

English for Medical Students

CLIVE BRASNETT



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Preface

This book is intended to help the medical and pre-medical student who is planning to study medicine in English. It is assumed that he will have some knowledge of general English but little experience of studying works in scientific English.

Passages have been selected from a variety of standard medical textbooks and reproduced in their original form. Preceding certain of these passages in the first section of the book simplified versions have been given. Thus the student has a chance to move from a familiar kind of English to a less familiar kind and to discover the relationship. Notes following the passages draw attention to characteristic but unfamiliar features of the kind of scientific English used in medical texts, and exercises provide the student with opportunities for checking his command over these features, both of vocabulary and structure. Further exercises are designed to check that the student has correctly grasped the facts given in the texts. These exercises do not place a heavy demand on the student's powers of expression in English. However, Review Exercises are provided at intervals. These are concerned not only with finding the facts but also with making deductions from these facts. They will particularly appeal to students who wish to formulate ideas in English. It is suggested that these exercises should first be attempted orally, under the guidance of a teacher. Later, when the teacher is satisfied that his students can express themselves accurately, written answers can be attempted.

Texts have been chosen to reflect various aspects of medicine. They deal, for example, with the contributions made by researchers in the

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laboratory, the work of physicians in general practice and in hospitals, and with the measures necessary for the maintenance of public health. Terminology tends to recur when a certain aspect of a subject is presented, so several texts dealing with each aspect have been given to allow the student to become familiar with this.

For the exchange of scientific information through international conferences and for the efficient functioning of international bodies such as the World Health Organization it is important that medical workers should be mutually intelligible in the spoken language. Pronunciation practice lists are given at intervals throughout this book. They follow the texts in which fresh vocabulary is introduced, but teachers are advised to check these lists before introducing a text to their students, to make sure that their own pronunciation of terms which may be unfamiliar is correct. Students must practise conscientiously with due attention to stressing the right syllables. An explanation of the symbols used for the various sounds of English and the signs used to indicate stressed syllables is given on page 1.

In the course of his studies the medical student will frequently need to make a quick reference to sources of information. Practice has therefore been provided in using a variety of reference materials—footnotes, index, bibliography and dictionary. The dictionary provided at the back of this book is not intended to be a full medical dictionary but it will help prepare the student to make use of one, since it is fuller than the usual glossary provided in textbooks. Students should be encouraged to refer to it constantly.

Preparing the student to become an independent reader of scientific matter in English, to be able to make good use of those works necessary for his studies and for maintaining his interest in his subject, is the primary aim of this book. Permission of authors and publishers to make use of original texts is gratefully acknowledged. The titles of these works will be found in the Acknowledgements on p. viii. I am also grateful to Government of India scholars from various Asian countries who conscientiously worked through these texts and exercises, and to Miss Ann Domingo for her enthusiastic help in the preparation of the typescript.

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Guide to pronunciation

Key-words for pronouncing practice exercises

CONSONANTS

| | | | | | |
|---|-------|---|-------|----|---------|
| p | pat | ŋ | king | ʃ | ship |
| b | bat | l | light | ʒ | measure |
| t | town | f | fan | r | ride |
| d | down | v | van | h | hide |
| k | cold | θ | thin | tʃ | cheap |
| g | gold | ð | this | dʒ | jeep |
| m | might | s | sink | w | west |
| n | night | z | zinc | j | yes |

VOWELS

| | | | | | |
|----|------|----|-------|----|---------|
| i: | seat | ɑ: | heart | u: | food |
| ɪ | sit | o | hot | ʌ | hut |
| e | set | o: | sort | ɔ: | hurt |
| a | sat | u | stood | ɒ | another |

DIPHTHONGS

| | | | | | |
|----|-----|----|-----|----|------|
| ai | buy | au | now | iə | ear |
| ei | bay | ou | no | eə | air |
| oi | boy | | | uə | pure |

STRESS

Syllables which must be stressed have a small upright mark in front of them, e.g. 'agent (stressed on the first syllable), a'ppear (stressed on the second syllable).

Longer words may have more than one stressed syllable, e.g. ,epi'demic (stressed on the first and third syllables). The upright mark coming at the top of the line means that the following syllable is stressed more strongly than the syllable following the upright mark coming at the bottom of the line.

