

PLOUGHING DEEP AND SHALLOW.

The method commonly practiced inverts the soil to an average depth of four or five inches, and may properly be termed the "superficial method." The results are generally unsatisfactory as to the yield of crops, ruinous to soils, impoverishing the land, leaving him who practices it little, if any, better off at the end of the year. A transformation of wealthy, it leaves the soil as much poorer as it has added in dollars and cents to the purse of the owner, and the tendency is to deplete the land. Another method practiced but by few, differing from that just mentioned only in depth, may properly be called "trench plowing." It inverts the soil to the depth of from seven to twelve inches, carrying the surface mould down to the depth of the plowing, and burying whatever may rest upon the surface far below the reach of young plants. It brings to the surface the hitherto unused portion of the soil, and the least productive, for the reason that it has never been subjected to the complete action of the air and its fertilizing influences. Sufficient time is not given during the growing season to render it fertile, and the crop languishes for want of needed nutriment, and ere the plant roots have penetrated to a sufficient depth to reach the substances which have been buried so deeply, the season has so far advanced that their assistance comes too late. The disappointed farmer is often led to the belief that deep ploughing "does not pay," and the advocate of deep ploughing together with the system is condemned.

The objections to this system is that too much time is consumed in fertilizing these under strata and rendering them productive. The use of the best portion of the soil is lost by being buried beyond the reach of the plants, and is also rendered the less productive by being mixed with the weak sub-soil, while it consumes so much power as to place it out of the reach of most farmers to accomplish. The redeeming feature in this method is, that if the farmer has the patience and means to hold out for a few years, he will so completely mix the surface mould with the sterile sub-soil that the whole mass becomes tolerably productive, while he obtains a depth of ploughing which shields him against the withering influences of summer droughts, or an opposite extreme. Similar results are accomplished with the "double plough," the first plough cutting off the surface mould and placing it in the bottom of the furrow together with whatever may be upon the surface. The second plough covers the furrow of the first with another portion of earth, brought up from the bottom of the trench. This, by some, is improperly called "sub-soiling." It is nothing more than "trench-plowing."

Another method of plowing land, and by far the best in all respects, is called "sub-soiling" proper. It differs from "trench plowing" in this, that while it breaks up the sub-soil, it does not bring it to the surface. The reasons for its adoption are so numerous and varied that they cannot be condensed within the space of a newspaper article. A few only will be noticed in this communication.

Its adoption leads man to labor in harmony with the natural formation of the soil. He finds upon new lands that the surface is always the most fertile. He finds a reason for this in the fact that it has been long exposed to the action of atmospheric influences; that there has been returned to it each year, rich deposits of decayed vegetable matter and gaseous compounds from the air. In other words, a complete system of exchange has been carried on. Vegetation has been nursed to maturity, has given back its solids to the earth, while its fluids have mingled with the air from whence they were drawn. The immutable law of exchange has never been violated and the soil maintains its fertility. Man's art leading him in conformity to this law, teaches him to labor in harmony with the natural formation of his soil, and to observe this just law of exchange. His adoption of a system of "sub-soiling" proper, keeps the surface mould on top, applies his manures to the surface, that their strength may be applied to the immediate wants of the plant he cultivates.

It leads to a proper economy in the expenditure of his power. Why should he tax his team beyond their strength to invert a solid foot of earth when better results may be obtained and the same depth reached with less power? To invert a solid foot of earth requires a given amount of power. Raise the surface plow to within six inches

of the surface, and nearly one-half his power has been saved. Attach the sub-soiler to his plow and the remaining six inches of sub-soil will be completely broken up, while his dynamometer will show that a less power has been applied than when drawing the surface plow twelve inches deep. Mercy prompts him to adopt sub-soiling.

Manure is more properly disposed of, both as to being speedily rotted and being kept near the surface. The surface plow buries it sufficiently deep to prevent the escape of the fluid parts, while the combined action of plow and sub-soiler, places it between two bodies of loose, moist, warm earth, surrounding it with elements of moisture, heat and air, the combined action of which is necessary to its speedy decomposition. Buried to a depth of one foot, it is deprived of heat; moisture and air only being present in sufficient quantity, it will not rot; moisture, heat and air present and it speedily decomposes.

Lying so near the surface the material is constantly giving out to the plant a timely supply of nutritious food, hastening its growth, and ere the drouth of summer overtakes it, the plant is fortified against its withering effects.

Other considerations will be noticed in the future.—*Farmer, in Iowa Homestead.*

AGRICULTURE IN THE ISLAND OF JERSEY, CHANNEL ISLANDS.

