

after what Mr. Smith had explained fully in his pamphlet as obtained exclusively by deep and frequent stirrings of the soil. His method was founded on Tull's principles, and was a great improvement on Tull's practice. Mr. Smith's intervals are smaller: there are three rows instead of two, and he digs down deeply into the subsoil, which Tull was afraid to touch. Mr. Paine considered Mr. Smith's practice to afford a most beautiful illustration of the large amount of ammonia available for agricultural purposes existing in the atmosphere, and at the same time of the absorptive power of clay or loamy soils. He had seen Mr. Smith's crops again this season: they were as remarkable for their luxuriance as last year, probably more so. There was no sign of exhaustion in the field then cropped with its seventh successive growth of wheat; but, on the contrary, there was some danger to be apprehended from its exuberance. There was evidently an accumulation of atmospheric and disintegrated mineral manure in that field, for an explanation of which Mr. Paine thought we must fall back upon the information Mr. Way had given us relative to the absorption, retention, expenditure, and consequent balance of manure left in the soil. Mr. Paine could perceive nothing peculiar in the geological structure of the land at Lois-Weedon which would lead us to infer that Mr. Smith's success was at all attributable to that cause. It was manifestly what would be good wheat land, when well drained and well cultivated. With common management, the surrounding land did not produce large crops. In fact, Mr. Paine remarked, it was well known, that many trials of the same plan were then proceeding elsewhere, in different counties, with every probability of similar success wherever the land possessed the necessary ingredients of clay or loam. At that time he was himself carrying out this system on one of his fields; the surface soil of which was an extremely stiff clay resting upon a subsoil of the lower chalk marl; he having selected the field in question because it had already borne three wheat crops in the four preceding years. It was sown with wheat in the winter preceding 1848, the land being at that time in a good state of cultivation, the crop was an extraordinary fine one till it fell, and then it only produced about six quarters of a bad quality per acre. It was sown in 1849 with wheat, again without any manure; the result was $5\frac{1}{2}$ quarters of good wheat per acre: all through the season the flag and straw had a very light green appearance, evidently showing the want of ammonia. There was clover in 1850 cut twice, and without any manure; and in 1851 it was again sown with wheat and manured with guano. The result was a crop of upwards of seven quarters per acre, weighing 65 lbs. per bushel. Immediately after last harvest the field was deeply ploughed and cleaned from weeds, in preparation for Mr. Smith's plan; but for want of the requisite implements it was not sown till the 9th of November, at the

rate of half bushel per acre, without any kind of manure: it looked thin and miserable through the winter, so that the intervals could not be trenched up till the middle of March. The ground was then broken eighteen inches deep, and some of the subsoil brought to the surface. The rows of wheat have been hoed, and the intervals deeply stirred up to the present time. The whole field had at that time a most luxuriant appearance, the flags of a dark green colour, and, like Mr. Smith's, if there be any fault, Mr. Paine's crop was only looking too gross in condition than otherwise.—Mr. Denison, M.P., inquired as to the levelness of all the ears of wheat in these cases, and referred to the objection sometimes made that when wheat tillered much many of the ears never attained perfection.—Mr. Alcock, M.P., required a statement of the profit and loss on this plan of cultivation.—Mr. Briscoe referred to its connexion with spade husbandry.—The Earl of Essex remarked that all his work was done by spade, and no difficulty was experienced.—Mr. Wolryche Whitmore stated the results of his own experience in deep cultivation on his estate in Shropshire. The effects of trenching a piece of garden ground three feet deep, and leaving it without manure, were so wonderful, that strangers on witnessing these effects could scarcely be persuaded that the ground had not been heavily manured. A portion of the arable land too, on one of his farms, was ploughed twelve inches deep, and the remainder was only ploughed shallow: the result was, that while the deep-ploughed land was most luxuriant, the shallow was so indifferent that he did not know what to do with it. He then cited the results of Mr. Woodward's farming in the Vale of Evesham, and Mr. Randall's opinion that dry ground should be well trodden with horses in the early spring. They were all well acquainted with the pulverizing and consolidating power of Crosskill's clod-crusher: still he thought that a medium should be observed in these operations, and that pulverization especially should not be carried too far; the market-gardeners, he believed, having ceased to pass their soil as formerly through a fine sieve.—Mr. Chandos Pole recollected an instance on his own property of the result of great consolidation from trampling. In the November of 1850 the whole of a pack of hounds had run through the same gateway of a wheat-field. The soil at Radbourne, as those would remember who were present at the trial of implements at the Society's Derby Meeting, is a remarkably strong one, and the ground near the gateway in the line of these runs was trodden down as hard as a table: it was thought, accordingly, that the wheat would fail in this part of the field; but on the contrary, it was found before reaping that it had become the best part of the whole crop.—Mr. Whitmore remarked that he had gone to twelve inches deep.—Mr. Paine stated that he had proceeded to twenty inches, and had found that the deeper he went the better crops he obtained.—Colonel