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side of course, and from thence direct your float the most convenient way to the field you mean to take it, then plough a furrow as near a level as you can, just giving the water-fall enough to run, always turning the furrow up hill, for that allows the float to escape and spread over the field. It is a good time to do this after a good shower, and let the farmer be in the field with a spade and change the directions of the float, say every 10 or 15 minutes, and keep a lad at the reservoir with a long pole and a bit of board 8 or 9 inches square, and keep stirring and you will find your float running down black and strong; by this means you have everything that your barnyard or stables can produce, and I am sure no farmer will dispute its vitality, and the expense is very trifling, and will last forever with trifling repairs.

You see, sir, I have been speaking pretty freely about the float pit, for I wish to see it generally carried out; I never saw a farm-yard in Devonshire but had it, and this country will soon find the necessity for it, and I have often wondered that you, Mr. E., that has such a keen relish for the farmer's welfare had not brought up the affair before.

I have said little or nothing of the article of peat as a manure, and as I coincide in most parts with what is written in the supplement for this month on peat, it would look too much like copying if I were to say anything on the subject; now, lime is a grand fertilizer if rightly managed, but the question for the present is not that, but of a matter of equal consequence, and must be reserved for future consideration.

Leeds.

F. SQUIRES.

Surface-Soil and Subsoil.

The writer of the Ogden Farm papers in the January number of the *American Agriculturist*, speaks of the advantages of deep ploughing as a question of doubt. He thinks that on this important subject, theory and practice are quite opposed to each other. He writes:—

"I applied myself during my recent trip to the obtaining of light on the much-vexed question of deep ploughing, one which has always had a prominent place with our writers, and about which no definite early conclusion seems probable. It has certainly not been less talked about and written about and quarrelled about in England. When agricultural writing first commenced there it at once took a prominent position, and the columns of the British agricultural journals are to this day more taken up with it than any other topic on which opinions differ widely. Arguments on both sides are plenty—on either side, viewed by themselves, they seem convincing—and it is at least difficult to decide which has the best of the discussion. In practice, the deep plowers find comparatively few adherents, for there, as well as here, it is the almost universal custom to plow only to the depth of six inches. Personally, I have always sided with the deeper faction, and I am not now disposed entirely to abandon their position. At the same time, the more I investigate the matter the less I am inclined to urge the adoption of their recommendations. There is much force in the statement of a recent English writer that if by deep plowing you convert the up-turned subsoil (by the aid of manure) into a surface soil, you by covering up the surface soil convert it into a subsoil, and place its greater fertility beyond the reach of the developing action of the atmosphere, and thus lose its effect. On the other hand, there is no getting around the fact that gardeners and nurserymen have great faith in the efficiency of 'trenching,' a process whereby the surface soil is completely buried beneath the up-turned subsoil. In their cases, however, the quantity of manure used is much greater than is possible in the larger operations of the farm."

If the theory that deep ploughing is an essential part of good farming, be found, when put into practice, detrimental to the interests of the farmer, it must be cast aside, no matter how specious the arguments may be in its favor. But we do not think that in agriculture science and the experience of really good farmers can be opposed to each other when thoroughly examined.

The theory of the advocates of deep ploughing is not that under all circumstances there should invariably be deep ploughing. In an article on this subject in the *Farmer's Advocate* a year ago, we showed that, while recommending deep ploughing as

the rule, there were certain conditions in which shallow ploughing would be more immediately advantageous. Since then we have read several contributions to agricultural journals telling of large crops raised from shallow ploughing, and arguing thence that that mode of ploughing was proved best. But all the instances given were exceptional cases, and form no general rule, nor can those isolated instances in which deep ploughing was followed by inferior crops, be regarded as decisive proofs. They are such as were to be expected from the following of a general rule, under every circumstances, forgetting that some crops will succeed with shallow tillage, and that under certain conditions of the soil ploughing should be shallow.

"If by deep ploughing you convert the up-turned subsoil into a surface-soil, you, by covering up the surface soil convert it into a subsoil." (See extract above.) Let us inquire what is surface-soil as distinguished from subsoil? It is not to be determined by a given number of inches. The term "Surface-soil" must mean that soil, be it shallow or deep, which from previous cultivation is best suited to promoting vegetable life, and this suitability is produced by its exposure to the influence of the atmosphere, and is added to by vegetable matter from the roots of plants of preceding seasons. Now we hold that a surface-soil of eight or ten inches, and a surface-soil may be of that or greater depth, is more productive than one of four or six inches, as affording to the plant a greater store of food. This is one of the advantages of deep ploughing, when properly performed—not the converting of the surface-soil into subsoil, but the converting of some inches in depth of subsoil into a soil equally rich in plant food with that under which it had lain, and renewing and refreshing it when in part exhausted of some necessary element of fertility.

