

Cutting Back.—Having selected the shoots which are to remain, and removed the others, cutting them off close up to the stem, it is necessary to cut them back. It will be observed that the buds on the upper end of a wood shoot are better developed than those near to the base. The object in view is to give the leader the start and to have it kept ahead of the rest; therefore, do not cut it back too much. Cut it amongst these buds towards the upper end, perhaps one-third of the length down from the tip.

In regard to the side branches, perhaps amongst those retained one or two are weak, and one or two are strong, these latter, perhaps, nearly as strong as the leader. Put them in their right place right away. Cut them back to within three buds or so of the stem. The buds here will be very much backward, and, by the time they have been forced into growth, the leader will have shoots several inches in length, and there is no fear that the side branches will catch up.

Next Year.—The following year the process will be much the same. The leader will be treated practically as was the whole tree the year before. The lower tier of branches of last year will probably have made two or more shoots. Almost invariably one will be enough to leave, and that should be cut back towards the extremity, or about one-third from the tip. The next year will be time enough for these side branches to have side shoots.

Third Year.—The next year will be a repetition of the first and second, except that there will be an additional tier of branches to prune. The treatment of this lower tier, this year, will be somewhat similar in principle to that of the leader the first year. The cutting of the preceding year will probably have resulted in two or three strong shoots growing from the end, and one or two weaker shoots growing further in on it. Of the strong shoots at the end, but one should be left, and that cut back as before, about one-third; of the others, one or two may be left, as there is room or not.

After this, if all has gone right, as it will have done with a normal, well-growing tree, handled as suggested, the tree may be considered to be formed, and it is usually unnecessary to continue cutting back the leading shoots. The leader will be firmly established, and the tree will tend to keep the form in which it has been trained. Subsequent shaping will simply consist of thinning out superfluous shoots and branches, keeping a balance between all side boughs.

The idea to keep in view is to give the leader the preference when cutting out; that is, if a shoot from the center is crowding a shoot from a side bough, it is the latter that must give away.

Should the shaping have been neglected in the earlier years, or should any injury have happened to the leading shoot, it is often found that one of the side branches has come ahead of the leader for supremacy. There are three things that may be done, and one of them must be done if a well-shaped tree is to result:

1. The side branch may be cut off.
2. The tree may be cut off immediately above the side branch, and thus the latter becomes the leader.

(Where the side branch has grown practically as large as the rest of the tree above it, one of these two things must be done.)

3. Check the side branch back by cutting it off immediately above one of its own side shoots. The stronger it is, the lower down it must be cut.

This latter will be best where such cutting is likely to be efficacious in putting the side branch in its place; it will, however, in any case, have to be watched the next season.

Always the side branches must be headed in this way if they show signs of coming ahead of the leader, until they are finally induced to take a subordinate position.

It will likely now be found that there are too many branches, and that they are crowding each other; no matter, if given a choice, and if any have to be sacrificed, their existence will not have been wasted; they will have assisted to thicken and strengthen the main stem.

It is not claimed that there is anything new in this paper; it is simply an attempt to state in clear and concise language a definite system, which, at any rate, has the merit of producing surely, and without waste of time, energy in plant growth, the results aimed at. The attempt seems to be justified, because this part of the orchardist's art has not often been stated, either clearly, concisely or completely, and it is very necessary to have clear and definite ideas on the subject.

With a clear mental picture of what is needed in regard to shaping a tree, the pruning of young trees is a rapid and sure operation. The tree is pruned and shaped mentally as the operator walks toward it. A few deft cuts with a sharp pair of shears, and it is done.

Lacking this clear idea, there is indecision and doubt; the indecision of the first year produces

the puzzle of the second year, which in the third year becomes an insoluble problem, or only one to be solved in sacrificing half or more of the tree, and thereby wasting the greater part of the energy of growth that the tree has put forth in the past.

