Deep Soil.

Among the peculiar features of the exhibit of Iowa at the Centennial, is a sample of her soils. She has long glass cylinders over a foot in width and many feet in length, and in this is placed earth, just as it exists. On the top is the black soil, then the subsoil, and so on deep down to "hard pan," "solid bottom," or whatever the end is called. This enables the stranger to see how deep is the rich black soil, and is very attractive to the visitors. There is a glass pillar for each county, and the soil of each county, just as it is, is represented each by itself. There is no doubt it is one of the very best methods of showing how deep is the soil of Iowa, and that the fact will have at least its due weight to those who are seeking homes in the West.

But after all we must remember that it is not alone deep soil that it is to make good farm land. Though rich black soil is a hundred feet deep, it is only the first foot or so that is of any material value to a good crop. Some roots go deep, but the chief feeding roots are near the surface, and in time they will exhaust the soil, and, unless the lower strata are brought to the surface, at some expense, the crops will be poor. This has been found the case in Ohio. Here was deep, rich soil, as deep as any one could wish, but in a quarter of a century it gave out and many a wheat field has been laid down again to grass, and cattle now graze over land which was once the grain-raisers' pride. The subsoil might be brought up to the top, but that is too expensive. No way is like the old way in many things, and no way of keeping up the fertility of the soil is like the old way of feeding it annually with manure. Soil may be as deep as one chooses and laughter may be bestowed upon our western journals and eastern farmers who talk about manuring, but the richest western soils are no exception, and the time will be when these deep Iowa soils, as represented in these Centennial glass collections, will have to be annually manured like all the rest.

Even the deep ploughing, the turning up of this rich subsoil, is not always the best plan, even when the expense of turning it up is not so great an object, for, notwithstanding the advice of the great farmer of Chappaqua to "plow deep," prairie men never appreciated it. The universal testimony is, that in breaking prairie for cultivation the shallow plowed land yields the best crops. There is reason for it, but we need not give it here, where only the undoubted fact is of consequence.

We are glad to know that Iowa soil is deep and rich, and see the evidences thereof at this great Centennial Exhibition. It does no harm whatever, and in many ways the exhibition does good. But in the name of good farming we must point out that for permanent and genuine agriculture it is of little account. The English have no virgin soil, no black, deep bottoms to their land, but by judicious and cheap management it yields to-day crops of which the black lands of Iowa might be proud.—*Germantown Telegraph.*

Clover and Wheat.

Time and again, says the Indiana *Farmer*, it has been shown that wheat is almost certain to be a good crop upon land previously run to clover. Equally often has it been shown, by actual trial, also, that clover can be made a profitable crop to the farmer. When we consider that these two facts are well known, is it not a little singular that farmers will persist in taking their chances in wheat crops in land not naturally fitted for wheat? Year after year this is done on land not possessing the elements required to produce wheat, but which would produce clover, which in turn, while making a profitable crop, would put the soil in precise condition for a wheat crop. Why not observe these plain facts, and thus become more successful?

Dr. Weisk, of Germany, has shown by actual and repeated experiments the true value of clover as a preparatory crop on wheat land, and, indeed, for corn and other crops requiring similar elements of soil. It was shown that a single acre of clover left enough nitrogen in the soil to produce 116 bushels of wheat; phosphoric acid for 114 bushels, and potash enough for 78 bushels. These are the active and essential elements of soils for producing wheat. We urge again that it is both a useless waste of time and labor to plod along without method or information, or what is still worse, without disposition to yield to what is known on this subject in the production of wheat. If ever the production of wheat is increased, these well known and well tested facts must be observed. It may be true, and is, that there are sometimes failures in wheat crops even in land so prepared. But these are clearly traceable to conditions of climate and atmosphere, character of land, and want of drainage. Lands which are now annually producing poor crops of wheat and corn, can be made to nearly double their production by running them to clover, and at the same time the clover itself may be made a valuable crop.

One other consideration regarding clover. Farmers frequently say that in their sections of country clover freezes out. Now, we suppose that if people should attempt to wear linen coats during the winter, they would freeze also. What we mean to say is, that no grass field should be pastured bare late in the season. The practice indulged in of grazing land bare to the roots of the grass is the chief cause of its freezing out. A reasonable aftermath should be left for winter protection, and there would be little of this freezing out heard again.—*Rural World.*

Experiments in Farming.

A writer in the *Vermont Farmer* says: A large class of farmers at the present time apply the manure in the spring, do a good share of their plowing in the spring, when the team is the least able to endure the hardship, and it is really harder plowing at that season than any other. Now I have become satisfied beyond a doubt that the best time to plow and apply manure is in the summer as soon as may be after haying, and as soon as the middle of October. I commenced to draw the manure as soon as the first of September, spreading it, invariably, from the cart, and all the better if harrowed in the same day, as I believe that manure loses its strength by evaporation. Land thus prepared will not only help to facilitate the work in the spring, but will give better crops than by any other way I have tried. I have handled from 100 to 150 loads of manure the last March and put it in large heaps to lay till the middle or last of May, and have then applied it to the soil, and I had rather have two loads put on in the fall direct from my barn cellar than four loads in this way, as it leaches and dries up so that it becomes of much less value. I have for years applied my manure both ways, but should have adopted the new way years ago had my cellar been large enough to hold a year's stock of manure. In most cases, when I seed down to grass the first year, I get splendid crops of grass—the reason of it being that the land is not worn out by cropping before I seed it down, and the manure gets incorporated in the soil and is ready to act at once. How many times I have seen little heaps of manure (about six to the load) lay over plowed fields and on the grass land, to be spread the next spring. Where the heaps lay the soil is too rich, and it sown to grain it all lodges, the straw is almost worthless, and the grain does not fill. If potatoes are the crop, one will have a good growth of vines and a legion of small potatoes. If grass land, the grass where the heaps lay is all killed out, and in return noxious weeds come in. In building barns many make a mistake by not having more room in the manure cellar. It should be at least nine feet high—ten is better—with trough shape at the bottom, and cemented so as to preclude the possibility of losing the best of the manure. The stable should be 16 feet wide, so as to drive in with muck or other absorbents, and there should be a space back of the trench, three feet wide, (a bin like) and three or three and a half feet high, for storing absorbents. With such a stable, where the cows are kept in nights the year round, and the manure applied in the fall, instead of having a farm running down, it would make one smile to see the increase in the crops. Who says my way is not a good one?

