
13. Fig. = figure ['fɪɡə] n. 插图
14. entertainment [ˌentə'teɪnmənt] n. 文娱节目
15. message ['mesɪdʒ] n. 通讯, 信息
16. control [kən'trəʊl] n. 控制
17. helper ['helpə] n. 助手, 帮助者
18. out of 失去
19. travel ['trævl] v. 传播, 旅行  
kilometer ['kɪlə'mi:tə] n. 公里



## TEXT

### The Importance of Electricity

Electricity is one of the most important forms of energy used in the world today. Without it, there would be<sup>(1)</sup> no convenient lights, no radio or television communications, no telephone service, and people would have to go without the many household appli-

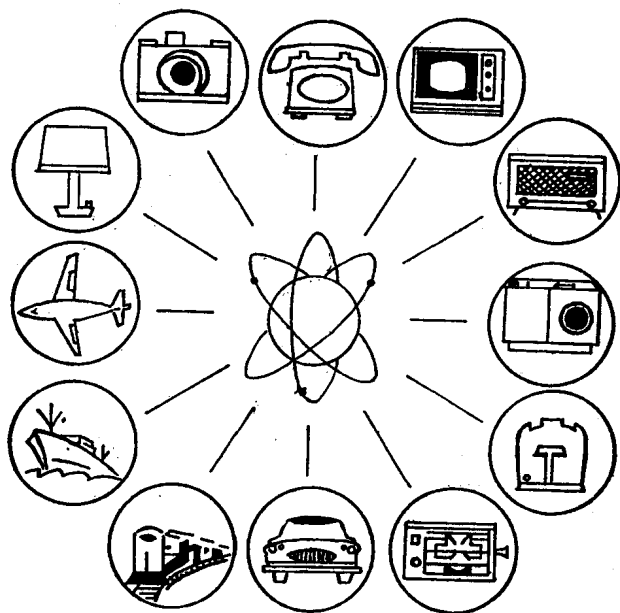


Fig. 1 Electricity is used everywhere.

ances. In addition, the field of transportation would not be as<sup>(2)</sup> it is today without electricity. Electricity is used in all types of vehicles. When you think about it, electricity is used everywhere (Fig.1).

Electricity gives us power, heat, and light. It gives us entertainment and carries messages. Under control, electricity is our good friend and helper; out of control, it is an enemy. Electricity travels at the same speed as<sup>(3)</sup> light which is 300,000 kilometers per second.

## NOTES

- (1) there would be 是 there be 的虚拟语气形式。介词短语 without it 等于条件状语从句 (if there were no electricity), 表示与事实相反的假设, 意为“如果没有……就不可能有……”。

例: *Without electricity, there would be no modern factories.* 如果没有电, 就没有现代化的工厂。

*Without workers, there would be no machines.* 如果没有工人, 就不会有机。

- (2) as 是关系代词, 引出表语从句, 并在从句中起表语作用。

例: *China is no longer as it was.*

中国同过去不一样了。

- (3) at the same speed as light... the same...as... 意为“与……相同的”。

例: *Transistors can perform the same functions as electron tubes.*

晶体管能够起与电子学相同的作用。

She works in *the same* radio factory as her father.

她和她的父亲在同一家无线电厂工作。

### Substitution Drills

1. Without 

electricity
the sun
machinists

, there would be no

convenient lights
life on the earth
factories

.

2. 

The field of transportation
The industry
The production

 would not be as it

is today without electricity.

3. Electricity is used 

everywhere
in every place
in factories and houses as well

4. Electricity gives us 

power
light
heat

.

5. Under control 

electricity
water
fire

 is our good friend.

## Exercise 1

Complete the sentences, choosing the appropriate preposition from the alternatives. (选择适当的介词填入空格内)

1. Electricity does all kinds of work ..... us.  
a. among                      b. for                      c. by
2. Electricity gives us light, so we can work ..... night.  
a. in                              b. on                      c. at
3. Electricity is being widely used ..... modern world.  
a. in                              b. at                      c. for
4. Everywhere we go we see electricity ..... work.  
a. in                              b. at                      c. on
5. All types of machines are run by this friend ..... man, electricity.  
a. for                              b. by                      c. of
6. Radio or television communications are carried ..... electricity.  
a. by                              b. under                      c. through
7. We can control electricity ..... a switch.  
a. with                              b. through                      c. without
8. .... electricity no machines in the modern factories can work.  
a. Without                      b. With                      c. Out of

## Exercise 2

Translate the following passage into Chinese . (将下面的短文译成汉语)

### Using Electricity

Electricity may give us power, heat and light. People use electricity to run machines or to carry messages and communications from place to place. Electricity is in everything.

Electricity is our good friend if it is controlled. And do you know how it becomes our helper?

In itself, electricity is nothing more than an interesting phenomenon. To be of practical use, it must be made to perform some work or function. Generally, this requires that electricity be controlled, and often converted to other forms of energy. The physical means for accomplishing this transmission from phenomenon to practical use is the electric circuit (Fig. 2).

