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The Field.

Blank Places in the Turnip Field.

Owing to defect in the seed or to fly ravages there will often be blank places in the turnip field. These to a farmer of neat instincts and habits are a great eye-sore. Moreover they involve waste of rich land valuable manure and costly labour. When these blank places amount to a considerable proportion of the field the loss of crop thereby occasioned becomes a serious item. It is therefore every way desirable that these blank places should be filled up and turned to some useful account. This may be done in a variety of ways. The best were it practicable would be to transplant from rows that have an excess of plants and so occupy the vacancies and make the field complete. But this can hardly be said to be practicable though we believe it is done to some extent by British farmers. The turnip does not transplant kindly and only submits to the process in a humid climate or during a remarkably wet time. Even under such conditions the plant is checked and the bulb stunted. Mangolds are much more docile under transplantation. Indeed, during a spell of moist weather, they can be transplanted almost without their knowing it. Hence there need be no blank spaces in a mangold patch—ought to be none.

Blanks in the turnip field may be filled up by sowing Yellow Aberdeens, White Globes, Stubble or White Stone turnips. These mature in a much better time than the Swede, and though not so valuable, are by no means to be despised. They may be sown in the late fall or early winter, and made to help materially in eking out the supply of roots. The Yellow Aberdeen is the best of these late varieties, and will come to a very respectable size if the season be good though sown three or four weeks after the general crop of Swedes. A good supply of White Stones is by no means had filling for a bin in the cellar or for the pot on days when there is a "boiled dinner" preparing in the kitchen. It is very little trouble when the turnip crops are gathered to separate the different kinds and convey them to their proper destination.

There is another mode of filling these vacancies, which may be mentioned though the suggestion is rather late to be of practical value at the present season. It can however, be made a note of, and acted on another year. We refer to filling up with another kind of forage crop, namely the cabbage. There is no better expedient than this, and none that can be more easily carried out. Moreover cabbages are greatly relished by cattle in the winter time, and are especially valuable for milk cows. Being of easy culture, the wonder is that they are not more extensively grown as a field crop. The plants require to

be grown and fit for transplantation in a seed bed, which should be located in some sheltered and sunny spot, and the seed sown in early spring. The soil of the seed bed should be very rich, well worked and mellow. In sowing a quantity for field culture, of course a good-sized bed will be required, and it is the better plan to sow in drills, as the plants can then be more readily hoed and weeded. They will also require thinning, and if the plants can be used at different intervals, it will be well to take the larger and stronger ones first, leaving the feebler ones to grow into more vigorous condition. A moist time should be chosen for transplanting, and the work done with a tool known among gardeners as a dibble. This tool is usually made of an old broken spade handle. The top part of the handle, about eighteen inches in length, is what is used for the purpose. A gradually tapering point is made to it, which is pushed into the soil, and withdrawn with a turn of the hand. Into this dibble-hole the young plant is set, and the dirt firmly pressed around it. The most expeditious way of doing the work is for one person to make the hole and drop the plant beside it, while another sets the plant. This is an operation in which the "young folks at home" can be employed to advantage, as their backs are short and their fingers nimble.

The Drainage of Land.

To the Editor of THE CANADA FARMER:

Sir, The principal object of draining is to take away surplus water, but in effecting this other important benefits are secured. It is obvious that a larger quantity of water in the soil than is required for the support of the plants is injurious. It is injurious in various ways. That wet lands are cold and sour is a common expression, and an acquaintance with the principles which this condition of the soil involves shows that the popular idea is correct. It has been repeatedly proved that evaporation produces coldness, that in the exhalation of moisture heat is carried off, and this is one of the reasons why a wet soil is really a cold one. That such a soil is also sour is proved by the fact that vegetable matters form acids when decomposed in water. The sourness of peat may be taken as an example. Prof. Johnston observes, "When soils are soaked in water then vegetable matter either decomposes very slowly, or produces acid compounds more or less injurious to the plant, and even exerts injurious chemical reaction upon the earthy and saline constituents of the soil." One of the first objects in the production of any plant is to secure a temperature congenial to its habits. Every person may have observed that vegetation makes no progress till the weather becomes sufficiently warm. Different species of plants require different degrees of heat, but as a general

rule those which grow in the lowest temperature are the least valuable.

The effect of drainage has been found highly favorable in raising the temperature of soils. Experiments have been made which proved that at seven inches below the surface the average degree of heat for thirty-six successive days, on a soil which had been underdrained and pulverized, was ten degrees higher than on a soil precisely similar that had not been drained and worked. The more rapid growth and perfect maturity of crops on drained land is doubtless attributable to the higher temperature thus obtained, and is an evidence of the great value of drainage in high latitudes where, from the shortness of the season, the results of the agricultural labours are peculiarly uncertain. It may be safely assumed that draining is the basis of the great improvement which has taken place in British husbandry within the last fifty years. In Canada the practice of draining systematically can hardly be said to be introduced. Various trials have, however, been made in different parts of the country, the subject is attracting great attention, and we may expect shortly to see the business carried on largely and profitably, provided we can obtain an Act to compel neighbours to make an outlet for farms lying above them similar to the one for surface water. It has been objected that drainage is less necessary here than in Britain, that in our drier climate crops are more liable to drought than moisture. To this it may be replied that proper drainage, with a thorough working of the soil, is the best possible protection against drought. A little observation will convince any person that those lands are most affected by drought which at some seasons of the year are too wet. Clays which are not drained keep the water so long on the surface that the soil runs together and forms a mortar, which, when the water is evaporated, becomes like sun-burnt bricks, unworkable and totally unfit for the growth of plants. On the hard pan soil the surface is completely saturated with water in spring, or in wet weather, the compact subsoil not permitting it to soak into the earth. In both cases the workable soil is usually thin, and as soon as drought comes on, the plants droop, and, because they have not much root, they wither away. Crops on such soils are very precarious; the only bed for their roots at any time is the little portion moved by the plough, and it is but for a small part of time, comparatively, that even this is wholly available to them—it being almost always either too wet or too dry. The roots cannot perhaps penetrate the hard subsoil, or if they do, are liable to be brought in contact with substances more or less poisonous to vegetation. The effect of drainage in such cases is to increase the depth of the soil, to render it more permeable to the roots and less liable to be affected by drought.

The first action of the drain is to take the water from that part of the soil with which it is in direct