FOUNDED 1866

ting. in a fresh, plump condition,

they will rot.

STOCK.

h or tree onto which the scion e, important as providing the oply for future growth of the nost important consideration the future usefulness of the anches on which to graft the should be two inches or line as possible over three inches ibs as large as five inches in is is done by bark grafting 14 of the diagram. Where a usual way, by cleft grafting scion is too great to admit ches for grafting should be aving the finished tree sym-, which means that the grafts y. Figure 15 in the accom or less misleading and should n the first place it shows too ldition, implies several grafts of the tree. Grafts should will be wholly worked over to illustration there is too much of the old variety to develop Some of the smaller branches he tree would make suitable of the large stubs as shown, ing should not point toward should not be growing in the which is to be retained.

THE GRAFT.

left grafting is the method orking, and figures 1 to 4 ollowed in making the graft. the stock fairly close to the it springs. It is necessary if there is no other branch advantage, the stub should at if the graft does not grow be shortened and another As a general rule the limb one is ready to put in the rder to save time in a busy f in the winter m**onths with** nger than desired, and these



19

FIG.

d by every orchardist.

MARCH 11, 1920

merely shortened again when the grafting is done This has the advantage, where it may be done safely, of allowing opportunity to remove the brush, in addition to saving some time, but in this northern climate, and especially in the larger and cooler apple sections of Ontario, it may be dangerous unless it is left until only a

short time before grafting, because the limbs are apt to dry out and the whole tree thus be spoiled. Cleft grafting is so called because the graft is inserted in the stock by means of a cleft made across the freshlycut surface of the latter as shown in figure 3. This cleft is made by means of a grafting knife and a mallet. the former being easily made by a blacksmith out of an old rasp and fitted with any suitable handle. One edge of the rasp can be pounded out to an edge for part of its length, and this ground or filed sharp so that it can be driven into the stock easily. The end of the rasp is then turned up to a narrow wedge shape so that once the cleft is made the knife can be withdrawn and the wedge inserted as in figure 3 to hold open the cleft while the scions are being placed properly. The cleft should not be made too deeply, because it is not desirable to have more wood surface exposed than necessary, and later when the time for waxing comes the shorter the cleft can be made the less waxing there will be to do. It is not necessary to have any special mallet for grafting, because it is impossible to get anything more convenient or efficient than a short piece of apple limb about 21% inches in diameter and a foot long. A hole can be bored through one end of this and a string fastener put on so that after making the cleft the mallet may merely be dropped from the wrist, or, it may be hung on a small limb until wanted.

With the cleft made and held open with the wedge of the grafting knife, the next step is to cut the scions. These, it will be remembered, were cut in whips from last year's growth. One whip as cut from the tree may make several scions, each of which should bear at least two and preferably three strong buds. The scion requires some shaping before fitting it into the cleft, and usually this is done before cutting it from the The shaping required is shown in figure 8, which shows a two-bud scion cut wedge-shaped. The wedge is made with a small, very sharp knife, preferably a regular budding knife, which, when properly sharpened, will leave a smooth cut behind it. The idea is to make the wedge with two cuts, leaving one edge of the wedge thicker than the other for reasons that will be noted later. It is also important that the thick edge of the wedge shall be immediately under the lower bud, and it is advisable to start making the wedge just about even with this bud. In cutting the scion from the whip it is not advisable to cut too close totheltop bud for fear of drying out the wood and injuring the bud. Cut the scion away about a quarter inch above the top bud.

THE PART THE CAMBIUM PLAYS.

Now that we are ready to actually set the graft, we must understand fully the significance of the grafting operation, or failure is almost certain. Between the bark and the wood is a thin layer of meristematic or growing tissue, which throws off wood on one side and bark on the other. It is from this thin greenish layer that all new wood and bark is made, and hence if the scion and stock are to grow together so as to form a union the cambium of stock and scion must be brought into contact with each other. This can be done very easily, but one must know just in what part of the branch it lies, because one cannot see to put the two together. To bring about this union of the two cambiums is the set in the position shown by figure 4. It will be noticed that two scions but no more can be set in each cleft. This is because with each cleft there are only two places in it where the cambium layer is exposed. The scion is set well down into the cleft so that the lower bud faces outward and is about level with the top of the stock. If, instead of placing the scions quite upright as in figure 5, they are given a slant outward, the union between the two cambiums is surer to take place. After the scion is set, the grafting knife is withdrawn and here we see the value of making one side of the scion-wedge thicker than the other. When the cleft comes together and presses on the scions so as to hold them in place, the thick edge of the wedge makes sure that the pressure comes where it is needed-that is at one edge of the wedge where the cambium of the scion is.

