Scientific Potato Culture.

Mr. Wm. B. Bateham treats this subject at length and with his usual shrewdness in the *Country Gentleman*. Having given special attention to the kind of exhaustion caused by successive potato cropping, he concludes that potash is most abundantly extracted from the soil, and suggests a plentiful supply of ashes as a renovator and fertilizer. He says:—"The better class of our farmers will no doubt contine to grow potatoes, though probably not so extensively as heretofore; and this crop will doubtless continue to be profitable where the climate and soil are naturally so favourable. But the growers need to learn more of the science of fertilizing the land for this particular crop. They need to study the teachings of agricultural chemistry, as to what elements are taken from the soil with each crop of potatoes, and which of those elements that are *essential to the healthy growth of potatoes*, are wanting in the soil, and need to be restored by artificial means.

For instance, it is known that about one-half the inorganic elements of the potato—as found in the ashes—consists of potash and about one-quarter soda; and it has been shown by Prof. Johnston and others that every crop of potatoes, say 150 bushels, takes from the soil about 50 pounds of potash and 20 pounds of phosphoric acid, with smaller amounts of soda, magnesia, lime, sulphuric acid, chlorine, &c. Reliance cannot be placed on chemical analyses of the soils to show just which of these elements may be wanting, but a little study and experimenting with different fertilizers, by the farmers, would practically solve the problem

On most of our old sandy lands, I am convinced that potash is the chief ingredient that is wanting. The past season I manured part of my potato ground with leached ashes pretty freely, adding some that was unleached, and the potatoes on the land thus treated were as plentiful in yield as another part where stable manure was used, and the quality of the tubers (Peachblows) was very much better. It is probable that the good results of the ashes were in part owing to the small portion of phosphorus and lime contained therein, besides the potash. This experiment in this season, when there is general complaint of the poor quality of potatoes, leads me to believe that quality as well as quantity may be greatly affected by the judicious use of fertilizers.

In clayey soils, we are taught by the chemists, there is not often lack of potash, and hence, ashes are *not* of much use. I am not sure that this applies to clayey lands that have been long cropped with potatoes. But such lands are not usually found suited for this crop."

Speaking next of the quality of the potato, which is not necessarily proportionate to the quantity, and which Prof. Johnston used to estimate according to the relative amount of solid and watery matter contained in the tuber—the quality being enhanced by every increase of solidity—Mr. B goes on to quote:—"It may be, therefore, that as by growing in unlike soils, or with unequal degrees of rapidity, our potatoes may contain *different proportions* of water, so by different kinds of fertilizers, which act in the same way as natural differences of soil, and cause the plants to develop with greater or less rapidity, the same effects may be produced. One kind of saline substitute, such as nitrate of soda, by hastening the growth, may give us a crop of potatoes containing much water; while another, such as sulphate of soda, by retarding the growth, may give a crop containing less water, and thus, though there may be no difference in the weight of the two crops, they may be very unlike in the relative proportions of dry food they contain. If such be the case, it is of great practical importance to determine the quantity of water which our several experimental potato crops contain, since, without this, we may draw very incorrect conclusions as to the value of our experimental manures—placing the highest value upon that which gives the greatest weight of raw material, and esteeming least, perhaps, that which produces the greatest weight of dry food." And adds, in conclusion:—"I would specially recommend Prof. Johnston's last sentence above to the attention of all who are experimenting in the production or culture of new varieties of potatoes, as well as those who are testing different manures for this crop.

What I Know About Parsnips—No. 2.

In this condition it should lie for ten days, or until the end of October, when the disturbed soil shall have become thoroughly aerated and pulverized by the early frost. The next operation is to split the ridges as aforesaid, when it will be observed, the ridge is now directly over the first subsoil, and will present a depth of from 15 to 18 inches. In this condition leave it as long as safe from frost, when the subsoil plough is again run up the new formed channels. In this condition it lies till *spring*, when nothing farther is needed than to drill the seed in as soon as the tops of the ridges are dry enough, which generally happens days before the frost is out of the ground. However well the ground may be prepared in spring, it cannot equal fall preparation, and the yield will be from 10 to 20 per cent short.

Remarks:—The double ridging and the subsoiling are just equal to two ploughings. If, the first time of subsoiling, the ground should be hard and stubborn, it is sometimes found necessary to go over it twice, because over this subsoiling is where the roots have to grow.

Note also, the above system is the proper one for all subsoiling. The usual plan for the subsoil to follow the plough, and the plough to follow the subsoil, is an error, for the furrow horse directly treads some of the disturbed subsoil firmly down again, and the plough at once covers the whole, and, before any benefit can be imparted by aeration (the very thing that is so indispensably necessary) subsoiling loses 50 per cent of its value.

I have to add, should no other manure be at command at the ridging time, 300 pounds of bone dust per acre, sown broadcast over the ridges before splitting them the second time, will answer equally as well. If the ground is poor, both dung and bones might be added. Light soil is preferable to stiff, but the parsnip will grow in either with the above preparation.

Sowing and Cultivation.

Generally, ridges so prepared in the fall are in a fit state to sow at the end of March. When the frost is 6 inches out of the ground the tops of ridges begin to dry, and this is the time to drill in the seed. The nearer we follow a law of nature, the better we shall succeed; and, as a rule, nature sows all her seed in the fall, when they undergo the process of freezing and thawing ten times; after which they are packed away in a zero frost, for three months; after which they again many times undergo the process of freezing and thawing. But now in the spring after the freezing training, they will begin to grow in a temperature of 10 lower than would have excited them to grow in the fall. Therefore, the earlier we sow our seeds (generally) in the spring the longer they will lie in the ground before growing, and the more vigorous they will grow when the time comes; and then (like all our annual weeds) they never want coaxing and petting, by soaking to make them grow.

