

of manure, and for this reason it should be added, so as to be immediately available for the crop. The manure, consequently, is more suitable when well rotten, upon chemical grounds, as well as upon a consideration of its mechanical character. The same principle is applicable to all the intermediate descriptions of soil, modified by the same rule.

The time for applying farmyard manure must greatly depend upon the nature of the soil and the crop to be raised. In soils of a retentive character, such as clays, marls, and strong loams, farmyard dung, even in a rough state, that is but imperfectly decomposed, may be ploughed in almost at any time, with advantage. In very porous soils, resting on loose, gravelly strata, it is impolitic to apply manure till a short period previous to the sowing of the seed, or it can be absorbed by the growing plant, otherwise much of it will percolate away in a fluid state, and consequently will, in a great measure, be lost.

From time immemorial dung has been employed as a top dressing for pastures and meadows, and has generally met the approval of practical men. But there have not been wanting those who have stoutly opposed this practice, representing it as wasteful, and generally unaccompanied with any benefits, proportionate to the cost. The objections are not wholly without foundation. The careless manner in which the operation of top dressing is sometimes conducted, leads, no doubt, to much unnecessary waste. In our climate, dung exposed in the fields during inclement weather in winter, seldom loses much of its fertilising ingredients, as little or no fermentation is set up. But the danger is when the spring commences; the increased temperature and moisture hasten decomposition, and unless the manure be carefully worked in by the bush-plow or other means, there is much risk of an escape of ammonia and of some portion of the solid manure running to waste. If the dung be decomposed before it is applied, and worked in as quickly as possible after being spread, the loss will in general be comparatively trifling. Dr. Blacker, to whom we have already referred in the preceding article, has recently thrown considerable light upon this subject. He has ascertained by fully conducted experiments that, in well-rotted dung, the ammonia exists in combi-

nation with the organic acids, forming compounds which are not volatile. The original ground on which top-dressing was condemned was that, in consequence of the volatile character of the ammonia, we lost considerably by the practice. A more complete knowledge of the character and composition of dung thus confirms the experience of the past, and points to the well-rotted manure as being of great value for top-dressing; involving comparatively little waste, when the process is conducted with ordinary skill and care.

### On the Botany of the Red River Settlement and the Old Red River Trail.

[The following interesting paper, by John C. Schultz, Esq., was read at the meeting of the *Botanical Society of Canada*, at Kingston, Jan. 11th, 1861. We are glad to see this young and important Society already exhibiting unmistakable symptoms of healthful activity, and heartily wish it a long career of usefulness.]

Ebs.

The Red River Settlement of late years attracted much attention in Canada on account of its isolated position and the many and vague reports that were in circulation regarding it, some describing it as a land of milk and honey, and others as a cold barren waste. But little was known of the real resources of the country till the years 1857 and 1858, when the attention of our Government was directed to it, and they ordered two Expeditions to be fitted out, one under the charge of Mr. Hind, and the other under Mr. Dawson. These gentlemen, on their return, after an absence of eighteen months, submitted their Reports, accompanied by maps and a geological description of the country traversed. These were published and widely distributed, and many of you no doubt have seen them. Therefore any account that I give of the settlement will be as short as possible.

It is situated on the Red River, near its entrance into Lake Winnipeg, occupying both banks of the Red River and the Assiniboine, which empties into the Red River at the Hudson's Bay Company's post Fort Garry, the centre of the settlement. The settlement extends from the mouth of Red River up about forty miles, and on the Assiniboine River about twenty miles. The distance of the settlement from St. Paul is said to be six hundred miles, and from Lake Superior about three hundred. The population is estimated (rather high I think) at 10,000, including the roving population, who live alto-