

GRAFTING.

What is Grafting?—Almost every one knows that a cutting, or piece of the stem, of many plants, if placed in the soil, will take root, grow, and become a new plant. In grafting, we take a piece of a stem, and instead of putting it in the soil, we plant it in the branch of another tree. Let us saw off a branch of an apple tree, and take a twig, say as large as a lead-pencil from another apple tree, whittle the lower end of it to a chamfer, or half of a wedge, for an inch or more, then carefully, by means of a wedge, push the bark of the branch away from the wood, and slip the twig with its cut part innermost, between the bark and wood, cover all the cut parts with some kind of an air-tight plaster, we shall essentially plant the twig on the branch. It will not take root, but wood will form and unite the two, putting the twig in communication with the roots of the tree. This is one kind of grafting, but a kind not suited to general use, though it illustrates the principle.

Why do we Graft?—To plant twigs of a kind of fruit that we know and want, upon the roots of a kind that we know nothing about, or of an undesirable kind. In the nursery, seeds of unknown kinds of apples, pears, etc., are sown; if these were allowed to grow up, they would in ten or more years bear fruit, but very likely poor fruit, and each seedling different. The nurseryman takes up these young trees, cuts them off nearly to the root, and grafts, or plants on them a twig of a well tested and valuable kind. This is the usual way of making apple trees in the nurseries. If the seedling tree is allowed to grow up and branch, then a graft may be put in each branch, all the rest of the tree being cut away, allowing no growth from the grafts to form the head.

What is needed in Grafting?—Several things. 1st, Something to graft upon, which is called the stock, whether it is a year-old seedling, or tree 20 or 30 years old. 2nd, The graft, or cion, which should be of a desirable kind of fruit. 3rd, Some air and water-proof material, to cover the wounds that must be made, until they heal over. 4th, The tools for doing the work, and, 5th, the knowledge and skill to use the tools. Let us notice each separately:

The Stock.—At this time we will notice only the grafting of old trees, or those that have reached a considerable size. A tree that is only one or two inches through, may be cut square off and grafted, at the height of 3 or 4 feet from the ground. Large trees must not be renewed all at once, but the operation extend over two or three years, grafting the branches near the centre first. Select branches with a space free from knots, and from 1 to 4 inches thick.

The Cions are best cut in early winter, but may be taken at any time before the buds swell, keeping them cool in damp sawdust or sand, until wanted. They should be straight, healthy twigs, of the previous season's growth.

Covering Material.—Several kinds are used; we give that which we have found to be the best and least trouble, which is waxed cloth. Melt together beeswax, 2 parts; resin, 2 parts, and tallow, 2 parts, in an iron skillet kept for the purpose. Melt very gradually over a slow fire, and stir together thoroughly. Some old muslin or calico will be needed, an old dress or sheet will answer, if so much worn that it will tear easily. Tear this into strips 1/2 to 1 inch wide, for small work, up to an inch for larger, or the strips may be two or more inches wide, to be torn smaller, as needed; they may be as long as the material will allow.

Wind the strips on a stick, as seen in figure 1, laying it on regularly, and removing any loose threads, as the winding proceeds. When one strip is wound on, take another, putting its end under that of the first strip, as seen in figure 1; this saves much trouble in unwinding. When the roll is of convenient size, about



Fig. 1.

2 1/2 inches through, fasten the end of the last strip with a pin. Furnish the end of the stick with a wire, to hang it by. Have the melted wax ready and put in the roll of cloth, keeping the wax hot enough to be liquid and penetrate every part of the roll. When the roll is thoroughly soaked through, hang it up over or near the stove, and allow it to drain, catching the drops in the vessel. When it no longer drips, hang it away to cool. Prepare what rolls may be needed, as, if kept away from the dust, the waxed strips will keep for some months. Also keep the wax in the skillet covered.

The Tools required are: a saw with fine teeth, set rather wide; a strong knife, and a smaller one, both very sharp, a wedge of iron or hard wood, a wooden mallet, and, if much work is to be done, a grafting knife or chisel, fig. 2. This has a thin blade and a

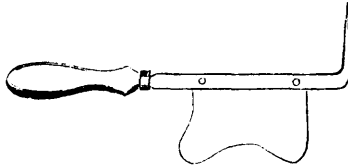


Fig. 2.—GRAFTING KNIFE.

strong back, the end of which turns up to form a wedge; the use of this knife will be shown presently. The wax strips, a lump of tallow, and some old cloths, for wiping the hands, may be included, which can be carried in a basket, unless one has

