

becomes of a pasty consistence, when the heat is gradually reduced and the dry residuum allowed to cool.

In Canada the crude potash thus obtained is usually sold to the nearest storekeeper, but it requires to undergo a process of calcination to free it from certain organic matter before it becomes the potash of commerce. After the first potash liquor has been drawn off, water is again poured over the ash in order to remove all soluble matter, and the weak solution thus afforded is used to lixivate a fresh supply of ashes. The insoluble portion of the ash is used in the manufacture of certain kinds of glass, and is of great value as manure on account of the phosphates which it contains.

In this colony thousands of acres of forest are burnt annually, but I am not aware that the slightest effort has been made to utilize the ashes. Although produced in such large quantities, they are simply wasted, being for the most part blown away by the wind or washed by the rain into the nearest streams, and carried to the sea. It is obvious that, by collecting the ashes immediately after "burning off," especially where much "logging" has been necessary, the settler has the means of defraying a considerable portion of the cost of clearing, at a trifling outlay. As the majority of settlers commence their clearings with but slender pecuniary resources, this is a matter which possesses a direct interest for a large class.

In Britain, potash is employed in numerous manufactures, and the consumption increases year by year, so that no doubt can be entertained as to the possibility of finding a market. The greater portion of the supply is obtained from wood ashes, for, although it is also procured from mineral sources, the process of extraction is comparatively costly.

In populous districts, where wood forms the chief fuel, it might prove remunerative to collect the ashes for the sake of the potash which they contain. Baron von Mueller estimates that a bucketful of ordinary wood ashes contains about 2½lb. of crude potash, worth sixpence per pound.

In Europe, furze, broom, and common fern are often burnt for the sake of the potash contained in their ashes. Might not our local Road Boards derive a hint from this to assist them in defraying the cost of clearing the miles of furze and fern by which traffic is impeded upon some of our roads, and at the same time open a new outlet for labour?

It is matter for regret that no attempt was made to utilize the vast quantities of ashes caused by the extensive bush fires in Taranaki and Hawke's Bay during the past season.

CHARCOAL.

At present charcoal is manufactured to a small extent only, and its cost is so high as greatly to restrict its application. The ordinary process of manufacture, although extremely simple, requires great care and attention. The wood is cut into billets from 2ft. to 4ft. in length, and dried by exposure to the air. When dried it is closely stacked in conical mounds from 6ft. to 12ft. high, and from 10ft. to 40ft. in diameter.

The ground is first cleared and levelled. A small framework is erected in the centre of this space, about 3ft. square, and consisting of four forked sticks standing 2½ft. out of the ground, and connected at the top by four stout rods. The billets are compactly stacked round the frame until the entire area is covered, all the billets sloping towards the centre. The stack is then completed to the desired height by billets arranged horizontally, and the whole covered by a layer of earth, finished off with sods when it is practicable to obtain them. The heap is kindled by an opening made at the top and others near the base. After burning for three or four days these are closed and other holes are made in the sides about half-way between the base and the apex. The holes must be closed whenever it is seen that combustion is too rapid, and care must be taken to fill up any depression that may arise from this cause. When smoke ceases to be given off all the holes are closely stopped, and the heap is allowed to cool for three or four days longer, when the cover is removed and any charcoal that may still be in a burning condition is extinguished by water.

In many places the site of the mound is formed into a funnel-shaped depression, with a hole in the centre which communicates with a ditch dug on the outside to enable the tarry matters to be drained off.

Charcoal intended to be used in the manufacture of the finer kinds of gunpowder is subjected to combustion in large iron retorts furnished with refrigerating condensers, by which means nearly the whole of the volatile products can be readily obtained.

WOOD PULP FOR PAPER MANUFACTURE.

This material is extensively produced in Norway, and is largely exported to England; but at present no information as to the cost of production and selling rates is available. The logs and large branches are ground to pulp on large grindstones driven at a high rate of speed, the logs being kept in their place by self-acting machinery.

It is obvious that this process affords the means of utilizing a large quantity of waste timber; but in the absence of more detailed information it is not easy to form a definite idea as to the possibility of effecting this at a profit.

NOTE.—Since the preceding was written I have received from Dr. Hector the following table, showing the percentage of tannin in various extracts analyzed at the Colonial Laboratory:—

Mimosa	..	..	34.69 per cent.	Spruce	..	..	16.94 per cent.
Valonia	..	..	42.64	Tooth-leaved beech (Godsif)	..	..	22.51
"Birch"	..	..	26.20	Towai (Grayling)	..	..	23

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