

卫生部规划教材  
全国高等医药院校教材

供药学类专业用

# 药 学 英 语

第二版

上册

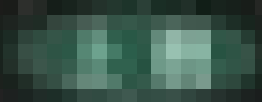
胡廷熹 主编

人民卫生出版社

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主编 王 强

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**胡 廷 熹 主 编**

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## 全国高等医药院校药学专业 第四轮规划教材修订说明

为适应我国高等药学教育的改革和发展，在总结前三轮药学专业教材编写经验的基础上，卫生部教材办公室于1996年9月决定进行第四轮教材修订，根据药学专业的培养目标，确定了第四轮教材品种和修订的指导思想，药学本科教育的培养对象是从事一般药物制剂、鉴定及临床合理用药等工作的药师，教材修订应紧紧围绕培养目标，突出各学科的基本理论、基本知识，同时又反映学科的新进展。该套教材可供药学及相关专业选用。全套教材共22种，均经卫生部聘任的全国药学专业教材评审委员会审定。教材目录如下：

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## 前 言

《药学英语》是在药学院系学生一、二年级英语教材基础上的药学专业英语教材。本套教材旨在培养学生阅读有关英语专业材料的能力，掌握必要的词汇，为专业内容的语言交流（口语和写作）打下坚实的基础。教材包括基础部分五十课课文及有关阅读材料五十篇。题材专业内容新颖，语言地道，学生易于吸收。每课中有词汇注解、课文注解和习题。教材还包括各专业（药物化学、药剂学、药理学、药物分析、生药学、生物化学和植物化学）的专业词汇及各类型专业文章，均取自国外近年的药学书刊和杂志。教科书最后部分为附录：（1）药学英语写作技巧；（2）总词汇表。本书分两册出版，上册内容为基础药学英语，下册内容为专业药学英语。

参加编写的有北京医科大学、上海医科大学、广东药学院、沈阳药科大学、华西医科大学、第二军医大学及中国药科大学的有关教授们。另外，特别聘请中国药科大学药学英语教师张宇辉同志为本教材秘书。

为了提高专业部分编写质量，特邀请中国药科大学赵守训教授（植物化学）、吴梧桐教授（生物化学）、李谦老师（生物化学）、刘国卿教授（药理学）、徐珞珊教授（生药学）、吉民副教授（药物化学）审查词汇和专业文章。本文特别重视校对工作，为最大限度地消除拼写错误，专门成立了校对小组。参加小组工作的除担任本书秘书的张宇辉老师外，还有中国药科大学九六级英语药学专业的钟莎、马欣、金飞燕、王森、王磊、王湛、周洲、张峻颖、高涛、唐铁鑫、张苾、刘明、刘泉等同学。此外，编者之一北京医科大学的郭莉萍老师又对全书作了细致的总体校阅及语言润色。他们工作认真，一丝不苟，使本书编写工作按时完成。在此本人一并致以衷心的感谢！

由于主编水平所限。谬误之处在所难免，敬请读者指正。

胡廷熹

于中国药科大学

1999. 10

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# LESSON ONE

## TEXT

### Pharmacy in China

The educational system was perhaps the first shock I encountered in China. The schools of pharmacy in the People's Republic of China (PRC) are operated by two different governmental agencies. The State Pharmaceutical Administration, an agency of the central government, operates two pharmaceutical universities that have 4000 and 4500 students respectively. These two schools, in Shenyang in Northeast China and in Nanjing in East China, exist to prepare industrial pharmacists for positions within the pharmaceutical industry.

In addition, another approximately 50 colleges of pharmacy throughout the various provinces of the PRC are operated by the Ministry of Public Health. There, colleges of pharmacy are almost equally divided between western medicine oriented schools and those which teach future pharmacists the art and skills of Chinese herbal medicine. Most of the western medicine oriented schools are departments within large medical faculties where the traditional Chinese Medicine schools are sometimes found at medical faculties.