Bacteriology

1. How bacteriology began

First read this:

1.1a (*Simplified text*)

Men no doubt observed bacteria almost three hundred years ago. But they did not then realize the part that bacteria played in producing disease. Louis Pasteur first proved this, less than one hundred years ago. Before this time, many men had written about what disease was like, and about the spontaneous generation of living things. These men were mostly philosophers. Their ideas were mostly speculations. Afterwards, men proved that only a few of these ideas were correct. Nevertheless, men developed the science of bacteriology from the speculations of these philosophers.

Now read the unsimplified text on the opposite page

Notes

We will now compare the two texts.

SIMPLIFIED

It has eight sentences.

Most of them are short sentences:

The first three sentences =

The next four sentences =

It uses common words and phrases:

hundred years

the part that bacteria played

UNSIMPLIFIED

It has only three sentences.

They are all long sentences.

the first sentence

the second sentence

It uses less common words and phrases:

centuries

their significance

proved
Before this time
what the disease was like
ideas
afterwards

established
Previous to this period
the nature of the disease
views
subsequently

It uses the active voice of all the verbs.

It uses the passive voice of several verbs.

It uses the subject: men

Men **observed** bacteria
many men **had written**
Afterwards, men **proved**

bacteria **were observed**
much **had been written**
were they subsequently **proved**

1.1b (*Unsimplified text*)

Although there is no doubt that bacteria were observed almost three centuries ago, their significance in the production of disease was not established until the brilliant work of Louis Pasteur, a French chemist, almost 100 years ago. Previous to this period much had been written about the nature of disease and the spontaneous generation of living things, but these views were largely the speculations of philosophers and in only a few cases were they subsequently proved to be correct. Nevertheless, these speculations were mainly responsible for the development of the science of bacteriology.

Now read the notes under the simplified paragraph on pages 2-3.

The simplified paragraph has been specially written for this English language textbook.

The unsimplified paragraph is from a standard medical textbook. You want to read such standard medical works with understanding. This language textbook will help you.

In the beginning, it will give simple sentences for more difficult sentences, and common words and phrases for less common words and phrases.

For some uncommon words this book will give definitions. Many of these uncommon words are scientific words. The definitions will come in the Dictionary at the end of the book. For example, look up the following words at the end of the book: **bacteria**, **spontaneous generation**. You must look up any words which you do not understand.

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Exercises

- A Read 1.1a and 1.1b again. Say whether the following statements are true or false. Find your answers by looking only at 1.1b. Do not look at 1.1a again. True or false?

- 1 Three hundred years ago, men understood that bacteria could produce disease.
- 2 Louis Pasteur first proved that bacteria could produce disease.
- 3 It was proved that none of the speculations of the philosophers were correct.
- 4 The speculations of the philosophers helped scientists to understand bacteriology.

- B Find the words under (b) below which have the same meaning as those under (a).

| (a) | (b) |
|--------------|-----------------|
| previously | ideas |
| views | before |
| established | a hundred years |
| subsequently | importance |
| century | afterwards |
| significance | proved |

- C Using the guide to pronunciation

Study the guide to pronunciation on page 1. The following words have been written using the symbols for pronunciation given in the Guide. All these words are in paragraph 1.1b. Find out which words they are. Say the words aloud and then write them in ordinary spelling.

daut θri: ə'gou di'zi:z
wə:k 'kemist matʃ ə'baut
'neitʃə θiŋz fju: vju:z
'keisiz pru:v d kə'rekt

- D 'Linking' words

Look at paragraph 1.1b again. Notice the use of the words **although**, **nevertheless**, **and** and **but**. We use words like these to link together sentences or parts of sentences.

Look under (b) below to find the correct endings for the sentences begun under (a).

(a)

- 1 It was Louis Pasteur who first proved that bacteria played a part in the production of disease,
- 2 Many philosophers had written about the nature of disease,
- 3 Although the philosophers were often wrong about the nature of disease,
- 4 Louis Pasteur discovered a process for preserving wine

(b)

and this process was later used to preserve milk.

although bacteria had been observed long before he lived.

but their views seldom proved to be correct.

nevertheless their views sometimes helped scientists in their researches.

