高等医药院校教材

（供药学专业用）

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第三册

胡廷熹　陆　波　主编

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前　言

本书是卫生部和国家医药总局组织编写的全国药学院系英语统编教材，全书分四册、主要特点如下：

1. 本教材起点与高中相衔接，共有生词4000左右。第一、二册为基础部分，共40课，每课约需5学时，共200学时；第三、四册为阅读部分，共40课，每课约需4学时，共160学时。各校可根据学生外语水平及总学时数灵活使用。

2. 本教材编写时，不仅注意了思想性，也力求体现科学性、实践性和趣味性，课文全部选自国外近年出版的科普文章及书籍，内容大部分带有药学倾向性，语言则力求生动、规范，富有趣味，并易于实践。

3. 鉴于中学英语课程已教授过基本语法，本教材对英语语法不作系统介绍。只是对中学没学过的，或学过但不易掌握的常见的若干语法现象作一些补充和深入的讲解和练习。

4. 词汇学习（word study）部分，只就该词的各种常见用法举出例句，不作解释，以培养学生独立分析，独立解决问题的能力。

5. 理解性练习（comprehension）中有些问题是课文中所没有的，教师应有意识地引导启发学生讨论研究以培养学生独立思考和用英语表达思想的能力。

6. 每课后均配有补充阅读材料，内容与课文密切结合。

7. 每课后均附有内容与课文相近的一段短文用作综合填空练习（cloze test）以提高学生综合理解和功能词（function words）运用的能力。填完空白后的短文，亦可作为补充阅读材料。

8. 本书全部例句及练习，除一部分结合化学、药学外，多数结合日常生活，以利于学生实践。

9. 本书各册配有的练习，供学生独立完成，以达到语言实践的目的。希望各院校及有关单位或个人不要公开出售练习答案，以免影响本书的使用目的和教学质量。

10. 本书各册将配录音材料，发售办法另行通知。

药学英语教材编写组

1986　10

CONTENTS

LESSON ONE

TEXT

Pure and Applied Science

As students of science you are probably sometimes puzzled by the terms "pure" and "applied" science. Are these two totally different activities, having little or no interconnection, as is often implied?① Let us begin by examining what is done by each.

Pure science is primarily concerned with the development of theories (or, as they are frequently called, models) establishing relationships between the phenomena of the universe. When they are sufficiently validated, these theories (hypotheses, models) become the working laws or principles of science.② In carrying out this work, the pure scientist usually disregards its application to practical affairs, confining his attention to explanations of how and why events occur. Hence, in physics, the equations describing the behaviour of fundamental particles, or in biology, the establishment of the life cycle of a particular species of insect living in a Polar environment, are said to be examples of pure science (basic research), having no apparent connection (for the moment) with technology, i. e. applied science.

Applied science, on the other hand, is directly concerned with the application of the working laws of pure science to the practical affairs of life, and to increasing man's control over his environment, thus leading to the development of new techniques, processes and machines. Such activities as investigating the strength and uses of materials, extending the findings of pure mathematics to improve the sampling procedures used in agriculture or the social sciences, and developing the potentialities of atomic energy, are all examples of the work of the applied scientist or technologist.

It is evident that many branches of applied science are practical extensions of purely theoretical or experimental work. Thus the study of radioactivity began as a piece of pure research, but its results are now applied in a great number of different ways—in cancer treatment in medicine, the development of fertilizers in agriculture, the study of metal-fatigue in engineering, in methods of estimating the ages of

objects in anthropology and geology, etc. Conversely, work in applied science and technology frequently acts as a direct stimulus to the development of pure science. Such an interaction occurs, for example, when the technologist, in applying a particular concept of pure science to a practical problem, reveals a gap or limitation in the theoretical model, thus pointing the way for further basic research. Often a further interaction occurs, since the pure scientist is unable to undertake this further research until another technologist provides him with more highly-developed instruments.

