

ing may be prepared previous to performing the work. The grafting-clay is prepared by collecting a quantity of stiff clay, and moistening it with water to the consistence of stiff mortar; into this a quantity of short cut horse hair, moss, horse droppings, or other substance may be mixed to thread it together in a manner that it will act as a plaster, not to be easily removed from the tree by rain, sun, or other cause, when once put on. This composition, if well made, is the best, and will be found to answer any kind of grafting.

There are many other kinds of composition made for the purpose of covering grafts, of which bees-wax is the principal; in some instances it is the only thing used, as on small orange trees and those plants that are cleft-grafted, and united in a moist heat. It is used by melting and putting it thinly over the wound with a brush, or even the finger. A very good composition is made by mixing a portion of bees-wax, pitch and glue, with a little hog's lard, and well boiling it together in an earthen pipkin. When used, it is laid on with a brush hot, but not so as to scald the bark.

In the act of grafting, fix on a clean part of the stock or branch to be worked; sawing off the branch in a clean manner, then paring the wound with a sharp knife, being careful not to bruise the outer bark: this done, prepare to make a cleft by placing a straight, stiff bladed knife directly across the centre of the cut, and with a mallet or other tool cleave the crown two or three inches. Having made the cleft, open it by driving down the centre a narrow wedge of iron far enough to open the sides sufficient to receive the grafts, which are prepared by cutting them in lengths about six or eight inches long—cutting the bottom ends downwards, on each side, in the form of a wedge, and so that it fits neatly in the cleft, into which it is to be gently pressed downwards, being careful that the barks of the graft and the stock precisely meet. The cleft part is now to be covered in such a manner that neither sun nor air can have access to the parts of the graft and stock to prevent their speedily uniting. The clay is put on with the hands and closely united to the bark by pressure. When neatly done, it should have the appearance of an egg, and should let off the water freely that may settle on it.

WHIP-GRAFTING is generally performed on small nursery stocks, and although not generally practised in this country, I think it a mode highly commendable for the plum and cherry, grafts of which generally do well on small stocks.

The method of performing whip-grafting is by cutting off the stock at the place selected, in a clean sloping manner; then, with a sharp budding-knife, from the smooth part next to the lowest part of the cut, shave off the bark and wood about two inches long, beginning at the bottom by drawing the heel of the knife gently in the bark and gradually cutting deeper in the wood until the blade is drawn out at the top. The graft is prepared by cutting it in a sloping manner in a reverse position, so that when placed on the cut of the stock it forms a neat splice. Some gardeners recommend cutting a thin tongue in the graft upwards, and in the stock downwards; these two tongues are united in the stock and the graft by pressing the latter downwards into the former; when the union is effected the outer bark of the graft and stock will precisely meet, and the splice in every way exactly fits; this indeed is the grand art in performing the operation. When the graft is set, it is to be bound with bass-string, beginning at the bottom and winding it upwards in a gradual manner. When the graft is bandaged, it is to be covered with clay or other composition in the same manner as directed for the cleft-graft.

ART. 6.—Inarching.

Although inarching more properly belongs to the green-house than the fruit depart-

ment, it will be necessary to say a few words on the subject in this place.

The object of inarching is to form a choice and speedy union of any choice variety of hard wooded plants or trees on to a wilding or stock of the same genus or species; and the practice is generally adapted to those kinds that do not speedily unite by engrafting; this is greatly facilitated by inarching, as the parts are always united, and a continued flow of sap almost always insures a certain union.

The practice of inarching is simply done by planting or placing a number of the stocks to be worked around the tree to be worked from, in such a manner that the branches can easily be united together.

The operation is done in the spring about the same time as grafting—when the sap begins to rise in the tree is a proper time. The work is done by bending a shoot from the tree intended to be worked to the stock, where it is to be united in the following manner: Place the part of the shoot to the stock, then with a sharp knife pare off part of the branch and stock so as to make a neat splice in precisely the same manner as the whip-graft; the part united is then to be bandaged and covered as the graft, and in every way managed in the same manner.

EXPERIMENTS IN THE CULTURE OF POTATOES.

MESSRS. GAYLORD & TUCKER—I have been a constant reader of the Cultivator from its first number, and have always esteemed it a highly valuable periodical, but among the very many instructive communications in that valuable work, I occasionally find interposed, articles which are not calculated to lead to any satisfactory result. I allude to such crack articles as give the extraordinary weight of a calf, six months old, without telling us how many cows he sucked, and what other feed he had received, and the great weight of a yearling short horned bull, without stating the amount of milk, meal, roots, &c., he had consumed. Now, if such correspondents had, at the same time, taken a calf of some other good breed and given him food, equally in quantity and quality with his pet, we might arrive at some conclusion as to the relative value of the two breeds; but my principal object in this communication, is a passing notice of some of the reports on the Rohan Potato,—as also an experiment made by myself, with the Rohan and three other varieties of the potatoe.

