first season all trouble will be at an end. At this place the cost of lumber, etc., would make the expense about fifty dollars per acre but as it would double the crop in grapes, the excess of the first crop would repay the out-lay. And during succeeding seasons the current expenses would not be materially increased, whilst in my theory is correct, all danger from frosts would be removed. If the observations and experience of other persons are at variance with mine, I hope they will make them public, as my only object is to elicit truth, a free discussion is the proper way to get at it; if on the contrary the observations of others confirm mine, then so far as frosts are concerned, by adopting the high training system, grape growing can be reduced to a mathematical certainty. —*Rural Press.*

Process of Drying Fruit in the Sun.

There are many processes of drying fruits, the most common being on scaffolds in the sun. It is unnecessary here to describe the process—all are familiar with it—but we will call attention to a fact which none who would make a success of drying fruits in the sun, should overlook. It is that nine times out of ten, if fruit thus dried be packed away without the necessary precaution of scalding, it will be ruined with worms in less than one month after the packing. We would therefore lay it down as a rule always to be followed, when your fruit, of whatever kind, is sufficiently dry, dip it in boiling water for at least half a minute, after which again expose it to the sun or place it in an oven until the surface water has been evaporated. It is then ready to pack or send to market. Besides insuring against danger from worms, this scalding will greatly improve the quality of all dried fruit however it may be dried.

Artificial Processes.

A process invented and patented a few years ago in Maryland has been used very successfully. The machinery used consists of a tunnel five feet square and fifteen feet long, in which the fruit, after being prepared by peeling, etc., is placed for drying on shelves, one above the other. The air at the bottom of the tunnel is then heated by means of pipes to about 180 degrees—at the top it will be above 120. By means of machinery the shelves are gradually passed down through the tube, and when at the bottom, having been dried sufficiently by the heated air, are discharged into a receiver ready for packing. This is a simple and quick method of drying, and it is claimed to be superior to the sun process, inasmuch as the fruit is not in the least fermented. All the natural flavor is therefore fully preserved, so that the fruit has all the freshness of green fruit.

Another process may be described as follows: The fruit is cut up in thin pieces by machinery, and then placed upon galvanized wire cloth in a close room that excludes all dust and insects. A heated current of air is then forced through it by a powerful exhaust fan, which completes the drying process in from four to six hours. Fruit dried in this manner commands fifty per cent. more than sun dried fruits of the same varieties. This latter process is very economical and effectual, and we would recommend those who have any quantity of fruit to look to it.

Canning Fruit

The popular mode of preserving fruit of late years is by canning and excluding the air so as to prevent the tendency to decay. Any means by which the air can be effectually excluded from fruit will preserve it in the same condition as it was at the time the air is excluded, any length of time a thousand years. The most common vessel used for this purpose is the tin can. This is probably the cheapest, but for all fruits that have a considerable acidity glass is much better. Fruit reds act upon the tin and thus the fruit itself acquires a disagreeable tinny taste, and becomes actually injurious instead of beneficial as all fruit should be to health.—*Sacramento Record.*

Uses of Grapes.

Men can live and work on grapes and bread. The peasantry of France, Spain and Italy make many a satisfactory meal in this way, and of the wholesomeness of the diet there can be no doubt. Medical men constantly recommend the use of grapes for their patients. To sit under one's own vine has, in all ages, been considered the acme of rural happiness—an emblem of peace, a symbol of plenty, and a picture of contentment. That pleasure, though perhaps not in all its fullness, may become the heritage of thousands in these temperate climes. Neither our latitude, longitude, nor erratic climate forbid the growth of the grapevine throughout the larger part of the country. In many districts its fruit will ripen perfectly. In almost all it would ripen sufficiently to be useful for eating. Ripe grapes are universally esteemed. No one tires of them. If any one declined to eat their own grapes or grew more than were needed for home consumption, there is a ready market in most neighborhoods for grapes at from four pence to a shilling a pound according to quality.

Thus a flourishing vine on the gable end or front of cottages might make or save the rent many times over. I know many cottage gardens in which the vine or vines are not only their chief ornament, but the main source of profit. These might be multiplied up and down the country to infinity. There need be no fear of an excessive supply, neither are ripe grapes so perishable as most other fruits. Cut with a piece of wood attached, and placed in bottles of water, or even suspended in a dry room, the ripe fruit will keep good for months, and even improve by keeping.—*The Garden.*

MANURE FOR HORTICULTURAL USE.—Nitrate of ammonia, 400 parts; biphosphate of ammonia, 200; nitrate of potassa, 250; chloride of ammonium, 50, sulphate of lime, 60; sulphate of iron, 40. These ingredients are pulverized, well mixed, and kept in well closed dry bottles. Sixty-five grains of this mixture are dissolved in one quart of water, and to each plant (in pots or in open ground) is given weekly a dose of from 400 to 1,200 grains, it is best to pour the liquid in the saucers in which the pots are placed. This is highly recommended by Jeannel, the French horticulturist.

NUTRITIVE PROPERTIES OF APPLES.—It is stated that by a careful analysis it has been found that apples contain a larger amount of phosphorus, or brain food, than any other fruit or vegetable, and on this account they are very important to sedentary men who work their brains rather than their muscles. They also contain the acids which are needed every day, especially for sedentary men, the action of whose liver is sluggish, to eliminate effete matters, which, if retained in the system, produce inaction of the brain, and indeed, of the whole system, causing jaundice, sleepiness, scurvy, and troublesome diseases of the skin.