The island contains about 39,000 acres, and has a population of about 57,000, of whom more than one half live in the town and its suburbs, and perhaps one-fourth of the remainder in the little villages on the different bays. These statistics are not without their significance, for I believe that there is no isolated country out of Asia where the population is so dense, and where the prosperity of the people depends so entirely on the products of the soil. There seems to be almost no manufacturing of any sort, and very little commerce that does not depend finally upon the agricultural products of the island. Nowhere are small farmers so rich and so comfortably placed, and nowhere do the people at large seem to live in such an easy and economical state of comfort and elegance. Owing to the very favorable climate, agricultural operations are carried on throughout almost the whole year, and early potatoes (the most profitable money-producing crop of the island) are sent to the London market long before even those of the southern part of England. The farms are generally owned by the occupiers, but where rented they bring often the enormous price of fifty dollars per acre per annum, and that for a whole farm, usually from twenty to fifty acres, including orchard, pasture-land, and much that must be comparatively unprofitable. General agriculture is almost universal. Every farmer raises for market more or less fruit, and a good field of potatoes, besides large crops of grass and roots for his cattle, and often a little wheat. The cows hold a prominence in their system of cultivation that quite justifies their notoriety in the rest of the world. According to the last statistics there were over twelve thousand horned cattle, or nearly one to every three acres of the island. Probably twenty per cent. of this number are yearly exported to England and America, bringing to their owners a cash return of fully one hundred dollars each. The butter, which they produce in plentiful quantity, and always of good quality, as the grass is green the whole year round, is mainly sent to the London market, and to the English and French residents of the island.

The agriculture of the whole of Jersey is a good example of what we know as "high farming." A very large amount of labor and manure, and deep and thorough cultivation constitute the secret of the success that seems to attend the operations of every farmer. Such crops are produced for an average over the whole island as are known here only in exceptional cases. Land being high and hard to get, the little that a farmer can control is made to do double and treble duty. I had occasion to see a good deal of the interior life of the farmers, and found them generally more comfortably housed than the average of the farmers of New England, and they seemed to be living with more profusion of luxury and elegance than would be considered consistent among men of equal wealth in our rural districts, while the great number of new and somewhat pretentious houses that are being erected indicate a prosperity that one would hardly expect to see among such small cultivators.—*Heath and Home.*

CAUSE OF RUST ON WHEAT.

The close, long-continued analytical researches of Dr. Sprengel led to the conclusion that no excess of iron salts, and especially of the phosphate of iron, greatly favors the growth of red rust on the leaves and culms of wheat and other cereals. A soil in the vicinity of Brunswick that did not lack draining, but lime, was remarkable for growing wheat and barley, always attacked and generally blighted by rust. A quantity of this soil was taken into a field generally free from the often ruinous parasite, to form an artificial soil fifteen inches in depth. Wheat planted in this was badly rusted, while that grown all around it in the same field was free from the same malady. There was something in the soil peculiarly favorable to the fungus which stains one's clothing as red as bog iron ore itself. Low ground, in which salts of iron collect in excess, is generally recognized as being very subject to rust. Drainage is a partial remedy and no more. Dr. Sprengel found on analysis a fraction over a half per cent. of the phosphate of iron in the soil under consideration, with only a trace of lime uncombined with silicic acid. As free lime will take phosphoric acid away from iron, and indirectly convert iron into the harmless peroxide, and at the same time produce the valuable fertilizer, phosphate of lime, liming was prescribed and the cure was perfect. Here is a plain case where the analysis of a soil by a competent expert detected the source of a great permanent evil, and transformed, as by magic, a mineral poison into plant food of inestimable value. To decry salt analysis by skillful chemists is shallow quackery—a weed that finds too much favor with American farmers.

HANDY HAY RACK.

Our wagon-rack is made from good pine plank, two inches by ten inches, the sides are mortised through three inches from the ends, so as not to split out, the ends are tenoned to fit the sides and pinned with a wood or iron pin. (Let the ends of the tenons run through one inch). The bottom is made of inch battens, four or five inches wide; the two centre ones project two or three inches each end. Then to the side belts should be rivetted to run down through the battens with the nuts below, which will make a very good, strong box, which will carry grain or sand, potatoes or manure, without leaving a track three feet covered with whatever your load may be. The bottom should be made the full size of the sides, and in the centre in front cut a mortice, close to the end of the box two by two inches, to receive the end of the standard, which should be two by three inches, fastened to the box. This can be removed in one minute. Now takesome good sound scantling, free from knots, two inches by three and seven feet long, four pieces for each side, place them in pairs across the box; one pair each end; one pair just forward of the hind wheels and one pair between, then fit the ends to the sides and bottom, cutting a mortice for the end of each stick half an inch deep on the sides of the box to prevent the rack from tipping over; now place each stick in its place, and bore a half inch hole through the centre of the cross, and put half inch carriage through. Take boards five inches wide, and lay three on each side, making the rack as wide as you want it, and fasten the boards on with carriage bolts. These never shake loose. Be careful to get the scantling spaced the same on the ends as at the bolts in cross, otherwise the rack will not fold up nice. Trim up the ends and paint it, and you will have a nice handy rack. When the wagon is wanted, go to one side and raise up the rack, throw it over upon the other side, then take the bottom end and tumble it out of the wagon and stow it away in the shed. When wanted, load it on just as you took it off. One man can handle and load it in three minutes ready for use, standard and all.—*Rural Home.*

