

not crushed or pressed against too rudely in planting.

Some recommend the process of puddling, which consists in mixing up soil and water into a kind of thin paste, and dipping the roots of the plants in this; or, in the cases of larger things, planting them wholly in a hole thus prepared. As ordinarily pursued, however, the plants might as well be placed in mortar and cement; for, as soon as the mud dries, it becomes a hard cake, which neither water nor air can thoroughly penetrate, and which will partly or altogether prevent the roots from extending. If adopted at all, it should only be in some modified manner for such thing as cabbages and broccoli.

PRUNING.

Pruning is for the purpose of preventing extra luxuriance, of throwing plants into a flowering or fruit-bearing state, or of preserving some kinds from degeneracy. Very strong and very weakly shoots alike require most pruning; for the one class will be too vigorous, and the other too feeble, to be productive. But the sickly shoots of plants should be pruned back much closer than the luxuriant ones; for the object is to produce entirely new ones in the former case, while only shorter branches are desired in the latter, and pruning would merely tend to develop such as were similarly strong.

It is lateral branches and spurs that mostly bear flowers and fruit in some plants, and pruning is intended to multiply these. Hybrid plants and those of which the sorts have been greatly improved by culture, are such as chiefly require pruning. Stopping the *young*, tender shoots of many kinds may sometimes be preferable, as it hinders the plants from wasting their strength unduly. Even removing the buds that are not required to develop just after they have burst, may often be advantageously practised. Indeed, summer pruning is of more consequence than is generally believed for plants that will not bleed much, especially if they have to be trained, or if any particular kind of new growth is wanted. Late in the autumn, and early in the winter or spring, are, however, the principal times for pruning. It may be extended to the roots in certain cases, where extreme woodiness is wanted to be restrained.

FLOWERING AND FRUITING.

Both of these states are generally to be brought about where they do not naturally occur with sufficient readiness or force, by a series of checks. Whatever promotes strong or rank growth is decidedly against them. The perfect ripening of the wood, and in fact, the complete maturity of all the parts, such as a sunny summer and an exposed situation will produce, are necessary to the full development of these tendencies. Transplanting, withholding manure or water, judicious pruning, exposure to the sun and air, keeping the roots near the surface of the ground, slightly raising the plant above the general level, shallow soil, and thorough draining, are the best things to produce fertility, when it does not show

itself at the usual period; and, with the exception of stinting the supply of manure and water, they will be beneficial at all times. Deep planting or imperfect drainage, are exceedingly bad; and manure will ordinarily be adverse to flowers. For plants in pots that are prone to become too vigorous, cramping the roots, diminishing the supplies of water, and putting them a good deal in the open sunshine, will do much towards restoring them to the desired condition.

SHELTERING AND PROTECTING.

Shelter from winds should be given by loose and meshy, not solid materials. Trees and shrubs are better for the purpose than walls, as they stop the force of the currents, while walls only divert it and increase its power. Hurdles filled in loosely with reeds or rough laths, or branches of pine or spruce, are also preferable, in form of shelter, to closely boarded ones, for the same reason.

Shade from the sun's rays should, in like manner, be thin and partial only. A few fir branches stuck around the plants to be shaded, or some very thin canvas or gauze stretched over it, will generally suffice; the object being merely to break the extreme power of the sun's rays, and not to shut them out entirely. Anything dense or opaque is therefore objectionable. Mulching applied over the roots, to keep the soil very moist, will be a good substitute for a shade in some cases. Plants rarely want shading, unless when they have been newly removed or are in bloom.

Protection from frost may be secured by simply intercepting the radiating process. Whatever keeps plants moderately dry at the roots will greatly help to protect them; for frosts act far less upon them at that time than when they are in a wet state. A temporary pent-house or a small tent-like canopy, open at the sides, will occasionally be sufficient both to keep plants dry and prevent radiation. But in very severe weather they may be covered up more closely, bearing in mind that the point always to attain is to stop radiation rather than to communicate additional heat.

When plants, by a sudden occurrence of frost or any other accident, become slightly frozen, and their tissue is not actually destroyed, they may be saved by watering them with cold water just before sun-rise in the morning, and covering them over with a mat or other object which will keep them in the dark until they have gradually thawed. The design is to prevent the sun from shining upon them until they are quite restored.

ROTATION OF CROPS.

Such an arrangement as the change of crops becomes necessary because different plants exhaust the soil of particular elements, and are more or less gross and extravagant in their habits; so that where they have grown one year they will have so much withdrawn the kind of food they require as to be incapable of attaining any perfection on the same plot in the following season. Other kinds, however, coming after them, may not need anything like so much