
UNIT 6

Structure

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6.0 OBJECTIVES

In this unit we shall give you further practice in listening comprehension by presenting a record talk, offering some suggestions for note-taking and setting questions on comprehension. We shall also ask you to study conversations relating to both informal and formal situations and write a dialogue of your own.

In the section on pronunciation we shall give you a list of English vowel sounds and the symbols used for them in some dictionaries.

After completing the unit you should be able to

- understand a talk or a lecture on a matter of general interest and take down notes ;
- take part in a conversation with your friends ; and
- use the correct vowel sounds in English words.

Cassette Recording

A cassette recording accompanies this unit and is available on payment.

6.1 LISTENING COMPREHENSION

In order to gather information, you have to understand and remember the things you listen to and the things you read. To do this you need to take down the main points of what you listen to and what you read. In this unit you will learn how to take down notes while you listen.

6.1.1 Note-taking

When you listen to a talk, a lecture, or a discussion, on a subject that you are interested in, it is not possible to write down every word you hear. This is so because it is difficult to keep pace with the speaker. Yet you need to write down important points that will help you recall the information later. The form in which you take down notes depends upon the subject you are listening to. The most common form of note-taking is an outline of the main points of the lecture, talk, etc.

What are the things you must remember when you take notes ?

- 1 Try to pick out the sentence that tells you what the talk/lecture/discussion is about. In other words, write down the theme of the talk/lecture, etc.
- 2 Try not to take down every word you hear.
- 3 Try to take down only the main points, or ideas that follow each other in a sequence.
- 4 You may use some abbreviations or short forms for common words. Some abbreviations that can be used for common words are

sc.	for	science
govt	for	government
C19	for	19th century
hyp	for	hypothesis

Abbreviations can also be used for proper names, for example,

N.	for	Newton
Sh.	for	Shakespeare

Sometimes symbols can also be used for words and phrases. Some of the common symbols are :

e.g. *exempli gratia* (Latin) = for example

re on the subject of ; with regard to

& and

= is equal to

≠ is not equal to

- > greater than/became
- < less than/came from
- ∴ therefore

All these will help you take down notes rapidly. In addition to these, many other abbreviations can be formed to represent words and ideas commonly used in a talk/lecture/discussion.

Be careful, however, not to use too many symbols, and abbreviations. They might confuse you.

Exercise 1

Let's begin by listening to a small portion of a talk, and taking down the main points and the important ideas. It has been recorded for you on a cassette and you can listen to it at home or at one of the study centres of the university ; or you can ask a friend in your neighbourhood who speaks English well to read it out to you. The text of the talk is given at the end of this unit. While you listen to it, ask yourself what the main point is, and write it down. The main point here is :

All factual knowledge is not always science.

Now pay attention to the example which tell you more about the main point. Let's take down notes which will help us to do the exercises that follow.

Non-Sc. facts	Sc. facts
generally unrelated facts.	related facts :
e.g.,	descrip ⁿ of scfic method :
a) dog likes papaya	Observe ⁿ →Compari ⁿ betw. items.
b) Akbar, grandson of Babar	relation→(change)
c) Poor performance of India	→(cause of change)→
in test matches	explain ⁿ , hyp.→testing hyp
	(experiment)→Predic ⁿ

Using the suggestions we have given take down notes for the rest of the talk. Fill in the blank spaces in these notes as you listen.

- Observⁿ**
- 1 Chippy—white tail—likes papaya.
 - 2 Sheba—_____ (a) _____—dislikes papaya.
 - 3 Rags—black tail—_____ (b) _____
- Hyp.** Only dogs _____ (c) _____ like _____ (d) _____

Expt. I offer _____ (e) _____ to _____ (f) _____ with
 _____ (g) _____ and _____ (h) _____. If white-tailed
 dogs _____ (i) _____ papaya,
 or
 dogs with coloured tails _____ (j) _____ papaya,
 hyp _____ (k) _____. All theories _____ (l) _____.
 New observⁿ → change in theory.
 Theoretical science provides _____ (m) _____.
 (n) _____ science about _____ (o) _____.

Exercise 2

On the basis of the notes that you have made answer the following questions :

1 What do you think is the title of this talk ?

2 What is the difference between scientific knowledge and non-scientific knowledge?

3 If you have to conduct an experiment to test the hypothesis that all dogs with white tails like papayas, what process will you follow ?

