

### INOCULATION, OR BUDDING.

The object in budding is the same as in grafting, and depends on the same principle; all the difference between a bud and a scion being that a bud is a shoot or scion in embryo.

*Advantages of Budding.*—Budded trees are generally two years later in producing their fruit than grafted ones; but the advantages of budding is that, where a tree is rare, a new plant can be got from every eye; whereas by grafting it can only be got from every three or four eyes. There are also trees, which propagate much more readily by budding than grafting; and others, as most of the stone fruits, are apt to throw out gum when grafted. When grafting has been omitted, or has failed, in spring, budding comes in as an auxiliary in summer.

*Season of Budding.*—The operation of common budding is performed any time from the beginning of July to the middle of August; the criterion being the formation of buds in the axillæ of the leaf of the present year. The buds are known to be ready by the shield or portion of bark, to which they are attached, easily parting with the wood. The buds preferred are generally those on the middle of a young shoot, as being neither so apt to run to wood as those at the extremity, nor so apt to lie dormant as those at the lower end. In some cases, however, the buds from the middle and extremity of the shoots are to be rejected, and those taken which are at the base of the annual shoots, as Knight (*Hort. Trans.* vol. iii. p. 135) found in the case of the walnut tree. Scallop budding may be performed in the spring, or at any season.

“*Stocks for budding* may, in general, be much smaller than for grafting, as the operation may be performed on the same year's shoot. But it may also be performed on shoots or stems of several years' growth, and in such, by inserting a number of buds, a complete tree may be formed at once. Scallop budding may be performed on trees of considerable age.

“*Choice of buds.*—For grafting the shoots containing the buds, a cloudy day, or an early or late hour, should be chosen, on this principle, that the leaves, being at these periods in a less active state of perspiration, suffer least from being separated from their parent plant. They are preserved fresh, and may be sent a great distance by inserting their ends in water or moist moss; though in general they should be used as soon after gathering as possible; indeed, as in grafting and inarching, the whole operation ought to be performed with the greatest celerity.

*Kinds of budding.*—Professor Thoinin enumerates twenty-three species and varieties of budding; but we shall here describe only four, of which but one variety is in general use in Britain.

*Shield-budding, or T budding,* is thus performed:—Fix on a smooth part on the side of the stock, rather from than towards the sun, and of a height depending, as in grafting, whether dwarf, whole or half standard trees are desired; then, with the budding-knife, make a horizontal cut

across the rind, quite through to the firm wood; from the middle of this traverse cut, make a slit downward, perpendicularly, an inch or more long, going also quite through to the wood. This done, proceed with all expedition to take off a bud; holding the cutting or scion in one hand, with the thickest end outward, and with knife in the other hand, enter it about half an inch or more below the bud, cutting near half way into the wood of the shoot, continuing it with one clean slanting cut, about half an inch or more above the bud, so deep as to take off part of the wood along with it, the whole about an inch and a half long; then, directly with the thumb and finger, or point of the knife, slip off the woody part remaining to the bud; which done, observe whether the eye or germ of the bud remains perfect; if not, and a little hole appears in that part, it is improper, or, as gardeners express it, the bud has lost its root, and another must be prepared. This done, placing the back part of the bud or shield between your lips, expeditiously, with the flat haft of the knife, separate the bark of the stock on each side of the perpendicular cut, clear to the wood, for the admission of the bud, which directly slip down, close between the wood and bark to the bottom of the slit. The next operation is to cut off the top part of the shield, and protrude granulated matter between it and the wood, so as to affect a living union. The parts are now to be immediately bound around with a ligament of fresh bass, previously soaked in water to render it pliable and tough, beginning a little below the bottom of the perpendicular slit, proceeding upward, closely round every part, except just over the eye of the bud, and continue it a little above the horizontal cut, not too tight, but just sufficient to keep the whole tight, and exclude the air, sun, and wet.

*Scallop-budding* consists in pairing a thin, tongue-shaped section of bark from the side of the stock; and in taking a similar section from the shoot of buds, in neither case removing the wood. The section or shield containing the bud is then laid on the corresponding scallop in the stock; its upper edge exactly fitted, as in shield-budding, and at least one of its edges, as in whip-grafting. After this, it is tied in the usual way. The advantages of this mode are, that it can be performed when the wood and bark do not separate freely; on trees having very stiff, thick, suberose (cork-like) barks, and at any season of the year. Its disadvantages are, that it requires longer time to perform the operation, and is less certain of success. The French gardeners often bud their roses in this manner in spring; and if they fail, they have a second chance in July, by using the common mode.

*Budding with double ligatures* is a mode invented by Knight, and described by him (*Hort. Trans.* vol. i. p. 194) as “a new and expeditious mode of budding.” The operations are performed in the manner first above described; but, instead of one ligature, two are applied, one above the bud inserted on the transverse section through the