our crops. Another important item to remember is, that lime drives off ammonia from partially decayed and fermenting manures. From this it would seem that lime should be applied only several years after or before an application of manure. It is true that fresh lime may be used with advantage in the composite heap with fresh manure, provided enough earth is added to absorbe the ammonia, so liberated. To convince any one that lime will expel ammonia, it is only needful to mix a small proportion with guano or other manure rich in ammonia, and it will soon be evident enough to convince even the most dubious. Another very evident point is, that lime requires some time to act, and of course it should be applied some time before it is expected to act on the crop. The time which must elapse before this action begins seems to vary very much with the lime from different quarries; from some it seems to act almost as quickly as manure, and from others it requires several months before its action can be seen. After several years' experience and experiment, I am satisfied that the best time for me to apply lime is on the sod the fall before ploughing for the corn crop."

EFFECTS OF POTASH.

There can be no doubt that ashes, both leached and unleached, or a solution of crude potash diluted or mixed with peat or earth, may be applied to nearly all crops, grasses, cereals, roots and fruits with the best results. Indeed, in this country, where ashes are abundant and cheap, they form one of the best and readiest means of giving heart to light or exhausted soils. It is a poor policy for any one who has a farm, garden, or orchard, to sell ashes, unless he can easily restore an equivalent in leached ashes, soap-suds and other alkaline matters.

Way are Ashes Beneficial.—A glance at the chemical composition of grains, roots, grasses, etc., will at once reveal the reason, or rather one reason, why ashes are so beneficial. If the product of an acre of wheat, estimated at twenty-five bushels of grain, and three-forths of a ton of straw, be burned, grain, straw, chaff and all, their will be left about two hundred and ten pounds of ashes, containing about fifty-six pounds of potash, soda, magnicia and lime, (mostly potash,) united with about thirty-one pounds of phosphoric and other acids; one hundred and eighteen pounds of silex or sand, and a little oxide of iron, chlorine, etc. Again, suppose twenty tons be taken as an average crop of turnips per acre. Of these twenty tons two tons will be solid matter, with eighteen tons of water. The two tons of dry matter burned will yield three hundred and forty pounds of ashes. The tops of these turnips may be estimated to yield (as they would in a fair average crop) two hundred and ten pounds of ashes, making six hundred and fifty pounds of ashes for the product of an acre. Of these ashes less than one-twentieth is salicia, while considerably more than one-third is potash (potassa) and between one-fifth and one-sixth is lime. In the wheat ash there is twice as much phosphoric or sulphuric acid, while in the turnip ash there is nearly twice as much sulphuric as phosphoric about, one hundred and forty pounds taken together. If one hundred pounds of pears be dried and burned they will yield about four pounds of ashes, of which more than one-half will be potash and less than one eighth soda, while in the ash of apples about one-third is potash and one-forth soda. Thus, as every sort of crop abstracts from the soil those mineral constituents which exists there only in limited quantities, it is evident these constituents must be restored in some way in order to insure good crops in the future. And even that element in the soil, sand, which seems so abundant and which is a necessary constituent of nearly all plants, and found in large quantities in the stalks of grains and grasses, the bark of trees, etc., is practically useless on account of its insolubility unless potash be present to make it soluble, so that it can be assimilated by the plant. —*Prof. Strong.*

BEET CULTURE IN FRANCE.

Now that the culture of beet is almost everywhere assuming such great proportions, a French implement maker has brought out a very simple and effective machine for lifting the roots. It is in the form of a plough on wheels, with a sock pointing into the soil to raise the roots, and a sort of swinging mouldboard to throw them aside, when women and children can follow and trim the bulbs. This "blind plough," worked by a pair of horses and one man, can get over two and a half acres per day. Further, a pressing machine has appeared for the extraction of the juice of the beet, which effects in ten minutes what with the ordinary processes of maceration require as many hours. The pulp is made to pass between two rollers, exerting a pressure equal to two atmospheres, the pulp passing over the cylinders, the juice, perfectly pure, flowing through the perforations into the fermenting vats. The pulp is taken up a second time and pressed, when the necessary acid is added. The pulp by this process preserves for a long time its quality for feeding purposes, the juice ferments more equally, and a higher per centage of alcohol is obtained. One of the principal obstacles hitherto experienced in the extension of the culture of beet for sugar, was the expense of carting the roots to the grater of the factory. In almost all the large sugar manufactories in France, pipes, ranging from three to nine inches diameter, communicate with the pulping depots, erected in the vicinity of the producer. In some cases a direct line of pipe communicates over a distance of seven miles, irrespective of branches, thus saving the farmer cartage, and enabling the manufacturer to erect his establishment close to a river, canal or railway, and save expense in the transport of coal, lime, animal charcoal and machinery. One factory alone has 228 miles of communicating pipes laid down, to convey the juice of two hundred thousand ton of beet. The juice, by admixture of hydrate of lime, is preserved from any alteration in its properties, and the pipes are sunk along the roadways at the depth of three feet. The farmer, while thus disposing of his beet almost on the field, has the pulp equally convenient to feed and fatten his stock.

HARVESTING BARLEY.

It is a point of importance to cut this crop just at the right time, which is known by the ears beginning to droop and turn over against the stems, which will then be of a yellowish color. Barley is so extremely liable to shell out whenever it becomes over-ripe, that much loss may result to the