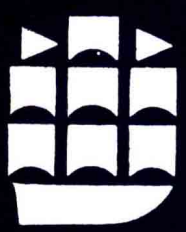
UNDERSTANDING TECHNICAL ENGLISH 2

K. METHOLD & D. D. WATERS



Longman

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KEN METHOLD

D.D. WATERS DIPIET(MANC) FIOB AAIB, FRSH AMBIM CHARTERED BUILDER (AUST)

Longman

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The cover photograph shows the mixing and heating installation for the impervious asphaltic-concrete core of the dams to be used on the High Island Reservoir, Hong Kong

To the Teacher

This four-stage, graded reading course is intended for students of English as a foreign language who wish to relate their reading in English to topics relevant to their future careers as craftsmen or technicians. The course contains the following features:

1. The reading passages
   Each passage is complete in itself. The length of the passages varies from about 250 words in Book One to 750 words in Book Three. The topics are of general interest to all technical students and require little specialised technical knowledge on the part of either the student or the teacher. All technical terms can be understood from the context or from accompanying illustrations. The course can, therefore, be used with confidence by general English teachers who have little technical knowledge.

2. The vocabulary
   No attempt has been made to teach a highly specialised technical vocabulary. The emphasis throughout is on presenting a general technical vocabulary common to all crafts and technologies. The vocabulary has been selected from a careful analysis of the words most frequently used in basic texts on woodwork, metalwork, technical drawing, mechanics and fundamentals of electrical technology. Full details of this technical lexis and of the core general English lexis are given in the teacher's handbook to the series.

3. Structural control
   All the material is structurally graded. A basic assumption has been made concerning the students' knowledge at point of entry, and details of what the students are expected to know, if only passively, are given in the teacher's manual. All other structures are introduced gradually, in a pre-determined order, and are fully dealt with in the exercises. The complete structure list is provided in the teacher's manual. This list differs from other widely used lists in that it takes into account those sentence patterns most commonly used in technical writing.

4. The exercises
   These are designed to 'exercise' and to test the students' knowledge. All the exercises require the students to use those words and structures that they have encountered in the reading passages. An important feature of the exercises is that they continually revise the vocabulary introduced in earlier passages. There is, therefore, a carefully built-in revision factor throughout the book. For this reason there are no separate revision units.

5. Objectives
   This course is not intended to be a basic English course, and should be used in conjunction with any good general English course. Its purpose is to provide supplementary material with a technical bias to the usual English programme.

