either of these from the air as you can the nitrogen. Suppose then you try an application of superphosphate and potash on the young clover this spring and note the results. The most generally available form in which the phosphoric acid can be had is in the dissolved phosphate rock, and the best form of potash for general purposes is perhaps the muriate. For clover we would make a ton of this by mixing 1600 lbs. of the acid phosphate to 400 lbs. of the muriate of potash, and would apply to the clover about 400 lbs. per acre. You will get, in the acid phosphate, about 40 p. c. of plaster, so you will be giving some plaster in any event. I will warrant that the application will give a heavier growth of the clover, and while the application might not return a profit in the increased amount of hay, it will show up bravely in the corn crop that should follow on the clover sod the next year. I have never been able to make an application of commercial fertilizer pay on the corn crop direct, but the application of mineral fertilizers on the clover the year before has always paid me, in the clover and corn crop together, and through the increased growth of the clover and the permanent improvement of the soil.

W. F. Massey.

To the Editor of the Journal of Agriculture.

There is not much to write about the state of the crops at present. The season, or properly speaking seeding, is much later than last year, although I feel certain that vegetation is as far, if not a trifle more, advanced than at this date last year. In 1896 the greater portion of the seeding was done in April, while this year very little has been completed. The first few days of May are backward also.It rains a little every day—not much but enough to stop seeding—while grass is looking well. trees are coming on nicely. In a good many sections grass has been severely killed by the frost : (winter killed). I hope the farmers will see to it and provide something for the cattle to eat during the short pastures . Peas and oats sown together, or better still oats and vetches make the earliest kind of green fodder—sow a piece early, then say in 10 days another patch and then about 10 days more a third piece—so that by the end of June the first piece would be ready to cut and by the time the first plot is done the second should be ready, and so on ; and if the piece of ground is rich and the season not to dry, you will be able to cut it at least twice—any farmer can at least try it, and you will be surprised at the results.

Do not forget to sow some corn for green fodder later on—the last half of August or September,—by so doing the cows are kept up in the flow of milk : there is no kind of farming pays as well as dairying :

By the way, a great many, in applying manure to fruit trees, recommend putting it close round the trunks, while others advise putting it back a little. No doubt many can show very good reasons why so applied ; but one of my neighbors has a new method of applying the manure: by putting it upon the branches. I have not had a chance, so far, of finding out the reasons for so doing, but each day the fact stares me in the face.

Mr. Editor, since commencing this letter, we have had two nights of pretty severe frost, the 7th and 8th May. It is two years ago since so much damage was done by frost, especially in Ontario and the south west of Quebec. I hardly think the fruit trees were far enough advanced to harm them any for this season. Seeding is exceedingly late : this is the 10th May and hardly any sowing or seeding done yet—certainly we are at least three weeks behind last year ;—usually, early sown grain does better than late. it is to be hoped fine weather will set in at once as it is much needed.

Yours truly,

PETER MACFARLANE.

Chateauguay, 10th May 1897.

RECLAMATION OF BOGS AND SWAMPS.

Cattle vs. snipe — Walls — Ditches and banks — Drains — Pumps — Change of herbage — Needs for — Stocking - Rushes for ornaments.

It is so pleasant to the tread, so pleasing to the eye, to walk over a swamp on a fine June morning, that any attempt to convert it into a plain, even a pasture marsh would seem vandalism to the mere lover of simple nature. By so doing, the ever-rustling sedges and rushes would be taken away, the waving cotton plants and all those tender blossoms found in such places, would be obliterated from the landscape.

These considerations were not taken into account in years gone by, when owners of swamps were able, with the assistance of capital, to carry their ideas into practice, and the "scaping" of snipe had perforce to give place to the lowing of cattle.

In these days of what is called agricultural depression, we find many instances where this order of things is reversed, and instead of swamps becoming marshes, many marshes are becoming swamps, because the pockets of their owners have been so bled by the times, that they are powerless to help themselves.

It is an old English quotation that "hope springs eternal in the human breast," and, though many of us may not have the necessary funds at our disposal to carry out our ideas at the present moment, that happy day may not be as far distant as we imagine, and looking at the bright side of things only, we will consider what could be done in the way of improving low-lying marshes, swamps and bogs. The difficulties to be surmounted in a matter of this kind are, as a rule, considerable. The first step is a careful survey of the land proposed to be dealt with.

Having surveyed, the map is marked where it is considered practicable to make walls, and the land to cut dykes or drainage ditches. In building walls it may be necessary to pile, or cut a ditch, and "puddle in" with tenacious soil, as few walls are of effectual service, unless a foundation of some kind is found, or artificially constructed. In some cases it is advisable to avoid certain spots, or to make a detour, where the land that would be enclosed, would probably not be worth the cost of inclosing. If the wall is made without touching a solid subsoil, the work may prove to be labour in vain, where water is the boundary line, for when a storm arises, and a heavy pressure is brought to bear upon the wall on a lee shore, the whole wall may in places lift, and be washed away like a bunch of feathers. Where retentive soil cannot be found, on which to place a foundation, an artificial one must be constructed, and a rib of good holding matter, such as chalk or clay, puddled into the centre of the wall ; a row of willows is a good addition if planted near the edges of the wall.

