

with the first principles of that science will often enable him to obtain results of practical value; still it has been seen that such knowledge will not always avail him. The "chemistry for farmers," may emphatically be termed the chemistry of nature,* a knowledge of which may be acquired without much difficulty.

Before concluding these general remarks, and entering on the consideration of the various manures which are applied to the soil, a few words of application will not be out of place. It has been seen that plants are in a great degree dependant on water and the atmosphere for their support, and they should teach the farmer the necessity of securing a due supply of them to his crops. It is especially important that the individual plants should stand at such a distance from each other as to admit the air freely to every part of the foliage. The soil too should be pulverized to as great a depth as possible, in order that the air may permeate it, and further to enable the fibres of the roots to extend themselves. The same arrangements secure a due supply of moisture, and also guard against its detention longer or in greater quantity than is required for the purpose, as minute pulverization is equally favourable to evaporation and absorption. The dependance of plants on the atmosphere for their support was well known upwards of a century ago to the celebrated Jethro Tull, the father of drill-husbandry; but that he did not entertain very correct ideas on the subject is apparent from the fact of his conceiving that pulverization only was necessary in cultivation, to admit freely air and moisture. He persevered in this practice for a length of time, and brought his system of drill-husbandry to great perfection; but, as in every case in which general conclusions are drawn from a limited observation of facts, Tull was obliged to abandon his theory.* The husbandman at the present day, however, would do well to follow his example, in securing a due supply of air to his crops. On looking over the crops of the country, especially drill crops, which usually have a large system of leaves they are generally found growing so close together, from a mistaken idea that an increased produce will, in this manner, be obtained, as to exclude the free admission of air from among them; and also effectually prevent the free introduction of the implements of tillage, the action of which is essential to loosen the soil about their roots. Could farmers be induced to pay so much attention to the subject as to compare the produce of equal portions of their crops, where a proper system of tillage and a due application of manure had been given, the one standing, say in the case of turnips or potatoes, at intervals of ten or twelve inches apart, and the other at the more common distance of six or seven inches, a marked change in the cultivation of their crops in this respect would soon be apparent; while they are not warranted in going the whole length with Tull, who considered the direct application of manures unnecessary, the preceding observations would tend to show that to secure a due supply of those elementary substances which form so large a portion of the vegetable structure, is no less important than the direct application of matters which are contained in plants in so much smaller quantity.

Liberty is not a paper that we see stuck up at the corner of a street. It is a living power which we feel within us and around us, the protecting genius of the domestic hearth, the guarantee of social rights.—*De la Mennais.*

* The reader is referred for further information on this subject to an Essay in the "Quarterly Journal of Agriculture."

The following is a part of an article which appeared lately in the *Morning Chronicle*, in reference to the probable results to be expected from the completion of the improvements now being made on the line of the St. Lawrence, from Montreal upwards. That this grand water communication, when finished, will have employment to a great extent, there cannot exist a doubt, and if to the extent contemplated by the *Morning Chronicle*, it will yield an ample revenue for the expenditure. At all events, we would not be worthy of the country if the water communication now in progress was not completed. It will open up an immense extent of most fertile country to settlement and production, and it will encourage and extend an interchange of native produce and British manufactures, that must be beneficial both to this country and to the British Isles. It must also bring a considerable portion of foreign commerce this way, as the cheapest and most easy to a sea-port, from the back States of the Union. Canada possesses within herself a boundless extent of fertile soil that would be able to produce a great amount of value for exportation. Easy means of communication to all parts of the country, by rivers, canals, rail-roads, and other roads, will greatly encourage a better system of agriculture, by diminishing the cost of transporting the produce to market, and affording the farmer what he may have to purchase at a cheaper rate:—

Mr. Ryan estimated the probable income of the canal at 394,937 dollars, and calculates the annual increase at 10 per cent. Messrs. Davis and Swift do not adopt his conclusions, but suppose the following estimate of the second year after the completion of the canal not to be extravagant:—

ITEMS.	TOLLS.
Lumber, in value 334,720 dollars, equal to	dollars.
33,472,000.....	33,472 00
Salt, 207,700 barrels.....	37,386 00
Flour, 400,000 barrels.....	60,000 00
Wheat, 2,237,000 bushels.....	100,650 00
Sugar, molasses, and tobacco, 8,625 bhds.	10,781 25
Merchandise, 38,298 tons.....	76,576 00
All other articles.....	45,000 00
	363,865 25

—*Morning Chronicle.*

There are ample means in the power of most farmers to increase vastly the quantity of manure, if they would only take advantage of the means at their disposal, and make composts, by mixing soils, ashes, &c, which answer all the purposes of farm-yard manure in the production of crops, if judiciously applied. Of course the compost intended for one description of soil must be different from that which would be suitable for another. The sort fit to be applied to moss soil would not be the best for clay, or sand, but this the skilful farmer will understand. We give the following from "Dana's Prize Essay, on Manures," which we recommend to the attention of the farmers. No doubt the quantity of ashes mixed in the compost to be applied to one acre would, if, applied alone