THE FARMER'S ADVOCATE.

into a vessel of cold water and pulled like taffy as soon as it can be handled. If the resin is thoroughly melted and the pulling continued long enough, a clean, creamy, pliable wax will be secured. In pulling, the hands should be well greased or oiled and when grafting it is well to carry a small quantity of the linseed oil to the orchard, because if the weather is cool the wax may stiffen if unused for some time, and a little oil worked into it will make it pliable again without an unneces sary amount of working. A good grafting wax will not crack when on the tree, or else the air will reach the wound before it is healed over. At this point it is well to mention that in addition to scion, balls of grafting wax, grafting knife, mallet and knife for cutting scions, the grafter should carry with him a sharp pruning saw (not one with a double cutting edge) and a pair of hand pruning shears.

AFTER TREATMENT OF TOP-WORKED TREES.

Since the object of top working trees is to get rid of all the old fruit-bearing wood and replace it with new wood from the grafts, it is evident that, ultimately all the old top must be cut away. Only enough should be cut away the season the grafting is done to give the scions a good chance to grow. Many scions are lost or die because they did not get a chance to live, due to the greater ability of some strong branch left nearby to get the sap sent up from the roots. On the other hand too much top should not be cut away for fear of inducing sun scald. If possible the new grafts should receive partial shade at least during the summer and about 3 or 4 years should be taken to remove all of the old top

Of the two scions in each stub, only one should be left finally. If both grow one should be cut out after the union has been well made and the wound at least partially healed over. Future pruning of the graft is more or less like that of a growing tree. It should never be allowed to develop mainly toward the centre of the tree, and it is well to remember that grafts have a tendency to grow upward. During the first summer at least it is well to examine the new grafts and remove any nearby shoots or branches that are interfering with their growth.

FARM BULLETIN.

The Debate in the House of

Commons.

The feature of the week in the House of Commons, at Ottawa, has been the debate on the address in reply to the speech from the Throne. Considerable interest was aroused by virtue of an amendment to the address proposed by the Honorable W. L. Mackenzie King, leader of the Opposition, who claimed that the speech from the Throne disclosed an entire absence of proposed legislation, on the part of the Government, which would deal with the various questions that are foremost in the thought of the country at the present time. Further, King said, "it is because the people of the country are believing that the Government does not represent the will of the people that we hear the demands that we wish to voice: the need for a new Parliament and a new Government." His resolution reads: "We respectfully submit to your Excellency that in the interest of the peace, order and good Government of this Dominion, such a condition of our public affairs should be brought to a speedy termination, and that the only effective remedy in an appeal to the election. We, therefore, respectfully represent that your Excellency's advisers should forthwith bring forward the promised Franchise Bill for the enrolment of the electors and give it precedence over all other business, and that upon the enactment of such a measure as may be necessary, and the making of temporary provisions for the urgent public service, they should take the proper constitutional steps to obtain your Excellency's approval of an appeal to the people at the polls.' Hume Cronyn, London, moved the address in reply to the speech from the Throne, and advised that borrowings of the Government should either cease altogether or be brought down to the irreducable minimum. It was his opinion also that every unnecessary expenditure should be ruthlessly vetoed and he said that deflation of swollen credits is more vital than the erection of magnificent public edifices, or memorials. Overmanning and duplication of work within the Government Departments should be abolished for the sake of economy, and the speaker suggested that a Bill dropped nine years ago, providing for the appointment of a permanent tariff commission, be reintroduced. He also believed that production should be aided by the encouragement of suitable immigration, and would restrict immigrants to those who would settle on the soil and become permanent citizens. He also favored a committee to consider proportional representation. The address was seconded by R. McGregor, Pictou, Nova Scotia, who dealt largely with the vocational training and land settlement of returned soldiers. The speaker strongly urged the development of the iron and steel industry in Canada. Following the leader of the Opposition, who followed the seconder of the address, Sir George Foster, Acting Prime Minister, largely devoted his time to a rebuttal of Mr. King's remarks. Referring to rumors of dissention within the Cabinet, Sir George said: "If he will take my word for it, let me say that there is not now. nor has there been since Union Government has been formed, any line of policy adopted on which the Government has not stood as a unit." With reference to the tariff, the Acting Prime Minister said he would like to know where the leader of the Opposition stood on the question. Referring also to the high cost of living, he said that a panacea for this had not yet been found, and that the only cure for the sick world was greater