### SIMILAR TO THE U.S.

The next surprise was that the curricula at the colleges of pharmacy in China were not so different from those encountered by pharmacy students in the U.S. In fact, the American student would probably be pleased to learn that the state board examination<sup>2</sup> prevalent here does not exist in China; rather, graduation and successful completion of studies enable one to become a fully qualified and registered pharmacy practitioner. Furthermore, recent graduates have more options in seeking employment than those who were usually assigned to an employment site based on existing needs of state-run pharmaceutical enterprises. The guided search for employment upon graduation is one of the major changes in China's higher education, embraced by most college graduates.

Virtually all of the graduates of the two pharmaceutical universities operated by the State Pharmaceutical Administration are employed within the pharmaceutical industry.

Graduates of the other schools of pharmacy generally find employment in hospitals and clinics.

You are probably asking: "What about community pharmacy<sup>3</sup>?" Well, the answer

is that people usually receive medical care in clinics at their place of employment, within various neighborhood health centers, or as outpatients at large hospitals. All of these sites employ pharmacists who dispense drugs. Therefore, it is not often that a patient needs to go to a community pharmacy shop to obtain medications.

### **EAST AND WEST**

Most of the community pharmacies have two departments or two areas, and this is also the case in hospitals and clinics. On one side of the pharmacy we find something which very much resembles any pharmacy that we would see in the U.S. or in Western Europe; but on the other side of the room, or in the next room, is a strange sight—drawers and drawers of herbs and items such as dried portions of small animals, antlers, roots, and pieces of various other dried objects. These are compounded by specialists in traditional Chinese medicine; powders are made, for swallowing by patients.

It is easy for us to laugh at this latter type of therapy, but it retains its faithful followers and is considered to be equal in importance to the western drugs and western medicine practiced in China.

If one chooses to purchase a drug and does not feel the need to visit the physician at a clinic, one can go to the several community pharmacies which are located on the main shopping streets in downtown areas and ask for drugs. Virtually all drugs except narcotics and other scheduled substances<sup>4</sup> are legally available without a prescription. The patient may walk into the pharmacy and ask for ampicillin by name and be sold a small bottle containing 12, 16 or 24 capsules.

Or he may ask the pharmacist to recommend an antibiotic for a child with an infection, sore throat, etc.

While this is rather unusual in our American orientation, it was not a complete surprise to me, as I have seen Rx drugs<sup>5</sup> being sold over-the-counter in many parts of the world. I admit, though, that I was curious about the potential for abuse. I was assured by numerous individuals that the Chinese population had better things to spend their money on than taking needless drugs, and that there was a minimal if not almost non-existent chemical dependency problem<sup>6</sup>.

### **SCOPE OF SPA**

Something ought to be said about the State Pharmaceutical Administration (SPA) which was mentioned earlier. It is a combination of the Food and Drug Administration, the entire pharmaceutical industry, research laboratories, pilot factories<sup>7</sup> and educational institutions—all rolled into one.

The Beijing-based SPA is a huge unit within the central government. SPA operates

thousands of pharmaceutical factories and dictates production schedules<sup>8</sup>. It arranges contracts for raw materials and intermediate products<sup>9</sup> and also negotiates for the sale of finished dosage forms to the pharmacies and for export.

Other divisions maintain quality control and quality assurance while yet other divisions oversee SPA's two massive pharmaceutical universities as well as their on-campus pilot plants used for training and for the production of drugs for clinical trials.

The SPA also has a technology branch which conducts research into improving production techniques and evaluating new technology.

During the three-week visit, I gave about a dozen lectures. At many of them, questions about American pharmacy practice were asked. Perhaps the most difficult concept for my Chinese colleagues to grasp was that of Americans deciding individually to move to another part of the country—to quit their jobs, return to school, accept employment elsewhere, or whatever the reason might be. When I mentioned anything of this nature, I was deluged with questions which basically asked what would happen if one's supervisor refused to grant permission to leave one's job. This says something about the employment situation in the PRC. My audiences were stunned when I indicated that one need only give some notice if there is not a formal contract, as a courtesy, and to select freely another place of employment.

