

Owing to the great demand there has been for this hedge plant for the last few years, together with the difficulty of obtaining an adequate supply of seeds—from which these plants are raised—Mr. Leslie has been quite unable to supply all the orders, which have poured in from all parts of the Province. Indeed the demand is not limited to Canada. Orders have been received from several of the Western States, where the Buckthorn is gradually but surely taking the place of the Osage Orange. The latter is not found to be sufficiently hardy, except in favoured localities.

We regret that owing to the late season of the year at which our observations were made, much of the foliage of the Buckthorn had fallen. The artist was therefore unable to represent the hedge to such advantage as it would have appeared, had his sketch been made when the plant was clothed in its summer verdure. Some further notes respecting the Berberry and Privet hedges of Mr. Leslie's nurseries, we must reserve for a future notice.

Things a Farmer should not Do.

A farmer should never break up more land than he can cultivate thoroughly; half-tilled land is always growing poorer, while well-tilled land is constantly improving. A thrifty and prudent farmer will not devote his sole attention to the improvement of certain fields on his farm, because the land is "easy to work at," and let other portions of his premises go uncultivated, and grow nothing but brush, bogs, briars, and stones.

A farmer should never have more cattle, horses or other animal stock than he can keep in good order. An animal in good order at the beginning of winter is already half wintered. Nor should he let his cattle endure the chilling storms of winter in an open yard or field, whilst a few dollars expended in the way of making comfortable stables would amply repay him in saving of fodder, and afford a greater amount of milk.

A farmer should never depend too much on his neighbours for what he can by careful management produce on his own land. He should not make it a common practice to either buy or beg fruit while he can plant trees and cultivate them on his own ground—nor annoy his neighbours by borrowing tools to work with, while he can make or buy them. "The borrower is servant to the lender."

A farmer should never be so immersed in political matters as to neglect doing his various kinds of work in due season, and to snug up matters and things for winter; nor should he be so inattentive to politics as to remain ignorant of those great questions of national and state policy which will always agitate more or less a free people.

A farmer should not be continually borrowing his neighbour's newspaper, while he can easily save money enough, by curtailing some little extravagance, to subscribe and pay for one or more of his own.

A farmer should never refuse a fair price for anything he wishes to sell. I have known men to refuse a dollar and a half for a bushel of corn, and after keeping it five or six months they were glad to get a dollar for it. I have known farmers to refuse to take a fair marketable price for their dairies of butter, and after keeping it three or four months they concluded to sell the butter for only two-thirds of the price which they were first offered. "A bird in the hand is worth two in the bush."

A farmer should not allow his wood-pile to be reduced down to the "shorts," merely drawing a little by piecemeal, and green at that. He must expect to encounter the sour looks of his wife and family, and perhaps be compelled (in a series of lectures) to learn that the man who provides green wood to burn in the winter, has not mastered the first rules of domestic economy. Nor should he employ some "botch" mason to build his chimney "upside down" so that his family will be nearly smoked out of the house, and the walls of the room become as yellow as saffron.

A farmer should not let his buildings look as old as the hills, and go to decay, while he can easily afford the means to keep them in good repair; nor should he allow tattered clothes and old hats to be stuffed in the windows, in place of glass. If he does, he not be alarmed if he acquires the reputation of a mean man, or one who carries long where liquor is sold by the glass.

A farmer should not be contented with dilapidated looking fences on his farm, so as to tempt his cattle to become unruly and destroy his crops, while he has plenty of opportunities and materials to make or keep them in repair.—*Cor. Working Farmer*

Familiar Talks on Agricultural Principles.

THE ASHES OF PLANTS.

It was observed in our last that if a plant be consumed by fire, the greater part of it "burns away," and only a little ash is left. The portion that "burns away" was explained to be of a gaseous nature, and some account was given of the several gases which form the combustible or organic part of plants; viz, carbon, oxygen, hydrogen, and nitrogen. That portion of the plant which will not burn away, but which forms the residue or ash, is called the inorganic part of the plant; and we now propose to say a little more about this kind of material that plants are made of. If we take a stem of wheat, or a turnip, and weigh out 100 grains, then put it into an iron ladle, upon a hot fire, and let it remain until everything has burned away that will burn, we shall find a little ash left. Until very recently, chemists took scarcely any notice of this ash, because it bore so small a proportion to the rest of the plant, and seemed so insignificant. But more careful examination led to a different view of the matter. The investigations of Liebig, Lawes, Gilbert, and others, have shown that this ash contains most essential elements of plant substance, and that good crops cannot be obtained, unless there is an adequate supply of them within reach. What is left in the ashes of plants has been found to consist of the several mineral substances mentioned in the list of inorganic matter given in our last. These constituents of plants are obtained only from the soil, and their presence or absence has much to do with making a piece of ground fruitful or barren. The proportion of ash to the bulk of vegetable substance, varies from one to twelve per cent. Some have supposed that the mineral substances found in plants act as stimulants, but it is far more probable, if not absolutely certain, that they are a part of the true food of plants, and that they supply to vegetable fibre, material similar to what forms the bony structure of animals. The following table shows what chemistry has ascertained in regard to the inorganic elements of plants:

Table of the Composition of the Ashes of several Cultivated Plants.