[Note.—This is an excellent article on pruning, and I think it is well worthy of publication in "The Farmer's Advocate." As it is customary in the East, however, to plant two and three-year-old trees with the top already formed, a little additional information might be advisable. A two- or three-year-old tree, when received from the nurseryman, should have the heads well formed, although some of the branches will have to be removed. The best head consists of a central leader, with three or four side branches rising alternately from the trunk. When planted, the branches should be cut back at least one-half, and, if the trees are not well rooted, they should be cut back still more. In the colder parts of the country, however, it is advisable not to head back the leader very much after planting, as we have found in our experience that if the leader is headed back severely, the lower buds may not start that season, while they may on the side branches, the result being that the leader dies, and that undesirable form of tree mentioned by the writer of the article is the result, namely, the tree with a bad crotch, which causes the tree to break down later on. By leaving most of the leader intact, at least for the first season, until the tree begins to grow, there will not be danger of its dying. Even in the best districts, it is well not to head back the leader as much as the side branches. The rest of the information given in the article will be applicable to conditions in the East.—W. T. Macoun, Horticulturist, Central Experimental Farm.]

PROTECTING STORED VEGETABLES FROM FROST

Editor "The Farmer's Advocate":

I should be interested to know through your columns whether any of your readers have had experience with the protection of stored vegetables or fruit from frost by the use of large vessels (tubs, barrels or clothes boilers) of water. I have heard that this method of protection is often used successfully, but should like to have more particular information about specific instances—such information as: the size and exposure of the cellar or room, weather conditions, kinds of vegetables or fruits, quantity of water used, and whether hot or cold, material and shape of vessel used, and whether covered or not, etc. Instances in which protection was afforded, even when the water was freezing, would be of special interest.

Looking at the matter from a theoretical standpoint, I should say that the best protection would be afforded by the use of hot water in metal vessels. Covered clothes boilers would appear to me to meet the requirements very satisfactorily. Metal vessels would be preferable to wood, because they would more readily transmit the heat from the water to the air of the room. Covered vessels would be better than open ones because, in the latter, a considerable amount of the heat, otherwise available for heating the air, would be wasted in converting water into vapor. The water, even when freezing, would continue to give out heat, and might, if present in sufficient quantity, prevent the temperature of the air falling more than the few degrees below the freezing point of water, which most vegetables will stand without injury. J. T. S. Jacques Cartier Co., Que.

THE FARM BULLETIN.

"NON-EXPLOSIVE COMPOUND" FAKE.

Editor "The Farmer's Advocate":

Occasionally a faker goes his rounds in the country, and the latest fake in this locality is carried out as follows: A man calls at a home and shows a small parcel of stuff, which he calls by a high-sounding name, saying that when a small quantity is put in the oil in a lamp it renders it non-explosive, and asks for a lamp to show how it works. He removes the burner and puts a small pinch of the powder from his package into the lamp, and then very deliberately puts a match to the lower end of the wick, and puts the blazing wick down in the oil. Instead of an explosion, as one might expect, the blaze is at once extinguished. He repeats the operation three or four times to convince you that it will not explode, and then proceeds to sell the package for the small sum of twenty-five cents, claiming that you will have a brighter light, etc., as well as rendering the lamp absolutely proof against accident by explosion. As a matter of fact, there would have been no explosion in the absence of the "non-explosive compound," for the blaze, instead of igniting the oil, is smothered by it, as any one can prove for himself by testing, using an open vessel by way of precaution. Such an article is almost sure to appeal to a person of nervous temperament, and will find ready sale. If you have space in your splendid paper for this short letter it may have the effect of spoiling the game, for, undoubtedly, the stuff is worthless, at least for the purpose named. WM. DUNCAN. Simcoe Co., Ont.

SOUND THE CANDIDATES ON THE AUTO QUESTION.