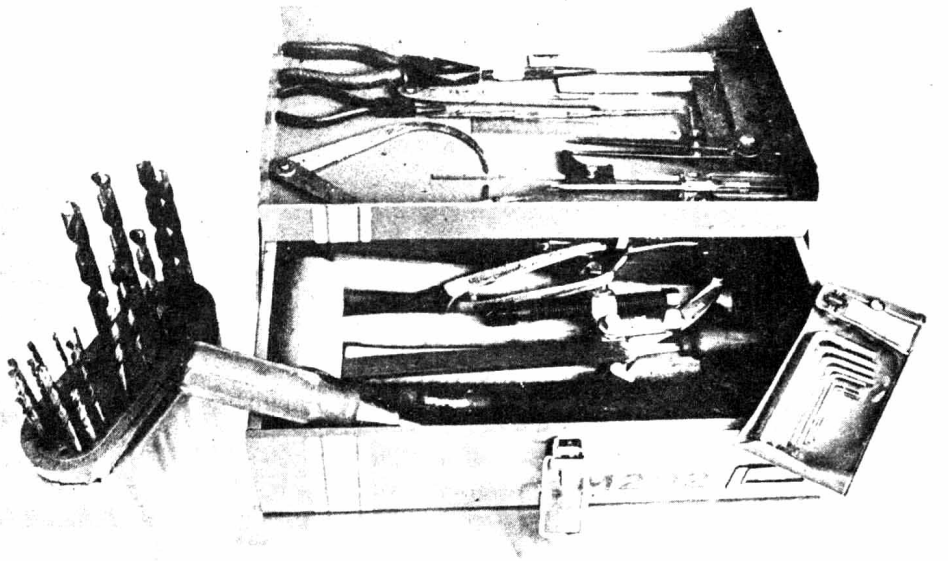
Contents

1. CARE AND USE OF WOODWORKING TOOLS

The good craftsman takes care of his tools. He does not keep them all mixed up in a box, with the chisels cutting into the sole of his plane. He has a special place for each tool, and he keeps each tool separate from the others. Each tool should usually be used only for the purpose it was made for. This does not mean that it is wrong to sharpen a pencil with a chisel. It is wrong, however, to clean off the tops of nails with a plane.

Cutting tools must always be sharp. A blunt tool will damage the wood. For this reason, the good craftsman frequently uses the oilstone to keep his cutting tools sharp. He does not wait until they will no longer cut at all.

All tools should be of the best quality. There are many cheap tools in the shops, but most of them will give the craftsman trouble. It is better to buy expensive tools and take care of them. They will last a life-time.



A tool box

Exercises

1 Vocabulary

The Right Word

Each part of a tool or a machine has a name. We should try to learn the names of the parts of all the tools or machines that we use. If we do not know these names, it is difficult to write or talk about the tools or machines.

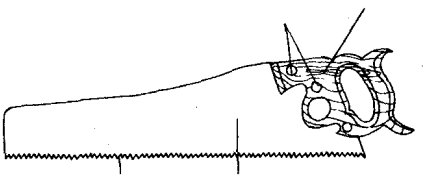
Read these sentences:

The wheel turns on a long rod of metal.
The wheel turns on an axle.
We must make sure that the piece of the saw that cuts into the wood is sharp.
We must make sure that the blade of the saw is sharp.

It is much easier to say axle or blade than use a long description.

Here are some pictures of some woodworking tools, and a list of their parts. Each part has a description of it. Draw these pictures and label them with the correct parts.

(i)



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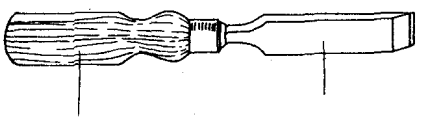

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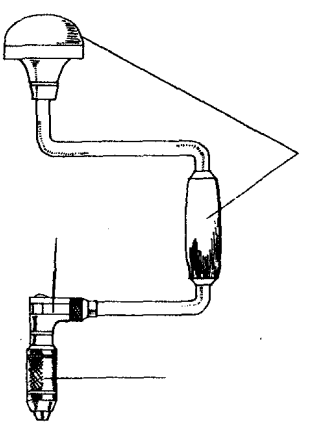

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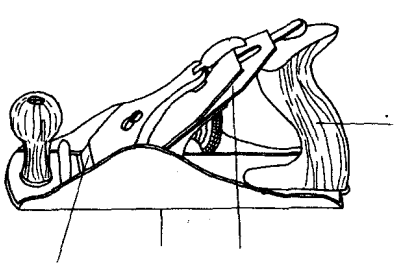

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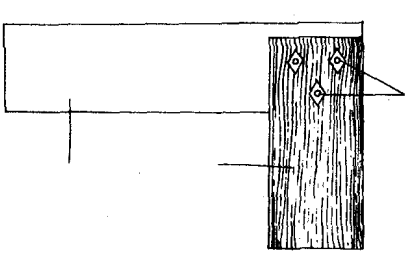


(i) Blade: made of steel with teeth to cut wood.
Handle: made of polished wood for the worker to hold.
Rivets: made of brass to join blade to the handle.

(ii) Blade: made of steel with sharpened edge to cut wood.
Handle: made of polished wood for worker to hold the tool.

(iii) Chuck: this is turned so that jaws will open and the bit (cutting tool) may be inserted.
Ratchet: this is useful when the tool is used in a corner or close to the wall.
Handles: for worker to hold the tool.

