

## CANNING AND PRESERVING.

The terms "canning" and "preserving" are rather confusing to many, and are used interchangeably. "Preserving" fruit is cooking it with three-fourths to its whole weight of sugar. By this method much of the natural flavor of the fruit is destroyed, and for that reason, and the richness of the mixture, is not now so commonly used as "canning," which is preserving sterilized fruit in sterilized air-tight jars, with or without sugar—sugar being necessary only to give sweetness. Fruit which is canned is kept soft and juicy, and more easy of digestion than that which is cooked in a large quantity of sugar. From a dietetic standpoint, the housewife should "preserve" only a sufficient quantity of fruit to give variety and for special uses, such as filling for tarts, etc., and provide as generously as possible a bountiful supply of "canned" fruits.

The object of "canning" and "preserving" is not so much to exclude the air as to exclude bacteria. Our grandparents no doubt imagined that it was the air which caused fruit to spoil, but scientists, by experiment, prove to us that it is the microscopic organisms which are in the air and get into our food which cause the trouble. Air in a can, if thoroughly sterile, will not cause fruit to spoil—a jar may be only half full of fruit and keep perfectly, providing the fruit, jar, rubber and cover are sterile, and no micro-organisms have access to the jar. Unless a spoon or knife is also sterile, it is not safe to slip it down the side of the jar to allow the escape of the air bubbles which may be there, for it might have some of the these microscopic, yet dangerous, bacteria on it, which might cause the loss of the entire can of fruit.

The most favorable conditions for the growth of all micro-organisms are warmth, food, moisture and air, but if these are not given in the right degree, life is dormant or destroyed—for instance freezing will check growth, and they remain in the spore form until the proper degree of warmth is again given. Boiling temperature, if continued long enough, will destroy life entirely. Spores may have been formed, some of which will resist even boiling temperature. Repeated boiling, or intermittent boiling, will finally destroy them, since each time growth occurs they lose some of their power to resist heat and cold, and if one perseveres with boiling the food, the life of the micro-organism will finally be destroyed. For this reason, we find food which has stood twenty-four hours and shows sign of growth of spores, being cooked a second time and allowed to stand another twenty-four hours, after which another boiling is given to make doubly sure of destroying all life.

## STERILIZING AND PASTEURIZING.

Sterilizing a substance is to destroy all life and source of life in and about it. To accomplish this, the substance must be kept at a temperature of 212 F. for two or more hours, for it has been shown that ordinary boiling for a short time has not been sufficient to destroy some spores which can resist the boiling temperature for a short time, and when favorable conditions are given again, they revive and grow.

Pasteurizing is not sufficient for canning purposes, since it consists in keeping the liquid (usually milk) for fifteen or twenty minutes at a temperature of 140 F. to 160 F. This kills all active bacteria and destroys the spores of tuberculosis, typhoid, diphtheria, cholera and all fever-producing germs.