

Agriculture.

No More Land to Sell.

The emigration of those desirous to acquire good, cheap farms, having the virgin soil unbroken, must henceforth be directed more exclusively to Canada, and this is certainly one bright feature in our prospects for the future. In the vast territories of the Dominion, more especially in the Northwest, there are fertile lands awaiting the enterprising colonists. In the United States there are no more lands of the public domain to sell. The *N. Y. Times* admits that there exists no longer a fertile and inviting field for colonists.

For a century at least, we have been in the habit of referring to "the national domain" as an unbounded tract of arable land, laced with beautiful streams, verdurous with groves of timber, rich in pasturage, and waiting only for the plow of the farmer that it may laugh with a harvest. But all this is founded on a popular delusion. There are no grand areas of arable land lying open to the adventurous plow of the settler. Whether wisely or not, railroad companies have been endowed with millions of acres; land scrip for educational and other purposes has been used to cover other millions of acres; hundreds of thousands of homesteads have been granted from the national domain, and considerable tracts have been sold for cash or bought under the acts for the encouragement of mining. The only considerable body of unoccupied land lying in one tract is that which is drained by the headquarters of the Missouri. In Dakota, Montana and Wyoming are found so few settlements that the country, away from a few points on the rivers, may be said to be wholly unoccupied. But the land for the most part is high and unproductive. The region is intersected by deep gorges, broken by steep bluffs, and absolutely incapable of producing regular crops. Here and there in Wyoming, Colorado, New Mexico, Nevada and Arizona are isolated spots of good land which may eventually be available for agricultural purposes. Some of these spots are now in fine arable condition. But they are remote from channels of communication, and are surrounded by wild wastes which may never be available for purposes of settlement. Even the grasping railroad corporations which have run their lines through these States and Territories are incumbered with hundreds of thousands of acres of worthless lands, which cut a very big figure in their "princely endowment," and nothing more. In Nevada, New Mexico and Arizona, these fertile spots, though numerous, derive their only value from the contrast of the appalling waste of desert around them. A few thousand acres of land on which bunchgrass and brambles grow, and water flows, is a delightful oasis to the traveler who has just crossed an arid wilderness peopled with horned toads and rattlesnakes and sustaining no vegetable growth but the thorny cactus. In Colorado, Texas, Nebraska, Wyoming, and in some parts of New Mexico and Arizona, there are vast ranges of grazing lands. And this phrase, "grazing land," has deceived many into the belief that eventually the ranges will be covered with smiling farms. This is impossible. The ranges where once fed the prodigious herds of buffalo, and where now feed the flocks and herds of the American stock-raiser, can never be farming lands. The herds of cattle subsist on the grass, which is green and succulent in early summer, and dry, sun-cured and nourishing through all the rest of the year. The cattle frequent the rivers, seldom straying far from the watercourses, and taking refuge in the bluffs when the storms of winter rage. But the surface is treeless, watercourses are infrequent, and the high rolling ground is as dry and brown from July to January as the swales of an African desert. There is no use in attempting to disguise the fact that the "national domain" is gone. It does not exist as a fertile and inviting field. Much of it is occupied by substantial and prosperous towns and settlements. Much more is available for the useful purposes which we have indicated. But it is folly to suppose that the nation has much more agricultural land to sell or give away.

Subsoiling, like surface ploughing, should be done for every crop. Clover roots are a good subsoiling agent; they mellow and enrich the ground, and give it porosity.

Western Wheat Crop.

The crop of wheat in Minnesota, Iowa, Kansas and Wisconsin is estimated at 117,000,000 bushels, rather more than twice that of last year, and 24,000,000 bushels in excess of the yield of 1875. The aggregate in Michigan, Indiana, Ohio, Tennessee and Kentucky will exceed the crop of 1876 by from 35,000,000 to 40,000,000 bushels. There will be a falling off in California, but allowing for this, the excess of the yield in the United States, the yield will be enormous. The average export has hitherto been 61,500,000 bushels; this year there will be at least 100,000,000 bushels available for shipment. With the diminishing production in the grain-growing districts of the continent in consequence of the war, there will be ready remunerative markets for their surplus. The yield in Austria, France and Italy has been excellent this year, but allowing for this, Europe will require, it is estimated, about 160,000,000 bushels the bulk of which must come from this side of the Atlantic.

A Prize English Farmer.

For several years past the Royal Agricultural Society of England has offered substantial prizes for the best managed farms in the counties which form the district in which the show is held. This season the competitors were divided into eight classes, viz., 1st, arable farms above 150 acres in extent; 2nd, arable farms above 80 and under 150 acres; 3rd, farms above 40 and under 80 acres; 4th, dairy or meat-producing farms above 200 acres; 5th, ditto, not less than 100 but under 200 acres; 6th, farms of not less than 50 but under 100 acres; classes 7 and 8, for farms in the Isle of Man.