### **SPARTAN, BUT SIMILAR**

Despite the rather spartan conditions found at most pharmacy operations in hospitals and clinics, the work was similar to what we do in that nearly all of the products were prefabricated at the factory, including most of the traditional remedies. The pharmacists generally dispensed already manufactured capsules, tablets or powders.

Powders were seen more frequently than they are here, but the bulk of the medication was, as it is here, in tablet dosage forms.

Most of my Chinese colleagues were professionally well informed, reasonably happy with their jobs, and optimistic about the future.

Nearly all of the persons I encountered were enthusiastic and positive about their profession and its future.

There is a Chinese Pharmaceutical Association which has its headquarters in Beijing and branches in most other cities and provinces. These groups get together, discuss professional matters, and often publish journals and newsletters.

The Association receives a subsidy or support from the national government.

Interest was shown in social pharmacy, clinical pharmacy and pharmacy management, as these subjects are not presently taught at the colleges of pharmacy within the PRC. It was my impression, however, that pharmaceuticals,

biopharmaceutics, medicinal chemistry and pharmacology are similar to what is taught and known in this country.

#### **MONTHLY WAGE: \$ 70**

In the 1980s, pharmacist earns about \$ 70 per month, an amount that enables one to live reasonably comfortably. Rents are minimal; only a few dollars per month pays for a typical small apartment. Nearly all of the urban population resides in that type of housing.

Transportation on buses costs only about a dime a ride, but most people appear to use bicycles as their principal means of conveyance. A sight I found interesting was a parking lot with bicycles arranged in neat rows for as far as the eye could see—similar to the huge automobile parking lots in the U. S. It costs about two pennies to park a bicycle for a day. Most of the other needs are relatively inexpensive, although the cost of food is increasing.

The Chinese pharmacists I met appeared well dressed and there is an ever increasing variety of clothing styles, colors and designs. Health care is considered good and the status of the pharmacist is at least equal to that accorded to pharmacists in this country.

The possibility exists for greater interprofessional relationships. Reason: so much of pharmacy is practiced in institutional settings where other health care practitioners function in close coordination with the pharmacist.

A large number of the people I met in pharmacy circles had been to the U. S. at one time or another for postgraduate studies, short training classes or professional visits.

I was convinced that the warm reception I received was due in part to the fond memories that many of these people had about their kind reception by American families and pharmacists while they visited the U. S.

The trip was indeed fascinating and an eye opener.

I recommend that my colleagues take such a voyage after they have passed a test in the use of chopsticks, as knives and forks are unavailable at many places.

In reflecting about the visit after coming home, I once again came to the conclusion that we are very fortunate with the resources, appliances and status that we have as a profession in the U. S.