An Orchard Box, which will be found very convenient to hold all the implements required in

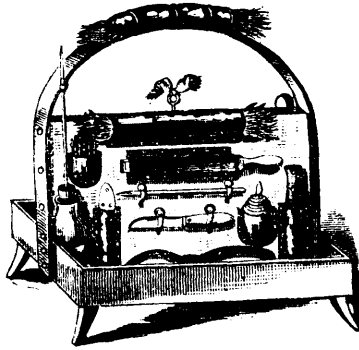


Fig. 3.—ORCHARD BOX.

working among trees and vines in the orchard or fruit garden. Figure 3 shows a box, from a drawing sent several years ago, by a very ingenious correspondent in Pennsylvania, and holds all the appliances required in pruning, grafting, budding, and the like. It is a shallow box on legs, with an upright partition under the handle. Some pouches and loops of leather and springs of hard wood keep the things in place. This box shows a lot of bass-strips, wrapped in oil-cloth, on the handle; on the partition is another case of strings, a pouch of grafts, a bottle of shellac varnish, (see notes for last month,) a heavy knife, and two smaller, with a hone to sharpen them, a roll of waxed strips, a pencil, etc. The saw, mallet, grafting chisel, labels, and other needed articles may be put in the bottom of the box. We have found a shallow basket, fitted

with partitions, very useful in the garden, and any handy person can fit up a box or basket, according to his work, that will save much running for and search after tools.

An Apron will be useful; figure 4 gives a pattern for one, with pockets at the breast, which will come handy when working in the tops of trees. The

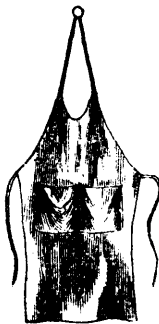


Fig. 4.—APRON.

stick of waxed strips may be hung from a button above one of the pockets.

When to Graft.—The best time is when the stock is just starting into growth, as shown by the swelling buds. If grafts are set before this, they are exposed to drying winds long before any union can take place with the stock. Peaches at the North do not succeed well when grafted. Plums do so fairly, when done very early. Apples and pears may be grafted from now up to blossoming time, but great care is required in later working.

The Kinds of Grafting are many, some curious kinds being given in the French works on the subject. We can now give only the two most in use, one for small, and the other for large stems.

Budding differs from grafting in being done with a single bud, instead of a cion with several buds, and late in the season, when the buds have formed.

The essential point in grafting is to bring the inner barks of stock and cion into as perfect contact as possible. The growth of woody stems takes place between the wood and the bark; the wood increasing by layers on its outside, the bark by new layers on its inside; here then is the place where the work is going on, and new wood is formed to unite the cion with the stock. In every style of grafting, this part of the cion must touch somewhere—and the more the better—a similar part in the stock.

Splice and Whip Grafting.—If the cion and stock are of precisely the same size, and each is cut with the same slope, (fig. 5,) and the cut surfaces put together and bound, it is evident that the growing parts of both will have a wide contact, and be very sure to grow. The difficulty with this, the "splice graft," is, that the parts are easily displaced. After cutting the slopes, as in figure 5, split each cut surface, as in the right hand of figure 6, then put them together, as shown at the left hand, and we have the "whip graft," one of the most servicable kinds for small work. The notches not only help to hold the parts firm, but increase the surfaces in contact, and will rarely fail. If the stock is larger than the cion, if the parts on one side are carefully brought together, it will succeed, and may be practised on stocks even an inch thick. Only a sharp knife is needed for this.

To Wax this Graft.—Tear off a piece from the waxed strip, and, beginning well below the cut, wrap each layer slightly lapping the one below, as seen in figure 7, putting on the cloth so that it will adhere closely to the bark and to itself; after winding, slightly grease the thumb and finger, and smooth the waxed strip, rubbing in the direction of the turns, this will blend the whole into a perfectly water-tight and air-tight covering. But most frequently we have the stock larger than the cion, especially in grafting over old trees, and then use the oldest kind of grafting.



Fig. 5.

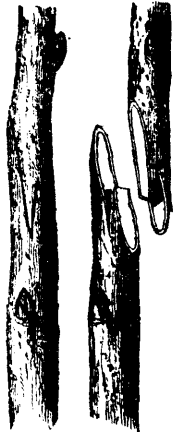


Fig. 6.

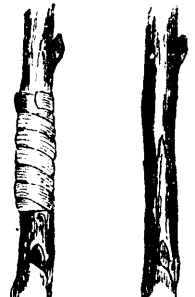


Fig. 7.