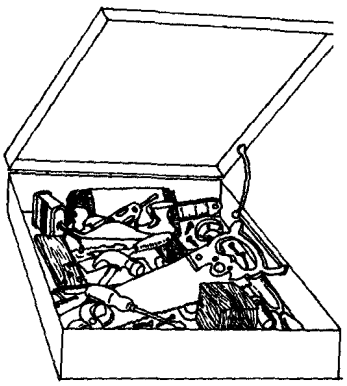
(iv) Handles: for worker to push the tool backwards and forwards.
Cutter (Blade): made of steel with a cutting edge to smooth wood.
Sole: the flat underside of the tool.
Wedge: to hold the cutter (blade) in position.

(v) Stock: made of polished wood with a brass strip to the inside edge.
Blade: made of steel and fixed at right angles to the stock.
Rivets: made of brass and used to join the stock to the blade.

2 Comprehension

A. Look at the pictures. Write the sentences from the passage that are about the pictures:

(i)



(ii)

(iii)

(iv)

(v)

B. Choose the correct answer a, b, c or d, to each of these questions:

(i) Why should a craftsman buy the best quality tools?

- **a.** They do not need to be sharpened.
- **b.** They can be used for any purpose.
- **c.** They give less trouble than cheap tools.
- **d.** They will not damage other tools.

(ii) What does a good craftsman always do?

- **a.** He buys the cheapest tools he can find.
- **b.** He sharpens all his tools every day.
- **c.** He sharpens his tools as soon as they are blunt.
- **d.** He takes good care of his tools.

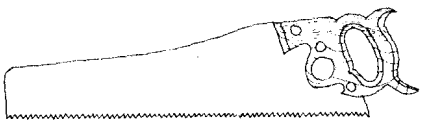
(iii) Look at the pictures in 2A. Which would a good craftsman approve of?

- **a.** all of them
- **b.** none of them
- **c.** only iv
- **d.** i, iv and v

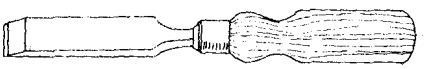
(iv) Why is it wrong to use blunt tools?

- **a.** They are dangerous.
- **b.** They damage the wood.
- **c.** They damage other tools.
- **d.** They are expensive to sharpen.

3 Language Practice



(i)



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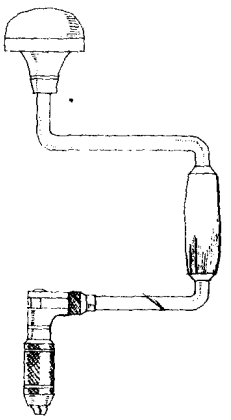

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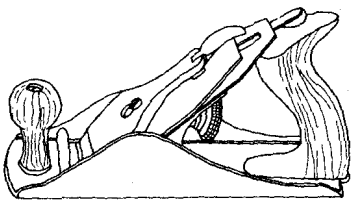

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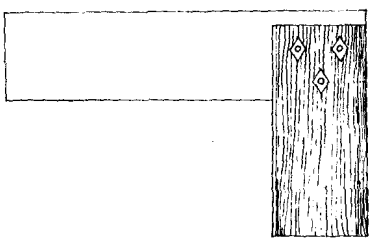


(v)

A. Read these sentences:

(i) It is better to use sharp tools than blunt ones.
(ii) It is better to buy expensive tools than cheap ones.

Make sentences like these about the following:

(i) clean brushes – dirty brushes
(ii) a smooth surface – a rough surface
(iii) useful things – useless things
(iv) a good craftsman – a bad craftsman
(v) a slow careful worker – a fast careless worker

B. Study these sentences:

(i) A blunt tool will damage wood. (keep tools sharp)
(ii) For this reason a good craftsman keeps his tools sharp.

Add a sentence to the following, beginning 'For this reason . . .

Example: Very thick paint will take a long time to dry. (use thick paint)
For this reason a painter uses thin paint.