#### **NEW WORDS AND EXPRESSIONS**

pharmacy [ˈfɑ:məsi] *n.* 药学; 药店

pharmaceutical [fɑ:məˈsjʊ:tikəl] *adj.*

药学的; 药用的

pharmacist [ˈfɑ:məsɪst] *n.* 药剂师, 药商; a ~'s 药房

oriented [ˈɔ:riəntɪd] *adj.* 以……为目

的的; 重视……的  
herbal [ˈhəbəl] *adj.* 草的; 草药的  
curriculum [kəˈrɪkjʊləm] *n.* 学校的全部课程, (一门)课程  
curricula[kəˈrɪkjulə] *n. pl.*  
prevalent[ˈprevələnt] *adj.* 普遍的; 流行的  
option[ˈɒpʃən] *n.* 选择(权)  
enterprise [ˈentəpraɪz] *n.* 企业; 公司  
embrace [ɪmˈbreɪs] *vt.* 拥抱, 接受  
outpatient [ˈaʊtˈpeɪʃənt] *n.* 门诊病人: an ~ clinic 门诊所  
dispense [dɪsˈpens] *vt.* (尤指按处方)配(药)、发(药)  
medication [ˌmedɪˈkeɪʃən] *n.* 药物; 药物治疗  
antler [ˈæntlə] *n.* 鹿角  
therapy [ˈθerəpi] *n.* 治疗, 疗法  
retain [riˈteɪn] *vt.* 保持/留  
narcotic [nɑːˈkɒtɪk] *n.* 麻醉剂; 催眠药  
prescription [prɪsˈkrɪpʃən] *n.* 药方, 处方  
ampicillin [ˌæmpɪˈsɪlɪn] *n.* 氨苄青霉素  
orientation [ˌɔːrɪənˈteɪʃən] *n.* 定向位, 方向位, 熟悉, 适应  
minimal [ˈmɪnɪm(ə)l] *adj.* 最低限度的, 最小的  
dictate [dɪkˈteɪt] *vt.* 命令, 支配  
intermediate [ˌɪntəˈmiːdiət] *adj.* 中间的  
negotiate [niˈɡəʊʃieɪt] *v.* 谈判; 解决  
dosage [ˈdɔːsɪdʒ] *n.* 下/配药; 剂/用量  
assurance [əˈʃʊərəns] *n.* 保证; 自信  
oversee [ˈəʊvəˈsiː] *vt.* 监督/视; 检查  
massive [ˈmæsɪv] *adj.* 规模巨大的;

大剂量的  
on-campus [ɒn-ˈkæmpəs] *adj.* 校园内的  
clinical [ˈklɪnɪkəl] *adj.* 临床的  
deluge[ˈdeljʊdʒ] *v.* 淹没; 泛滥  
supervisor [ˈsjʊpəvaɪzə] *n.* 主管人  
stun [stʌn] *v.* 使大吃一惊; 不知所措  
courtesy [ˈkɜːtəsi] *n.* 礼貌; 好意  
spartan [ˈspɑːtən] *adj.* 简朴的  
prefabricate [priːˈfæbrɪkeɪt] *v.* 预制; 预先构想  
remedy [ˈremɪdi] *n.* 治疗(法), 药物  
capsule [ˈkæpsjuːl] *n.* 胶囊  
tablet [ˈtæblɪt] *n.* 药片  
powder [ˈpaʊdə] *n.* 药粉, 粉剂  
bulk [bʌlk] *n.* 大批/量; 大部分  
newsletter [ˈnjuːzˈletə] *n.* 业务通讯  
subsidy [ˈsʌbsɪdi] *n.* 津贴  
pharmaceutics [fɑːməˈsjʊtɪks] *n.* 制药学, 药剂学  
biopharmaceutics [ˈbaɪəʊfɑːməˈsjʊtɪks] *n.* 生物制药学, 生物药剂学  
pharmacology [ˌfɑːməˈkɒlədʒi] *n.* 药理学, 药物学  
reside [rɪˈzaɪd] *v.* 居住  
dime [daɪm] *n.* 一角; 很少的钱  
conveyance [kənˈveɪəns] *n.* 交通工具  
accord [əˈkɔːd] *vt.* 给予, 使一致  
interprofessional [ɪntəprəˈfeʃənəl] *adj.* 专业之间的; 职业之间的  
institutional [ɪnstɪˈtjuːʃənəl] *adj.* 公共机构的  
setting [ˈsetɪŋ] *n.* 环境  
coordination [kəʊˈɔːdɪneɪʃən] *n.* 协作; 配合  
postgraduate [ˈpəʊstgrædʒueɪt] *adj.* 大

学毕业之后的；研究生的                      吸引人的  
fascinating [ˈfæsiˈneɪtɪŋ] *adj.* 迷人的；      chopsticks [ˈtʃɒpstɪks] *n.* 筷子