WHITE CLOVER AS A HONEY PLANT.—An English writer says:—White or Dutch clover is the queen of honey plants. It is widely cultivated in this country, and continues to flower a long time. In Scotland the farmers use more white clover seed in laying down the land in grass than the farmers in England, hence the clover fields are better there than here. And the use of lime and bone dust as manures has a great influence in the production of clover. In travelling to Edinburgh some years ago by the Caledonian line, whole fields white with clover flowers caught my eye, and made me take a second look to see if the whiteness came from daisy-flowers. Whole districts, unsurpassed for excellence, met my eye during a visit to my native land, many of which hardly ever received a complimentary visit from bees, and for this reason, that there were no bee-keepers in these districts.

ALSIKE CLOVER.

As there are numerous enquiries concerning Alsike clover, I will give my experience in raising this most valuable plant. It is only a few years since the seed was imported from Sweden, where it has been grown in the native pastures for many years. The plant bears a greater resemblance to the common white than to the red clover. It yields two mowings annually, if cut expressly for hay when in full bloom, which, in this latitude, is generally the last of June or the first of July. But if cut for seed it should stand about two weeks later, then affording abundance of superior pasture for all kinds of stock. The seed is cut from the first crop. The Alsike, when left to seed, has its stalks and leaves yet green when its seeds are ripe, and produces much better hay than the red clover when it is cut for that purpose.

The weight of seed required to be sown is from 3½ to 4 lbs. per acre, which is an abundance. The seed being much smaller, a less quantity is required than of the red clover. Four pounds of Alsike will seed more land than ten pounds of red clover. The seed is sown at the usual time of sowing common red clover, on wheat, oats, rye or barley. It generally yields from three to eight bushels of seed per acre. The head is formed with pods, like common white clover, with several seeds in each pod.

I have tried Alsike by the side of red clover four successive years, seed sown at the same time and in the same field, and find that horses, cattle and sheep will not graze on the red clover so long as they can get a good bite on the Alsike. My experience is—there is no other clover equal to it for the purpose of feeding cattle, sheep and horses, and I believe it to be equal to the red clover as a fertilizer. It will flourish on both dry and moist land—does not suffer from the severest frosts or drouth as red clover does—is as free from fuzz or dust as timothy; hence it will not cause horses to cough or heave as red clover hay does. It will grow from 1 to 2½ tons of superior hay to the acre, according to the season.

I think I never had a greater growth of red clover than I raised four years ago, growing from three to five feet in length. Alsike has many more branches, leaves and blossoms from the main stalk than red clover; the hay is therefore much finer and far superior in quality. In fact, it is of the same nature as the common white clover, (which all farmers will understand), except growing to much larger size. All farmers know, who have had any experience, that common white clover pasture is far superior to any red clover; therefore, if it would grow large enough to mow, it would make much better hay than red clover. Alsike clover blossoms furnish an abundance of honey for bees. They can work on them as well as on the common white, and can gather honey much faster.

To sow the seed, mix the quantity of seed with the quantity of plaster you wish to sow per acre evenly, and sow as if sowing plaster, except on smaller lands. In so doing you sow your seed at the same time that you sow your plaster, saving the labor of going over the field twice, and it can be sown much more evenly. As the seed is so small and such a little quantity is required per acre, it is difficult to hold the quantity in the hand or fingers that is required if sown by the hand. Plaster should be sown as a fertilizer, as on red clover.—*E. T. Bryan, in Country Gentleman.*

AMERICAN CORN FOR EXPORT.—The Pittsburgh *Commercial* says the low price of corn in the United States seems to have created a large foreign demand for the staple instead of wheat. According to a late report of the Bureau of Statistics, there was exported 51,931,282 bushels for the 15 months ended September 30, '72, against 19,441,716 bushels for the corresponding period to September 30, '71; while of wheat there was shipped 46,961,355 bushels for the 15 months ended September 30, 1871, against 36,872,712 bushels in the similar period to September 30th, last year. The difference in the present rates of wheat and corn is considerably greater than it was during the period to which these statistics refer, and it is probable that the present summer will show a still larger increase in the foreign consumption of the latter important breadstuff staple.

A farmer in the neighborhood of Prentiss, Mich., had a valuable horse killed lately by Paris Green, which had been applied to potatoes as a preventive of bugs. Soon after the application one of his horses ate off the potato vines, and was found dead the next morning.