whether such an addition to the capital employed upon a farm as steam cultivation necessarily involves is consistent with farm profits.

But there is another point which materially affects the answer such a question should receive; for, supposing it determined that steam cultivation shall be adopted, its profitableness or otherwise depends more than any other thing on the possibility of working the apparatus pretty constantly throughout the year. We know of one example where 30 or 40 working oxen have been dispensed with by the use of a 10 horse power engine in cultivation, and where, therefore, unquestionably a direct saving has followed its adoption. This is where the soil is so dry and easily worked that, except when heavy rain is actually falling, or the land is covered with snow or bound up in frost, the cultivator could be kept constantly employed throughout the year. In other cases we know of the engine having been employed in cultivation with a comparatively small displacement of animal power, and where, nevertheless, the tenant is perfectly satisfied with his enterprise. This, on the other hand, is where the soil is so stiff and difficult to work that the advantage is derived especially from the superior quality of the work accomplished on it. There is a limit placed upon the diminution which steam tillage effects in the horse power of the farm by the quantity of other work—carriage, &c.—which remains to be done. Where a great deal of this has to be accomplished, as in a case we know of, where 30 or 40 acres of mangel wurzel are carride to the homestead every winter, and where 20 loads of dung per acre upon, perhaps, 80 acres of a farm of 200 acres have been carried from the homestead every winter—where the market town is 14 miles off, and so on—it is plain that, taking the work of the farm alone into account, it will not pay to procure the services of a steam plough, except by way of hire. This the tenant has done to his great advantage, as he believes, notwithstanding that he has paid from 10s. to 20s. an acre for its work, together with all the coals consumed in the operation. He had 40 acres of wheat stubble ploughed in this way with Fowler's apparatus last year, and notwithstanding that we have known the farm all our farming days, ever since, 20 years ago, it was broken out of grass, yet we have never seen a better crop of mangel wurzel, swedes, and turnips than there is upon those 40 acres now. Another quarter of the farm had been steam ploughed the previous year, where turnips had been fed off and where mangels had been drawn, and first-rate crops of barley, wheat, and oats had been taken. The seeds sown with the two former crops had yielded more green food and hay over 30 acres than the tenant had previously known upon the whole 50 belonging to that quarter of the estate. The oat stubble, which, being somewhat foul, had not been sown with clover, was ploughed by steam last autumn, and a crop of peas, the like of which was never seen upon the farm before, was grown there this year. The tenant declares that the straw was 8 feet lying, and podded more heavily than any sticked peas in a garden; he fully expects 8 quarters per acre. It is certain that he has found it profitable to *hire* the steam plough, notwithstanding the heavy charges for it. And indeed, notwithstanding the limited extent of the land in his occupation, he would, did the means at his disposal allow his doing so, purchase the apparatus, even for the 200 acres of plough land to which he is confined.

A farmer must have horses enough to do the carriage of his farm; and he must have horses enough to work a drill and do the harrowing before and after it. To be sure, Mr. Smith, of Woolston, has a combined cultivator and drill which is worked very efficiently by steam power. But apart from this, the sowing of the land, its harrowing, and the carriage of manure and produce will generally remain to be done by horses. Let any tenant consider how many horses he may dispense with, retaining enough for this, and he will soon learn what saving will be made by the adoption of steam culture. To that he must add whatever advantage he may obtain by letting out his apparatus on hire, and far more than this, the advantage which, especially if his land be stiff and clayey, he will derive from the superior quality of the cultivation done by the steam-driven apparatus; and he will then be able to determine for himself the probability of steam cultivation answering his purpose. Fowler, Smith, and Howard all compete on very even terms as to mere cost of apparatus for the custom of the really small arable farms, to which steam cultivation is thus probably applicable; and, without attempting to state the precise circumstances under which a given acreage will or will not yield a satisfactory interest upon an investment in steam cultivation, it seems plain that a much smaller extent of arable land will in most cases pay for the expense than is now generally imagined.—*Agricultural Gazette*

THE VINE LANDS OF LAKE ERIE

On a pleasant afternoon, last week, we took a drive through the sand region which skirts the city of Cleveland on the east and south; and were struck by the evidence, on all sides, of the increase of the Grape Culture. Scarcely a farm homestead, holding of any sort, be it a few rods a few acres, or a larger farm, but exhibits evidences of new, or increased, attention to the cultivation of the grape. Without the public specially noting it, the portion of Cuyahoga county immediately surrounding this beautiful Forest City, is fast becoming a continuous vineyard. The grape crop is proving a sure and lucrative one; and land owners are not slow to note and profit by the fact. The experience of the vintners of Kelley's Island, proving that