455

On Wednesday, W. F. Cockshutt, Brantford, the high priest of protection in Canada, told the House that in his opinion the agrarian movement in Canada was dangerous to the future welfare of the country. He hoped the U.F. O.-Labor Coalition in Ontario would succeed, but did not think it could. Class legislation was bound to follow the formation of a farmers' Government in Canada. Thursday was farmers' day in the House, and Honorable T. A. Crerar proclaimed in plain language the policy of the farmers' movement in Canada. He favored the holding of an immediate general election, and declared that he and those who thought with him would vote for the Liberal amendment proposed by the Honorable Mackenzie King. Mr. Crerar explained that the tariff on implements used in production and on the necessaries of life should be removed, and said that there should be a genral revision of the tariff. He also favored boosting the tax on luxuries to somewhere about fifty per cent. of their value. At the same time he would impose an excise duty on luxuries manufactured in Canada and declared that protection is nothing more nor less than a form of state socialism. He thought the speech from the Throne was very meagre, and that problems never before met with now faced the country. Referring to the platform of the Canadian Council of Agriculture, Mr. Crerar said: "I challenge any honorable member in this House to take the platform of the Canadian Council of Agriculture, word by word and line by line, and see anything in it that is of a class character," and in reply to a question as to whether the present Ontario Government was fully representa-tive of every class, he said: "That Government of Ontario which contains eight farmers and one lawyer is just as representative of the people as the Government that preceded, which contained eight lawyers and one farmer." He further declared that it is not the policy of the farmers of this country to sweep away the tariff at one step, and said that "we are embarking on new national policies of one kind or another, and I believe that in a democratic country like this the people should have an opportunity to give expression to their views on these important policies and questions. There should be public debates from one end of the country to the other. After all, we are the servants of the public, and it is our business to reflect in legislation what the majority of the people of this country require."

T. W. Caldwell, Victoria and Careleton, New Brunswick, the new farmer member from the Maritime Provinces, believed that the opinion held by the farmer members represented the majority of the public of Canada to-day. O. R. Gould, the new farmer-member from Assiniboia, believed that the new national policy of the farmers' movement was big enough and broad enough for all classes in the Dominion to stand upon in the interests of a greater nation.

On Friday, Dr. Michael Clark, Red Deer, the lieu tenant of Honorable Mr. Crerar, who leads the agrarian movement; Major G. W. Andrews, representing the returned soldiers and labor element of Central Winnipeg; Thomas McNutt, Saltcoats; and Levi Thompson, Qu'Appelle, each favored an immediate election. Dr. Clark, who is probably the most eloquent speaker in the House of Commons, severely criticized Sir Thomas White, as Finance Minister, and in the course of his remarks regarding the tariff said: "Farmers hold these views because in Canada they were hit so hard by the tariff that they had to study economics and the result of the study of economics will be precisely the same among the workmen of the country, among the women of the country, and of both front benches in Parliament, if they had the same promptings to study that the farmer had.'

MAKING AND USING THE WAX.

The third essential to successful grafting is the use of wax to keep rain, air and other foreign substances out of the cut surfaces. This is applied much after the fashion illustrated in figure e, which, however, shows the use of more wax than is really necessary. All that is necessary is to cover closely all the top surface of the stub so that water will run off it easily and to cover also the sides of the cleft below the lowest bud of each scion, and as far down as the stock is split. Any extra wax applied is wasted, except that the tips of the scions should have a dab of wax to protect the cut surface there. The graft is now complete and ready to grow when the sap moves

There are several kinds of waxes that can be used. Originally, most of the waxes used to be liquid and were applied hot, but this method of waxing is too inconvenient for the average person. Probably the most satisfactory wax is made of four parts by weight of resin, two parts of beeswax and one part of tallow. A more pliable wax can be made for outdoor use in rather cool weather by using boiled linseed oil instead of tallow. Sometimes, in such cases, another part of resin is substituted for one part of beeswax. Grafting wax is simple to make, and requires only to have the ingredients melted thoroughly together, emptied quickly

Western Ontario Clay Workers and Drainage Men Meet.

The Western Ontario Clay Workers' Association and the Ontario Farm Drainage Association held a very successful joint convention at London, on February 24, 25 and 26. On the first and last days the Associations held their meetings separately, but combined on the 25th to hold a joint conference on matters pertaining to farm drainage. A very complete program was prepared and carried out by these two conventions. Authorities in Canada and the United States expressed their views on matters pertaining to the production of clay products, while the Drainage Association devoted a good deal of its time to consideration of farm drainage problems. On the evening of February 25 a splendid joint banquet was enjoyed by the delegates present, and at the conclusion everyone felt that a very profitable and instructive convention had been staged.

C. S. Parker, of London, Ontario, former President, retired and Wm. McCredie, Lyons, Ontario, was elevated to the presidency of the Western Ontario Clay Workers The First Vice-President is Alfred Association. Wehlann, Cairo, Ontario; second Vice-President, H. H. Hallatt, Tilbury, and the Third Vice-President, R. T. McDonald, Brigden; Secretary-Treasurer, G. A. Armstrong, Fletcher. A permanent fuel committee was appointed and made up of the following members: C. S. Parker, Chairman; Wm. McCredie, R. T. Mc-Donald, Alfred Wehlann and G. A. Armstrong.

The Ontario Farm Drainage Association elected the following officers: President, S W. Hyatt, Mt. Brydges; First Vice-President, J. E. Jackson, Downsview; Second Vice-President, W. Walsh, Florence; Secretary Treasurer, F. L. Ferguson, O.A.C., Guelph.