



Budding and Grafting.

A CORRESPONDENT asks for information in regard to budding peach trees, and several request an article on the process of grafting. It is difficult to explain these operations to beginners, except by the aid of illustrations; with these, however, all becomes very clear and intelligible. Not having at hand the requisites to enable our artist to produce pictures of these processes from life, we have been obliged to search for suitable engravings of which to make copies, in publications on fruit culture. Those which follow, are taken, with the accompanying directions and explanations, from "The Fruit Garden," by P. Barry, of the firm of Elwanger and Barry, nurserymen, of Rochester, N. Y. While acknowledging our indebtedness to the work just named, we would take the opportunity of commending it as, on the whole, the best adapted to the circumstances and requirements of Canadian fruit-growers, of any publication within our knowledge. It is very simple, eminently practical, and gives the results of long experience in a climate and latitude very similar to our own. Those of our readers who desire a good manual of fruit culture, cannot do better than to procure this work. It treats first of general principles, and then of their practical application in the nursery, orchard, and garden. All needful information about the apple, pear, peach, plum, cherry, grape, and small fruits, will be found among its pages:

Budding.

This operation is performed during the growing season, and usually on young trees from one to five years old, with a smooth, soft bark. It consists in separating a bud with a portion of bark attached, from a shoot of the current season's growth of one tree, and inserting it below the bark of another. When this bud begins to grow, all that part of the stock above it is cut away, the bud grows on, and eventually forms a tree of the same variety as that from which it was taken. Buds may be inserted in June, and make considerable growth the same season, but as a general thing this is not desirable in the propagation of fruit trees. The ordinary season in the Northern States is from the middle of July till the middle of September, and the earliness or lateness at which a species is budded depends, other things being equal, on the condition of its growth.

Those accomplishing their growth early in the season are budded early, and those that grow until the autumn are budded late—thus the season extends over a period exceeding two months. In all cases, the following conditions are necessary:

1st. *The buds must be perfectly developed in the axils of the leaves on the young shoots intended to bud from.* This is seldom the case until the shoot has temporarily ceased to lengthen, as indicated by the perfect formation of its terminal bud.

If buds are wanted before this condition naturally arrives, their maturity may be hastened very much by pinching the tips of the shoots. In ten or twelve days after the pinching of a very soft shoot, its buds are fit for working.

2d. *The bark must rise freely from the stocks to be budded.* This only happens when the stocks are in a thrifty and growing state. Where only a few stocks are to be worked, they can be easily watered, if necessary, a week or so before it is desirable to bud them. Trees that accomplish most of their growth

early in the season, must be watched and budded before they cease to grow; those that grow very late must not be budded early, or the formation of new wood will surround and cover the buds; in gardener's language, they will be "drowned by the sap."

The implements needed are a pruning knife to dress the stocks, by removing any branches that may be in the way of inserting the bud; and a *budding knife* to take off the buds and make the incisions in the stock. The latter should have a very thin, smooth, and keen edge.

Strings for tying in the buds are either taken from bass mats, or they are prepared from the bark of the bass-wood. We always prepare our own; we send to the woods and strip the bark off the trees in June; we then put it in water from two to three weeks, according to the age of the bark, until its tissue is decomposed, and the fibrous paper-like inner bark is easily separated from the outer, when it is torn into strips, dried, and put away for use. Before using, it should always be moistened, to make it tough and pliable.

Fig. 2.

Fig. 3.

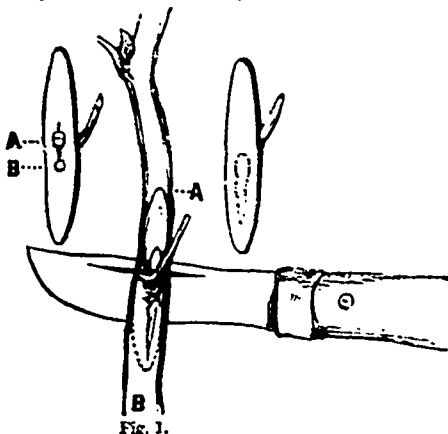


Fig. 1.

Cutting and preparing the buds.—Young shoots in the condition described, are cut below the lowest plump bud; an inch or two of the base of every shoot, where the buds are very close together, and quite small, should be left. The leaves are then stripped off, leaving half of each leaf stalk to handle the bud by.

