Agriculture.

Application of Manure.

It has been well established by chemical experiment, and we believe the fact has been no longer questioned, that stable or barnyard manure loses a large part of its fertilizing properties by fermenting in masses in a situation exposed to the influence of rain and sun. A partial decomposition takes place, and the gaseous and the most soluble part of the heap are either scattered by the winds or washed out by the rains. It is equally as well settled that if the fermentation takes place in the soil, these gaseous and soluable portions of the manure are absorbed by the earth and retained there until they are imbibed by the spongioles or mouths of the young crop plants, and that they essentially contribute to its growth and development. Now, if long, unfermented manure is spread upon the surface, these gaseous matters are lost, precisely as they are from the fermenting manure heap, for they are specifically lighter than atmospheric air, as is shown to the common observer in the steam which arises from the manure heap during the process of fermentation. The soluble parts will not, however, be lost, as in the case of the fermentation of the heap. But if the long manure is only partially covered by the harrow, it will only be partially fermented for the lack of moisture, an agent without which there could be no fermentation; and without fermentation, or cooking to some extent, the fertilizing matter in the manure cannot be taken up and assimilated by the plant.

If, on the other hand, the long and green manure is covered deep with the plough, it not only benefits by the gaseous matters which the earth absorbs, but it generates heat and benefits mechanically by rendering the soil more open and friable, and more permeable to warmth, air, and moisture; it also facilitates the decomposition of plant food, accelerates the growth, and increases product. Then, fermentation having exhausted its powers during the first season, and the cultivation of the hoed crops (the only crop to which long dressing should be applied), the following year the plough turns up to the surface the carbonaceous matter of the manure which remains, and which is highly valuable to the crop which follows. An objection to this plan, and the only one we have ever heard, is, that if long manure is buried deep by the plough in preference to mixing it with the surface soil, the rain will carry down its fertilizing matters beyond the reach of the absorbents of the plants. This seems to be at first a plausible theory, but we doubt its correctness. If the fertilizing portions of the manure should, to any very great extent, be carried into the subsoil, the subsoil would itself become filled with fertility, and would only require to be brought up to the surface and exposed for a short time to the influence of the sun and rain to render it capable of supporting a luxuriant vegetation. We doubt if such a condition of the subsoil was ever found, and so far as our experience and observation go, all subsoils require long continued exposure at the surface and heavy manuring to render them fertile.

Our rule, therefore, is to bury unfermented manure with the plough, by which plan the major part of its good qualities is taken up and held by the soil, in readiness for the young crop. With fermented manures, on the other hand, or those which will undergo but slight fermentation, such as rotted dung, bone meal, &c., the tendency of which is to sink into the soil, we would apply a different rule. These subserve the purposes of agriculture better by blending them by means of the pulverizing harrow with the surface soil, where they will respond more promptly and act more efficiently than if buried deep by the plough. We are in favor, however, of having our dressing go through the fermenting process before it is applied to crops, but in order to save the gaseous portions, absorbent must be freely applied during the process of fermentation. Various substances will answer this purpose, such as ashes, dried muck, &c., but we have never found anything equal to the finely comminuted dust from a much-travelled road. The road is improved by its removal, and its value to the farmer can hardly be overestimated. To test its absorbing power, just throw a thin stratum into the privy vault and note how quickly noxious matters disappear. With the modern improvements of which most thrifty farmers have availed themselves, that of keeping the manure heap under cover, there is no longer any damage from rains, and the only but important duty that remains is to prevent waste during the process of fermentation.—[Ex.

Concerning Clover.

While a large class of the farming community hold to the opinion that clover is better and more surely sown in the early spring, this work is much of it done during the late summer and autumn. A considerable proportion of the clover sown at all seasons is mixed with timothy and other grasses. When thus associated on mowing lots the full benefit of the clover is not realized in the majority of cases, because care was not observed to sow with it varieties which blossom at about the same time. The clover in consequence goes to seed before the later grasses are ready for the mowing machine. Even under these conditions the clover has not been without value. Its long tap roops have put the ground in condition to be readily acted upon by air and moisture. They have also added to its fertility. Among grasses which blossom simultaneously with clover, and therefore adapted to seeding with it on meadow lands, are meadow lands, are meadow fescue, perennial rye grass, Kentucky blue grass and Italian rye grass.

Clover makes an excellent crop when sown alone, especially on light, sandy soils. The practice of sowing clover with a grain crop is, however, a very common one. Concerning the desirability of this general custom there exists a wide diversity of opinion. Some cultivators contend that clover sown in the spring with grain succeeds better than that which is sown alone, because the grain grows quickly and shades the tender plants from the sun. Opponents to the practice contend with equal energy that the clover crop is liable to a greater risk of being lost when the grain is cut and the plants are finall exposed. Dr. Harlan recommends sowing buckwheat with clover when it is desired to grow only the latter. The buckwheat will afford shade while the clover is feeble, and if cut when in blossom and permitted to remain on the land will also mulch the clover and prove of great adxantage to the crop. Whenever and however clover may be sown it is important that there exist considerable moisture in the surface soil at the surface soil at the time of sowing.

Rich Soil vs. The Hessian Fly.

