

It has been the opinion of many who have tried it that this method is not adapted to gravelly or sandy soils, but our experiments have convinced us that it may be profitably employed by modifying the method to the needs in the changed conditions of soil. We have done this successfully as follows: Prepare the stump in the usual way, that is, removing the bark and digging away the objectionable soil to about the depth one would want to plough, making a trench around the stump, wider at the top than at the bottom, the sides sloping toward the stump. Now put the fuel in this trench, using in the dry season the same amount of fuel and placed in the same way as we have described above. During the unfavorable season a concentrated fuel may be used with good success. Where dry sawdust is available, use about one-half bushel of this in the trench with kindling-wood laid around next to the stump, then use from 1 to 3 gallons (depending on the size of the stump) of fuel-oil poured over this kindling-wood and sawdust. Next place a small amount of coarse wood and pieces of bark, or any good fuel which may be at hand, over the top of this, and fill in with pieces of bark, chips, rotten wood, or ferns around the top of the fuel to prevent the dirt falling in between the fuel and the stump at the start; cover the fire and care for the stump as before described.

For unfavorable soil conditions an artificial covering is necessary. This may be of any material accessible that is sufficiently granular in form so that it will not settle together too tightly, making as nearly as possible a non-conductor of heat. We have used successfully ordinary coal cinders and clay hauled from the nearest supply point. The coal cinders and clay make a splendid covering except in time of heavy precipitation. They do not have the capacity to absorb the moisture that the clay has, hence more water reaches the fire, although our experience with this feature of the work has been limited. However, this does not seem to make a great deal of difference, as the cooling, heat-absorbing effect of the water in the clay gives about the same result.

There is an advantage in the cinders for artificial covering. The supply can be taken up from a stump burned out and carried to the next stump to be burned. Perhaps in time we shall find other materials that will take the place of these where they are not convenient. We have been frequently asked whether it might not be possible to use sheet iron or other like substance for this covering. At first thought it would seem that this would be possible, but in actual practice it fails, first because such materials are conductors of heat and conduct the heat away from the stump, and, second, they are rigid and do not follow the fire closely. Any cover that is rigid might be successful for a time, but when the material has burned away some distance the radiating effect is lost, and since radiated heat diminishes as the square of the distance increases, the loss is apparent.

We do not think it advisable to use large pieces of bark for fuel, but if the bark is broken up pretty well it serves the purpose of fuel when placed on the outside of the fire. Bark is a natural non-conductor provided by nature with many air-cells to protect the growing trees from the extremes of heat of summer and the cold of winter, but when broken up into small pieces and placed around the top it will take the place of fuel, although it is not as good as dry, sound wood, except to fill the smaller spaces between the other fuel.

From our observation, where clay which has been shovelled over a few times before being placed over the fuel is used for artificial covering, it is pretty well broken up, so that, in placing it over the fuel, there are not many air-spaces left around the bottom to help draw the fire around the stump at