4 What is the difference between theoretical and applied science ?

5 Why are all theories temporary ?

6.2 CONVERSATION

In this section you will study three conversations. The first conversation is between two friends who have met after a long time. They exchange news about each other and about other friends, and speak to each other in an informal way. The second conversation is between two persons who live in the same locality know each other, but are not friends. They complain about the rise in prices, and their speech is neither informal nor too formal. The third conversation is between members of a committee. They plan the layout of a children's park in Bombay and speak to each other in a formal way.

Exercise 3

Read the following conversation and listen to it on the cassette. Then you can practise reading it aloud and answer the questions given at the end.

Conversation 1

Radha : Venkat! I can't believe it's you. I haven't seen you for ages. How're things? What are you doing?

Venkat : Radha, is that you? I hardly recognized you. You've put on weight.

Radha : Come, come, Don't exaggerate. I'm not fat. Besides, I had a baby recently.

Venkat : Congratulations! When did you get married? What does your husband do?

Radha : Oh, six years ago. My husband works for Computers India.

Venkat : Really? I'd love to meet him. I'm interested in computers too. I've just done a master's degree in computer software.

Radha : That's interesting! Where do you work?

Venkat : Well's, I'm jobless at present. In fact I'm exploring the possibility of starting a consultancy in computer programming.

Radha : Sushil would love to meet you. How about having dinner with us one evening ?

Venkat : I'd love to. When would you like me to come?
 Radha : Well, I'm busy on weekdays. Will Saturday suit you?
 Venkat : That'll be fine. By the way, what are you busy with?
 Radha : I work for a newspaper. At present I'm working on a project on adult education in rural areas. So I have to visit villages on the outskirts of the city. And guess who I met at Kheri ?
 Venkat : Who ?
 Radha : Savitri. D'you remember her ?
 Venkat : You mean that tall girl with very long hair ?
 Radha : Yes.
 Venkat : What was she doing there ?
 Radha : She's doctor now. She's opened a clinic there.
 Venkat : That's surprising. One wouldn't expect a lively city-bred girl like her to work in a village. Is she married to a doctor ?
 Radha : Oh no. She doesn't intend to marry unless she meets a man who is also interested in working in the villages.
 Venkat : She must have changed so much.
 Radha : She has. She's very sober now.

Now answer the following questions :

1. Tick (✓) the right answer.
 - i) Venkat and Radha are
 - a) friends.
 - b) acquaintances.
 - c) colleagues.
 - d) related to each other.
 - ii) Venkat and Radha
 - a) met after six years.
 - b) met after a long time.
 - c) keep meeting each other regularly.
 - d) met each other for the first time.
 - iii) At school, Savitri was
 - a) quiet and serious.
 - b) full of fun.
 - c) sulky.
 - d) sporting.

2. Why is Venkat keen to meet Radha's husband ?

3. Why is Radha unable to invite Venkat on weekdays ?

4. Venkat says about Savitri, "She must have changed so much." In what way has she changed ?

Exercise 4

Read the following conversation and listen to it on the cassette. Then you can practise reading it aloud and answer the questions given at the end.

Conversation 2

Mrs. Bose : I see you're going shopping, Mrs. Rangachari. It's rather early, isn't it ?

Mrs. Rangachari : Yes. You see, the shops won't be crowded at this hour. I won't have to wait in the queue.

Mrs. Bose : You're right. As the day gets on, market places get more and more crowded.

Mrs. Rangachari : And that's in spite of the continual rise in prices. Every time I go, something has gone up.

Mrs. Bose : Yes, I find it harder and harder each month. Can't make my house-keeping money go round.

Mrs. Rangachari : Well, I'm sure that's true of most housewives. The shops put the prices up not by a few paise but sometimes by two or three or even five rupees at a time without reason. So it's impossible to cope with it.

Mrs. Bose : The price of cooking oil has gone up by 2 rupees this month and wheat costs 50 paise a kilo more. In fact over the past year oil has gone up by 6 rupees a kilo.

Mrs. Rangachari : Yesterday, I was at the ration shop. They told me sugar had gone up by a rupee. Rice costs 50 paise a kilo more.

Mrs. Bose : Then sugar is not much cheaper than it is in the open market, is it? What's the use of buying it at a ration shop ?

Mrs. Rangachari : Well, we need to buy sugar from the open market in any case, since the ration is never enough. And the rice we buy at the ration shop is quite not fit to be eaten.

Mrs. Bose : Oh, I don't buy rice from the ration shop any more. Can't afford to take the risk.

Mrs. Rangachari : What about fish ? You eat fish every day, don't you ?

