

to them. When the farmer, too, has always his horses fresh and ready for the field, he can do more work with fewer horses:* and if a pair or more can be saved, it is an important item to him.

One manifest advantage of steam, as the first mover of machinery, arises from its rapidity and certainty. If the farmer, therefore, can bring his grain on the shortest notice into market—if he can either thresh one stack or a dozen without stoppage, and so avail himself of any sudden rise in the market, without delaying or retarding the other operations of the farm—he possesses advantages invaluable, though no other were attained—advantages which no other means of threshing can give him. But steam-power likewise possesses that steadiness of action which cannot be obtained while employing the horse, and a much greater quantity of corn can be threshed in a day. The usual quantity of corn threshed by a six-horse steam-power, is at the rate of five quarters per hour, but four quarters may be taken as the general quantity to thresh easily; however, the quantity must vary according to the grain and straw. If the average of horse-power, as generally driven, be taken at thirty quarters per diem, the average of steam-power may be taken at fifty quarters, giving an advantage of twenty quarters in favor of steam-power, while the latter is kept up at no other expense, save fuel of the cheapest description—culm or dross is generally used—and, unlike the horse, when not working, *costs nothing!* hence, in every point of view, the use of steam-power on farms must prove advantageous.

The author of the excellent Treatise on Agriculture in the last edition of the *Encyclopædia Britannica*, seems to have fallen into an error when he says, "Wind and steam-power require too much expense for most farms, and that the use of steam must be confined for the most part to coal districts." From the recent date this article has been published, this opinion might not have been expected, if referring to the agricultural districts of Scotland. It may be presumed, therefore, the opinion has been inadvertently given, and if the author had entered more fully into the consideration of steam as a motive power, he would certainly not have classed it with wind-power. Indeed the rapid extension of steam-power to farms speaks volumes in its behalf. He would have found on investigation the immense benefit of the application of the steam-engine at a *very moderate expense to the farm*. A power which only requires to be understood to be more appreciated, and what almost every farmer who has used it has found to be one

of the most advantageous improvements he has made on his farm-stead; and, while it increased his comfort, it was attended with no difficulty in the management, requiring no other attention than what any farm servant could easily give.

This power indeed, as applied to Agriculture, is yet in infancy; but with a prospect of gigantic manhood before it, it seems fitted in all probability, as it becomes more extended in its range of application, to change the entire face of the country, and to give the same impetus to Agriculture, which it has done to all branches of the Arts. No well-informed farmer should be insensible to the value and utility of the steam-engine, even limited as it now is as a moving power to the threshing-machine, and the adoption of this power by him, in most instances, in the best agricultural districts of Scotland and borders of England, evince beyond a doubt, that it, in his opinion, is the best and most advantageous power which has yet been applied, wherever there are not insuperable obstacles intervening; and it shows how readily the enterprising farmer avails himself of whatever improvement enables him to support competition and improve the capabilities of his farm.

In England, fixed threshing-machines have not been much used for farm-steads, hence stationary steam-power mills are ready to be met with. This may arise from a variety of causes without the value of these being overlooked by the various public-spirited agricultural associations scattered over the south. It cannot, however, be supposed, as its advantages became better known and understood, that the application of steam-power to farms, both in England and Ireland, will not in time become as common as in Scotland, where it has extended with amazing rapidity.* The threshing of grain with machines in England is generally carried on with portable mills wrought by horses; the threshing of grain being in some counties a regular branch of trade, the thresher removing his machine from farm to farm. Recently, steam-power has been strongly recommended at agricultural meetings (at the late show at Derby and other parts) for this purpose, and is now getting into use. The Disc Engine Company of Birmingham have invented a very compact portable engine boiler, and threshing-machine, on a carriage. The whole machine provides for its being readily moved to different farms. Mr. A. Deans of Birmingham has also made, for a similar purpose, several forms of portable cylinder and piston engines, some with upright and some with horizontal cylinders. These engines are of different powers, from four to six horses', and the engine is placed on a neat iron carriage.

*The saving of a pair of horses to the farmer has been estimated at fully £100 per annum. Some farmers tell me, who have steam-power, that they can save a pair of horses out of four, on large farms.

*The Report on the Advantages of Steam as a Motive Power on Roads, by the House of Commons, is strangely coincident in the same reasoning.