

## WOOD ASHES.

shows the plans of one of the largest and most experienced firms in the ice trade, which is claimed to embody all of the essential particulars necessary for a perfect ice-house, unless it be deemed desirable to put in a ventilator to carry off the heated air radiating from the roof in midday. In the elevation plan, A is a dry wall, B mortar wall, C outer posts, D inner posts, E sills laid in lime mortar, F partition under roof, G floor

with hay covering, H spaces for filling between walls, J spaces for filling under roof, K double flooring laid crossways, L ties of hoop or band iron, M natural surface of ground. In the ground plan, doorways are made from top to bottom at any convenient place (the gable ends are best), boarded and filled as the rest of the house after the ice is put in.—Farm and Home.

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**T**HERE is a growing interest in the subject of wood ashes, and their use as a fertilizer. This is largely owing to the fact that long cultivated lands are beginning to show a lack of the fertilizing constituents that are supplied by ashes, and a desire on the part of the tiller of the soil to increase and improve his yields. Large quantities of this valuable fertilizer are annually exported from the Province; and what makes it worse is that they are gathered chiefly from the farms which need them so badly. To supply the growing demand for information, and to gain a more definite knowledge of the fertilizing constituents of wood ashes, we have, during the last year, analyzed the ash of most of the Ontario forest trees, fruit trees and small fruits.\*

The growing plant gathers all its mineral constituents from the soil in which it grows, and these, not being combustible, are left as ash when the plant is burned; consequently, the ash must contain all the mineral constituents that are essential to growth. These are potash, phosphoric acid, lime, mag-

nesia, iron and sulphur. These substances form a very small part of a plant, yet without them no plant could grow and produce seed; in fact they are indispensable to life. Of the six essential plant-food substances named, potash and phosphoric acid are the most important, not only because they are taken up by the plant in large quantities, but also from the fact that our average Ontario farms do not contain them any too abundantly. Wood ashes, therefore, are usually valued according to the amount of those two constituents which they contain. Although potash and phosphoric acid are the most valuable plant food substances in ashes, ashes also contain large quantities of lime, which is of considerable value to the growing plant. Lime is usually present in the soil in sufficient quantities to supply the wants of growth, yet its application may produce marked results. By acting chemically on certain constituents in the soil, plant food, especially potash, is brought into an available form. It neutralizes the free acid of the soil, and thus helps along the process by which vegetable matter is changed to a form in which the plant may make use of its nitrogen. It also tends to im-

\*For full reports of this work, see the Report of the Professor of Chemistry, in the Ontario Agricultural College Report for 1896. Some additions will be made in the report for 1897.