Mrs. Bose : Well, not any longer, Fish is an absolute luxury now. Imagine it's five rupees a kilo dearer! It's thirty-five rupees a kilo now.

Now answer the following questions :

1. Why is Mrs. Rangachari out so early ?

2. What do Mrs. Bose and Mrs. Rangachari complain about ?

3. Why is sugar not worth buying from the ration shop ?

4. Why is it risky to buy rice from the ration shop ?

5. Mrs. Bose has stopped eating fish. Why ?

Exercise 5

Read the following conversation and listen to it on the cassette. Then you can practise reading it aloud and answer the questions given at the end.

Conversation 3

Mrs. Gupta : As you know, the Government has now sanctioned five acres of land for a children's park in Bombay. We have now been asked to plan its lay-out. can I have your suggestions ?.....Mr. Khan ?

- Mr. Khan : Well, the entrance can be from the north. I think it would be a good idea to begin at the beginning. We could reconstruct the Indus Valley Civilisation on the right hand side. On the left of the entrance we could have the epics of India.....er.....er.....the Ramayana and the Mahabharata.
- Mrs. Mukherjee : That's a good idea. Just opposite this, er...er. in the southern section we could have pageants of ancient, medieval and modern India.
- Mr. Reddy : Er...er...I think there would be some continuity if we had them in the western section. May be we could include glimpses of the different facets of the present Indian States in this section.
- Mr. Khan : I think we should have a section on '*The World We Live In*' as well. I mean.....
- Mr. Gupta (interrupts) : Yes, But er....shall we think of the children's section ?
- Mrs. Mukherjee : Well the southern end would be the most suitable for this. There could be a merry-go-round, a giant wheel, swings, and various other games on the left side. In the other part, we could reconstruct children's tales like stories from the Panchatantra, folk tales and popular fairy tales and....
- Mr. Gupta : That's excellent. Don't you think we should also have some eating places ?
- Mr. Reddy : Oh, that didn't occur to us.
- Mr. Khan : People certainly won't enjoy a visit to the park on an empty stomach.
- Mrs. Mukherjee : Specially as they are likely to be there the whole day.
- Mr. Raddy : Perhaps we could have one or two eating places in each section.
- Mr. Khan : That might be a dangerous thing to do. People are generally not in the habit of using dustbins, so.....
- Mr. Gupta (interrupts) : We could have all the eating places in the centre then.
- Mrs. Mukherjee : What about the eastern end of the plot ?
- Mr. Reddy : I think the east should have an area called '*The Space Age*'....er....er Mr. Khan, you were saying something about '*The World We Live In*.'

Mr. Gupta : Yes. I think we now have a reasonably good plan for
(interrupts) submission to the Government. I wish to thank you all
for your suggestions.

Now answer the following questions :

- 1 How big is the plot of land that has been sanctioned for the park ?

- 2 Why did Mr. Reddy prefer to have pageants of Indian history on the western rather than the southern section of the land ?

- 3 Why did some of the members of the committee consider it important to have eating places in the park ?

- 4 Why did the members decide to have the eating places in the centre of the plot of land ?

Exercise 6

You meet a friend after a long time. Write a dialogue of about 200 words that you have with him/her.

6.3 PRONUNCIATION

We have seen in Unit 5 that one of the important features that we need to learn to speak English well is to notice the difference between sounds and the letters of the alphabet. In English there is no perfect relationship between spelling and sound. To learn the correct pronunciation of words, therefore, we need to look words up in the dictionary all the time. In some dictionaries the pronunciation of words is shown by the use of symbols. Each symbol stands for only one sound. If we learn to recognize the sound that each symbol stands for, we can learn to pronounce all the new words we come across correctly.

6.3.1 English Vowels

In this lesson we shall present the symbols for the vowel sounds in English, as used in *Longman Dictionary of Contemporary English* (Indian Edition, Orient Longman Ltd.) and in *Oxford Advanced Learner's Dictionary*, fifth edition (revise). These vowels are used by most educated people in England, and this kind of pronunciation is generally known as 'Received Pronunciation' or 'Standard Southern British'.

Here is a list of the vowels of British Received Pronunciation. The symbol for each vowel sound is given and also a key word in which the sound occurs.

All the vowel sounds and the key words have been recorded for you on the cassette.

