NOTES ON THE PRESERVATION OF FRUIT.

BY

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THE methods by which fruit may be preserved for a more or less indefinite period are as jam, by bottling or canning, by making into a paste or "massa," and by simple drying. Certain fruits, such as apples and pears of suitable kinds, will keep for many months if properly stored. There are many extremely good sorts of apples which will keep till April, May, and even June. Unfortunately this year the crop of fruits of all kinds in most parts of the country will be poor, and possibly the amount of sugar allowed to the private owner for jam making may be sufficient for his fruit.

As the making of jam in factories is now largely under Government control, it seems not unreasonable to suggest incidentally that the manufacturers should be required to make a declaration as to the substances other than the named fruit used in making the jam. If the basis of a jam is pulp made from apples, plums, or vegetable marrow, the named fruit being practically used only as a flavouring agent, the fact should be declared. One of the merits of jam is that it affords a mode of obtaining in the diet necessary labile substances, vitamins or what-not, when fresh fruit is not available. In a jam factory the fruit, such as currants, is usually "pulped," and kept; it is recooked when the apples are ready, and in this way the vitamins may be lost. The label, "Currant jam: made solely from sound fruit and sugar," may prove misleading to the purchaser, who is apt to assume that the fruit referred to on the label is currant and not largely diluted with apple or vegetable marrow.

Much can be done without sugar at the time of preservation, and the following notes may be of use:

Bottling.—When water without sugar is used in bottling a diffusion of the sugar and other substances in the fruit takes place from within it into the water, until an equilibrium is established. The individual fruits then become little more than tasteless bags, which can only be satisfactorily served at table when mashed into a *purée* or "fool." This may be obviated and a permanent equilibrium established by making juice from some of the fruit and using it to fill up the bottles. The juice may be made either by cooking some of the fruit in a small amount of water and then straining off the juice and squeezing the residue well in a cloth; or by the use of a fruit press—the *Enterprise* or some similar pattern—which is far more economical and saves time, for leaves and stalks need not be separated from the fruit, the juice thus obtained should be heated before it is put into the bottles. The fruit, of course, may be pulped or the juice only bottled, and then it is perhaps a good plan to use small bottles, so that a whole bottle is soon consumed. The same sort of juice need not be used; for instance, raspberry or red currant juice may be used the one for the other. Plum or apple decocted to a moderately thick syrup might be used, judging from the very fair blackberry jam that can be made by the addition of apple juice from the cider press concentrated to a syrup.

Paste or Massa.—This is a valuable mode of conserving various fruits. It can be utilized in several ways, as by making sauces to eat with puddings, to work up into jam, or, in the case of quince and medlar, to add to apples. Whilst it is more ideal to use sugar in some cases (for example, apple) in the preparation, a product of perfect keeping quality can be made without it. Taking apple and tomato as two types, the treatment is as follows:

Apples are cut up, or waste cores and skins only may be used; they are cooked with the smallest quantity of water possible; then, cooked soft, they are allowed to cool and passed through a fine cloth gauze or sieve to separate pips, etc. The pulp is then slowly reduced with stirring to prevent burning, which may also be partly fended off by wire gauze or a sheet of iron interposed between the direct flame and the saucepan; the reduction is completed when the wooden spoon stands stiffly alone in the pulp (when sugar is available one-tenth to one-fifth the weight of the pulp may be added). The pulp is then poured into well-greased baking trays, or greased paper may be used to line them or plain paper, but in this case it will have to be moistened when ultimately removed. The layer of pulp should be a quarter to half an inch thick. The trays are then placed to dry, either in the rack over the range, in a slow oven, in the linen cupboard, or in bright sunlight, and dried until the residue is fairly hard but still plastic; it is then rolled up (after removal of the paper, if that has been used) or cut up into squares or lozenges, and stored in paper bags or cardboard boxes in a dry, warmish place, when there is no fear of mouldiness ensuing.