(i) Loose clothing often causes accidents. (wear overalls)
(ii) Cheap tools usually give trouble. (buy good tools)
(iii) Dirty brushes are difficult to clean. (keep brushes clean)
(iv) When tools are mixed up in a box, they damage each other. (keep tools separate from each other)
(v) The surface of a table should be smooth. (fill holes and cracks with putty)

C. Look at the pictures on the left. Write a sentence about each tool, beginning with:
The xx should be used for . . .

4 Composition

Read the passage again and, using only ideas from the passage, write five simple 'Rules for a good craftsman'.

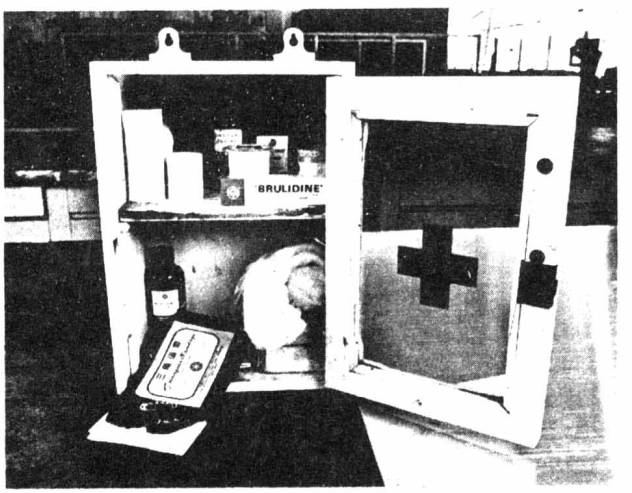
2. FIRST AID

When we give first aid to an injured person, we do not try to cure him. This is the doctor's job. We give first aid to prevent an injury from becoming more serious than it is.

If there is an accident in your workshop and someone is hurt, a doctor should be called as soon as possible. However, there are some things that must be done immediately, even before you telephone for the doctor.

1. If the injured man has stopped breathing, give him artificial respiration at once. This is very important. A man who has had an electric shock will probably get better if you can make him breathe again.
2. Stop any bleeding.
3. Keep other people away from the injured man. He needs as much air as possible. Loosen any tight clothing he is wearing.
4. Do not move him unless you have to.
5. Do not try to do too much for him. You are not a doctor, and you may do him more harm than good.

There should always be a first aid box in every workshop. It should always be clean and tidy, and fully stocked.



A first aid box. A first aid box usually contains cotton wool, plaster, scissors, a thermometer, iodine, smelling salts and bandages

Giving first aid in the workshop

Exercises

1 Vocabulary

A. Complete the sentences with 'injured' or 'injury':

(i) The man's _____ is not serious.
(ii) The _____ man was taken to hospital.
(iii) The purpose of first aid is to prevent an _____ from becoming more serious.

B. Answer these questions using the phrase 'as soon as possible':

(i) When should we give an injured man first aid?
(ii) When should we try to stop any bleeding?
(iii) When should we loosen an injured man's clothing?

2 Comprehension

A. Choose the correct answer a, b, c or d to each of these questions:

(i) Why do we give first aid to an injured person?
a. We try to cure him.
b. We do the work of a doctor.
c. We try to prevent his injury from becoming very serious.
d. We ought to give him artificial respiration.

(ii) What should we always do to an injured man?
a. Give him artificial respiration.
b. Move him to another part of the factory or workshop.
c. Stop the bleeding.
d. Make sure that he has plenty of air and can breathe easily.

(i) What is the purpose of artificial respiration?
a. It will stop bleeding.
b. It will cure a man who has had an electric shock.
c. It may help a man to breathe again.
d. It gives an injured man more air to breathe.

(iv) What is the first thing to do in a case of electric shock?
   a. Call a doctor.
   b. Stop the bleeding.
   c. Give the injured man artificial respiration.
   d. Run and get the first aid box.

B. Answer these questions about the pictures on page 5:

(i) What are the contents of the first aid box?
(ii) a. What kind of first aid is the man giving?
   b. Why is he doing this?
(iii) Why aren't the other men in the picture helping the injured man?
(iv) How do you think the accident happened?

