DRAINING.

After inspecting the dairy and poultry-yard, we adjourned to the fields to examine the draining that had been begun last fall, and continued this spring at convenient intervals.

A machine has superseded the old digging plan for making the ditch, and the cost was wonderfully reduced—eighty rods a day of ditch two and a half feet deep having been made by one team and two men, under favourable circumstances. The plan pursued has been quite different from that ordinarily followed. The lay of the land, as a whole, was rather level than rolling, except towards two corners, one of which was high and springy, and the other low, affording the natural outlet. The evil of low, undrained intervals had been severely felt during the prevalence of wet weather. In many places deep indentations of cattle feet were quite apparent, and of course a corresponding injury was done to the grasses in pasture fields.

During my former visit we had carefully looked over that part destined to be first operated on, and I had at that time given it as my opinion that to drain the whole twenty-five acre field as is usually done, namely, running the drains through low and high spots, towards a given point of outlet, would cause some heavy digging, and consequent expense, as the surface of the land was intersected by small rolls, and swales intervening, the high parts being sometimes of an altitude of two to three feet for rods together, and to dig a drain through these parts would have entailed a great deal of work.

Mr. Johnson had been reading some professional work on the subject the year previous, before commencing his work, and had also studied the diagrams with which it was copiously illustrated, showing a field laid out in nice oblong squares, with a general outfall at one place, and convergent leading drains towards that large one, intended to carry off the water. The whole was elaborately drawn and coloured, showing surface and subsoil, with sections and levels all over the plan. Specifications accompanied all this, showing the cost, which, "all told," including the increased size of tile required in some places, footed up to about the value of the land. I had been shown all these plans and specifications, and being somewhat of a practical drainer myself, and also having had to do a great deal on my own land with very little money to do it with, I at once condemned the whole thing as utterly impracticable for us to carry out. I therefore put all these perplexing plans and specifications aside, as too elaborate for any ordinary farmer to contend with, unless blessed with more money than we were, and advised partial practical measures, at all events at first. Accordingly this had been done, and the "modus operandi" was as follows:—

First, all low spots in the whole field were followed from their commencement to their outlet, and white freshly split stakes or splints were stuck into the earth, following as near as possible the centre of the swaley parts. By this course we could readily follow each depression accurately, and, in consequence, we found, what the water had found centuries before, the lowest place, where a general convergence of all the stakes took place. This was made quite apparent by the white lines of stakes. We did not level at that time, as it was quite unnecessary. When this preliminary staking was done, the great object was to straighten these stakes so as to have the drains run as nearly in a direct line as possible without bends. Then again, the stakes showed us what to do, as by removing one stake a few feet one way, and another a few feet the other, occasionally cutting across small spurs of the higher parts, we were enabled to reduce the very tortuous, crooked lines to nearly straight ones, with occasional angular bends; and when these occurred they were ultimately readily contended with. We were quite surprised to find so few difficulties; the stakes, when straightened, laid out the whole field like a map, and levelling was quite unnecessary, as we had water levels to guide us almost all the way. Any one walking over undrained land will meet with hollows and depressions here and there, turn which way he will, and it seems as if some of them could hardly have an outlet; but when all the stakes above alluded to are placed, you will readily see that one depression generally falls into another at some one part, and so on to the outlet, and do not offer such an insurmountable job after all, A furrow had been drawn wherever these stakes indicated the want of drains, and another in this first one, the horses, however. travelling the opposite way. This of itself had drained almost all the low parts, but of course only partially; and we are now come to the draining machine, which had dug a clean trench, about two to two and a half feet deep, in many directions all over the field. Sometimes these trenches intersected each other, and when that was the case, of course a junction of drains was requisite and contemplated; and it now became a question what was the best kind of drain to have.

Tiles there were none within 100 miles; stones, of a manageable size, were also not plentiful. The land was not stony, or, of course, it would have paid to have had some place to deposit the stones in. Timber was abundant and cheap, and was finally decided on as the best material to use. Decay was avoided by the drain being of necessity laid nearly on a level, and as such, the principal fall that existed was in the depth of the drain itself at the head as compared with the ultimate outfall. There was some fall to every part, but in digging the trench the water did little more than run away, and in many places with scarcely any fall to the bottom of the drains. Drains of various shapes had been laid down and tried, and all had their advocates; but as the subsoil was hard-pan that would not wash, the drain that had finally become the favourite was one formed like the letter v reversed, each side being composed of a piece of board, one inch thick (full measure) by five wide. The sawyer who had cut the drain stuff had ripped a ten inch board in two, angling the cut at something about a right angle, or a little more acute. This angle was used to prevent the board splitting by the weight of superincumbent earth.

In laying in the drain on this plan there was, of course, no bottom, and the middle of the trench formed by the machine, was just about as wide as would admit of the drain being laid in it. Some little difficulty was experienced in keeping the two boards evenly together at the apex of the cone, as where any inequality in the bottom of the drain existed, the edges of the boards forming the drain had a tendency to slip past each other somewhat; but of course this difficulty ceased very soon, as no alteration could take place after the earth was even partially filled in. To avoid this slipping, however, three nails in each twelve feet drain were used, and found requisite to steady the boards in their places until the earth above made all solid. Where turns or bends existed, a portion of the drain box was bevelled to the required angle, and a perfect turn thus effected. After a large quantity of drain had been laid down (with a few shovelfuls of earth here and there at the joinings), the remainder of the excavation was rapidly ploughed in again, twenty times quicker by this course than spades would accomplish the same work.

When all was completed, a set of marker stakes, made of cedar, were placed here and there to point out certain junctions, and one of the family, who could map correctly, laid down on paper a diagram of the whole, or the principal portion, which was carefully preserved for future reference in case of accidents.

But I am trespassing again on your space; indeed it is difficult to describe these things in as few words as one would wish, there are so many peculiarities and novelties, that without a minute description there would be little use in jotting it down at all. C.

Wheat and Chess.—Some years ago Mr. J. J. Thomas, who stands among the foremost practical men of this or any other country in matters pertaining to agriculture, offered a reward of *five hundred dollars* for a head of wheat and a head of chess from the same root. This offer was kept standing in the *Country Gentleman* several months From the immense number of plants which the transmutationists claim turn from wheat to chess *every year*, it seems that it would have been an easy matter for farmers to draw very heavily on Mr. Thomas' exchequer; but, strange to relate, not a man appeared as an applicant for the reward.