It happens again this year, as has been the case on one or two previous occasions, that a woman's management wins—the prize in class first going to Mrs. Ellen Birch, for a farm of 242 acres, all arable land, at Aintree, near Liverpool. The farm like the surrounding region is nearly level; is divided into fields of about 30 acres each, by neatly-kept hedges, and is a light and easily worked soil, naturally dry. No stock of consequence is kept, as town manure is cheaply brought on to the land by a canal from Liverpool, for which market the products of the land are intended. The rent paid is £5, say about \$25, per acre. The course of cropping is as follows:—1st, potatoes, after lea; 2nd, wheat; 3rd, barley or oats, sown with grass seeds; 4th, hay; 5th, hay; after which the lea is again broken out and planted with potatoes. The potato crop now on the ground is spoken of as "simply splendid." And it is on the potatoes that all the town and home-made manure is applied, sometimes with the addition of a little nitrate of soda. The grain crop, especially the oats, were very heavy. Fifteen men and lads are employed, at 16 and 17 shillings a week, and cottage rent. Heavy crops of hay are grown, and after this is over for the season, sheep are taken in to grass for local salesmen, at sixpence per week. The farm has been in the continuous occupation of the same family for thirty-five years, being conducted now by the widow of the tenant, assisted by her two sons.

Inoculating Arable Land.

The Duke of Manchester has tried experiments on his estate at Kimbolton, which are well worth consideration by all concerned in the breeding of live stock. Desiring to convert arable land into pasture, he did not sow grass seeds, but with a machine, made by Messrs. Howard, of Bedford, he cut ropes of sod two inches wide out of an old pasture. These ropes were carted to the field that was to be converted, were broken into pieces about two inches square, and were then placed in regular rows on the surface of the ground by women and children, who gave each piece a slight squeeze with the foot after laying it. The rows are marked by the counters of an empty corn-drill drawn over the land; and, after the inoculation is finished, the field may be rolled whenever necessary. It was in November, 1873, that the first field was thus treated. By the following autumn it was completely covered with grass, and was nearly as level and good as old grass land; and in the second year was fit for grazing. And as regards the pasture from which the ropes had been cut, we are told that "after the first year the gaps in the turf are scarcely perceptible."

Thus the tendency of grass to spread and fill up bare places has been turned to profitable account. The subject is not new, nor is this the first time it has been mentioned, but the making use of such

small pieces of sod to inoculate the land is new. The cost is about three pounds an acre, which, as we are informed, is less than the cost of sowing with grass seeds; and "there is no falling off experienced in the third, fourth or fifth year, at least to the same extent as when land is laid down to pasture with artificial grasses."—*Chambers' Journal*.

Liquid Manure.

It is generally believed that no system of enriching land for small gardens, with a view to perfection of crops, is so truly economical and so easily available as that of liquid manure. We occasionally hear of a gardener or an amateur fruit-grower who has practiced enriching the crop by liquid manure; but it is not a common practice so to enrich our gardens and lawns, however oftentimes the advocacy of the practice has been written. The writer practiced the sprinkling of a lawn in a dry season with weak liquid manure-water, and in the greatest of heat and drought has kept it fresh and green. In the management of pot plants, no course of supplying food equals that of a judicious use of liquid manure. There are in almost every family waste liquids, which usually go into a sewer or drains, or possibly upon the road where they are of no avail; but if saved, being conducted to a tank, along with wash-waters belonging to the house, would enrich an entire garden for vegetables and fruits, flower-borders, &c., and the whole, if the wash be applied regularly, and at night, after sunset, in moderate quantities, would prevent the driest weather of midsummer from checking vegetation. If an unpleasant odor comes from the tank, a little plaster (gypsum) sprinkled in and around the tank would keep it sweet and clean. Again the cause of liquid manure need never delay planting, because of manure not being on hand; but planting could proceed and the application of manure be made at leisure.

The Results of Hoing Wheat.

There is a great deal of doubt about the utility of hoing wheat, but there is no question at all but that it adds to the productiveness of winter wheat. Of course where the hoe is used the wheat must be drilled; hence the importance of knowing the effects of the wheat hoe at this season, before the wheat is sown. In connection with this subject comes up also the advantage of hoing wheat in the spring. All who have tried the harrow on wheat have invariably reported that it was a success. Mr. Beckwith, when we met him at the Farmers' Club of Volinia last week, was desirous that we should caution farmers who would be likely to use the harrow on wheat next spring, that it should not be drawn lengthwise of the rows, but across them. Sometimes in dragging wheat lengthwise a single tooth will get into a row and drag up all the plants in it, while when the harrow is dragged across the rows the wheat is not dragged out, as the teeth are all evenly supported, and do not touch at a time more than a single plant. Harrowing wheat in the spring is only a light hoeing that breaks the crust of the ground and exposes the soil to the air, and hence promotes the growth of the young plant by encouraging it to push out its roots. The wheat hoe following as a second operation ought to have a very salutary effect on the growth of the wheat plant at that season, aiding to make more roots and to stool out for a longer season. At the same time the very stirring of the soil makes it more able to sustain a greater growth, and to retain the rains and dews while resisting with iron power the heat of the sun. On clay soils that are apt to crust over and become baked in the spring it is a most effective operation, leaving the soil in good condition for the whole season of the growth of the wheat plant and up to its ripening. The advantage of hoing wheat ought to be more thoroughly tested than it has yet been.

A Western paper has been shown a specimen of good raw sugar manufactured from corn. A bushel of corn yields thirty pounds of raw sugar, which is white and very saccharine. It is marketable at four cents a pound. To complete its conversion into pure granulated sugar, alcohol is required, to remove the foreign matter, leaving about twenty-seven pounds of good sugar from a bushel of corn. This is certainly better than burning corn for fuel, as has often been done in the West, and may result in establishing a new industry for that section, and be an important contribution to the national wealth.