

farm life to those who keep abreast of their work, but when the work leads it is truly vexation of spirit. Fellow farmers, when you read these lines take stock of your autumn work, lay aside the JOURNAL till the evenings are longer, and up and at it.

WHEREVER we go throughout this splendid heritage, the Province of Ontario, we see traces of the lack of drainage that fill the mind with sadness. It is the exception, not the rule, to find an underdrained farm, or even one that is partially underdrained. Until this is done all attempts to permanently improve many of our finest soils will prove in a very great measure abortive. Grain will not grow on saturated land until the excess of moisture be removed; and if this is removed by evaporation the result is an encrusted soil, especially if of a clayey nature. Grasses will not thrive on a soaked soil unless such as are of a gross character, and the operations of tillage on such a soil are very greatly hindered. Indeed, on undrained lands the husbandman is almost completely at the mercy of the elements, which is not the case to a very great extent when the land is properly drained. The mightiest of all the material influences at work in aiding the advance of improvement in Canadian agriculture we believe to be underdraining. Young men of the farm, buy Waring's book on Drainage. Get all the information you can regarding Canadian practice, and commence the work at once.

In speaking of the importance of discipline in agricultural colleges the *National Live-Stock Journal* of Chicago wisely says: "Of all the education the students of our agricultural, as of any other colleges, can get, there is no single feature more important than that of discipline. The man who is not trained to habits of obedience to properly constituted authority is a useless citizen, however great his ability or extensive his attainments may be." The thought of our own Guelph College refused to be dislodged from the mind as we penned the above paragraph. Though in the main our students have been loyal to discipline, in every instance they have not been so. We trust that those who are will see the wisdom of doing everything in their power to uphold inviolate the dignity of law and order, without which all instruction will be imparted in vain. The young man who will not bridle himself sufficiently to submit to rightful authority with more than constrained submission gives evidence of a sadly deranged mind. It may seem a heroic thing to be looked upon as a leader in insubordination, but in the moments of reflection, if indeed such an animal can reflect, he must despise himself. The steady-going farmer plodding student may afford abundant merriment to the more advanced mischief-maker for his unreserved acquiescence in the regulations of such an institution; but if of the right stuff, he will be sufficiently brave not to turn to the right hand nor to the left, for the sneers of one whose sayings are lighter than thistle-down and far more pestiferous. The hard-working, obedient student always gets vengeance on the idler and the disobedient on examination day, and of the sweetest kind. The lad who fritters away the golden hours of college life will never attain to the position of a "citizen;" he will all his days be a *thing* in the community.

National Stock-taking.

The individual engaged in business does not usually consider himself safe without taking stock once a year. In this case he may know which way the current is setting; whether he is going forward or back-

ward, or, like the boatman in the whirlpool, is beating about in a sea of inextricable difficulty.

Many of the reasons that apply to the wisdom of stock-taking by the individual apply as fully to the adoption of such a course by the nation. We can readily conceive the immense import of any people knowing as to whether they as a nation are progressing or receding, and in which lines the avenues of progress or retrogression are to be found.

It is therefore true wisdom on the part of any Government to sustain in full sufficiency a bureau which shall collect all desirable information regarding the industries of the land, in which case the legislators of the nation may feel her pulse themselves, and those pursuing the various branches of industry may see how the land lies without using the spectacles of a seer. This great good work Mr. A. Blue, of Toronto, and his associates are doing for Ontario; and we only wonder that every farmer in the land is not found doing everything that lies within his power to assist these untiring workers in their endless toils. We have found the labors of this department of invaluable service in our own work, and we feel quite sure that all newspaper men are with us when speaking thus.

On the 3rd of August we, along with scores of others, received printed forms, asking a report of the probable yield of the grain crops, and on the 15th of August a carefully prepared printed summary of the answers is issued with a promptness that is very commendable indeed. From this summary we learn that the yield of fall wheat in the western sections is very good, that spring wheat is fairly good, that barley yields well, and that oats also are full of promise. Fall wheat, however, has been somewhat damaged by rain in harvesting; barley, too, is badly browned; and spring wheat will, without a doubt, give a less favorable summing up than that furnished by the report, owing to the extent to which it has been smitten with rust since the answers to the Bureau were forwarded.

