

go on. The stumps being pretty well banked up as described, there was little more to do than to visit the fires regularly and keep them covered as the burning progressed. It should be said, however, that of the 240 he fired, twenty-one failed to catch by the first firing, leaving 219 successfully burned out. The work here reported and all the figures given were obtained under most favourable climatic conditions and in a soil naturally adapted for this method of burning.

We have no reliable data at hand as to the cost where artificial covering for the fires has to be hauled to the ground, but think from experience that where the material for covering may be had so that the operator can haul in three or four loads of clay or cluders a day, the average stumps, say of 40 inches diameter, can be burned out under average conditions for somewhere between 50 cents and \$1 each, which is much less than the expense of removal by any other known method.

We believe from our observations that it will pay those desiring to clear land by this method to so plan the work as to take advantage of favourable seasons and conditions, and that the method will not be so successful in the heavy clay soils during the extreme wet seasons as it will be during the more favourable season, since there will not be so much success in burning out the roots, because of the water-holding capacity of the heavy clay and consequent wetter condition of the roots. On the other hand, we believe that in the sandy, gravelly loam soils the burning will be just about as successful during the wet season as at any other time, because of the fact that such soils are naturally well drained and the soil-saturation is not so great as with the heavy clay soils.

CONCLUSIONS FROM OUR EXPERIMENTAL WORK.

The results of our experiments show the following facts: First, the "char-pit" method, which has been repeatedly demonstrated to be economical in operation and very effective in removing stumps standing in clayey soils, may be successfully applied to stumps on sandy lands. This can best be accomplished by using some artificial cover rather than the soil surrounding the stump for covering the material to be fired. This artificial covering material must be such that it will not be affected by heat, and should be porous or granular in form so as not to cause too rapid burning, since the object of the process is to char rather than to completely destroy the stump. Coal cluders have been found to be excellent cover for this purpose. Clay soil when heated by the fires underneath takes on granular character which fits it to serve admirably for this purpose. Lime and sand mixed as in the preparation of plasterer's mortar makes a good artificial cover if no cheaper material is available.

Second: The firing of stumps which are very wet on the outside may be facilitated by driving a number of large spikes through the wet outer layers into dry portions of the stump, leaving the spikes projecting out into the kindling material from which the stump is to be fired.

Third: Where cheap fuel for kindling the fires around the base of the stumps is not available, fuel-oil may be economically and satisfactorily used for this purpose. It is best applied by mixing with dry sawdust, as a given quantity of oil will go much further if used in this way. Fuel-oil might be purchased in bulk at some central point and there mixed with the proper proportions of sawdust, and this mixture hauled to the land which is to be cleared. Under favourable conditions and seasons, firing by means of kindling-