3 Language Practice

A. Study these sentences:

(i) We give first aid to an injured man to prevent his injury from becoming more serious.
(ii) We hold the sharp edges of tools away from our bodies to prevent them from cutting us.

Answer these questions in sentences like those above:

(i) Why do we clean our paint brushes after using them?
(ii) Why do we put a book in a bookcase?
(iii) Why do we keep the lid on a tin of paint?
(iv) Why do we take our ties off in the workshop?

B. Read this sentence:

If there is an accident in your workshop, a doctor should be called.

Write sentences like this about the following:

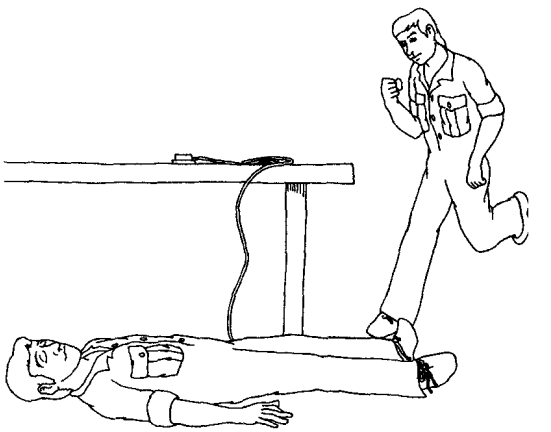
(i) fire – fire brigade
(ii) robbery – police
(iii) problem – supervisor
(iv) faulty machine – mechanic

4 Composition

Study the picture story carefully. Describe simply how the accident happened and what first aid was given.

(i)

(ii)



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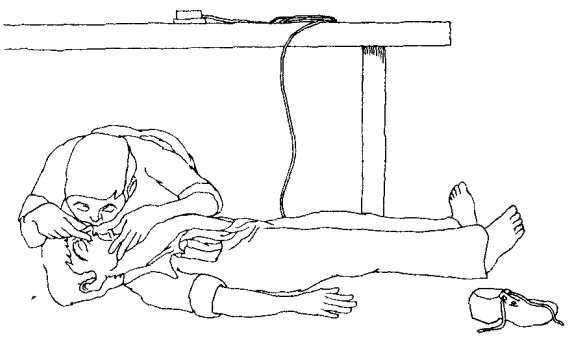

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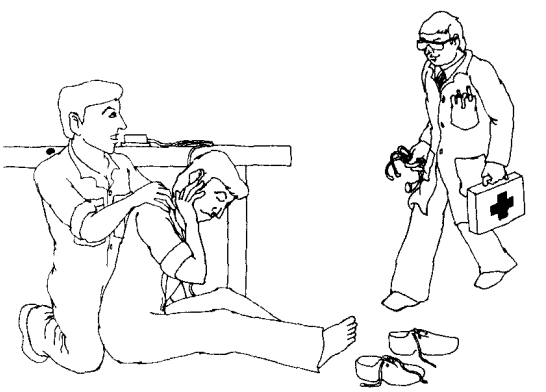


(v)

Some useful words:

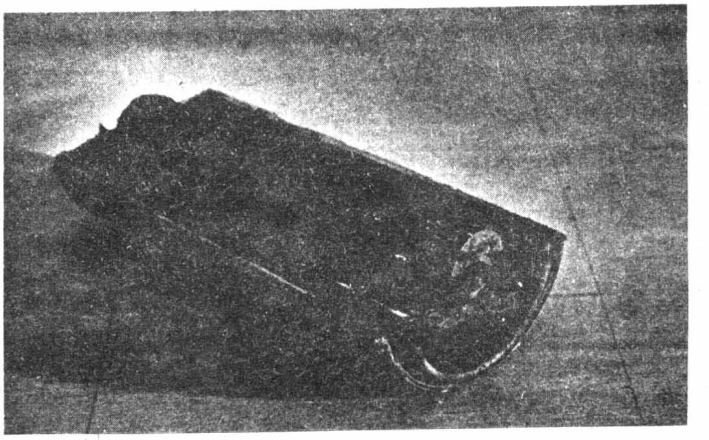
electric drill plug socket
short circuit an electric shock
artificial respiration
unconscious