Alfalfa or Lucern.

Alfalfa, the *Pacific Rural Press* says, was transplanted into Greece from Persia nearly five hundred years before the Christian era. At present it is largely cultivated in England, France and other parts of Europe, and gives great satisfaction as a forage plant. It is being introduced quite extensively into our own country, and though as yet California is far ahead in its culture, in time alfalfa will, we take it, be a prominent crop in all places where the winter is not too severe. Perhaps, even more noticeable than its rapid and enormous growth, is its hardiness and ability to withstand our long dry seasons, and to remain fresh and green when nearly everything else succumbs. On the pampas of South America it thrives, and appears rather to enjoy the drouth than otherwise. The power to withstand great heat and dryness comes from the long, searching roots, which are sent deeply down into the soil to find the moisture that is inaccessible to other less energetic vegetation.

Home-Made Manure.

In searching for manures we believe it is a safe plan, in that as in many other things, to follow the dictates of nature. Nature draws her supplies of fertilizing material from decomposing rocks and falling leaves, and while we have not yet learned to extract the potash from the granite, yet we are already drawing large supplies from minerals richer in that fertilizer, though more rare. And we believe as our needs become greater, the supply will be brought to light. Already we derive immense quantities of potash from Germany, and of potash and the phosphates from the kyanite of Canada, while the fossil bones of fishes of thousands of years ago, from the swamps of Carolina, are yielding their rich treasure for the fertilization of the fields of the whole world. But all these products have their specialties; there is not one universal manure, but one which really costs nothing and is good for all crops; that is derived from the barnyard, the henhouse and the pigsty.

A farmer may go on from year to year raising large crops and selling them, and then buying his manures from the product of the rocks, the fossil bones of antediluvian fishes, or the medicated bones of the cattle which feed our cities, and he will really be growing poorer every day, though he may be putting money in his pocket. But if he keeps cattle and saves their manure he is every day adding to his own wealth and to the value of his land. It is the old story of raising at home instead of buying from abroad; keeping cattle and saving farmyard manure is manufacturing your own fertilizer instead of buying it. The amount of grain necessary to keep the cattle would not buy half as much nor half so valuable a manure. Then the pasturage and the return to the soil by that means, while in the end the cattle more than pay for all they eat and are constantly yielding revenue and food for the family.

Turning in Clover.

I once had a very poor, exhausted lot come into my possession; the field was naturally good, but run down. It was under the plow the year before. I sowed it to oats, and stocked thoroughly with the large kind of clover with the oats. The oats grew only about six inches high, but there was an excellent catch and growth of clover. The next season the clover stood thick and high; I sent the harrow ahead of the plow, exactly as I wanted to plow, and not much faster. When the harrow came round, I took my bag of Nova Scotia plaster, and sowed one cast at the rate of three bushels to the acre; then followed with the plow, about seven inches deep, until the field was finished. The clover was in blossom. In August I harrowed it thoroughly, and sowed to rye. I had an excellent crop of rye, and have never failed to get a good crop on the field since, except in a small corner, which was too stony to turn the clover under at the time. All the crops since have showed the effect of that clover and plaster. The stones on the whole field have since been removed, and, with others, form a handsome fence on the four sides of the field, and I can now hoe, mow, or pasture at pleasure.

The Best Farmer.

Farming is the changing of material (manure) into grass and grain, and thence into pork, beef, wool, etc. When the land is purchased, it is this raw material (fertility) that is paid for; that alone is the value. The rest is mere sand, or clay, or rock. The object of the farmer, then, should be to secure his material as cheap as he can and use as much as he can, always keeping his machine, the farm, in good working order, mellow, well drained and clean. Instead of this, we are too apt to abuse the machine. The object of the farmer, then, must always be manure, fertility—how he can get this raw material cheapest, and work it best into grain, grass, etc., and thence into other products, such as are of most advantage to him. The best farmer is he who raises the best and largest crops on the smallest surface of land at the least expense, and at the same time annually improves his sod; who understands his business and attends to it; whose manure heap is very large and always increasing; whose corn crib and smoke house are at home; who is surrounded by all the necessaries and comforts of life; who studies his profession, and strives to reach perfection in it; who keeps a strict account of his outgoes as well as his incomes, and who knows how he stands at the end of each season. Such a farmer, in nine times out of ten, will succeed, and not only make farming a pleasant but profitable occupation.