It seems, then, that these two branches of science are mutually dependent and interacting, ③ and that the so-called division between the pure scientist and the applied scientist is more apparent than real.④

NEW WORDS AND EXPRESSIONS

1. totally ['təutli] *adv.* completely; wholly
2. interconnection [ˌintəkə'nekʃən] *n.* the state of connecting one thing with another
3. imply [im'plai] *vt.* suggest; express indirectly
4. establish [i'stæbliʃ] *v.* find out or make certain of; set up
5. validate ['vælideit] *vt.* make valid
6. hypothesis [hai'pɔθəsis] *n.* (*pl.* -ses[si:z]) an idea which is thought suitable to explain the facts about sth.
7. confine [kən'fain] *vt.* enclose within limits
8. equation [i'kweiʒən] *n.* a statement that 2 quantities are equal
9. fundamental [ˌfʌndə'mentl] *adj.* being at the base from which all else develops; of the greatest importance; very necessary
10. particle ['pɑ:tikəl] *n.* a piece of matter smaller than, and part of, an atom; a very small, or the smallest quantity of sth.
11. cycle ['saikəl] *n.* a number of related events happening in a regularly repeated order; the period of time needed for this to be completed
12. polar ['pəulə] *adj.* of, near, like, or coming from lands near the North or South Poles
13. apparent [ə'pærənt] *adj.* easily seen or understood; seeming
14. connection [kə'nekʃən] *n.* the state of being connected; relationship
15. investigate [in'vestigeit] *v.* examine the reasons for sth.
16. procedure [prə'si:dʒə] *n.* an action or set of actions necessary for doing sth.; order of doing things

17. social ['səuʃəl] *adj.* of or concerning human society, its organization, or quality of life
~ sciences usually including history, politics, economics, sociology and anthropology
18. potentiality [pə,tenʃi'æliti] *n.* a possible future development; a hidden unused power of mind or character
19. atomic [ə'tɔmik] *adj.* of or concerning an atom or atoms
20. technologist [tek'nɔlədʒist] *n.* a specialist in technology
21. extension [ik'stenʃən] *n.* a part which is added to make anything longer, wider, or greater
22. theoretical [θiə'retikəl] *adj.* based on theory, not on practical experience; existing only in theory, not in practice
23. metal-fatigue ['metl fə'ti:g] *n.* the tendency of a metal to break as the result of repeated bending
24. engineering [,endʒə'niəriŋ] *n.* the science or profession of an engineer
25. anthropology [,ænθrə'pɔlədʒi] *n.* the scientific study of the nature of man, including the development of his body, mind, and society
26. conversely [kən'və:sli] *adv.* oppositely; contrarily
27. act [ækt] *v.* represent or perform by action
~ as fulfil the purpose of
28. interaction [,intə'rækʃən] *n.* the state or activity of working together to produce an effect on each other
29. concept ['kɔnsept] *n.* a general idea, thought, or understanding
30. gap [gæp] *n.* a lack of sth.; an empty space between 2 objects or 2 parts of an object; an amount of distance or difference
31. limitation [,limi'teiʃən] *n.* the fact or conditions of limiting or being limited; a fact which limits or reduces the power of sth.; a weakness of body or character which limits one's actions
32. further ['fə:ðə] *adj.* more; additional
33. unable [ʌn'eibəl] *adj.* not able
34. provide [prə'vaid] *v.* supply (sth. needed or useful)
35. highly ['haili] *adv.* to a high degree; very (much); well
36. mutual ['mju:tʃuəl] *adj.* equally shared by each one; equally so, one towards the other
~ ly *adv.*
37. dependent [di'pendənt] *adj.* that depends on
38. interact [,intə'rækt] *vi.* have an effect on each other or sth. else

NOTES

① … as is often implied? 此处 as 为关系代词，引出非限制性定语从句，代表前面整个句子。

② … the working laws or principles of science. …科学的基本定律和原理。

③ … mutually dependent and interacting. …相互依赖相互作用。

④ … the so-called division between the pure … more apparent than real. 纯科学家和应用科学家之间的划分，与其说是本质上的，不如说是表面上的。

COMPREHENSION

Ⅰ. Questions:

1. What is pure science primarily concerned with?
2. What do theories become when they are sufficiently validated?
3. What does the pure scientist usually confine his attention to?
4. What is applied science directly concerned with?
5. Give some examples of the work of the applied scientist.
6. In what way does work in applied science influence the development of pure science?
7. What would happen to the pure scientist if there were no modern instruments?
8. What is the relation between these two branches of science?

Ⅱ. True or false:

1. Students of science are always puzzled by the terms "pure" and "applied" science.
2. When sufficiently validated, theories become hypotheses.
3. The pure scientist usually disregards the application of theory to practical affairs.
4. Working laws of pure science directly increase man's control over his environment.
5. Many branches of applied science arise from purely theoretical work.
6. Work in applied science often hampers the development of pure science.
7. The pure scientist is unable to further his research if the technologist does not provide him with modern instruments.
8. The division between the pure scientist and the applied scientist is real.

Ⅲ. Match the words given under A with the meanings given under B. List B has some extra items.