Symbol		Key word
1.	/i:/	sheep
2.	/ɪ/	ship
3.	/e/	bed
4.	/æ/	bad

- | | | |
|-----|--------|----------------------------|
| 5. | / a: / | Calm |
| 6. | /ɒ/ | pot |
| 7. | /ɔ: / | caught |
| 8. | /u/ | put |
| 9. | / u: / | boot |
| 10. | / ^ / | cut |
| 11. | /ɜ: / | bird |
| 12. | / ə / | cupboard (second syllable) |
| 13. | / eɪ / | make |
| 14. | / əʊ / | note |
| 15. | / aɪ / | bite |
| 16. | / aʊ / | now |
| 17. | /ɔɪ/ | boy |
| 18. | /ɪə/ | here |
| 19. | /eə / | there |
| 20. | /ʊə/ | poor |

The slanting bars (/ /) indicate that the symbol between them represents a sound and not a letter of the alphabet.

Exercise 7

Here is a list of words. You can listen to them on the cassette. Write down the symbol for the vowel sound used in each word and say each word with the correct vowel sound. You may check your answers with those given by us at the end of the unit.

- | | | |
|----|-------|-------|
| 1 | foot | ..... |
| 2 | neat | ..... |
| 3 | said | ..... |
| 4 | nod | ..... |
| 5 | late | ..... |
| 6 | pan | ..... |
| 7 | boot | ..... |
| 8 | cow | ..... |
| 9 | sight | ..... |
| 10 | knit | ..... |

Exercise 8

Given below are 10 pairs of words. They have been recorded for you on the cassette. The words in each pair are distinguished by the vowel sounds. Write down the symbol for the vowel sound used in each word, and say

each pair bringing out the distinction clearly.

- | | | | | | | |
|----|----|--------|-------|----|--------|-------|
| 1 | a) | red | ..... | b) | raid | ..... |
| 2 | a) | heart | ..... | b) | hot | ..... |
| 3 | a) | cut | ..... | b) | cart | ..... |
| 4 | a) | wrist | ..... | b) | rest | ..... |
| 5 | a) | match | ..... | b) | much | ..... |
| 6 | a) | pull | ..... | b) | pool | ..... |
| 7 | a) | lend | ..... | b) | land | ..... |
| 8 | a) | bought | ..... | b) | boat | ..... |
| 9 | a) | vice | ..... | b) | voice | ..... |
| 10 | a) | such | ..... | b) | search | ..... |

Exercise 9

Now look at the list of words given. Some vowel letters in these words have been underlined. Write down the symbols for the vowel sounds these letters stand for. Say all these words with the correct vowel sounds.

- | | | | | | | | | |
|---|------------------|-------|----|-----------------|-------|----|------------------|-------|
| 1 | <u>a</u> bout | ..... | 6 | <u>e</u> xact | ..... | 11 | <u>o</u> urney | ..... |
| 2 | <u>e</u> come | ..... | 7 | <u>o</u> or | ..... | 12 | <u>i</u> brarian | ..... |
| 3 | <u>o</u> ttage | ..... | 8 | <u>e</u> ese | ..... | 13 | <u>u</u> seum | ..... |
| 4 | <u>ea</u> ded | ..... | 9 | <u>e</u> sitate | ..... | 14 | <u>o</u> tograph | ..... |
| 5 | <u>e</u> nvelope | ..... | 10 | <u>i</u> tem | ..... | 15 | <u>u</u> re | ..... |

When you look up new words in the Longman Dictionary for pronunciation, you will notice that for some words the symbol / ə / is printed in italic, that is, it is slanting. This means that the speaker may choose to pronounce it or not in that part of the word. Notice also that in some places / I / is placed above / ə /. This means that the speaker has a choice between the vowel / ə / and the / I /. Either of these vowel sounds can be used.

You will also notice that one syllable of every word has an upright mark above and before it, for example, 'purify. The upright mark placed above and before pur indicates that this syllable of the word stands out from the rest and has greater stress. It is important to place the stress on the correct syllable of each English word.

Exercise 10

Here are some words from the text of this unit. Write down the symbols for the vowel sounds used in these words according to British Received Pronunciation. You may consult the dictionary. If you like. After checking

your answers, try to say the words with the correct vowel sounds and the correct stress patterns.