3. MAKING ELECTRICITY

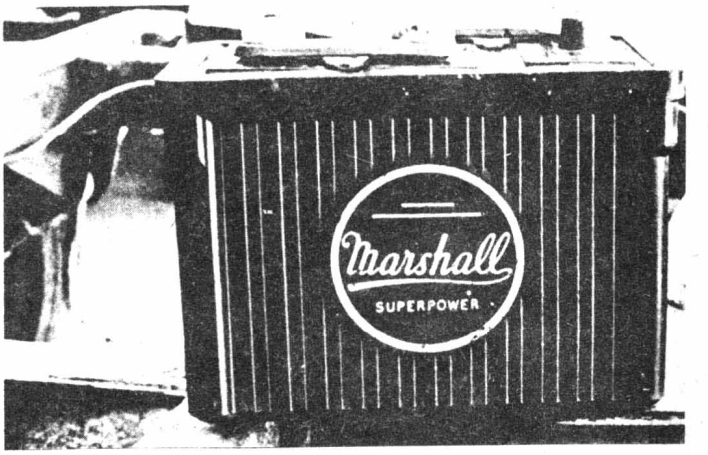
Most electricity is made by moving magnets in a coil of wire. However, this is not the only way to produce electricity. Men have known for many years that electricity can be made by rubbing certain things against one another. If you rub your pen on your coat sleeve several times, your pen will then pick up small pieces of paper. This is caused by the electricity you have produced on the surface of your pen. You can also produce electricity in your hair by combing it quickly. It may spark and crackle.

Electricity produced by rubbing is 'static' electricity. It is not an electric current and we cannot use it for anything. If we want to produce an electric current we must have either a generator or a battery.

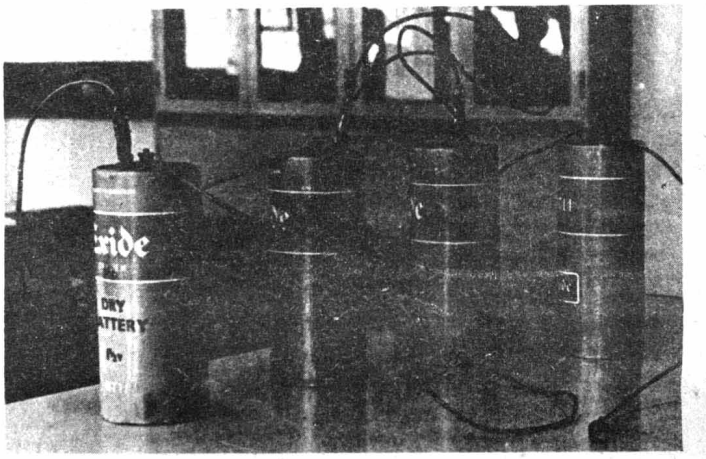
There are many kinds of batteries but they all produce electricity by chemical action. The batteries in a torch or radio contain a mixture of chemicals. These chemicals react with one another and produce electricity. An ordinary torch battery consists of a zinc container filled with certain chemicals. In the middle of the chemicals there is a carbon rod. When the carbon rod is connected to the zinc container by a piece of wire, an electric current will flow through the wire.



Cut-away section of a flashlight battery



A car battery



A row of batteries

Exercises

1 Vocabulary

A. Read this sentence:

The batteries in a torch contain a mixture of chemicals.

Write sentences like this about the following:

(i) a first aid box
(ii) your tool box
(iii) beef stew

B. Read these sentences:

(i) Electricity can be produced by rubbing certain things against one another.
(ii) A noise can be produced by hitting a metal can with a stick.

Write sentences like these about the following:

Example: thick smoke – an oily rag
Thick smoke can be produced by setting fire to an oily rag.