A	B
1. imply	a. pay no attention to
2. primarily	b. respectful
3. validate	c. start on
4. disregard	d. according to appearance
5. confine	e. express
6. environment	f. make valid
7. procedure	g. contain
8. extension	h. essentially
9. undertake	i. keep within limits
10. apparent	j. surroundings
	k. additional
	l. encircle
	m. underestimate
	n. order of doing things

WORD STUDY

apply

I. Study the following sentences:

1. You must apply to the consul for a visa.
2. I will apply for the job today.
3. Apply some medicine to his wound.
4. What I have said does not apply to you.
5. The rule cannot be applied to every case.
6. He applied himself to his new job.
7. We must apply our mind (energies) to finding a solution.

II. Fill in the blanks with the proper forms of the words given below:

(rule, for, mind, what, to, ointment)

1. The boy's mother applied _____ to his cut.
2. You must apply to the manager _____ a job.
3. He applied _____ the government for help.
4. The _____ does not apply to him.
5. You must apply your _____ to your work.
6. He applied _____ he had learned in class to the experiment.

do

I. Study the following sentences:

1. I will do what I can.

2. What is done can't be undone.
3. When in Rome do as the Romans do.
4. He does the cooking himself.
5. This medicine will do you good.
6. They did poorly in the examination.
7. It does not do to work too much.
8. We haven't got meat, so we'll have to make do with bread.
9. That will do. It's perfect as it is.
10. Well begun is half done.
11. I do think you should let her know where you are.
12. Patience and perseverance will do wonders.
13. Go and do your hair.
14. He did his best (utmost) to help us.
15. He is doing well at school.
16. That's a practice that should be done away with.
17. We shall have to do without a holiday this summer.
18. We're done for, if we stay here any longer.
19. This decision has nothing to do with what I said yesterday.

II. Fill in the blanks with the proper forms of the words given below:

(do, without, away, with, like, do, any, without)

1. It's easier said than _____.
2. I thought she wouldn't come but she _____.
3. It won't do him _____ harm.
4. This bad habit must be done _____ with.
5. Hard work has a great deal to do _____ his success.
6. The hens haven't laid any eggs, so we shall have to do _____.
7. He can't do _____ the help of a secretary.
8. How would you _____ your steak done.

concern

I. Study the following sentences:

1. Don't trouble about things that don't concern you.
2. As far as I am concerned, I have no objection to the plan.
3. We are all concerned about (for) his safety.
4. You mustn't concern yourself with unimportant details.
5. All concerned must be present.
6. This is a matter of great concern.
7. There is some cause for concern but no need for alarm.
8. He showed concern for the feelings of others.

9. There are two manufacturing concerns in this town.
10. Concerning your letter, I am pleased to inform you that your plans are quite acceptable.

II. Fill in the blanks with the proper forms of the words given below:

(for, concerning, where, who, concern)

1. We were all _____ for the child's safety.
2. This new policy concerns all the people _____ live in the countryside.
3. He was impressed by the nurse's concern _____ a sick man.
4. He wrote to us _____ a business arrangement.
5. _____ work is concerned, I always try to do my best.

live

I. Study the following sentences:

1. This poison is dangerous to everything that lives.
2. The doctors say he is very ill, but they think he will live.
3. He is living in a large house.
4. He lives a life of luxury.
5. He lives by fishing and keeping sheep.
6. He lives on fruits.
7. He has lived through two world wars.
8. It is difficult to live up to the principles of communism.
9. What do you do for a living?
10. The laboratory is conducting experiments with a dozen live monkeys.
11. We watched a live current affairs programme on television.

II. Fill in the blanks with the proper forms of the words given below:

(up, through, life, live, by, beyond, living)

1. A writer's words live _____ his death.
2. He lived his _____ alone.
3. He didn't live _____ to his reputation.
4. It was difficult to believe that he had lived _____ such an experience.
5. He lived _____ hunting and gathering mushrooms.
6. He made a good _____ growing vegetables.
7. There is a dead fish among all the _____ ones.

III. Translate the following sentences into English:

1. 你帮我个忙好吗? (do … a favour)

2. 那种做法应该禁止。(practice)
3. 说起来容易做起来难。
4. 这个命令与我们没有关系。(concern)
5. 他向政府请求经济援助。(apply to … for)
6. 你应该给伤口上点软膏。
7. 你们必须尽最大努力赶上他们。
8. 他将永远活在人们心里。

SUPPLEMENTARY READING

Basic and Applied Research

Research is one of modern man's most important tools—a tool that creates new products, new weapons, new cures for disease, new services, new demands, and new wealth.