I shall not undertake to write out the several reports on the Rohans; several of them however, run thus or nearly so:

From 2 Tubers I raised 24 bushels.
“ 1 “ “ 24 “
“ 1 “ “ 24 “
“ 1 “ “ 2 “
“ 2 “ “ 2 “

In the abovelist of experiments, some have stated the number of eyes in each tuber, and the number of hills planted; but have not stated the distance between the hills, so that the produce per acre cannot be ascertained. Again, few describe the soil and the quantity and quality of manure applied, and none that I recollect, have tried any other variety along side of them, with the same soil, manure and treatment: so that nothing can be decided as to the relative productiveness of the different varieties. Again, they generally give the amount of the product, from the amount of seed—now, before I begin with my experiment, allow me to state one, made by one of my neighbors, with the potato called the *Irish Cups*. It was not a trial for a great yield from a given quantity of seed; but to settle the question whether potatoes could or could not be produced without the eyes of the potato. He took two tubers, of the *Irish cups*, of medium size, cut them into thin slices, cut the slices crosswise, both ways, leaving the pieces about the bigness of a large pea, and planted them in a rich moist, leamy soil, well manured. They were

a long time in coming up, and when they did come, the plants were very small, and for some time apparently feeble; but they began to grow and soon attained the usual size of potato tops; and when they were dug, the produce was fifteen bushels of *Irish Cups*, which is a greater yield from two tubers than any recorded in the Cultivator. Still it proves nothing, for he never stated how much ground he occupied, nor did Mr. Jackson, of Wellsboro, Pa., (last vol. Cult., p. 12,) whose increase was 214 fold. Now, if the two *Irish Cups* planted by my neighbor weighed a pound, which I presume they did not, the increase must have been 900 per cent or 900 fold, which puts Mr. Jackson's *Rohans* in the back ground; but all this only goes to show how illusory all such experiments are, without a comparison with other varieties, and with equal treatment.

Now to my experiment. I purchased a farm twenty-five years ago, which is situated about seven miles from my residence in Waterford, and have let it on shares ever since, (keeping the direction of it in my own hand.) I divided my wheat land into three equal portions as nearly as was convenient, leaving the residue of the farm for meadow, corn, and other uses, and put my wheat land under a three years course of cultivation, i. e. one year under wheat and two years under clover, applying plaster to the clover during the two years pasturage, to which use it was constantly applied until plowed up for the wheat crop. Under this course of management, in a few years the land was brought from a state of perfect exhaustion to a pretty high state of cultivation. The plot of ground on which I planted my potatoes is on an elevation, and a part of one of the wheat fields, and had been under the above course of management for 25 years—it contains about three acres, is perfectly level, the soil loam, on a subsoil of marly clay, and was under two years sod. It had never received a shovel full of manure since it was cleared some fifty years ago, except the plaster which had been put on to it during the aforesaid course of management, and what was dropped by the cattle while feeding off the clover—there is not a shade on the plot, nor any locality to invite cattle to visit or beat upon one part more than another of the piece; the soil was therefore perfectly uniform.

In May last, the ground was plowed, after the grass had been closely fed off, harrowed and furrowed both ways with the plow, as evenly as possible, and planted with potatoe the seed rolled in plaster, or gypsum, to be a little more technical, and in the following order, to wit: four rows of *Rohans* through the middle of the plat, and in contiguous rows on each side, the three other varieties i. e. *merinos*, flesh colored and *Orange* potatoes.

At the proper time the plow was passed between the rows, both ways, and dressed out with the hoe once only. The season was so dry that in our region the potato was considered but about half a crop. With my tenant we dug and accurately weighed 12 hills of each kind, and by an accurate measurement, ascertained the number of hills in a rod, and by the weight of the 12 hills ascertained that of the rod, and by 16 rods, the weight on an acre. That weight divided by 60 lbs. gave the following results per acre:.

Merino	364 4-5 bushels to the acre.
Flesh colored	336 “
Rohan	322 4-5 “
Orange	288 4-5 “

Thus, gentlemen, you have the result of my experiment, which was conducted, with the greatest possible accuracy and care. Now, whether the proportions (of the yield) would have been similar if they had been planted in other soil and heavily manured, I certainly cannot decide; all I go for is, that when experiments are made to test the relative productiveness of different varieties of the potato, they should be put side by side and honestly treated alike. S. STEWART.