- 1 objective _____
- 2 cassette _____
- 3 comprehension _____
- 4 conversation _____
- 5 pronunciation _____
- 6 further _____
- 7 practice _____
- 8 talk _____
- 9 suggestion _____
- 10 question _____

It should be noted that there are acceptable Indian variants of British R.P. vowels. These are given below :

Key word	Vowel in British Received Pronunciation	Acceptable Indian variant
caught	/ɔ:/	/ɒ :/ (long / ɒ /)
corn	/ɔ:/	/ɒr/
course	/ɔ:/	/o:r/ ओर
cut	/ʌ/	/ə/ अ
bird	/ɜ:/	/ər/ अर
make	/eɪ/	/e:/ ए
note	/eʊ/	/o:/ ओ

6.4 LET US SUM UP

In this unit we have given you practice in

- listening to a recorded talk and understanding it; and
- taking notes while you listen to a talk. We have also presented
- some conversations relating to both informal and formal situations; and
- a list of English vowels and the symbols used for them in some dictionaries.

6.5 KEY WORDS

'**acre** : a measure of land, 4840 sq. yds. or about 4000 sq. metres.

'**alphabet** : the letters used in writing a language, arranged in order

ap'plied : put to practical use

comp'uter : an electronic device which stores information on a tape, analyses it and produces information as required from the data on tapes.

'**corre'spondent** : a person regularly contributing local news or special articles to a newspaper

ex'periment : a test or trial carried out carefully in order to study what happens and gain new knowledge.

'**formal** (situation) : where one has to act according to rules, customs and convention

hy'pothesis : an idea put forward as a starting point for reasoning or explanation

in'formal : not formal

'**obser'vation** : watching carefully

pre'diction : telling something in advance

'**programming** : supplying a computer with a coded collection of information, data, etc.

queue : a line of people waiting for their turn

'**ration** : fixed quantity, especially of food, allowed to one person

Re'ceived : widely accepted (pronunciation)

'**standard** : used as a measure for the required degree of excellence

'**symbol** : a sign, mark, etc. representing something

theo'retical : based on general principles, not on practice or experience

6.6 SUGGESTED READING

A Preparatory General English Course for Colleges : Physical Sciences, Social Sciences (CIEFL, Hyderabad/Orient Longman).

6.7 ANSWERS TO EXERCISES

Exercise 1

- | | | |
|---------------------|-----------------------------|------------------------------|
| a) brown tail | f) dogs | k) disproved |
| b) dislikes papaya | g) white tails | l) temporary |
| c) with white tails | h) dogs with coloured tails | m) proof of theory |
| d) papaya | i) dislike | n) practical |
| e) pieces of papaya | j) like | o) application for invention |

Exercise 2

- 1 The title could be **The Scientific Method**.
- 2 Scientific knowledge has to do with facts that are related to each other. Non-scientific knowledge on the other hand generally consists of unrelated facts.
- 3 I shall do two things. First, I shall go round offering pieces of papaya to white-tailed dogs. Second, I shall offer papaya to a large number of dogs with coloured tails. If all dogs with white tails like papaya, and if all dogs with coloured tails dislike it, my hypothesis will be proved. However, if some dogs with coloured tails like papaya, the hypothesis will be disproved.
- 4 Theoretical science uses experiments to prove or disprove a theory. Applied science on the other hand uses experiments to improved the production of things which are useful to man. It is the science of invention.
- 5 Because as time passes, new observations may be recorded, and as a result a theory that was once proved to be true may no longer hold good.

Exercise 3

- 1 i) a) ii) b) iii) b)
- 2 Because both have specialized computers, and Venkat would like Sushil's advice on starting some business in computer programming.
- 3 Because she works as a correspondent for a newspaper and is busy on a project in adult education in rural areas.
- 4 She was carefree and fun-loving at school. Now she has become serious-minded.

Exercise 4

- 1 Because the shops get crowded later in the day and she wouldn't like to wait in the queue.
- 2 They complain about the rise in prices.
- 3 Because it is not much cheaper than it is in the open market.
- 4 Because very often it is not fit to be eaten.
- 5 Because it is very expensive. It is now thirty-five rupees a kilo.

Exercise 5

- 1 Five acres.
- 2 For the sake of historical continuity.
- 3 Because it would take a whole day to see the park and people would need refreshment to keep them going for such a long period.