## NOTES

1. **western medicine oriented schools**: schools with western medicine as the main course
2. **the state board examination**: the examination organized by the state board of pharmacy in each state
3. **community pharmacy**: public drug store on the street
4. **scheduled substances**: Drugs with severe side effects have been classified by the U. S. Government as the scheduled drugs, hence controlled by law.
5. **Rx drugs**: drugs which must be prescribed by the doctor
6. ... **that the Chinese population had better things to spend their money on than taking needless drugs, and that there was a minimal if not almost non-existent chemical dependency problems**: ... that the Chinese people would spend their money on other things rather than on unnecessary drugs, and that the number of the persons addicted to drugs was quite limited, if there did exist such things
7. **pilot factories**: factories in which drugs are produced for clinical trials
8. **production schedules**: contents of drugs to be produced
9. **intermediate products**: half-finished drugs

## EXERCISES

### I . Questions:

1. Why was the author puzzled about the educational system in China?
2. What's the same characteristic of about 50 colleges of pharmacy throughout China?
3. What kind of job will students get when they graduate from the pharmaceutical universities? And what about the graduates of other colleges of pharmacy?
4. What's the function of the SPA?
5. What questions were often asked at the lectures given by the author?
6. Why did the author think that the Chinese pharmacists were well-informed?
7. According to the author, the Chinese colleagues were friendly to him. Why?
8. The author was much impressed by what he had seen in China. Find the proof in the text.
9. What's the author's attitude towards traditional Chinese medicine?
10. Can you tell, according to the text, something about pharmacy in the USA?

## II . True or False

1. The only two pharmaceutical universities in China are operated by two different government agencies.
2. Traditional Chinese medicine is taught in all the 50 or so colleges of pharmacy throughout the various provinces of China.
3. The major change in job assignment in Chinese higher education is welcomed by most college graduates.
4. A certain number of graduates seek employment in community pharmacy.
5. American students would rather take the state board examination prevalent in the U. S. .
6. Chinese herbal medicine, though laughed at by some westerners, is thought of as the second important medicine in China, only next to the western drugs.
7. The author is surprised to find that the patient himself may walk into the pharmacy and ask for ampicillin by name.
8. SPA in China is equal in its functioning to FDA in the U. S. .
9. American pharmacy practice is significantly different from that in China.
10. According to the author, Chinese pharmacists who earn about \$ 70 a month live a decent life.

## III . Translation:

1. 人首次与医生打交道也许是在他出生时。
2. 药剂师根据医生的处方给病人配制一定剂量的药。
3. 药剂学是一门有关制备、生产和分发药物的学科。
4. 作为药剂师，你首先应做到一丝不苟地配药。
5. 制药业涉及到药物的研制和生产。
6. 经过数百年的临床实践，我们的医生终于证实了这种疗法的真正价值。
7. 现在，中国的医务工作者已开创了一条中西医相结合的崭新的发展之路。
8. 经过大量的科学实验，科研工作者对这种传统疗法的临床应用的基本原则有了更进一步的了解。
9. 一种药物在被医生用于处方之前，其对人体所产生的作用将受到仔细检测。
10. 中国年轻一代药剂工作者中相当一部分人都去西方国家读过研究生或接受过短期培训。

## SUPPLEMENTARY READING

### Are Pharmacists Necessary?

There are two issues to be examined when considering the role of the pharmacist in

the provision of medicines in Europe, North America, Japan and other countries where a significant proportion of gross domestic product<sup>1</sup> is spent on the provision of healthcare. The first is professional—do we need highly qualified individuals to dispense medicines; and the second is economic—how much should we be paying for the distribution job that pharmacists perform?

Today's pharmacists are without doubt very well-qualified individuals in what can broadly be described as pharmaceutical sciences. They study chemistry, pharmacology, pharmacognosy and pharmaceutics, with an overlay of biotechnology, toxicology, bacteriology, and possibly other sciences thrown in for good measure<sup>2</sup>. University courses in pharmacy are becoming longer with an increasing content and variety. The young men and women who graduate are knowledgeable and the schools from which they emerge are among the leading institutions in applied scientific research.

