

formed with a sharp knife, that the vessels and pores may be cut smoothly and evenly, and the two parts be brought into immediate and even contact. *Secondly*, that the operation be so contrived that a permanent and considerable pressure be applied to keep all parts of these cut faces closely together. *Thirdly*, that the line of division between the inner bark and the wood, should coincide or exactly correspond in each; for if the inner bark of the one set wholly on the wood of the other, the upward current through the wood and back through the bark, is broken, and the graft cannot flourish or grow. And, *fourthly*, that the wounded parts made by the operation, be effectually excluded from the external air, chiefly to retain a due quantity of moisture in the graft, but also to exclude the wet, until by the growth of the graft the union is effected.

1. The first requisite is best attained by keeping a keen, flat-bladed knife to cut the faces, and another knife for other purposes.

2. The second requires that the jaws of the stock in cleft-grafting, press with some force, but not too much, against the wedge-shaped sides of the graft. A stock one-third of an inch in diameter will some times do this sufficiently; three-quarters of an inch is a more convenient size. In whip-grafting, the tongue and slit should be firmly crowded or bound together.

3. The third requisite is attained by close examination.

4. The fourth is accomplished by plasters of grafting-wax, and by the application of grafting-clay. Grafting wax may be made by melting together one pound of beeswax, two of tallow, and four of rosin.\* It is spread, when melted or softened, on muslin or thin unsized paper, with a brush or spatula. It is sometimes applied without plasters,

\* More wax and less rosin is less adhesive to the hands, but more expansive.

in which case it should be worked with wet hands, until it may be drawn into ribbons of wax, which are wrapped round the part. In all cases it should be applied closely, so as to allow if possible no interstices, and covering cut or split surface otherwise exposed to the air. In cool weather, a lantern, chafing-dish, or hot brick, is necessary to soften the plasters before applying them.

The annexed figures represent the two most common modes usually adopted for fruit trees; fig. 37, representing whip-grafting, which if well performed with the parts closely pressed together, needs no ligature to keep the graft in its place; and fig 38, the common mode or cleft-grafting, which except for small stocks is generally found best and most certain of success.

Fig. 37 Fig. 38.



It is hardly necessary here to mention that propagation by grafting and by cuttings is to be performed early in spring before the buds swell; and that the grafts or cuttings may be cut late in autumn or any time during winter, provided the natural moisture is preserved until used. A convenient mode of thus preserving them, is to wrap or imbed them in damp, not wet moss; or bury them in a box, beneath the surface of a dry spot of earth, the box to be open downwards, and the grafts to be kept from contact with the earth by sticks across the inside of the box.