

CLEARING WITH EXPLOSIVES.

The Value of Explosives in Clearing.

It will be found that the chief uses to which explosives can be put with economy in clearing land, are in the removal of stumps, and in so shattering logs or standing trees that they burn more readily. Trees can be blown right out of the ground; but, owing to their greater weight they take more explosive than stumps. I therefore consider it more economical to put sufficient explosive under them to blow the earth out from around the roots, at the same time cracking and breaking the roots and butt of the tree. The cracks will extend from 4 to 15 feet up the trunk of the tree; and after a week's exposure to the air in dry weather, even bad burning timber will then burn readily. I have burnt down trees 7 feet in diameter at the ground in six to twenty four hours having used 5s. worth of explosive on some. These trees would have taken a week to burn down in the ordinary way, that is, digging the earth away from them, and drawing timber around them with horses or bullocks.

The economy of the method will be realised when I state that I have cleared 12 acres of land at a cost of £3 per acre, whereas an adjoining block of similar land cost me about £6 per acre to clear in the old way. This was on light red volcanic soil, overlying light clayey loam.

The method cannot be recommended in cases where timber burns right out of the ground, leaving no roots. But in this district I have found the saving in cost to vary from 25 to 50 per cent. on the usual methods of grubbing and burning. With practice, much better work can be done at less cost with explosives. The procedure should be varied to suit different timbers and different soils; the exercise of a little judgement will be found profitable.

Sound timber, whether trees, stumps, or logs, will be shattered with better effect than hollow or rotten timber, as it offers more resistance to the explosives.

Condition of the Soil.

To obtain best results I find that the ground requires to be fairly dry. If it is very dry, the explosion is not quite so effective; whilst if it is too wet, the force seems to act too deeply in the earth, instead of near and above the surface. In some districts, I am informed, best results are obtained when the ground is wet; but that is not my experience and I do not know to what degree it holds good.

Explosives Recommended.

For firing, a battery *guaranteed* to fire five or more shots is absolutely necessary for best results. It is possible to work in small timber with fuse and caps, but the method is not so satisfactory as the use of a battery.

The explosives which I have used are rackrock and rendrock. I consider the latter the better for earth holes, as it seems to take more roots with the stump; but I can recommend both. I have used a little gelignite, and it seems very good; I intend to give it further trials. Other explosives are worthy of trials, but I should not advise farmers to use dynamite, as it is more subject to chemical changes, particularly in hot climates.

If rackrock is used, insert the detonator in half a plug of gelignite for earth holes. Much better combustion will result if this is done.

Bursting the Timber.

When it is desired to burn trees or stumps level with the ground, or to burn sound logs, bore holes 1 to 2 feet deep into the soundest part of the timber, with 1 inch to 1½ inch auger, and charge same with ½ lb. to 1 lb. of explosive. A number of shots fired simultaneously with the battery will do very much better work than when they are fired singly with fuse. This method is suitable for Yankee grubbing, as it uses less explosive; but is not as good as the next method for getting rid of trees and stumps.

Clearing for the Plough.

To remove trees and stumps for the plough, put holes under the heaviest and soundest parts of same, 12 inches or more in depth, with a 3-inch earth auger or small bar and scraper. When placing the charges, take into consideration the lay of the main spur roots. Best results are obtained by using three charges or more according to the size of the tree. Place each charge up against a big strong root, or better still in the fork of two roots. If it is not easy to get the charge against a root, ram small stones into the bottom of the hole, so as to make a sound bottom for the charge, as the more resistance obtained the better the results of the explosion. Do this before any explosive is put in the hole, or there would be great danger.

In some cases it is better to use both earth and wood holes, placing the latter in big spur roots; but I rarely do so, as it snaps the roots and leaves portion in the ground.

The charges should be carefully tamped with damp clay or earth observing the proper rules, as there is considerable danger if they are neglected. Water tamping is not at all effective in wood, though it is in rock.

In earth holes I find 1 lb. of explosive about the minimum effective charge for large trees and stumps; but I have blown out small stumps with as little as ¼ lb. With well-placed charges stumps frequently come out, shattered into many pieces, leaving few if any roots. When any remain they are so shattered that they burn easily.

A Warning.

A beginner will require 50 lbs. of explosive to give the method a thorough trial. He should start on medium-sized sound stumps, as they are easier to operate on. Necessary care should be observed when handling explosives, and he should be extremely careful of the detonators. He should also bear in mind that large bits of wood will sometimes fly 150 yards. Detonators should never be *stored and kept* with explosives in the same receptacle.

(*H. B. Faviell, Bonville, in the Agricultural Gazette of New South Wales, May 2, 1912.*)

NOTICE.

A CATALOGUE of all the plants in the Botanic Gardens, Singapore, has been compiled and is ready for issue.

It contains plants of Economic, Decorative and Botanical Interest. Copies may be obtained direct from the Botanic Gardens or from Messrs. Kelly & Walsh, Singapore, post free on receipt of one dollar.

Early application is essential as only a limited number of copies have been printed.

