

Canning food

Food which is kept too long decays because it is attacked by yeasts, moulds and bacteria. The canning process, however, seals the product in a container so that no infection can reach it, and then it is sterilized by heat. Heat sterilization destroys all infections present in food inside the can. No chemical preservatives are necessary, and properly canned food does not deteriorate during storage. 5

The principle was discovered in 1809 by a Frenchman called Nicolas Appert. He corked food lightly in wide-necked *glass* bottles and immersed them in a bath of hot water to drive out the air, then he hammered the corks down to seal the jars hermetically. Appert's discovery was rewarded by 10 the French government because better preserved food supplies were needed for Napoleon's troops on distant campaigns.

By 1814 an English manufacturer had replaced Appert's glass jars with metal containers and was supplying tinned vegetable soup and meat to the British navy. The next scientific improvement, in 1860, was the result 15 of Louis Pasteur's work on sterilization through the application of scientifically controlled heat.

Today vegetables, fish, fruit, meat and beer are canned in enormous quantities. Within three generations the eating habits of millions have been revolutionized. Foods that were previously seasonal may now be eaten at 20 any time, and strange foods are available far from the countries where they are grown. The profitable crops many farmers now produce often depend on the proximity of a canning factory.

The first stage in the canning process is the preparation of the raw food. Diseased and waste portions are thrown away; meat and fish are cleaned 25 and trimmed; fruit and vegetables washed and graded for size. The jobs are principally done by machine.

The next stage, for vegetables only, is *blanching*. This is immersion in very hot or boiling water for a short time to remove air and soften the vegetable. This makes it easier to pack into cans for sterilization. Some 30 packing machines fill up to 400 cans a minute. Fruit, fish and meat are packed raw and cold into cans, and then all the air is removed. When the cans are sealed, the pressure inside each can is only about half the pressure of the outside air. This is 'vacuum' packing.

During the sterilization process which follows, the cans are subjected to 35 steam or boiling water, with the temperature and duration varying according to the type of food. Cans of fruit, for example, take only 5-10 minutes in boiling water, while meat and fish are cooked at higher temperatures for

longer periods. After sterilization, the cans are cooled quickly to 32 °C. to prevent the contents from becoming too soft.

The final stage before despatch to the wholesale or retail grocer is labelling, and packing the tins into boxes. Nowadays, however, labelling is often printed on in advance by the can-maker and no paper labels are then required.

Ideas

Say whether the following statements are true or false according to the information given in the passage.

- 1 Chemical preservatives are necessary in canned food.
- 2 Nicolas Appert, a Frenchman, was not the first man to preserve food in cans.
- 3 Food has been canned for two centuries now.
- 4 Napoleon rewarded Louis Pasteur for his work in the preservation of food.
- 5 Canning factories are often built close to the farms which supply them.
- 6 Much of the preparation of raw food for canning has to be done by hand.
- 7 *Blanching* is an essential step in all food canning.
- 8 Meat is cooked after it is packed in the cans.
- 9 The pressure inside vacuum-packed cans is about twice that of the outside air.
- 10 The sterilization process does not take more than 5-10 minutes.

Vocabulary

Find the following words in the passage and select the meaning you think is *most likely* to correspond among the choices given.

- | | |
|-------------------------------|--|
| 1 <i>decays</i> (line 1) | 4 <i>corks</i> (line 10) |
| a) smells | a) kind of food |
| b) waits | b) covers |
| c) lasts a long time | c) nails |
| d) goes bad | d) containers |
| 2 <i>seals</i> (line 2) | 5 <i>seasonal</i> (line 20) |
| a) puts | a) peppery and spicy |
| b) closes up | b) rare and expensive |
| c) packs | c) grown only at certain times |
| d) stores | d) available only at irregular intervals |
| 3 <i>deteriorate</i> (line 6) | 6 <i>proximity</i> (line 23) |
| a) change for the worse | a) nearness |
| b) discourage | b) rough estimate |
| c) become soft | c) approximate size |
| d) lose much moisture | d) method |

7 *raw* (line 32)

- a) uncooked
- b) neatly stacked
- c) warm
- d) whole

8 *vacuum* (line 34)

- a) hygienic
- b) low pressure
- c) scientific
- d) high pressure

9 *duration* (line 36)

- a) hardness
- b) durability
- c) timing
- d) pressure

10 *despatch* (line 41)

- a) sending
- b) message
- c) dismissal
- d) speed

Spot the topic

Which of the following choices a), b) or c) most adequately sums up the ideas of the *whole* paragraph?

1 *Para. 1* (lines 1-6)

- a) Food scientifically sealed in cans is safe from decay.
- b) Sterilization – the key to the safe-keeping of food.
- c) The use of chemicals in preventing the decay of food.

2 *Paras. 2 and 3* (lines 7-17)

- a) The history and early methods of preserving food.
- b) The French influence in food canning.
- c) The scientific principles of food canning.

3 *Para. 4* (lines 18-23)

- a) How the canning industry affects our lives.
- b) The economic effects of the canning industry.
- c) The range and diverse advantages of canned food.

4 *Paras. 5-8* (lines 24-44)

- a) The mechanical miracle of food canning.
- b) The step-by-step modern processes of canning food.
- c) The process of preparing, washing and grading food for canning.

5 *Paras. 5-8* (lines 24-44)

Put the following key processes in the order in which they occur. Number them 1-6.

- a) blanching
- b) preparing the raw food
- c) labelling and packing
- d) sterilizing
- e) filling and sealing cans
- f) cooling