

STEAM CULTURE.—The process of cultivation by steam is gradually approximating to that point which will render it an established economic system, placing agriculture on a par with every other branch of industry. Improvements in the present, and suggestions of new, methods of adapting this power to the existing conditions of the land, concur with the admissions of the machinists themselves, in proving that the system is still in its infancy, and that something is wanted to bring it within the ordinary range of the labour and implements of the farm. Those intelligent and skilful men, the machinists, who expend thousands upon experiments, with a fearlessness which proves both confidence in their own judgment and the all-importance of the subject, feel that something is still wanting to effect the desired object, and render the steam-plough as common and effective as the thrashing-machine, and the winnower or chaff-cutter. Steam culture is, indeed, a subject of the first importance to the British farmer, involving the future of agriculture to an extent he himself is scarcely aware of. We anticipate the time when England will, by the general application of steam power to *all* the labour of the farm, be able to grow corn at a much cheaper rate than she can now import it from any country in the world, whilst the produce will be so increased as to render such importations unnecessary; nor will the progress of steam be stayed until these objects are fully accomplished.

We have, during the past week, had an opportunity of witnessing a further step in this progress—"Eddington's Improvement on John Fowler's steam-plough," which we saw at work on the Warren Farm, in the occupation of Mr. Perry, at Writtle, near Chelmsford, where Mr. Eddington's foundry is situated. This machine has ploughed upwards of 150 acres in the immediate neighbourhood of Chelmsford since harvest.

The improvement consists, in the first place, in adapting the ordinary steam engine of the farm to the purposes of the plough, by separating from it the windlass, which is attached to it in Fowler's plan. The windlass is fixed on a strong oaken frame, which also is furnished with two drums for receiving and giving out the coils of rope employed in the working. On the top of this frame stands the engine (8-horse power), which by its weight adds to the stability of the machinery, while the power is more directly applied to it. In the second place, Mr. Eddington employs two engines and two sets of ploughs, one stationed at each end of the field. By this means he not only gets rid of the necessity of employing an anchor, which is a cumbrous machine, but he executes double the work in a given time. The field in which we saw the machine at work was four hundred yards across; and an engine being stationed at each end, the ploughing apparatus met in the middle, and then returned, each to its opposite headland. Thus the same length of wire rope is used for the two as was used upon the original plan by Fowler for one, the additional engine being substituted for the anchor and sheaves, which may be called a non-working implement. The engines are stationed at right angles with the work, and move along the headland as the operation proceeds. With the common labourers of the farm, in addition to the enginemmen who are employed by Mr. Eddington, he executes ten acres per day; but he is quite certain that when the former become accustomed to the ploughs and machinery, and have a stimulus of extra pay set before them, they will be able easily to execute from fourteen to sixteen acres per day. In case only one engine is used, the economy of the plan will be reduced to the employment of the common thrashing engine, and the greater compactness of the machinery by having the engine placed on the top of the oak frame instead of being placed separate, as on the original plan. In other respects, the anchor and the same length of rope would be necessary for one engine as in Fowler's plan. There were eight plough-breasts attached to each engine when we inspected it, and the work was exceedingly well executed—without, of course, any furrows. On a large farm, the economy of using two engines is obvious. Few farmers occupying from 500 to 1,000 acres are without two steam engines of 8 horse power, and with these the work of ploughing—of so much importance at certain periods of the year—may be executed with a speed unattainable on any other existing plan.

And now, with regard to the financial economy of the Eddington steam plough. The manual labour consists of two enginemmen at 3s. 6d. per day each, two ploughmen at 2s. 6d., four labourers at 2s., two boys at 1s., one horse and man fetching water at 6s., and 18 cwt. of coal, 20s., making in all £2 8s. per day. This brings the working expenses to 5s. per acre; to which must be added 2s. per acre for wear and tear of the machinery and rope, bringing the total expense to 7s. per acre. It was estimated by the farmer that the land on which we saw the machine at work could not be ploughed by horse power at less than 15s. per acre.