

larly wheat, barley, and oats. These grains when too long sown without changing, degenerate very much, and no expenditure of the farmer would be more certainly refunded to him, than would be paid for new changes of seed of good quality. The neglect of these matters is an injury and discredit to our Agriculturists.

In passing through this country, in whatever direction, we see that the principal improvement required in our agriculture, is the more perfect drainage of our lands, and the thorough breaking up, levelling, and cleaning of our soils, by a judiciously executed summer fallow. This would produce a great change for the better, and fit our strong soils for giving valuable crops of every description, which they will not do in their present state. These lands, with few exceptions, never have been thoroughly broken up. They have been generally ploughed in one direction, and scarcely ever cross-ploughed. It would, however, answer no good purpose to summer-fallow, without first draining the land sufficiently, because, though the soil should be well broken up, if it is not drained sufficiently, it will again run into a mass of mud, that when dried will make it harder than it ever was previously. The soil cannot be beneficially pulverized, unless drained properly, and it is useless to apply manure to an undrained soil. It may be imagined that soil could be rendered too dry in this climate, but this is a mistake, for if the natural moisture in the soil is greater than it ought to be, it will be dried out of it when the crop would most require it, and will leave the land as hard as bricks, and utterly unfit to nourish the growing crop, as the roots of the crop cannot extend, and neither dew nor slight showers of rain can penetrate to these roots. This is the chief cause of the thin, scanty crops, we so often see in this country. We do not propose that our lands should be so thorough-drained as in England, by tile draining at intervals of fifteen or twenty feet, or in every furrow. This is not necessary; our lands may be sufficiently drained with open drains properly constructed where required. The banks of drains should in all cases be sloped off so that the lands shall be lowest at the edges of the drains. Indeed it would be well that all drains, except those at the side fences, or main drains, should be so sloped that the plough could pass over them. The water would find its way more readily into them; they might be kept in better order because the side banks would not be falling in, and there would be less waste of time in ploughing, and of land. This sort of draining might cost more in the commencement, but much less in an average of several years, and their appearance is much more pleasing to the eye. The crop or grass might be allowed to grow upon them, except about eighteen inches at the bottom which should be cleared out with a shovel, after each ploughing and harrowing. These improvements would be of the greatest utility.

In reference to draining, we cannot conclude this article better than in the words of Professor Johnson:

"When an open pan of water is placed upon the fire, it continues to acquire heat till it reaches the temperature of 212° Fah. It then begins to boil, but ceases to become hotter. Steam, however, passes off, and the water diminishes in quantity. But while the vessel remains upon the fire, the water continues to receive heat from the burning fuel as it did before it began to boil. But since, as already stated, it becomes no hotter, the heat received from the fire must be carried off by the steam. Now this is universally true. *Whenever water is converted into steam, the ascending vapor carries off much heat along with it.* This heat is not missed, or its loss perceived, when the vapor or steam is formed over the fire: but let water evaporate in the open air from a stone, a leaf, or a field, and it must take heat with it from these objects; and the surface of the stone, the leaf, or the field, must become colder. That stone or leaf, also, must become coldest from which the largest quantity of vapor arises. Now let two adjoining fields be wet or moist in different degrees; that which is wettest will almost at all times give off the largest quantity of vapor, and will, therefore, be the coldest. Let spring arrive, and the genial sun will gently warm the earth on the surface of the one, while the water in the other will swallow up the heating rays, and cause them to re-ascend in the watery vapor. Let summer come, and while the soil in one field rises at mid-day to perhaps 100° F.* or upwards, that of the other may, in ordinary seasons, rarely reach 80 or 90°—in wet seasons, may not even attain to this temperature. What then, is the cause of the coldness and poverty, the fickleness and uncertainty of produce in land of the kind now alluded to? It is the presence of too much water. The application of this merely rudimentary knowledge, will enable farmers (if they will but set about it,) to remove from many improvable spots the stigma of being *poor* and *cold*; an appellation hitherto applied to them,—not because they are by nature unproductive, but because ignorance, or indolence, or indifference, has hitherto prevented their natural capabilities from being either appreciated or made available. What is the remedy? A removal of the excess of water. And how? By effectual drainage."

We perfectly agree with the editor of the *Mark-Lane Express*, in the following observations which we copy from a late number of that excellent journal. These remarks are as applicable to agriculturists in Canada as in England. We may have a new school bill introduced in the next session of our Provincial Parliament, and we trust that the interests of agriculture shall not be forgotten in the bill. We are not advocates for the great increase of the number of our laws, unless such laws as will be manifestly calculated to produce the general good of the people, and likely to augment their means of comfort and happiness. Laws

* Probably the temperature of the soil in the hottest weather in August and September, on good sound loamy corn, and other cultivated land, may rise to 130 or 140° F.—a temperature necessary for the growth and maturity, in the greatest perfection, of a large part of our cultivated plants. But a temperature of 80° is sufficient to cause a rapid evaporation from the wet soil; and consequently the heating rays of the sun re-ascend in the vapor, and the soil becomes no warmer.