Tomatoes are carefully boiled in water without breaking the skins, the water drained away as completely as possible and the pips and skins strained off (or they may be put direct

through an "*Enterprise*" press), a little salt and, if desired, cayenne and allspice may be added. The *purée* is then slowly reduced to a fairly thick jam, poured into trays, dried and rolled up. Small pieces stirred up with water may be used to flavour soups, stewed haricots or spaghetti, etc. The "massa" keeps perfectly. Should fruit be available, we propose to store black currants, raspberries, etc., by this plan, using, however, the press, as then by two or three passages there is practically no loss of the juice.

The advantage of the paste or massa is that it needs no bottles or jars for its preservation; sugar, where needed, may be added at the time of consumption or final preparation. Apple or quince paste may be made into a jam or *purée* by adding about five times its weight of water, warming slowly for twenty minutes, then just raising to the boil for a short stir.

Simple Drying.—For the simple drying of fruit none of the special outfits advertised is necessary. On a small scale a fair amount can be done with the ordinary baking oven. In a house which possesses a linen or airing cupboard containing a hot-water cylinder, fruit can be dried on a larger scale. Using mainly this method we did last year twenty pounds of dried plums, representing six or seven times their weight in the fresh state. When dried hard they keep perfectly in paper bags. Preliminary treatment in a caustic soda bath or by sulphuring is not necessary, and neither method is likely to add to the dietetic value of the fruit.

Only fruit which is of good size, perfect, and at least nearly ripe, should be used. Fruit which is not perfectly ripe may be spread out on trays made of gauze, wicker, or slats of wood, and kept on the rack over the range for a few days to complete ripening; this is in any case a good plan, as it tends to procure a full flavour. Three or four heatings in a cool oven will be needed. It is important that for the earlier heating the temperature should not be above 115° to 120° F. For the second or third not above 150° F., and for the final not above 160° F. Too high a temperature leads to rupture of the skin, escape of syrupy juice, and a general mess. In practice the oven may be allowed to cool off a little at the end of the day, and the trays left in overnight. Next morning they should be taken out and allowed to cool. During this it is well to turn the fruit; in the evening it should be put into the oven for another night. It is safer to leave the oven door ajar, and this should certainly be done during the daytime when the fire is on. To ascertain the temperature a pan of water may be put into the oven and if the hand cannot be held in it for a full minute the temperature will be 140° F. or more. It is inadvisable to put in fresh fruit with partly dried fruit. Too high a temperature leads to agglutination of the contents of the fruit through destruction of pectins, if not to rupture through swelling.

With the hot cupboard of a hot-water service there is little or no risk of overheating; treatment for a week every day or every few days, with daily withdrawal to cool, is needed to get the complete desiccation I prefer. If the operator stops when the dryness of the ordinary prune has been attained, he must remember that there will be liability to mouldiness if the prunes are stored while still moist in jars or bottles without resort to a final high temperature. With complete desiccation, followed by storage in a dry place, perfect conservation is obtained. If hot sun is available the trays may advantageously be put out; moulds will not grow at body temperature.*

As to vegetables, potatoes dry very rapidly in slices, about a quarter of an inch thick; young broad beans and green beans also dry readily, and give a good product; we did not find that preliminary scalding in boiling water for five seconds, as recommended, is an advantage.

THE WAR.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Wounded.

Surgeon Probationer H. G. FitzMaurice, R.N.V.R.

ARMY.

Died of Wounds.

LIEUT.-COLONEL H. MOORE, R.A.M.C.

Lieut.-Colonel Henry Moore, R.A.M.C., who was returned on June 5th as wounded, was reported to have died of wounds, in the casualty list published on June 14th. He was educated in the medical school of the Royal College of Surgeons in Ireland, and took the diplomas of L.R.C.P. and S.Irel. in 1892. After serving as medical officer in Basutoland, and as a civil surgeon in the South African Field Force in 1900-1902, he went into practice in Dublin, where he was demonstrator of anatomy to the Royal College of Surgeons in Ireland, surgeon to the Royal City of Dublin Hospital, and surgeon to the Westmorland Lock Hospital. He had also been surgeon to Mercer's Hospital, Dublin. He took a temporary commission as

* In the Lot, the centre of the French dried fruit industry, fruit is dried on wicker hurdles in the sun. The "Imperial" plums in glass jars are finally put through an autoclave.