Though damaged considerably in the gathering, the crops of 1885 are abundant, and there is every reason to be thankful for the fullness of bread and the plentifulness of the fodder that everywhere abounds.

The following table gives the statistics of our four principal cereals for the years 1885 and 1884, according to the returns made to the Bureau:

	Acres.	Bushels.	Bush. per acre.
Fall Wheat... { 1885	877,745	20,433,758	23.3
{ 1884	864,740	20,717,631	24.0
Spring Wheat { 1885	799,299	14,372,719	18.0
{ 1884	721,647	14,609,661	20.2
Barley..... { 1885	598,318	17,047,530	28.5
{ 1884	700,472	19,119,041	27.3
Oats..... { 1885	1,547,779	59,285,340	38.3
{ 1884	1,481,828	57,696,304	38.9

It should be borne in mind that the figures of the yield of crops for 1884 are the final result, while those for 1885 are estimates based on the present promise.

Guano.

The name Guano is a Spanish word, signifying dung, and it was originally applied in this country to denote the valuable deposit consisting chiefly of excrement and carcasses of sea-birds which roost and rest upon the Peruvian shores, and feed upon the fishes that abound in the warm waters of that district. The remains of these birds have remained undisturbed for thousands of years, and formed deposits which in four districts were more than 100 feet thick. The first sample that arrived in Europe was brought by Humboldt about the beginning of this century, but it was not until about the year 1840 that its great

value as a fertilizing agent was appreciated in the old world. From that time, and for more than thirty years thereafter, it was brought over in enormous quantities, so that the imports into the United Kingdom averaged about 200,000 tons per annum.

The first imports were of a highly nitrogenous kind, yielding as much as 15 per cent. of ammonia, and sometimes more. These were deposits obtained from the Chincha Islands, a region in which rain is almost unknown, and where the heat of the sun is so great as to rapidly dry up the material and preserve its soluble constituents from deterioration. These rich deposits were soon exhausted, and attention was then directed to other parts of the coast, where deposits were found whose soluble nitrogenous materials had been to a greater or less extent washed away by rain and the spray of the sea.

During the last decade a great deterioration has occurred in the quality of the guano imports—the highly nitrogenous deposits are now exhausted, and the genuine Peruvian guanos now imported do not yield more than about 5 per cent. of ammonia on an average. Corresponding with this decrease in ammonia, there is a decrease of soluble phosphates, but the total phosphates are very much increased, so as to average upwards of 45 per cent. On some parts of the coast where rain is abundant, the nitrogenous constituents of the guano are entirely washed away, and the result is what is called a phosphatic guano, containing from under 50 to over 70 per cent. of phosphate of lime; but these deposits are also fast disappearing. Owing to the large proportion of soluble constituents in the original guanos, they were very powerful manures. Their effect upon the crops to which they were applied was simply marvellous, and it was with some difficulty that farmers were able so to restrain their use as to prevent injury being done by too liberal application. Even during recent years, when the quality of the imports has so sadly deteriorated, a charm still lingers around the name of Peruvian guano, so that farmers are willing to pay a price for it which is much above its manurial value. The present imports of Peruvian guano, containing about 5 per cent. ammonia, and nearly 50 per cent. phosphate, are, nevertheless, excellent manures, and capable of being used with greater freedom and safety than the powerful guanos of former years.

DR. A. P. AITKIN IN THE "NORTH BRITISH AGRICULTURIST."

We would find room for the remainder of this paper, which speaks of various kinds of so-called guanos. In speaking of fish guano, Dr. Aitkin says that: "It consists of the dried offal of the fish-curing yards, or some other preparation of the dried substance of fish. Its phosphatic and nitrogenous matter are both insoluble, and it forms a very slow acting manure. It is unfortunate that owing to their oiliness and other causes they are slow to decompose in the soil, and are very disappointing in their results. Any manufacturer who would discover a method for quickening the action of fish manures would confer a boon on agriculture, for the utilizing of fish manures is the great means of restoring to the land the enormous amount of nitrogenous matter which is constantly being carried down from the land into the sea.

"There are many other manures sold under the name of guano that ought never to have had the name applied to them, and the sooner they are sold under legitimate names the better, for guano is a name which applies only to excrementitious substances which have passed through the digestive system of an animal."