



Care of Food in the Home

This Article Will Appear in Four Installments, as Follows: "Causes of Spoilage," "Storage," "Care of Different Kinds of Foods," "General Rules"

CAUSES OF SPOILAGE

INSTALLMENT NO. 1

FOOD generally shows when it is spoiled by an unpleasant look, taste or smell. It may, however, be contaminated with organisms that make it unsafe for use, even though it still appears good. The causes of spoilage are many and varied and foods differ greatly in the kind of care needed.

Foods may be spoiled by bacteria, yeasts, molds; by changes produced by heat or cold, light and loss or absorption of moisture; by insects and other household pests; and by parasites of food animals. Dirt and careless handling increase the chances of spoilage at every stage from the time food is produced until finally used. Right methods of care in the home can prevent or at least check much waste from these causes. The waste of food through poor choice, preparation and serving is due to very different reasons and is not discussed here.

Bacteria, Yeasts and Molds

Bacteria, yeasts and molds—three types of micro-organisms—are the most important and insidious of all causes of food spoilage. They are almost everywhere, yet their presence is often unsuspected until they have caused food to change color, ferment or decay. Micro-organisms are distributed in all sorts of ways. Some spread themselves by rapid growth; others are carried by air, by water, by insects and animals, and on the hands and clothing of people.

The growth of bacteria, yeasts and molds, like that of any other plants, is influenced by temperature, moisture and light. One of the chief problems in the care of food is to make these conditions so unfavorable that micro-organisms can not live or at least are unable to develop without at the same time making undesirable changes in the food itself. Pasteurization of milk does this by raising the temperature for a certain time to a point that destroys undesirable bacteria, but does not cook the milk. Most micro-organisms are sensitive to cold also, at least to the extent that growth is more or less checked by a temperature of 40° to 50° F.

Drying is another way to prevent the growths of micro-organisms in foods. Dried fruits and vegetables, for instance, may keep for months in a cool, dry place, but as soon as water is added to them they will spoil as quickly as fresh kinds. Direct sunlight destroys many micro-organisms, but the dim light of the cellar is just right for some molds.

Bacteria of various sorts must be dealt with in the care of food. Lactic-acid bacteria, for example, cause milk to sour, but do not necessarily make it unwholesome and are an aid in making butter and cheese. Other kinds, however, make foods putrefy and decay, and still others develop dangerous poisons. In addition, foods are sometimes contaminated in various ways,

with the bacteria of such diseases as typhoid fever and paratyphoid, tuberculosis, diphtheria and dysentery. For instance, the bacteria of typhoid and paratyphoid are transmitted to food as it is handled by persons who carry these organisms in their bodies, though they are apparently healthy. Two varieties of the poison-producing bacteria require special mention.

Bacillus enteritidis is responsible for many of the cases of so-called meat poisoning and is particularly dangerous because it does not give the food a spoiled taste or smell. It occurs in domestic animals, hence the need for great cleanliness in slaughter houses and in markets. Even home-dressed chickens may become infected through carelessness in drawing or by flies conveying the infection! Since it is believed that the poison developed by this bacillus is not affected to any extent by heat, cooking infected meat does not render it safe.

Bacillus botulinus develops a powerful poison in the food that it infects, but this poison is destroyed by thorough boiling. The organism does not grow well at temperatures below 50° F; therefore proper refrigeration protects food from it. It has been found in sausage, preserved meat and canned goods. Usually, but not always, the contaminated food shows plain signs of spoilage. Suspected food should never be even tasted until after it has been heated to boiling, and some authorities advise that the boiling be continued from 30 to 45 minutes. Fortunately, cases of poisoning due to botulinus are rare, considering the great quantity of canned foods used.

Yeasts generally show their presence in foods containing sugar by fermenting them, as often happens in stewed or canned fruits or fruit juices. Some of these wild yeasts have been domesticated, as it were, and put to work in leavening bread and making kefir, kumiss and other fermented-milk beverages. Bacteria sometimes interfere with the action of yeast in bread making and develop sour or other bad flavors or make the bread slimy or unnatural in color.

Molds spread through food as delicate velvety or powdery growths of various colors, feeding on some of the substances and causing changes in texture and flavor. As in the case of bacteria and yeasts, some molds are cultivated and introduced into food to produce special effects. The flavor of Roquefort and Camembert cheese, for example, is due to the development of certain molds. Since the spores of molds are easily blown about in the air and are also fairly resistant to heat, the house-

keeper has to be constantly on the watch, especially in damp, warm weather, against molds on or even near foods.

Changes Produced

By Heat, Cold, Light and Loss or Absorption of Moisture

Heat and cold, light and loss or absorption of moisture have other effects on food spoilage besides those connected with growth of bacteria, yeasts and molds.

Many fresh fruits ripen so rapidly, even at ordinary room temperature, that they soon pass their prime, as everybody knows from the mealy apples often found in the dish on the sideboard. Nuts and other fat foods become rancid more quickly if stored in a warm rather than a cool place.

On the other hand, temperature as low as freezing ruins both texture and flavor of some foods. Frozen potatoes, for example, are watery and have an unpleasant sweetish flavor.

Light also hastens the ripening of fresh fruits and vegetables. Various canned and dried products seem to keep their attractive color longer in light-proof containers, and the quality of table oils and fats is affected by light as well as heat.

Too great circulation of air over foods may injure them. For instance, lettuce and other succulent vegetables become wilted by evaporation, while crackers and cookies lose their crispness by absorbing moisture from the air. In other words, moist foods often need to be protected from drying out and dry foods from becoming moist. The wrappers and containers in which many commercial food products are marketed prevent such changes very effectively, and suggest good practices to the housekeeper.

Insects and Other Household Pests

Insects, rats and mice, and other household pests not only destroy and pollute foods in obvious ways, but they may also infect them with micro-organisms dangerous to health. The rat has been called the most destructive animal in the world, partly because it spreads bubonic plague, and the common housefly fully deserves the epithet "typhoid fever" fly, and is also a known carrier of the bacteria of cholera, dysentery and tuberculosis. Even the so-called fly-

specks often deposited on food and dishes may be infected with disease germs and the eggs of dangerous parasites.

Food, more than anything else, draws these pests to a house, and their visits are at least discouraged by keeping supplies covered or in closed containers and by disposing of garbage promptly.

Sometimes, in spite of all the housekeeper's precautions, weevils or worms develop quickly in apparently sound cereal products, dried vegetables and fruits, or nuts. In reality, these pests come from minute eggs deposited by insects in or upon grains or other seeds, or in the flavor

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