What is research? If words could talk, the word research would surely complain of being overworked. The word is used to describe scholarly activities, and it applies to such immediately useful records as counting the customers in a store. In one sentence research may be used to describe the search for the laws of nature and in another the search for facts to support a conclusion already reached.

Even if we do not consider the misuse, a wide range of activities can properly be described as research. Within this wide range, various adjectives are used to describe special types of research. Basic researeh and applied research are the most familiar, but there are others, such as practical research, developmental research, and materials research. All these terms are useful, but none has sharp boundaries, and one cannot be clearly separated from another. From watching a scientist at work, it would frequently be impossible to decide which adjective most accurately described his research.

Yet there are real differences between types of research. A scientist sometimes explicitly seeks information that will help solve a practical problem. He wants to cure a disease, to develop a drought-resistant plant, or to build an atomic power plant. The desire to contribute to a specific practical need may be so strong that the scientist willingly disregards otherwise interesting scientific leads. Under certain industrial and military circumstances, the researcher is compelled to stick closely to a given problem. These examples illustrate applied research, the methods and knowledge of science are in these cases being applied to solve practical problems. Yet it must be reme-

mbered that frequently certain pieces of fundamental knowledge needed for the solution of a practical problem may be totally lacking and must be acquired before further progress on the practical problem can be achieved; thus what is commonly called applied research often involves some basic research.

Sometimes all the scientist seeks is understanding. What he learns may well turn out to be useful. If it is, he is usually pleased, but usefulness is not his goal. His goal is to learn more about the nature of things. He seeks to extend man's knowledge. He is engaged in basic research.

CLOZE TEST

Fill in the blanks with the following words:

(observer, own, curiosity, fun, attention, applies, puts, number, imagination, to, of, look, take, make, available, improve, trying, verify, in, by)

A successful scientist is full of _____ — he wants to find out how and why the universe works. He usually directs his _____ towards problems which he notices have no satisfactory explanation, and his curiosity makes him _____ for underlying relationships even if the data available seem to be unconnected. Moreover, he thinks he can _____ the existing conditions, whether of pure or applied knowledge, and enjoys _____ to solve the problems which this involves.

He is a good _____, accurate, patient and objective and _____ persistent and logical thought to the observation he makes, He utilizes the facts he observes _____ the fullest extent.

He is sceptical — he does not accept statements which are not based on the most complete evidence _____ — and therefore rejects authority as the sole basis for truth. Scientists always check statements and make experiments carefully and objectively to _____ them.

Furthermore, he is not only critical of the work of others, but also of his _____, since he knows that man is the least reliable of scientific instruments and that a _____ of factors tend to disturb impartial and objective investigation.

Lastly, he is highly imaginative since he often has to look for relationships in data which are not only complex but also frequently imcomplete. Furthermore, he needs _____ if he wants to make hypotheses of how processes work and how events _____ place.

These seem to be some of the ways _____ which a successful scientist or technologist thinks and acts.

LESSON TWO

TEXT

Every Drug a Poison

Even the most miraculous miracle drug harbors within it powerful danger.① Most medicines, whether synthesized in a test tube or extracted from natural substances, are chemicals that are foreign to the body and can be poisonous to one degree or another.② Even those that are compounds normally present in the body, such as insulin, can cause harm. There simply is no such thing as a perfectly safe drug. Even familiar, seemingly unthreatening medicines such as aspirin and antihistamines can have multiple effects that range from mild discomfort to lethal shock.

Each drug's potential for ill, weighed against the good sought from it—the so-called risk-benefit ratio—provides a gauge useful in deciding whether to take a drug.③ Aspirin, for example, usually presents only modest risks, and the benefits often sought from it, such as relief from a headache seem similarly modest. When the risk increases, as it does④ if the presence of stomach ulcers brings hazard of internal bleeding from the irritation of aspirin's acid, the serious risk may outweigh the benefit; it may be wiser to endure the headache or use another agent such as acetaminophen. A cancer patient, on the other hand, may be justified in trying extremely toxic medicines because they hold the only remaining promise of arresting the disease and prolonging his life.⑤

Circumstances may weigh against the use of otherwise acceptable drugs.⑥ A farmer, for example, should pause before using an antibiotic that may also cause sensitivity to sunlight. Women, who are normally free to take any drug a man can take, should be extremely wary of any drug when they are pregnant, for many medicines can affect unborn babies and some affect them disastrously.

Such problems are complicated by the abundance of drugs available; for some disorders there are as many as 40 or 50 different medicines and it is sometimes difficult for doctors or patients to decide which one to use.