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1.2a (Simplified text)

Disease can be passed from one person to another. Men have known this fact for a long time. Earlier writers often showed that they understood this. Some of them wrote about plague and smallpox. These two diseases often came as epidemics in the Middle Ages. But people then did not find out about the nature of the infecting material. In 1546 Fracastor of Verona put forward the view that very small particles spread disease. He said that we could not see these particles. They were too small. He named the responsible agent a *contagium vivum*.¹ He divided the contagious diseases into two groups. One group was passed on *per contactum*,¹ i.e. persons passed the disease to other persons. The other group was caused *per fomitem*,¹ i.e. something outside the human body gave a person the disease. Kircher first suggested that disease might be caused by living bodies that we can see. He suggested this because of his experiments. In 1671 he looked through lenses at the blood of some people who suffered from plague. The lenses magnified a little. Kircher said that he had seen peculiar 'worms'² in the blood. He thought that these caused the disease. But no doubt these objects were really arrangements of the red blood corpuscles.

Now read the unsimplified paragraph on the opposite page.

Notes

- 1 LATIN WORDS AND PHRASES. At one time, Latin was the language of learning in all European universities. Scientists often used Latin words and phrases, as in the following examples:

contagium vivum, a living contagion; *per contactum*, by means of touch; *per fomitem*, by means of touchwood.

The letters i.e. are abbreviations for *id est*: that is.

These latin words are printed in italics. Foreign words are usually printed like this in English books.

- 2 INVERTED COMMAS. There is one word, 'worms', in inverted commas. This was Kircher's word for the things he saw in the blood. The inverted commas indicate that we do not accept this word for these things. Why not?

1.2b (Unsimplified text)

It has long been recognized that disease might be communicated from one individual to another; there are many references in the works of the earlier writers to indicate this, particularly in connection with plague and smallpox, both of which frequently appeared in epidemic form during the Middle Ages. The nature of the infecting material was not, however, determined; Fracastor of Verona (1546) put forward the view that disease was spread by particles too small to be seen and he named the responsible agent a *contagium vivum*. He divided the contagious diseases into two groups: those transmitted *per contactum*, i.e. from person to person, and those transmitted *per fomitem*, i.e. through the agency of some outside object. The first person to suggest, on experimental grounds, that disease might be caused by visible living bodies was a monk, Kircher. Kircher, in 1671, using simple lenses of low magnification, stated that he had observed peculiar 'worms' in the blood of persons suffering from plague. Although he considered that these were the agents responsible for the disease, there seems to be little doubt that the objects he saw were simply arrangements of the red blood corpuscles.

Now read the notes under the simplified paragraph on page 6.

Exercises

- A Give single words from the unsimplified paragraph which mean the same as these words from the simplified paragraph: passed, person (*line 1*); often (*l 2*); passed on (*l 10*); seen (*l 16*); thought (*l 17*).
- B Give the words from 1.2b which mean the same as these words from 1.2a:
- 1 Men have known this fact for a long time
 - 2 as epidemics
 - 3 did not find out about
 - 4 living bodies that we can see
 - 5 because of his experiments
 - 6 lenses magnified a little
 - 7 caused the disease
- C Look at these phrases from 1.2b:
- (a) Louis Pasteur, a French chemist,
 - (b) living bodies

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These phrases could be written out more fully:

- (a) Louis Pasteur, who was a French chemist,
- (b) bodies which are living

Notice that the words **who** and **which** do not appear in 1.2b. Find phrases from 1.2b which mean:

- 1 material which carries infection
- 2 the agent which is responsible for communicating disease
- 3 particles which are so small that we cannot see them
- 4 diseases which are passed on by means of touch
- 5 lenses which magnify only a little
- 6 persons who were suffering from plague
- 7 objects which he saw

D True or false? (Refer only to 1.2b.)

- 1 Earlier writers showed that they understood that diseases can be passed from person to person.
- 2 They found out what material caused the infection.
- 3 Fracastor of Verona stated that he had seen the agents that caused infection to spread.
- 4 Kircher used lenses to examine the blood.
- 5 He saw worms in the blood.
- 6 He thought that he saw worms in the blood.

