

next century many agricultural works were published, but nothing new or particularly valuable appeared until the time of Jethro Tull. He had observed in his travels that in the vineyards where no manure was used, but the ground kept constantly stirred that the vines grew well and produced abundant crops. After labor and reflection Tull laid it down as a general rule that crops would grow well on poor soils without manure, if the ground was kept thoroughly pulverized, and that the only advantage derived from manure was in the pulverization of the soil by fermentation, and that this could be done by tillage without manure. He therefore recommended drilling and horse-hoeing. Although wrong in theory, much good was done by the investigations and labours of Tull. To no one, taking the age in which he wrote into consideration, is agriculture more indebted for its subsequent advancement and present position.

Sir Humphrey Davy followed, and Liebig, giving to agriculture the benefit of their scientific investigations. So that now, although we have much to learn, we do not labour entirely in the dark. Every year new facts are developed and new theories formed. Ours is a day of progress, and he who does not strive to keep up with the times will find himself sadly in the rear.

LAYING FARM-YARD DUNG ON CLAY FALLOWS FOR WHEAT.

The preparation of clay lands for a succession of crops by the process of summer fallowing, which pulverizes the soil and removes all weeds and stones, reaches the condition of receiving farm-yard dung for manure in the end of August or during the month of September. Early operations are the most effectual, and the best performances get the land ready in August for the reception of lime and dung. The first article, in a pulverized condition, is spread evenly over the land, and harrowed into the ground by a double tine of the common-purpose harrows. The farm-yard is laid in small heaps on the land, spread by the hand forks evenly over the surface of the ground, and covered by one furrow of the plough. The dung may be carried in the fresh condition from the cattle yards, being the production of the latest store cattle, and from the soiling beasts that consume the green food, or it may have been placed in a heap on the field of land from the month of March to the time of use, and will have reached a partially, if not a half-rotten condition, when it is spread over the ground in August. The lumps of dung will often not be covered by the plough, and lie on the surface, being pushed before the coulter, and not falling into the bottom of the furrow. A lad or woman with a hand fork follows the plough, and throws the pieces of dung into the hollows, where they are covered immediately by the next furrow of ploughing. This provision is made against the loss by evaporation from exposure of dung on the surface of the ground; but the theory of loss from exposure does not yet hold a confirmed dominion among undoubted facts.

The common plough opens drills with one furrow at convenient distances for green crops, and on light soils the dung is well covered by one furrow of earth being laid over it. Clay lands for wheat are drilled in the same way by one furrow, the dung is spread along the hollows, and covered by splitting the ridglets with the plough. In this way the plough opens a drill in going the length of the field, and in returning covers a drill of dung by reversing the furrow. This mode covers the dung very completely, and exhibits the field in the form of drills; not highly raised, or widely formed, as for green crops, but flatly done, and executed for the sole purpose of covering the dung from exposure. A cross harrowing is required to level the ground when the land is seed-furrowed in October. The two drillings of one furrow are less labour than one ploughing, and cover the dung much better. Even the harrowing that is required before the seed-furrow, does not raise the expense to an equality with the ploughing of the dung into the ground.

The wet nature of moist clay lands prevents the carting of dung on the surface in October, and consequently, the manure must be applied at an earlier period, and the land ploughed again for the sowing of seed. Cases occur when the dung is applied in October; but chiefly on the grattans of beans and peas, and on some few clay lands of the driest nature. Few wheat soils admit the application of dung in October, unless the modern system of frequent draining has produced a dry condition to bear the necessary