Preserving the buds. When a considerable quantity is cut at once, they should be wrapped in a damp cloth as soon as cut and stripped of the leaves, and they may be preserved in good order for ten days, by keeping them in a cool cellar among damp sawdust, or closely enveloped in damp cloths, matting, or moss. We often send buds a week's journey, packed in moss slightly moistened, the leaves being off, the evaporation is trifling, none in fact when packed up, consequently very little moisture is needed.

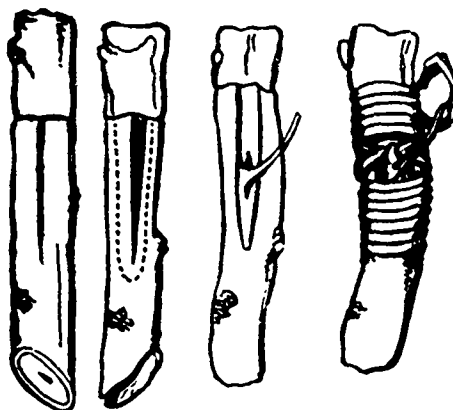


Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

Having the stocks, buds, and implements in the condition described, the operation is performed in this way:

The shoot to bud from is taken in one hand, and the budding-knife in the other, the lower part of the edge of the knife is placed on the shoot half an inch above the bud to be removed (A, fig 1), the thumb of the

knife-hand rests on the shoot below the bud (B), a drawing cut is then made, parallel with the shoot, removing the bud and the bark to which it is attached half an inch above, and three quarters below it. This is the usual length, but it may in many cases be shorter. The cut is made just deep enough to be below the bark, a small portion of the wood is always taken off with it, and if this adheres firmly it should be allowed to remain; if it parts freely, it should be taken out, but in doing so the root of the bud must be carefully preserved, for if it comes out with the wood, the bud is useless. The root of the bud, as it is termed, is a small portion of wood in the hollow part of the inside of the bud. Fig. 2 is a good bud, A, root of bud, B, root of leaf. Fig. 3 is imperfect, the roots of leaf and bud both out. A smooth place on the stock, clear of branches, is then chosen, where two incisions are made to the depth of the bark, one across the end of the other, so as to form a T, fig. 4; the bark on the two edges of the perpendicular cut is raised (fig. 5) with the smooth ivory handle of the budding-knife, and the bud is inserted between them (fig. 6); the upper end of the bark attached to the bud is cut square, to fit to the horizontal cut on the stock, the bass string is then wound around tightly, commencing at the bottom, and covering every part of the incision, leaving the bud itself, and the leaf-stalk, uncovered (fig. 7), the string is fastened above the horizontal cut, and the work is done. The success of the operation, as far as its execution is concerned, depends, in a great measure, on *smooth cuts, an exact fit of the bud to the incision made for it, secure close lying, that will completely exclude air and rain water, and the quick performance of the whole.* The insertion of a bud should not, in any case, occupy more than a minute; ordinary practised budders will set two in that time, and often two hundred in an hour with a person to tie. Where the stocks and buds work well, two thousand is not an uncommon day's work in our nurseries, especially of cherries, peaches, and apples.

Where only a few buds are to be set, a cool, moist day or evening should be selected, as they will be more certain of success than if inserted during the middle of a hot, dry day.

The chief difficulty experienced by beginners in budding, is the proper removal of the bud. When it happens that the knife passes exactly between the bark and wood, the bud cannot fail to be good; but this rarely happens—more or less wood is attached, and the removal of this is the nice point. Where the buds are flat, the difficulty is less than when they have large prominent shoulders, as the plum and pear have in many cases. When all the wood is taken out of these, a cavity remains, which does not come in contact with the wood on which the bud is placed, and therefore, although the bark unites well, the bud will not grow. Sometimes, such as these are separated by making an incision through the bark; lift the edge of the bark attached to the bud with the knife, and push it off with the fingers. A safer way will be to cut around the bud and draw a strong silk thread between the bark and wood, thus removing the bud in perfection.

Grafting.

The methods described below are those universally adopted, with slight modifications, by the best practical propagators everywhere at the present day.

Stocks are of all ages from a yearling seedling to a tree forty or fifty years old; but of whatever age, they must be sound and healthy.

Scions are generally shoots of the previous year's growth. Rarely those bearing fruit buds are used for the purpose of experiment, but in such cases only. They should be cut in the autumn after the fall of the leaf, or in the winter, and be preserved carefully in earth till wanted for use. If intended for root-grafting early in the spring in the house, it will be sufficient to bury their lower ends in earth, in a cool, dry cellar; but if wanted for out-door grafting, they should be buried in dry sandy soil, in a pit on the north side of a wall or fence, and deeply covered with earth drawn