This increased depth of surface-soil is especially necessary for the successful growth of some plants. For some it is not so necessary as, for instance, Indian corn, while for others, as root crops, and above all, those that are tap-rooted, a good depth of cultivated soil is requisite to the production of good crops.

Beneath that surface-soil which alone is tilled in shallow ploughing, there is often a soil of some inches abounding in those very elements which would be of great service to the light surface-soil. These may have been part of its component character, or they may have been acquired by the permeations of heat and moisture through the tilled soil. Lime applied to the soil has a tendency to sink, and so have other manures; and such plants as Red Clover and Lucerne strike their roots deep even into the unploughed sub-soil, and decaying there afford easier ingress for rain and heat, the immediate agents of vegetation, besides enriching by their decomposition the earth from which they partly draw food. The sub-soil well stored from these sources, on being mixed, with due tillage, with the "surface-soil" of a few inches proves to be just what was needed to add to the productiveness of the soil.

Deep ploughing, as we have shown, adds to the quantity of plant food by increasing the depth of the surface soil. It is also a great protection against the evil effects of an unusual drought, enabling the plants to extend their roots to a depth that the drought has not affected. In a very wet season the advantages of deep ploughing are equally great, as the excessive moisture oozes away more readily and causes less injury to the maturing crops.

Only at certain seasons is deep ploughing for the purpose of adding to the depth of the surface-soil, done by judicious farmers. If by deep ploughing we turn down the old surface-soil beneath a large portion of sub-soil previously untillied, and then sow the seed on the soil so prepared, expecting a good return, we would be disappointed. I always had this ploughing for adding to the depth of the surface-soil done in the fall, that the up-turned sub-soil might be subjected to the ameliorating influence of the winter's storm. Frost and snow, as well as heat and moisture, are beneficial agents in the great work of agriculture—a summer fallowing, where it is practiced, an increased depth of ploughing is given with great advantage. This deepening of the soil should be gradual, not going the required depth in one season, but year after year adding to the depth. In this too the old proverb is appropriate, "Rome was not built in a day." When a

good deep surface-soil is once formed, keep that surface-soil deep by deep ploughing.

In considering this subject we advance no mere theory, unsupported by the lessons taught by practice. I have had an experience of many years in some of the best agricultural districts in the British Isles, and knew the practice of some of the best farmers and ploughmen, and have been the more confirmed in my judgment of the great advantages of deep ploughing. For an immediate profit the ploughing may be shallow under circumstances such as we stated in an article on "Deep vs. Shallow Ploughing" some time since; but our own experience forces us to differ from the statement that "In practice the deep ploughers find comparatively few adherents." It was a general custom to plough to the depth of eight inches. I and many as well had our grounds ploughed ten, and in some instances not less than twelve, inches.

My rule—the rule of good farmers—was:—Have a rich, well-tilled, deep surface-soil. The crops, whether cereals or roots, will have an abundant store of plant-food, and they will thrive, even in a parching drought or in the wettest season. Good ploughmen get higher wages; good horses are bought at higher prices; good plows cost more than bad ones, but all these additional outlays are repaid with good profit.

—S.

Correspondence.

J. B. Turnbull, of Dawn Mills P. O., complains of a weed known by the name of Red Root, and wishes information regarding the best means of exterminating it.

Mr. A. Ployart, of Derby, P. Q., enquires if we or any of our correspondents know what would be the shortest and cheapest method of destroying the one-eyed daisy, and if salt or lime would destroy them.—We have not been troubled with either of the above named weeds on our farm. Perhaps some of our readers will give the desired information.

A. Ritchie, of Inverary, asks information in regard to Hungarian Grass, the time to sow, how much seed per acre, and the kind of soil that suits it best? Light soil in good heart and action is best; sow from the 3rd to the 10th of June, from 20 to 30 lbs. per acre. If cut green it makes excellent feed, but if allowed to ripen the quality of fodder is no better than inferior straw.

FROM BRANTFORD.