(i) heat – two sticks
(ii) a paste – flour and water
(iii) an electric current–a magnet in a coil of copper wire

C. Complete these sentences with words used in the passage:

(i) Certain chemicals _____ with one another and _____ electricity.
(ii) A first aid box usually _____ of a box filled with certain medicines and bandages.
(iii) A battery is a zinc _____ filled with certain chemicals.

2 Comprehension

A. Look at the picture of the man.

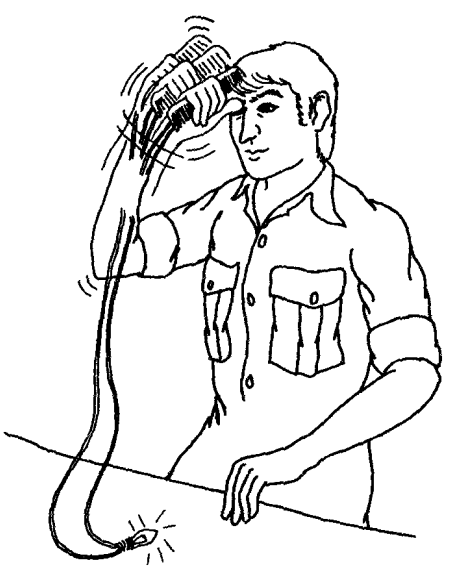
(i) What is he doing?
(ii) What kind of electricity will his action produce?

(iii) How can he show that he has produced electricity?
(iv) What is another way of producing this kind of electricity?

B. Choose the correct answer a, b, c or d, to each of these questions:

(i) How can we produce an electric current?
- **a.** By rubbing a pen on our sleeve.
- **b.** By combing our hair with quick movements.
- **c.** By connecting a zinc container to a generator.
- **d.** By moving a magnet through a coil of wire.

(ii) How do all batteries produce electricity?
- **a.** By causing one substance to rub against another.
- **b.** By moving a magnet through a coil of wire.
- **c.** By chemical action.
- **d.** By reacting with a generator.



(iii) What does the current flow through in a torch battery?
- **a.** the chemicals inside the zinc container
- **b.** the carbon rod
- **c.** the zinc container
- **d.** a piece of wire which connects the carbon rod to the zinc container

(iv) Look at the picture. What is wrong in the picture?
- **a.** The man is moving a comb through his hair the wrong way.
- **b.** The piece of wire is too long.
- **c.** The electric bulb is too small.
- **d.** An electric current cannot be produced this way.

3 Language Practice

A. Study these sentences.

(i) There was a power failure yesterday. It was caused by a fire in the generator.
(ii) My pen picked up a piece of paper. This was caused by static electricity on the surface of the pen.

Explain the following:

(i) Mr Smith's car had a breakdown yesterday.
(a loose wire)
(ii) There was an accident in Central District.
(a bus that went out of control)
(iii) There was a fire in the New Cinema.
(a cigarette)
(iv) A torch battery produced electricity.
(a chemical reaction)

B. *Study these sentences:*

(i) You can produce electricity by combing your hair quickly.
(ii) You can make paint thinner by adding some turpentine.

Answer these questions in sentences like the above:

(i) How can you sharpen a chisel?
(ii) How can you help an injured man to breathe again?
(iii) How can you sometimes prevent an injury from becoming more serious?
(iv) How can you prevent road accidents?
(v) How can you make a piece of wood smooth?

Now read the sentences in 1B of this unit. Rewrite (i)–(v) above in the same way.

Example: (i) Electricity can be produced by combing your hair quickly.
(ii) Paint can be made thinner by adding some turpentine.

C. *Read this sentence:*

If we want to produce an electric current, we must have either a generator or a battery.

Write sentences like this about the following:

Example: keep tools sharp
If we want to keep our tools sharp, we must not let them touch one another in the tool box.
keep brushes in good condition
If we want to keep our brushes in good condition, we must clean them after use.

(i) prevent accidents (ii) help an injured man (iii) produce static electricity (iv) measure accurately