### New Words

1. nothing more than 只不过
2. phenomenon [fi'nɒmɪnən] n. 现象
3. perform [pə'fɔ:m] v. 执行, 完成
4. function ['fʌŋkʃən] n. 作用
5. require [ri'kwaɪə] v. 需要
6. convert [kən'veɪt] v. 转换

- |                 |                     |
|-----------------|---------------------|
| 7. means        | [mi:nz] n. 工具; 方法   |
| 8. accomplish   | [ə'kɒmplɪʃ] v. 完成   |
| 9. transmission | [trænz'mɪʃən] n. 传送 |
| 10. circuit     | ['sə:kɪt] n. 电路     |
| 11. in itself   | 本身                  |

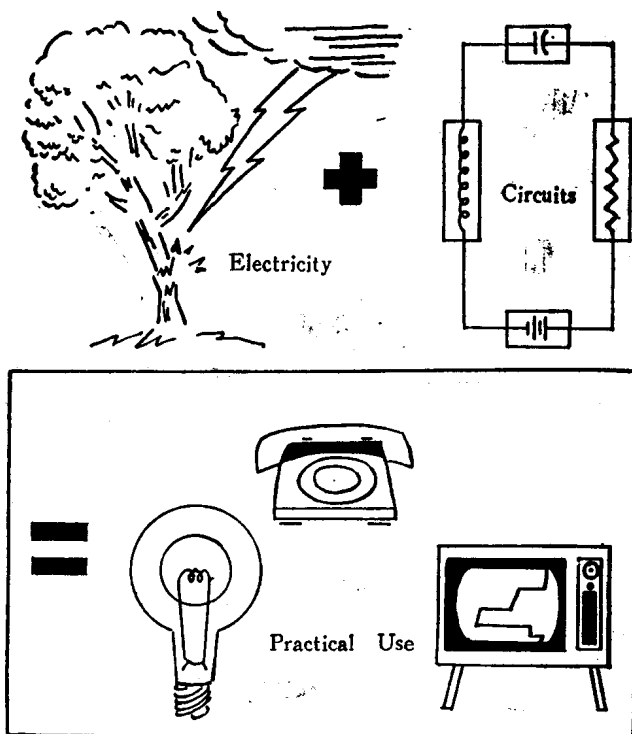


Fig. 2 The physical means for accomplishing this transmission from phenomenon to practical use is the electric circuit.

## Lesson 2

### New Words and Expressions

1. play a part in      在……方面起作用
2. comfortable      ['kʌmfətəbl] a. 舒适的, 惬意的
3. ancient      ['eɪnfənt] a. 古代的
4. Egyptian      ['i'dʒɪpʃən] n. 埃及人
5. Greek      ['ɡri:k] n. 希腊人
- ⑥ resin      ['reɪzɪn] n. 树脂; 松香
7. rub      [rʌb] v. 磨擦
8. unique      [ju(:)'ni:k] a. 独特的
9. property      ['prɒpəti] n. 特性
10. static      ['stætɪk] a. 静止的
11. Michael Faraday ['maɪkl 'færəaɪ] n. 迈克尔·法拉第 (伟大的实验物理家)
12. discover      [dɪs'kʌvə] v. 发现
13. magnet      ['mæɡnɪt] n. 磁石, 磁铁
14. coil      [kɔɪl] n. 线圈
15. wire      [waɪə] n. 金属线, 电线
16. generate      ['dʒenəreɪt] v. 发生, 产生
17. invention      [ɪn'venʃən] n. 发明
18. generator      ['dʒenəreɪtə] n. 发电机
19. continuous      [kən'tɪnjuəs] a. 连续的
20. supply      [sə'plaɪ] n. 供电; 供应
21. steam      [sti:m] n. 蒸汽
22. fuel      ['fjuəl] n. 燃料

23. such as	象, 例如
24. nuclear	['nju:kliə] a. (原子) 核的
25. reaction	[ri'ækʃən] n. 反应
26. pressure	['preʃə] n. 压力
27. turbine	['tə:bin] n. 涡轮机
28. blade	[bleid] n. 叶片

*turbine*  
*blade*

*yes*

## TEXT

### Electricity

Man has known about electricity for at least 2500 years, but it is only in the past 100 years that<sup>(1)</sup> it has been used to work for him. Today electricity plays a part in making nearly everyone's life easier and more comfortable.

The ancient Egyptians were wise in some of the ways of electricity. The Greek found that resin rubbed with wool<sup>(2)</sup> developed a unique property - static electricity.

But it was more than 2400 years later that<sup>(3)</sup> Michael Faraday discovered that electricity could be produced by moving a magnet inside a coil of wire. Faraday's coil produced little electricity and could not generate a continuous supply. The invention of the generator made production of a continuous supply of electricity possible.

To produce electric energy, some other form of energy is needed to turn the generator. Water and steam are the main two used today.



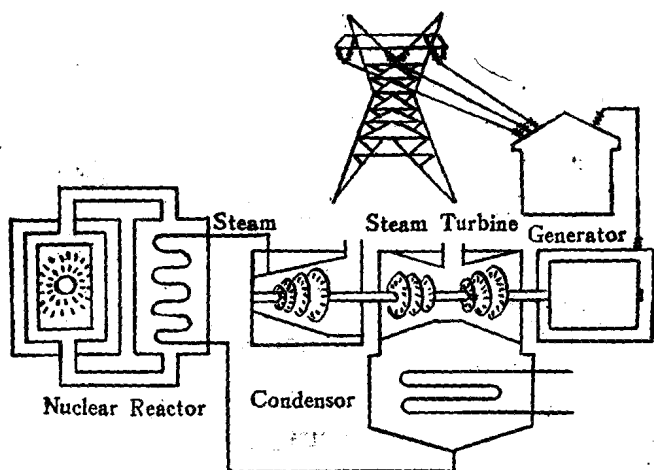


Fig. 3 Most electricity is generated from steam.

Most electricity is generated from steam (Fig. 3). The steam is made through heating water, either by burning a fuel such as coal, oil, wood or gas, or<sup>(4)</sup> by using the heat from nuclear reaction. The steam, under great pressure, is used to turn the turbine blades.

## NOTES

- (1) It is ... that ... 是加强语势结构。本句加强的是状语 “only in the past 100 years”。此外，这种结构还可加强主语、宾语等。

例: *It is these laws that govern the behaviour of electricity.* (加强主语)