money in the improvement of their estates has obtained more hold throughout the country.

"(3) Next in order are the engines which travel along the headlands as the work proceeds. These doubtless employ their power more direct, and with a smaller quantity of rope than engines stationary at one point, but they have these drawbacks: when the soil is at all wet the passing of a heavy engine along the headlands, and the necessary coal and water haulage after it, destroy in great measure the fertility of the headland, as well as leaving a good deal of hard work subsequently to be done by horse power in bringing the land to a tilth.

"Again, in hilly countries the engine is at work sometimes on a steep ascent and sometimes on as steep a descent, at times inclining to the right, and at others to the left; this will doubtless render the cost of keeping the engine in repair much greater than one that is stationary and always working upon the level. Another disadvantageous feature is that a headland all round must be left unbroken if the field has to be worked a second time by steam.

"(4) Lastly, we will take the engines stationary while at work. The main objections urged against these schemes are, the extra length of rope required, and the loss of power by the employment of pulleys round which the ropes are passed; the advantages claimed are, they are less costly to purchase and to keep in repair, more simple of construction, consequently better adapted for ordinary farm labourers, and irregular shaped fields can be ploughed as well and almost as quickly as square ones. By stationing an engine at one point, fields of 30 or even 50 acres each can be cultivated without any remove of engine or apparatus, and if the farm be well laid out, twice this quantity can be done from one point. A pond or a well sunk at convenient spots saves all water carting, and the coal is all brought to one point instead of having to be carted after the engine.

"Some parties have greatly exaggerated the loss of power entailed by the passing of ropes round pulleys. I have heard it stated in this room that for every pulley used a horse power is sacrificed. Now, so far from this being the case, I find by most careful experiments that when working a cultivator drawing 15 cwt., and the ropes arranged in a square, the loss of power from friction is 25 lbs. per pulley, just one-sixth of a horse-power. Even this is not so great a disadvantage as at first sight would appear, for if the pulleys were reduced to two and the same strain put upon them, the friction would be increased one-third; this arises from the fact that the ropes would then have to pass half round the pully instead of one-fourth only. The experiments at the Leeds meeting proved most conclusively that very little power was lost in the friction of the wire ropes, when properly supported upon pulleys.

"Mr. Pike, in my neighborhood, has a fi of 50 acres, in which he stations an 8-ho engine, at the extreme corner, where he has d a pond. This 8-horse engine, without e moving, breaks up this field of heavy tenacio soil to a depth of 7 or 8 inches, at the rate of or 8 acres per day: so much for loss of po from pulleys and extra length of ropes."

Achievements.—Having now very imperfect sketched the rise and progress of steam cultiv tion, I will, in a few words, sum up what I co sider what has already been anchieved.

"Some 400 or 500 farmers have purcha steam cultivating apparatus, of one kind or oth From the Britannia Iron Works, Bedford, alo about 200 steam cultivators have been sent o

"The experience and the opinions of a la majority of the purchasers have been publish and all, or nearly all, have testified to their proval and appreciation of steam cultivation."

As to the future of steam tillage I shall s but little. What effect the general adoption steam power on our farms will have upon country no one can foresee. To expect t steam will do as much for agriculture as it done for manufactures and commerce would idle; but that it will enormously increase productiveness of the country no one who paid the least attention to the subject can f moment doubt. Whether it will increase r respondingly the profits of the farmer we wait to see; but it is worthy of remark that most highly remunerative amongst the manuf turing trades of this country have been th which require a large plant in the shape steam-driven machinery. To the landlords the country the question of steam ploughing of the greatest importance, and a few noble and landed proprietors have come forward introduced steam cultivators on their estat But it is mainly to the enterprise of the te farmers that the system has made so much in the country. Landlords will consult t own interests as well as that of their tenants removing all hindrances to the adoption of st power. All unnecessary fences, to say noth of trees in ploughed fields, must be got rid the farms must be properly laid out; and, a all, greater liberty of action must be given the tenant in the course of cropping and o matters, before the resources of our farms be fully developed. That the new order things will have a considerable influence on labourer I have no doubt. The great adva which have been made of late in agriculture, and the changes which are taking place, s on our notice the fact that a more intelli and a more careful class of labourers are be ing indispensable to the farmer; and by emp ing these in the use of a higher order machinery they will be a field for the more telligent and useful farm servant. Under old order of things—however willing to em