to keep at an average ; at 3 feet the difference between summer and winter was found to be 21 degrees.

A widely known agriculturist, Dr. Madden, has informed us, as the result of his observations, that an excess of water reduced the temperature of the earth six and a half degrees, which amount he calculated to be equal to a difference of elevation of 1959 feet above the sea. Supposing, then, that two fields, one drained the other undrained, were lying side by side, of the same soil and under the same cultivation, the crop of the one that was drained would have all the advantages over the other, as if it were at the sea level and the other 1959 above it.

To prove that draining does affect the temperature of the soil, a premium was given some years ago in Britain, by a nobleman who takes a deep interest in the promotion of agriculture, for the best series of observations and experiments, to be made on soil of the same nature, in the same locality, and bearing the same crop From this a collection of carefully prepared and reliable data was obtained, showing among other things that in well drained land, during a long continued frost, the temperature of the land was, at a depth of 30 inches below the surface, one degree and a half higher than the undrained : that showers of sleet or rain lowered the temperature of highly drained land 2 degrees and of undrained 4 degrees. In every case the result obtained was in favor of the drained land ; except in summer, when the temperature fell one degree after rain : even this is an advantage to land that is already dry and parched up.

When such results have been obtained in highly cultivated land, from the benefit of heat and air, there is surely a larger field open here, where such large tracts lie untouched, or even farms are undrained; there is surely plenty here to make an intelligent man think of the great advantages he can obtain from spending his spare cash on his own land instead of lending it or going into speculation, for here is labour saved, land increased in value, and the working made easier, lighter and earlier, and the crops largely increased; indeed, the importance of the latter is so great, that if draining be properly and carefully executed, it will repay itself in five or six years.

The cranberry lands in Ocean county, New Jersey, last year, were valued at $2,500,000. It is estimated that the crop amounted to 70,000 bushels. The quantity harvested in 1868 was about 6,000 bushels.

Make better Manure

The great object with all careful and intelligent cultivators of the soil is to keep the land in a state of continual productiveness, and it is becoming each year a more and more important matter, not only to save all the manure that can be made on the farm, but also to have what is saved of as rich a quality as possible There is far less labour and expense involved in carting, spreading, and covering in manure when it is in a concentrated form than when it contains a large amount of undecomposed material, such as long straw. One of the greatest losses our farmers suffer is from allowing all the rich salts contained in the urine of animals kept through the long winter season to run to waste. Much of it might be saved and made to add greatly to the value of the manure heap by the use of some substance that will readily absorb it. For this purpose, perhaps, one of the most readily obtainable substances is swamp muck, which can generally be dug out and drawn to the barn-yard during the winter season. It will of course be all the better if it has been dug out and laid by in piles to dry for some time before using ; but even where that is not done, it will still answer well to employ it as an absorbent of the salts by spreading it over the yard in a thick layer, afterwards laying straw over it for the stock to lie on. The same plan may be adopted in the stables and byres, a layer of muck being first spread to absorb the urine, and straw spread over it for the animals to lie on. In this way the straw will last longer as bedding, and much more manure of a better quality will be secured than without the use of an absorbent.

The matter of making manure is, however, seldom thought of by the generality of farmers. They seem to think that the manure makes itself ; at least so one would judge who witnessed the total neglect and indifference shown by them on this most important subject. There is little doubt but that by using proper means of manipulation, the quantity of manure made on each farm would be doubled without the expenditure of one dollar, beyond the ordinary labour to be had on a farm in the winter season.

The great point in making barn-yard manure is to have it so managed as to decompose slowly and yet thoroughly, and to save as much as possible of the salts contained in it. While we are conscious that the quality is generally improved by keeping the manure under cover, we do not think it is a matter of so great importance as to necessitate the turning of the stock into the cold in order to use the sheds as store-houses for the manure; but wherever there is room and to spare, it will be well to compost the manure as much as possible under cover, and when it is composted, draw it out and pile it in a large heap in the centre of the field where it is to be used the coming season. If it is to be spread on permanent meadows, the best time to do it is in early spring, after snows have gone, but before the ground gets thawed out.

Farly Reaping Machines

A recent number of the Edinburgh *Scotsman* contains the following interesting notice from "Tate's History of Alnwick," concerning two humble and almost forgotten inventors, whose names deserve to be perpetuated in connection with the early history of the reaping machine, and who may claim from posterity a recognition of their merit without detracting from the honour which attaches to the memory of Patrick Bell.

"Henry Ogle, a descendant of the Ogles of Cawsey Park, was born in 1764, in the Old Pele Tower of Whittingham. After knocking about from place to place, he settled down as a schoolmaster, first at Newham and then at Rennington, where he eked out his scanty income by acting as parish-clerk and teaching a singing class and a night school ; by singing his own funeral hymns before the dead on their way to the place of sepulture ; by working in the harvest field and stacking hay or corn, at which he was proficient; by cobbling old shoes ; and selling a nostrum of his own for cut fingers; and yet with all these accomplishments and this labour his emoluments seldom exceeded £40 a year. John Common, his associate, lived at Denwick, where he was a maker of machines and agricultural implements. He was born at Buston, on January 25th, 1778, the son of Robert Common, a cartwright. The father and uncle of John were both ingenious mechanics and noted pugilists. John Common, in 1818, received the silver medal and ten guineas from the Society of Arts, for an improved double-drill turnip sower; and thirty guineas from the Highland Society for the same invention. He died at Denwick in 1868. Such were the two Alnwick men connected with the invention of a reaping machine, having many points of similarity with those now in use. As early as October, 1802, Ogle, when at Newham, having seen a notice in the papers of the trial of a reaping machine in the south of England, devised a machine which cut with a plain, straight blade; and of this a model was made by Edward Gates, a country joiner. Some time afterwards he became acquainted with Common ; and from another improved model, made in 1822, Thomas and Joseph Brown, ironfounders in Alnwick, constructed a reaper of iron, which was exhibited in Alnwick market, and afterwards tried at Broomhouse, where the projectors were nearly mobbed by the workpeople. After improvements, it was tried again on a field of wheat at Southside, and there 'cut to perfection.' Other trials followed, and in the beginning of 1832, the Browns advertised that they would supply such reapers ; but agriculturists, slumbering then under the spell of Protection, were behind the age, and not one was sold, A drawing and description of this machine are given