SIR,—I have long been intending to write to your paper to let you know some of our doings in this part of the country. We have been establishing Farmers' Clubs through this vicinity; we have now got seven or eight in working order, and a county club formed by delegates from the smaller ones, to carry on business in a more united way and work for the good of the farming community. We do not mean to confine ourselves to this county alone, but hope that other counties and townships will follow in the good work we have commenced.

It is the general opinion among the farmers here that they are not well enough represented in Parliament, and are greatly imposed upon by town and city residents.—With these opinions we have taken up arms to fight for justice, and will not throw them down till we gain it. We intend our central club to act partly in the same manner as the Granges in the United States, excepting in not having any secrets about our meetings, but discuss our subjects and work for our welfare with open doors, and not exclude any one from our rooms.

I expect one of the first moves the club will take is the establishment of a cattle fair in our town, as we find that the farmers who sell their cattle at fairs realize better prices than buyers will pay in our own stables, and the buyers at fairs can afford to pay more, as they get all their cattle at one place, and have not to drive around two or three days and visit dozens of farms before they get the number they want.

Our subjects are various, embracing all that are of benefit to farmers, both in working our farms to the best advantage and also matters connected with municipal affairs, together with local grievances, which have been thoroughly discussed by all the clubs in this township.

I am glad to find that your paper, the *Farmer's Advocate*, is steadily improving in its reading matter, and I hope in a pecuniary way to its proprietor. Some of the articles in the last issue are very good, and tend to do good to the farmers of Canada.

I would like to get a package of your white spring wheat, to try it. My opinion is that all these new seeds should be tried in different localities of the country and under different treatment; then they could be cultivated if successful, and dispensed with when otherwise.

I am well pleased to find from your paper that there are other farmers' associations in different parts of the country than just in this locality, and if we continue in the same way we will make our voice heard to some effect, and the farmers will take their rightful position in the country.

With best wishes for the prosperity of the *FARMER'S ADVOCATE*,

I remain yours truly,

A FARMER.

Brantford, 10th March, 1874.

TRAVELLING AGENTS.

SIR.—In looking over your excellent paper for this month, I noticed in a letter from some one signing himself "E. D.," a remark about travelling agents that I think both unjust and untrue, and, being one of that, generally speaking, hard working and much abused body, I beg to say a few words in their defence.

I think everyone will agree with me in saying (excepting, perhaps, "E. D.") that the farmers all over the Dominion, and especially in the newly settled districts, have the travelling agents to thank, and the travelling agents only, for many of their necessities and comforts, which, if it had not been for those "non-producing persons," they would never have had at all; for instance, such things as fruit trees or sewing machines, for scarcely a farmer ever goes to the nursery or manufactory for these absolute necessities, but infinitely prefer them brought to him by one of the "hindering persons," rather than incur the expense, time and risk of procuring them from a distance. I am perfectly aware that there are agents who do their business in anything but an honest manner, but they are easily detected, and if the farmer takes care only to sign an order which faithfully describes the article bought and the conditions on which it is bought, and insists on having a copy of the order, there is very little chance of his being swindled.

As to the charge of loquacity, every farmer surely ought to know whether he requires the article offered or not; if he does, let him order it at once, and not invite the agent to coax him, as so many farmers do; and if he is certain he does not want it, let him say so plainly, and the "talking person" will not stay much longer. As far as I am personally concerned, I have always met with kindness and consideration wherever I have been, and I am sure I have not been looked upon as a nuisance, but rather as a necessity, and I sincerely hope, sir, that only in the eyes of your correspondent am I

ONE OF THE "NON-PRODUCING."

"HINDERING," "TALKING PERSONS."

London, Ont., 6th March, 1874.

[Our readers may refer to "E. D.'s" article on page 34. As this question is an important one, we hope "E. D." may reply, and that other farmers may also send their opinions on this subject.]

ALSIKE CLOVER.

It is a common saying that but little talent is required to find fault, and as I do not boast of much talent, I have one excuse for taking my present position.

Having noticed several articles on this subject in agricultural and other papers, which do not accord with my own views, I propose to give my experience. Some five years ago I secured a small quantity of Alsike Clover seed, and sowed a little more than a half acre in a field that I was about to seed down with a mixture of red clover and timothy, for meadow. The soil was a rich clay loam, rather low—parts of it too wet to grow good cereals; a small portion of it, however, was elevated enough to be pretty dry.

Now for the results:

The first year I left the Alsike to seed, for the seed was valuable at that time; and as the other part of the field was cut first, I