These ridges, in the spring, after lying all winter, are so thoroughly pulverised and ground to powder, that man with all his mechanical appliances can but poorly imitate it. The young plant ushered into existence in such favorable circumstances, has but little to do but assimilate that which is already cooked and provided for it, as by a tender nurse. Reverse this by turning all this prepared pap to the bottom, and turn to the surface nothing but raw material which is not fit for the infant plant to feed on, and if sown a little late they often refuse to grow at all, and then it is "confound the bad seedsman, and his worse than bad seed."

Sowing, Hoeing and Thinning.

The seed being drilled in on the top of the ridges, no roller must be used at this season. But it will be necessary to use a very light steel rake, to pull a little extra earth on to cover the seed; and the rains and snow that will fall after this will sufficiently pack the earth.

The first hoeing should take place as soon as the plants can be seen in the row. The way we do it is to use a thin, narrow and sharp cutting-hoe. The best is one made from an old used-up cradle scythe. This first operation is done by walking backwards, at a half-walking pace up one side of the row at a time, keeping the handle well elevated, so that the earth falls back over the hoe. The earth should not be scraped away from the plant, for unlike the carrot, the parsnip likes to form its crown half an inch below the surface. This first hoeing cleans on each side of the row at least 4 inches, after which the horse-hoe takes charge of the middle. There are two advantages in going backwards in this first hoeing: first, no footstep treads on the young cut up weeds to make them grow again; second, there is great economy in moving the tool only *one* way, instead of a backward and forward movement at every stroke. Girls or boys can be trained in a few minutes to do this work, as well as men. When the plants are too thick, they can be much reduced by this first hoeing.

The next hoeing, or rather thinning, must be done by a good steady hand, in the following manner: Take a narrow, sharp cutting-hoe 4 inches long, and, walking on one side of the row, take a *smart* standing cut, leaving one or more plants at six inches apart. It does not pay for this operator to stop or stoop to reduce what is left to a single plant; that can be done afterwards by girls or boys. There will yet be needed two more hand hoeings at least, but quite differently performed from the first. Take a push (or Dutch hoe) not less than 6 inches wide. Push it, instead of pulling it, along on each side of the row, and at a depth just sufficient to destroy all the weeds. A man doing this can follow the hoe at a slow walking pace and can do three-fourths of an acre in a day, and do it well. The last horse-hoeing may be done when the leaves are a foot long.

Capacity of Apple Barrels.

Mr. Avard Longley, of Annapolis, in a paper read before the Fruit Growers' Association of Nova Scotia, took exception to the present standard dimensions of the apple barrel as fixed by law, and proceeded;—The size of our apple barrels is now established by law, although the law is not strictly observed. Through its instrumentality much greater uniformity has, however, been effected as regards the size of the apple barrel now in use. Before the law was passed, the apple barrels made throughout the Province ranged all the way from 1⅞ to 2⅞ bushels, or 7½ to 9½ pecks. The dimensions of the barrel as now prescribed by law are as follows: length of stave 29 inches, 19 inches diameter in the bilge, measuring from the inside of the barrel, and 17 inches across the heads of the barrel, estimated to contain 2⅜ bushels, or 9½ pecks. For several reasons our apple barrel should be made to contain 2½. First, the Canadian and American apple barrels are made the same size as that of the flour barrel, and contain 2½ bushels at least. While our apple barrel is of a smaller size, we suffer both in money and reputation; as in our case there is not only the absence of any reliable standard size to the barrel, but its roughness and generally unsightly appearance are not creditable to us as Fruit Growers and fair dealers. There is also simplicity and convenience in the way of computing quantities with barrels of this size.

Great good would ultimately attend the passage of a law establishing the size of our apple barrels at 2½ bushels, and the attaching of adequate penalties for any and all violations of the law.

As regards the London, Liverpool and Glasgow markets, it is stated that the price obtained for apples is strictly regulated by and is proportioned to the size of the barrel in which they are packed. This is as it should be. Why should the same price be paid for a barrel of apples containing *two* bushels only, as for one containing two-and-a-half bushels?

Saving Labor in Growing Potatoes.

We have all raised potatoes enough, this year, to make us poor. I experimented some with potatoes, last year and this, as follows.—I ploughed some in the Fall, and some in the Spring, throwing up ridges, three feet apart, leaving a deep furrow between. This I filled with muck, or marl, or any coarse or half-made manure, as it accumulated in the yards, saving the necessity of hauling it out in the Spring, when the ground is soft and wet.

Before dropping the potatoes, I harrowed down the ridges, dropped in the furrows, and turned back the ridges upon the potatoes, and manure. In about ten days after planting, or before they are sprouted much, harrow down the ridges again, and then they are ready to work with cultivator, and finally with shovel plough. They require no hoeing.

When ready to dig, I hitch a pair of horses on the same plough, with the wings on, and if you will attach a pole instead of the beam, you have about as good a potato-digger as any in use.

As for pitting potatoes, of which there has been a great deal to do this Fall, dig a few rows, one side of the field, and plough out eight furrows, as deep as the team can draw the plough, and as long as required for your pit, then hitch on to the scraper, scraping out the furrows to the right and left, wide enough for the pit, leaving a good bank of earth on either side, and when you come to bury the potatoes, they are half covered.

Commence digging on one side of the field, leading towards the pit, and one horse and cart is best, although a waggon will do, if you raise the forward end of the box as high as the stakes will admit, in order to unload easily; keep the team along near where you are digging, to save carrying far; commence filling one end of the pit, and keep on until it is full.

When ready to cover, take the team and plough two or three furrows up as near the pile as convenient, and finish off with shovels. This will save a great amount of labor in covering the pits from a large field of potatoes.—*Cor. Rural Home.*