Editor "The Farmer's Advocate":

We see a great deal written and are being told lots about how to make good roads and how to use split-log drags, etc., etc., but since the advent of that curse on the road, the automobile, there is precious little encouragement for farmers to use split-log or any other kind of drag. The farmers of this fair County of Bruce spent hundreds of thousands of dollars on their leading wagon roads, of which they were justly proud, and over which it was real comfort to drive. Time was when some of the women folk or the old man about the place could take a steady horse, drive to the village, do the errands for the place, and not only save the time of someone whose time was more valuable, but take a little solid comfort out of the job.

But this is all changed; nobody thinks of trusting a woman or the old man on the road with a horse any more. It has to be the best man about the place, and even they go along the road craning their necks watching for the machine, and when one comes in sight, get into the nearest gateway or outway in some way. I submit to you, sir, if this is fair. We could pick our way around the jogs and stones with a great deal more comfort than we can drive over the good roads now; and what are we gaining by all this worry and trouble? Those who make them likely get something out of the business; those who use them likely get some pleasure out of them, especially the way they can clear the road of horse traffic. The departmental stores in the cities gain, because when people can't go to their own village to do business they have to do their shopping by mail; but to the farmers and business men in the towns and villages they are a distinct and heavy loss. Some say horses will get used to them in time, but we have had them four or five years and it is getting worse all the time. A horse badly frightened with one of those things is never a dependable horse any more. They say, why don't you have those fellows who drive their machines too fast hauled up and fined? All you have to do is to look at the number on the machine and you have them. I could tell you, Mr. Editor, of buggies smashed, horses ruined, bones broken by the score, but I never knew of one of those fellows fined or interfered with yet. The law we have is no good; the machine fellows don't obey it, and it would do no good if they did.

We want a law giving county councils power to regulate this automobile traffic, and then those counties which want them can have them to their heart's content. Give county councils power to place a tax of from \$100 to \$500 per annum on each machine; or, what would be better, give them power to prohibit them altogether for certain hours of the day, say from 1 p. m. until 8 p. m., and the politician who will come out square and fair for a substantial remedy for this miserable nuisance on the roads is going to get there. We can easily forget we are Tories or Grits for once; at any rate, they will have all the women on their side, and that counts for more than you would think. It won't be long before we have an election for the Legislature. Let us see to it that our candidates are sound on this question before they get a single vote. I hope, Mr. Editor, you will find a place for this in your splendid paper, and that you will give others better qualified a chance to give their views as to a remedy for this sore grievance. JOHN PEIRSON. Bruce Co., Ont.

FORTHCOMING EVENTS.

- Feb. 3rd.—Dominion Cattle-breeders' Association, Toronto.
- Feb. 4th.—Dominion Sheep-breeders' Association, Toronto.
- Feb. 4th.—Dominion Swine-breeders' Association, Toronto.
- Feb. 3rd and 4th.—Canadian Seed-growers' annual convention, at Ottawa.
- Feb. 4th.—Annual meeting Dominion Shorthorn Association, in Toronto.
- Feb. 5th to 7th.—National Live-stock Convention, at Ottawa.
- Feb. 12th.—Canadian Holstein-Friesian Association, annual meeting, Toronto.
- Feb. 12th.—Canadian Ayrshire Breeders' Association, annual meeting, Toronto.
- Feb. 12th to 14th.—Ontario Horse-breeders' Show, at Toronto.
- Feb. 20th.—Prince Edward Island Dairymen's Convention, Charlottetown.
- May 4th to 9th.—Canadian National Horse Show, Toronto.
- June 29th to July 9th.—Dominion Exhibition, Calgary, Alta.
- July 11th to 17th.—Winnipeg Industrial Exhibition.

TO PREVENT LANTERN-GLOBES BREAKING.

Some time ago I saw an inquiry about a lantern that would not break the globes. I had one that troubled me a great deal, so I made another row of holes in the circle that the globe rests on, and have had no trouble since. W. J. S. Oxford Co., Ont.

More than 1,100 farmers and their wives were enrolled in the recent farmers' short course, held at Purdue University, Indiana.