

face for the extirpation of weeds, than for the purpose of more serious and effectual cultivation; and this, we believe, was the chief object to which its employment was confined, until Mr. Smith, of Woolston, brought it into direct competition with the plough, by attaching it to his steam apparatus, instead of that time honoured implement. This operation being in direct contrast with that of its antagonist, he has quaintly termed it "the smashing-up system, in contradistinction to ploughing." The success the implement has met with, in the increase of produce from thus stirring the soil, instead of turning it over, has led the machinists to effect improvements in the construction of the same implements worked by animal power, so as to adapt it to the purpose of deep culture, instead of confining the performance to scarifying the surface for the destruction of weeds. It has now become an important question, whether the principal object of tillage—viz, the speediest and most effectual preparation of a seed bed—is not better accomplished by the cultivator than by the plough, especially on the refined principal laid down by the Royal Agricultural Societies on the dicta of their appointed judges; and it certainly does appear, from the testimony of innumerable persons who have used Smith's steam-cultivator, that the turning-over of the sod is not a necessary part of tillage, and that the unbroken furrow-slice is not the most effective operation for preparing a speedy a desirable seed bed.

This question is now, in the opinion of many, the most momentous one before the agricultural public; and upon it, in connection with steam-culture, subsoiling, and thorough drainage, depend the future success of the husbandman. The late Mr. Pusey was, we believe, the first who foresaw the value of Lester's invention as a cultivating implement, and he unreservedly gave his opinion of it in public, and this expression brought it into general notice. "I may venture to say," as Mr. Pusey writes, "what may appear theoretical, that if ever steam be successfully employed by cultivation, it will probably be less by ploughing and digging, than with an implement like one of these cultivators." Thus far the prophecy is in part accomplished. Smith invented the smashing-up system; and Fowler has also found it necessary to yield to public opinion, and apply the cultivator as well as the plough to his steam apparatus, in order to meet the wishes of his friends and supporters.

It becomes an important question with the machinists, whether, in endeavouring in the race of competition to comply with the requirements of the Royal Agricultural Society, they have not so much refined upon the construction of the plough as to lose sight of the main object of tillage—the quickest and most

effectual preparation of a seed-bed. It is now universally agreed by all intelligent men that the more completely the pulverization of the soil is effected, the greater are the chances of success; and certainly the upturned and unbroken furrow-slice is scarcely the fulfilment of that object. If the soil is a strong clay, be the weather either wet or dry, it will require days, and sometimes weeks, to mellow the furrow-slice so as to be able to reduce it to a comminuted state, fit for a seed-bed.

It is worthy of remark, too, that whilst almost all who have used Smith's smashing-up implement agree in ascribing to it a considerable increase of produce—and the same is the case with Fowler's steam plough, which also breaks up the furrow-slice instead of turning it over in an unbroken state—on the other hand, we have never heard of an increase of produce effected by the operation of the ploughs constructed to produce the unbroken furrow-slice. The contrast in this respect is most striking, and of itself must lead the husbandman to inquire more minutely into the merits of the two systems.

The point we have raised has for some time engaged the attention of many of the most intelligent of the agricultural body and the conviction is gaining ground that the cultivator is the quickest, the readiest, and the most effectual implement, whether worked by animal or steam-power—but especially if by the latter—for converting the soil into a proper seed-bed. Both the Royal Agricultural Society and the machinists will have to meet this question; and, at any rate, the unbroken and uncracked furrow-slice must be given up and the desideratum substituted, of a perfectly comminuted and deeply cultivated soil, constituting by one operation a well-prepared seed-bed.—*Mark Lane Express.*

CAMBRIDGESHIRE AND LINCOLN- SHIRE FENS.

[We take the following interesting communication from a recent number of the *Times*, (England), written by Mr. John Algernon Clarke of Long Sutton. Eus.]

Every one knows that the great level of the Fens, more than a thousand square miles in area, is a tract of alluvial deposits which have filled up to one almost uniform height a basin about six times larger than the Wash. The original coast consists of hills of chalk, green sand, gault, Kimmeridge and Oxford clay, oolite limestone, and drift beds of boulder clay and gravel, surrounding the district from Haverstamton and Lynn nearly to Cambridge, thence to Peterborough and Lincoln, and towards Wainfleet, leaving a belt of the flat along the North Lincolnshire coast; up to the Humber, while numerous islands of the same upland