A ditch is almost invariably cut either on the inside or on the outside of the wall, which in building operations, not only assists as a roadway, but also helps to build the wall, the soil extracted being used for that purpose.

It is impossible to give but the most general outline of the subject matter, because each case must necessarily depend upon its own individual circumstances.

Having completed the walls and banks satisfactorily, the next step is to cut dykes and drains, gradually enlarging them the nearer they approach their main outlet.

The vast improvements that have been made in the last few years in pumps and turbines for drainage purposes have greatly facilitated the reclamation of swampy land, and suitable machinery can be obtained for draining nearly any land at a minimum of cost, to what was the case a few years ago. In selecting a pump err rather on the side of getting one larger than is required, than smaller : The extra outlay will never be regretted. It is hardly necessary to add, that the drains and dykes must always be kept well cleared of all weeds and water growth, so that the water has easy flow, which is the key-note of success in drainage.

The first effect noticeable in swamp reclamation, is that the natural bog vegetation, becomes thinner, and more stunted in growth, moss begins to appear in large quantities, and a peculiar grass (somewhat resembling couch-grass puts in an appearance. About June 15 mow down as closely as possible all vegetation, which bleeds, weakens, and destroys water loving plants. In a short time nothing will be seen upon the marsh except a few straggling black rushes, and the aforesaid moss and blue grass, which nothing will eat. By diligently moulding and sowing renovating seeds, some useful grasses will soon establish themselves.

In the selection of renovating seeds, the nature of the soil used for moulding, must not be forgotten, also the general nature and surroundings of the land proposed to be sown, and make allowances accordingly.

Observe those seeds which thrive best and profit by experiments.

Of the heavy seeds most benefit may be derived from red sucking, white clover and perennial cow grass, (t. pratense perenne). In grasses the coarser are preferable to the finer : cocksfoot is better than either of the hard tall, or meadow fescues. Of the poas, Poa aquatica—if it can be obtained—is the most serviceable.

At this stage the marsh, -if it can be called a marsh,—cannot be punished too much, by stock feeding or jamming about on it.—In the spring if practicable, fold sheep on the marsh, and the transformation will be more rapid and lasting. Treatment such as this, forms a kind of crust, which seems to give the better grass good root hold, and in moulding any soil will do, though naturally the richer and heavier it is, the better.

When the reclamation of swampy land is under consideration, it should be remembered that, unless the improvements are thoroughly and efficiently carried out, they had better be left alone, as it is a fatal mistake to destroy a quantity of good litter, in order to secure a miserable hay crop, or perhaps no hay at all.

The great advantage to be looked for by the reclaimer, is the feed he hopes to obtain, because, although reclaimed bogs will not produce inordinately in a wet and cold summer, when hay and feed is so plentiful, and store cattle are so dear it does not pay to buy them ; yet during a hot, dry season, when both hay and fodder are scarce, these reclaimed swamps, favoured by the sun's rays, produce feed of an abnormally fine quality, and in quantity an amount that is truly astonishing.

The first sign of improvement in reclaiming bogs and swamps, will be the disappearance of the black rush, and the appearance of the hissock rush. Botanists assert that hissock rushes, prefer spongy bogs to better drained marshes, but with all due respect, this may be doubted, because although their presence is common enough on the edges and drier parts of spongy bogs, experience teaches that these rushes require land which is good, which has been partially drained, and upon which the ordinary bog rush does not thrive so well. This opinion is confirmed by the fact that, as soon as the bogs are improved and the drainage is got on with, the hissock rush appears.

A similar experience will be met with, when a moist pasture has been neglected, and its drains allowed to grow up. The hissock grass, therefore, becomes, if it may be so expressed, both the harbinger of good and evil. It is welcome on the lands being reclaimed, but its re-appearance is regretted on the lands that have been reclaimed, which, by reason of negligence or want of means, have been neglected. For the removal of hissock grass, the mattock must be freely handled ; its presence denotes insufficient drainage and a surplus of water. To those who are inexperienced, sedges, rushes, and water grasses are thought useless, except for litter, but such is far from the fact.

The giant bulrush is largely used in England in the manufacture of horse collars, especially those employed in breaking colts and horses with tender shoulders. Coopers use them for barrel making, and of late years they have been in great demand by furniture manufacturers.

The harvesting of bulrushes might at first sight seem simple and easy : it is not so. To obtain a good article, which will find a market, rushes must be most skilfully and deftly manipulated when first cut, say end of June, for ornamental work, otherwise they lose their beautiful glaucous colour, which is their most necessary essential. For decorative purposes in ladies' boudoirs, halls or rooms, they are gathered in September, and should be set in water for a few days, in order to develop their heads of light cotton wool like bloom, which they will retain for months if not exposed to the wind.

The roots of many of these water plants are edible : they contain much nutriment and chemical compounds, and are much esteemed by some, more especially so by the inhabitants of Iceland.

But this is a digression, too far from the real subject matter of the heading, so the rushes, sedges, and water grasses, must be left to flourish in their