	Wheat	Wheat	Wheat	Rye	Oats	Potatoes	Turnips	Hay	
	Straw	Stalk	Chaff						100.0
Potash.....	23.2	3.8	0.1	17.5	0.1	0.8	0.3	40.2	4.5
Soda.....	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Lime.....	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Magnesia.....	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Oxides of Iron and Manganese.....	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Silica.....	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Chlorine.....	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Sulphuric Acid.....	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Phosphoric Acid.....	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Carbonic Acid.....	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Charcoal in Ash and loss.....	4.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

The above table will not perhaps be fully understood at this stage of our "talks" by those wholly unfamiliar with the subject, but it will serve to give an idea of the various component parts of the ashes of plants, and if carefully studied, will be found of great use as we proceed. It may be as well to observe to prevent confusion of ideas, that the mention of carbonic acid in the table, refers to unconsumed charcoal,

and not to the gas known by that name, and which more properly belongs to the other class of plant material.

A few brief explanations of the terms used in the foregoing table may now be given.

POTASH is obtained from wood ashes, and the ashes of plants in general, by burning and other processes. It is an alkali, will dissolve in water, has a caustic taste, will combine with acids to form salts, and with oil to make soap. The quantity of potash they contain, renders wood ashes a valuable manure.

SODA is chiefly obtained from two sources, the burning of sea-weed and other marine vegetables, and the decomposition of common salt, the chemical name of which is chloride of sodium. It also is an alkali.

LIME is one of the most abundant substances in nature. It is composed of a peculiar metal called calcium and oxygen. It forms a constituent part of all vegetables, and is the principal ingredient of shells and bones. It is found in nature in great masses as carbonate of lime. Marble, limestone, and chalk are examples of it in this form. Gypsum, or Plaster of Paris, is the sulphate of lime.

MAGNESIA is not so abundant as lime, and is usually found mixed with other earths, and combined with acids. The calcined magnesia which druggists sell, is this earth in its unmixed state. The medicine called Epsom salts is sulphate of magnesia.

OXIDES are formed by the combination of oxygen with metallic substances. This gas has a tendency to penetrate everything, and is especially attracted by iron, copper, lead, and most of the other metals. The formation of oxide of iron was explained in our last talk. The oxide of manganese is formed in a similar manner. The oxides of iron are found only in very small quantity in the ashes of plants, and oxide of manganese in still smaller quantity.

SILICA is the substance of which quartz, rock-crystal sand and flint are composed. In its pure state it is a white, gritty powder, without taste or smell. It is oxygen combined with a metallic-like substance called silicon.

CHLORINE, when pure, is a poisonous and suffocating gas, heavier than common air. In the ashes of plants it is not found in a pure state, but in combination with soda, forming chloride of soda, or common salt.

SULPHURIC ACID is a compound of sulphur and oxygen. It is found in the ashes of plants combined with lime and potash.

PHOSPHORIC ACID is formed by the union of oxygen and phosphorus. In its pure state, phosphorus is a waxy-looking substance, and has such a tendency to combine with the oxygen of the air and burn, that it must be kept under water. Phosphoric acid enters largely into the seeds of plants. Without it a grain of wheat would have no skin. It also forms in combination with lime, the principal bulk of bone.

The above explanations, in addition to the remark made about carbonic acid, will suffice for the present, by way of simplifying the above table, and giving an idea as to the nature of those inorganic substances which enter into the composition of plants.

It will help to show the bearing of all this upon farming operations, if it be stated that various classes of plants have been named POTASH PLANTS, LIME PLANTS, and SILICA PLANTS, from the fact that they consist largely of these substances. The potash plants include potatoes, turnips, beets, Indian corn, &c. Clover, beans, peas, tobacco, &c., are lime plants. The silica plants include wheat, oats, rye, and barley. Upon these differences in the nature of plants, the practice of a rotation of crops is chiefly based, and the constant growth of one particular crop is objectionable because it exhausts one sort of plant material. This is why the too frequent growth of wheat impoverishes land.

The Planters' Banner of Louisiana, says:—"Some of our young men are making arrangements to unite in bodies of ten or a dozen to cultivate land and make sugar the coming year."