The Hessian fly is a feeble insect when it first comes into life, and a light frost will destroy it. This often happens, both in Spring and Fall, about the time the insect is transformed into the fly, which seems the only cause for escape of the wheat plant from universal attack both in Spring and Autumn. A sharp frost at the right time, when the fly is in its feeble state, will so decimate them that several years will pass before they again appear in such numbers as to be damaging. I have never known any remedy against the ravages of the insect after the fly has deposited the egg. The ova soon finds itself encased within the leaves of the plant, near the root, where it cannot be reached without destroying the plant.

The only aid the wheat plant can have when attacked by the fly, is a strong and vigorous growth, which will enable it to overcome the enemy by throwing out new tillers as the old stalk is destroyed. On a rich, strong soil, and in a moist-growing season we frequently harvest a full crop when the insect has done much damage in the Fall. On light or weak soils, the fly is always destructive. The use of superphosphate applied at the time of seeding, has proved very beneficial in giving a stronger growth to overcome the attack of the insect. I have also seen a heavy and healthy growth of wheat where rich manure is applied, when on other portions of the same field not manured the crop was destroyed by the fly.—]F. P. R., N. Y. Tribune.

Grasses and Manure.—Mr. Lawes, of Rothamstead, England, a noted agrieultural experimenter, has been calling attention to a very interesting fact in regard to the grasses. They are like so many freebooters, and seize all manurial wealth with eager avidity, each according to its own nature. It is encouraging to know that the best grasses win the day when supplied with plenty of top dressing, whilst the inferior kinds prosper most on inferior soil and under starvation management. The only exception to this is in the case of sewage manure, which increases the coarser grasses most. Mr. Lawes asserts that the ultimate herbage depends not so much on the description of seed sown, as on the sert of manure and management given afterward. It would seem, therefore, that the excellence of the permanent meadows and pastures of Britain is the result, not so much of climate, as of good husbandry. The British farmer top-dresses his grass lands, a practice deemed wholly unnecessary by the average Canadian farmer.

Disposing of the Root Crop.

There is not an animal on the farm but may be kept in the best of health and condition on roots, with a small portion of dry feed. Horses do well on a peck twice a day, chopped and mixed with chaffed hay, If hard worked a quart of meal of any kind or bran added will complete a sufficient ration. Cows, oxen, calves and feeding beeves flourish well on roots as the largest part of their diet. The yellow fleshed mangels give a rich color and no evil flavor to milk or cream, and for winter dairying they are indispensable. A peck of roots, with a quart of oil cake meal and bran, mixed in equal parts, given twice a day with dry hay or fodder, will keep cows well up to their milk. Sheep may be fed similarly in proportion, except ewes heavy in lamb, which should be fed out small rations, not over a quart at each half daily feed. Pigs thrive wonderfully on mangels and sugar beets. Geese will live wholly on them chopped up fine. Poultry will peck out roots and devour them completely, Roots, corn and hay, will keep the whole farm stock going in the best order, and as one acre of roots will subsist one cow for three years or twenty-five cows for six weeks, and four acres will supply twenty-five cows for six months, what other crop can pay so well or be so easily grown for the amount of food procured?—[Ex.

The Muck Manual says that one load of cow manure mixed with one load of dirt or muck gives two loads of manure equal to cow manure. As soon as my fall work was done, carting muck was the principal job before us. The barnyard received a large number of loads of muck and leaves. The stable manure is not suffered to accumulate more than two or three days before it is incorporated with muck. The outlet of the house drain is contributing its share toward making a few loads of valuable manure. The water-closet is a valuable auxiliary in composting muck. We have one muck heap near the house that takes all the soapsuds and other refuse beneficial as manure. Muck is a great absorbent—it fixes all the volatile ingredients of the manure pile that escape from the manure heap by improper treatment. We carried along the ordinary farm work and drew out over 200 loads of muck and leaves put in large heaps in fields mixed with sheep manure from sheep sheds. All farmers know that this is a most valuable manure. It is perfectly astonishing the amount of work any farmer may do of this sort in the course of the season.

Agricultural School Farms.—Professor Baldwin, Assistant Royal Agricultural Society, says he thinks that use could be made of the Agricultural School farms for raising new varieties of farm products, as potatoes. It was very difficult to make experiments to pay, but if they were gone into they should be kept separate from the ordinary work of those farms, as a model farm that did not show a proper balance sheet was not fulfilling its object.

It is stated by the Montreal *Star* that the average annual consumption of hemlock bark in Canada, for tanning purposes, is 120,000 cords, and nearly 80,000 cords are exported annually to the States, the exports, in fact, in 1878, amounting to 106,374 cords, valued at $360,259. The Secretary of the Montresl Board of Trade estimates that about a million and a quarter of trees are cut down every year to supply the consumptive and export demand. At that rate our hemlock forests will be completely destroyed in less than 15 years, for besides our shipments to the States, about 16,000 barrels of extract of hemlock brrk are annually exported to England. The trades most deeply interested in the preservation of hemlock forests are moving in the direction of legislotive restriction. Efforts are to be made at the next session of Parliament to induce the Government to impose an export duty on all bark leaving Canada. Prodigious waste is indicated in the statement made by the *Star* that these trees are felled in immense quantities in the Eastern Townships, and allowed to rot on the ground after the bark is cut off them.

The last Ontario Gazette contains applications for the incorporation of the Fonthill Canning and Fruit Drying Company, with a capital of $10,000.

A course of teaching in agriculture has been ordered by the French Government into every primary school of that country.

In Brantford the Sorghum factory is soon to be in operation.