4 Because they were afraid people might litter the whole place.

Exercise 6

To be done orally

Exercise 7

- | | |
|--------|--------|
| 1 /u/ | 5 /eɪ/ |
| 2 /i:/ | 6 /æ/ |
| 3 /e/ | 7 /u:/ |
| 4 /ɒ/ | 8 /aʊ/ |
| 9 /aɪ/ | 10 /ɪ/ |

Exercise 8

- | | |
|-----------|---------|
| 1 a) /e/ | b) /eɪ/ |
| 2 a) /a:/ | b) /ɒ/ |
| 3 a) /ʌ/ | b) /a:/ |
| 4 a) /ɪ/ | b) /e/ |
| 5 a) /æ/ | b) /ʌ/ |
| 6 a) /ʊ/ | b) /u:/ |
| 7 a) /e/ | b) /æ/ |
| 8 a) /ɔ:/ | b) /əʊ/ |
| 9 a) /aɪ/ | b) /ɔɪ/ |
| 10 a) /ʌ/ | b) /ɜ:/ |

Exercise 9

- | | |
|-------------------|---------------------|
| 1 /ə /, /aʊ/ | 9 /e/, /ɪ' /eɪ/ |
| 2 /ɪ/, /ʌ/ | 10 /aɪ/, /ə/ |
| 3 /ɒ /, /ɪ/ | 11 /ɜ:/, /ɪ/ |
| 4 /e/, /ɪ/ | 12 /aɪ/ /eə /, /ɪə/ |
| 5 /e/, /ə /, /əʊ/ | 13 /u:/, /ɪə/ |
| 6 /ɪ/, /æ/ | 14 /əʊ/, /ə /, /a:/ |
| 7 /ɔ:/ | 15 /ʊə/ |
| 8 /ɪ:/ | |

Exercise 10

- | | |
|-------------------------------|--------------------|
| 1 /ə /, /e/, /ɪ/ | 6 /ɜ:/, /ə/ |
| 2 /ə /, /e/ | 7 /æ /, /ɪ/ |
| 3 /ɒ /, /ɪ/, /e/, /ə / | 8 /ɔ:/ |
| 4 /ɒ /, /ə /, /eɪ/, /ə / | 9 /ə /, /e /, /ə / |
| 5 /ə /, /ʌ /, /ɪ/, /eɪ/, /ə / | 10 /e/, /ə / |

Exercise 1

Let us now look at what the scientific method involves.

Science means knowledge, but not all knowledge is Science. I know—from my own eyesight—that our dog Chippy likes papaya : I know—from a book—that Akbar was the grandson of Babar, and died in 1605; and I know—from the radio—that India did not do well in the latest Test Matches. We can call these pieces of knowledge 'facts', but they are not Science.

Science start with facts, but not with isolated facts, that is, not with facts which have nothing to do with each other, like facts about our dog, cricket and the Moghul ruler; those facts are not related in any way, and so have nothing to do with science. Science starts with observation (what we see, or hear, know through the senses) but goes on to make comparisons (between this and that, between then and now), and to study the relationship or the connection between the things which are compared. If, between this and that, or between then and now, there has been a change, then a scientist tries to find out the cause of the change, to find out why the change has occurred. Next, the scientist tests the explanation, to find out whether it is likely to be correct, whether it is probable; this testing is called 'experiment'. Then, from the observations and the explanation the scientist tries to 'predict', that is, to say what happen if he has observed correctly and if his hypothesis, that is, his suggested explanation, is correct.

Let me give an example. In observe that our dog, Chippy, likes papaya. I observe that she has a white tail. Our dog, Sheba, doesn't like papaya; her tail is brown. Our dog, Rags, doesn't like papaya; her tail is black. From all these observations, I get the idea (I form the hypothesis) that only dogs with white tails like papaya, that there is a connection between tail-colour and the taste for papaya. Now to find out whether this hypothesis is true or false, I must get experimental evidence. I can do two things. First, I predict that, if my hypothesis is true, all dogs with white tails will like papaya, and so I go round offering pieces of papaya to white-tailed dogs to see whether this is so. The second thing I can do is to offer papaya to a large number of dogs with coloured tails. If any white-tailed dogs dislike papaya, or if any dogs with coloured tails like it, I have failed to relate tail-colour with taste; my hypothesis has been disproved. In the history of science, of one hypothesis which is supported by experimental evidence, there are a hundred unsuccessful hypotheses. In fact, many of the great hypothesis of science have been the result of guess-work. A Scientific work must always be ready to jettison a theory, to throw it away if it is useless, or to alter, to modify it so that it fits new facts. All theories are temporary; they seem, at the time they are made, to correspond with all the facts; subsequently, new observations are recorded and the theory is no longer retained.

So far I have talked about theoretical science and about the way, the scientific method, of getting proof that a theory is in accordance with the facts, or that it is untrue. There is also the practical science, the science which has produced internal combustion engines, the electric telegraph, electric light, explosives; what is called applied science, the science of invention.

(Adapted from 'The Scientific Method' in *A Preparatory General English Course for Colleges : Physical Sciences*, CIEFL, Hyderabad/Orient Longman)