So what do we do with the majority of these intelligent individuals after they have graduated? We put them into retail shops where they dispense prescriptions. No other shopkeepers need a degree and a professional qualification for their work, and few others perform such a tedious service, given their professional status, for the public.

Today, in most countries, pharmacists do little more than hand out original packs of medicines to which they simply add the dispensing label. Even the art of having to read doctors' writing is disappearing as more and more prescriptions are type-written. Also, the need to counsel patients is being made redundant by the inclusion of detailed patient instructions in medicine packs.

So how do we justify the pharmacist in professional terms against the changes in the marketplace? Answer: with increasing difficulty. The Japanese have not seen the need for a separate pharmacy distribution system. The Japanese doctor is both the prescriber and dispenser, and despite lip-service to the need to separate these activities, the chances of this happening are still as remote as they were 30 years ago when the subject was first actively pursued. In the U.S., we see the rapid growth of mail order dispensing which serves chronically ill patients. What need is there for the pharmacist here?

The Royal Pharmaceutical Society of Great Britain, along with comparable bodies in many other countries, has three main professional justifications for the continuation of pharmacy distribution. First, it believes that it is important to separate dispensing from prescribing to ensure that the choice of medicine is made solely in the patient's interest and not for the financial gain of the prescriber. Underlying the Japanese desire to separate the two is this ethical concern. But I doubt whether this is a valid concern outside Japan as doctors everywhere are under pressure to prescribe more economically. In the past, there may have been good reasons for keeping prescribing and dispensing



apart, now they are no longer valid.

The second professional justification concerns the safety of the patient. Here it is argued that the pharmacist, knowing more about medicines than the doctor, can spot fundamental errors in prescribing and so prevent harm to the patient. Again I doubt whether this is a valid concern today. I even suggest that a patient is as likely to suffer from a dispensing error as from a fundamental prescribing error. Happily, both are very rare occurrences and, therefore, are not of major significance.

The third professional justification relates to the counselling activities that the pharmacist can provide to the patient either in support of the medicine that has been prescribed or as an alternative to medical treatment given in the doctor's surgery. We know that governments would like to off-load some of the trivial patient work-load onto the pharmacist in order to achieve healthcare economics, hence the concerted programme of deregulating prescription-only medicines<sup>3</sup> which can be provided over-the-counter (OTC) through pharmacies.

My concern here is that the pharmacist's role in counselling and counter-prescribing is based on inadequate educational foundations. There is all the difference in the world between learning about medicines in a pharmaceutical sciences degree and diagnosing illness and understanding how patients should be treated as provided by a medical qualification. The pharmacist does not have the learning, training and experience needed to undertake differential diagnoses and prescribe appropriate treatment.

Whilst in many continental European countries pharmacists recognize this fact, and restrict their counseling role simply to the administration routines for prescribed medicines, in others, there is an increasing flirtation<sup>4</sup> with the idea of the role of primary healthcare providers. The counseling role in support of prescribed medicine, as I have said, is becoming less necessary with the availability of more original packs and better patient information, and the latter role is, to my mind, an illusion.

Pharmacists recognize that they are becoming redundant, which is why they have readily embraced the idea of becoming advisers. But in addition to the educational deficiency, there is the question of whether the pharmacist will actually perform this advisory role. In many countries, it is not the pharmacist who sells the medicine. This is done by an employee who in all likelihood has no special qualifications. The pharmacist is supposed to supervise these sales, but, in practice, does this happen?

We do not need pharmacists to hand out medicines to the public whether they are dispensed or sold OTC. There are plenty of other hazardous products purchased by the public from retail stores which do not require the supervision or involvement of highly qualified scientists. From electrical goods to equipment and machinery, the dangers