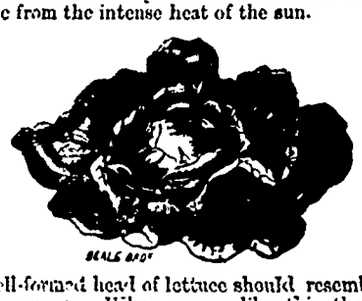
THE KITCHEN GARDEN.

After the ground is in readiness to receive the seeds, one of the first of our vegetable list that will claim attention will be the

Lettuce.

Unless a frame is used for starting plants earlier than can be done in the open ground, it will be very desirable to select some well-sheltered spot, fully exposed to the sun, where the ground absorbs and retains the heat, and having prepared it thoroughly according to directions already given, and marked it off into drills with the marker, the seed may be sown evenly in the rows and covered lightly with fine soil.

The secret of having lettuce tender and brittle lies in securing rapid growth, which can be done only where there is sufficient warmth and moisture. If the weather be dry, the plants will be stimulated by an occasional watering with tepid water. After the plants have begun to grow nicely, they may be thinned out and the surplus plants set out six inches apart each way. Cabbage lettuce will head well in the seed bed if allowed sufficient room, but they usually head more uniformly if transplanted, and seem to be in less haste to run up to seed. They do not head well if grown so late that the heads are not formed before the hot weather of summer; if it be desired to have lettuce head then, the plants should be set on the north side of some building or high board fence where they will be shaded as much as possible from the intense heat of the sun.



A well-formed head of lettuce should resemble the cut here given. When grown like this, the inner leaves will be well blanched, tender and sweet. The Cos varieties do not form such cabbage-like heads; they are more conical, not solid, and do not usually blanch well without being tied up. Of the cabbage varieties which we have tried we give the preference on the whole to the

Drumhead or Malta.

It remains some time in head without running to seed, and the heads are large, compact, tender, nicely blanched in the centre and of good flavor.

All the Year Round

Endures both heat and cold well, and forms small close heads.

Brown Dutch

Is tender and of good flavor, but the heads are not very solid, and it does not endure heat very well.

Tennis Ball

Is exceedingly well adapted to forcing under glass, the heads are small but very compact, and blanch finely. It does not answer well in hot weather.

Nonpareil

Is, on the other hand, one of the best summer varieties, enduring the heat remarkably well, forms fine compact heads, well blanched, tender and fine flavored.

The Paris White Cos

Is the most popular of the Cos varieties, the heads blanching tolerably well without tying, very brittle and enduring the summer heat.

Probably some of our readers are willing to take the pains necessary to have this most acceptable spring salad a little earlier than it can be had by first sowing the seed in the open ground in spring. So then we say select a nice piece of rich, friable soil, and having prepared in it a bed for the seed in the usual way, sow some of the more hardy sorts, such as the Brown Dutch, Tennis Ball, or Hardy Green Winter, about the middle of September. In about a month after prepare some cold frames, in other words hot-bed frames with sash, but without any hot-bed, or bed of fermenting manure to generate a bottom heat. Place these frames where they will be protected from the sweep of wintry winds, after having first prepared the ground on which you place them, by the requisite tillage and manuring, to receive the young lettuce plants. Into these frames transplant the lettuce. A frame three feet by six will hold six hundred plants. As the weather becomes cold protect them with the sash, being careful to draw it off in mild days. As the severity increases cover with dry leaves, but remember that the plants are sufficiently hardy to endure twenty degrees of frost, that is 12° above zero, and, therefore the quantity of leaves must not be so great as to keep the plants too warm, lest they damp off. As soon as the ground can be worked in the spring the plants should be taken out of the frame and planted out in some warm well sheltered spot, and cared for as if raised from seed that spring. A few plants can be left in the frame, and by drawing on the sash in chilly weather and at night, a few heads may be cut in advance of those in the open ground.

Do Plants Exhale Carbonic Acid.

Plants have commonly been thought to differ from animals in the gases which they secrete; the animals parting with carbonic acid, while the plant gave out oxygen. Dr. J. C. Draper, of New York, however, maintains that all living things, whether animal or plant, absorb oxygen and give out carbonic acid; and that the life of the plant is one continuous drinking in of oxygen gas. Having grown plants similarly nourished in the dark and in sunlight, he found that all the same parts were produced in both cases almost at the same time, and that the slightly slower evolution of the series grown in the dark is marked by a slightly smaller weight, while the same plant measured by night and by day grows slightly faster in darkness than in sunlight. The roots of plants grown under both circumstances throw out the same kind of excrement. Therefore, as the evolution and weight and root-secretion agree, he urges that the carbonic acid has been in both cases thrown off as a consequence of growth, and has never been absorbed by the roots and then given out a vapor from the leaves. In confervæ and fungi, which, like seedlings grown in the dark, never give out oxygen, he appears to think that the carbonic acid they seem to give off is really only the carbon of the air left around the plant as a consequence of the rapidity with which the oxygen is absorbed; and when plants are producing their flowers and seeds, the rate at which they seem to part with carbonic acid is greater than with many animals at any time. Oxygen is given off only from the green parts of plants and trees—the leaves, twigs, and young shoots; and only when the sunlight is falling on the leaves. Dr. Draper's argument might have been made even more convincing if he had availed himself of Boussingault's experiments, which showed that carbonic acid is decomposed day and night, by green leaves, in the ratio of one part by night, to about sixteen parts by day.—*Home Journal.*