E The passive voice

The first sentence in paragraph 1.2b begins with a verb in the passive voice: **has ... been recognized**. We could add the words **by men**, i.e. **It has long been recognized by men ...**, but this is not necessary. However, we do sometimes need to add a phrase beginning **by** to a passive structure.

Look under (b) below to find the correct endings to the sentences begun under (a).

- | (a) | (b) |
|--|---------------------------|
| 1 A disease might be communicated to an individual | by Louis Pasteur. |
| 2 Fracastor believed that disease was spread | by visible living bodies. |
| 3 Kircher suggested that disease was caused | by another person. |
| 4 The importance of bacteria in the production of disease was first recognized | by very small particles. |

F Complete the following sentences by choosing the correct words from this list: corpuscles, epidemics, experimental, *per contactum*, *per fomitem*.

- 1 Plague and smallpox both occurred as . . . in the Middle Ages.
- 2 Fracastor used the words . . . for diseases transmitted from person to person and the words . . . for diseases transmitted in any other way.
- 3 Kircher's views were formed on . . . grounds.
- 4 The objects Kircher observed through his lenses were probably arrangements of the red blood . . .

G Using the guide to pronunciation

Use the guide to pronunciation on page 1 to find out which are the words written with the use of pronunciation symbols in the following list. All these words appear in paragraph 1.2b.

Say the words aloud and write them in ordinary spelling.

loŋ mait wʌn 'meni

wið pleig 'smo:lpoks fo:m

smo:l 'eidʒənt θru: fə:st

graundz ko:zd wə:mz blud

si:mz 'əbdʒikts

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1.3a (*Simplified text*)

THE FIRST DESCRIPTION OF BACTERIA

Leeuwenhoek was a Dutch draper. His hobby was preparing lenses. He was the first man to prove for certain that very tiny living bodies existed. In the last quarter of the seventeenth century, he invented the simple microscope. This was soon after Kircher did his experiments. Leeuwenhoek's microscopes could make things appear 40 to 300 times larger. Through these microscopes he looked at very small bodies. He named these bodies 'animalcules'.¹ He collected rain water and scrapings from between the teeth. There he found many of these animalcules. Some of them were shaped like bent sticks. Others were shaped like spirals. Many of them were moving by themselves. Leeuwenhoek wrote many letters to the Royal Society of London. In these letters he described what he had seen. But he did not realize that the animalcules might produce disease. Larger bacteria are normally present in water and in the mouth. No doubt Leeuwenhoek actually saw these.

Now read the unsimplified paragraph on the opposite page.

Notes

- 1 Notice 'animalcules' is in inverted commas. We do not use this word for bacteria today. Scientists frequently use special words to name new discoveries. They often take these words from Greek (*bacteria*), or Latin (*animalcules*). Both these words are plural. Do they have the plural form that is usual in English?

1.3b (*Unsimplified text*)

THE FIRST DESCRIPTION OF BACTERIA

A short time afterwards the existence of minute living bodies was definitely established. Leeuwenhoek, a Dutch draper whose hobby was the preparation of lenses, introduced the simple microscope during the last quarter of the seventeenth century. Using these instruments, with which magnifications of from 40 to 300 diameters were obtained, he observed minute bodies which he named 'animalcules'. These were present in considerable numbers in rain water and scrapings collected from the spaces between the teeth. Some of the bodies were shaped like bent sticks and others like spirals, while many were actively motile.

Leeuwenhoek described his results in numerous letters to the Royal Society of London, but he did not appreciate that the animalcules might have some connection with the production of disease. There seems to be no doubt that Leeuwenhoek actually saw the larger bacteria, which are normally present in water and in the mouth.

Now read the notes on page 10, and do the exercises below.

Exercises

- A Find single words in 1.3b giving the same meaning as these words from 1.3a:
 very tiny (I 2), for certain (I 2), moving by themselves (I 10),
 many (I 11), realize (I 12).
- B Find a phrase in 1.3b giving the same meaning as this phrase from 1.3a:
 40 to 300 times larger (II 5-6).