

tines however being in operation : thus accomplishing a width of more than 5½ feet at a mite. It made 8½ journeys in the half hour, doing very thorough work at the rate of about 1 acre, 3 roods 24 perches per hour. The advantage of great rate of speed was shown in the complete wreck and smash of the earth that was moved. It was, however, here also, though in a less degree, occasionally left too irregularly for easy treatment afterwards with the harrows; and a less speed would, on this account, have been better. Howard's cultivator, driven not nearly so fast, was found, on examination, to have moved as much earth per superficial yard; but it was merely moved, not tossed about, and it would need, therefore, a crossing with the cultivator before the ordinary harrows would take hold of it. Whereas Fowler's work would no doubt have been laid hold of by the harrow at once; though, as already said, sometimes too much laid in heaps.

In order still further to compare the work done by the several cultivators and ploughs upon the ground, it was resolved to attempt an estimate of the earth moved per acre in the several cases. To this end a frame, 4 feet by 4 feet 6 inches—enclosing, therefore, 2 square yards of surface—was provided; and all the earth within this frame, which was dropped here and there on the several plots, was carefully collected and weighed. The following tables represent the work accomplished by the several machines as thus ascertained:

1. Fowler's (so called) 8-horse power engine with moveable anchor, carrying clip drum and a four furrow balance plough.

Labourers Employed—Four men and two lads.

Estimated Depth of Work—Barely 5 inches.

Quantity Ploughed per Hour—One acre.

Weight of Earth moved per square yard ascertained in four instances—

No.	Stones.	lbs.
1	35	3
2	29	0
3	31	2
4	28	10

Average weight of earth moved per yard 31 0
 Weight of earth moved per acre.. 938 tons.
 Weight of earth moved per hour by the so-called 8-horse power engine—4 men and 2 lads..... 938 tons.

2. Howard's (so called) 10-horse power engine with windlass, and 3-furrow balance plough.

Labourers Employed—Five men and two lads.

Estimated Depth of Work—Fully 5 inches.

Quantity Ploughed per Hour—Three roods.

Weight of Earth moved per square yard, ascertained in four instances—

No.	Stones.	lbs.
1	26	10
2	30	10
3	35	3
4	30	7

Average weight of earth moved per yard 30 11
 Weight of earth moved per acre 932 tons.

Weight of earth moved per hour by the so-called 10-horse power engine—5 men and 2 boys 774 ton
 3. Fowler's (so-called) 14-horse power engine with 4-furrow balance plough, and digging breast—

Labourers Employed—3 men and 2 lads.

Estimated Depth of Work—Close on 6 inches.

Quantity Ploughed per Hour—One acre 1 rood 5½ perches.

Weight of Earth moved per square yard, ascertained in three instances—

No.	Stones.	lbs.
1	31	3
2	34	0
3	35	3

Average weight of earth moved per yard 34 2
 Weight of earth moved per acre 1002 tons.

Weight of earth moved per hour by the so-called 14-horse power engine—3 men and 2 lads 1280 tons.

4. Howard's 10-horse power engine, double windlass, and 3-tined cultivator.

Labourers Employed—5 men and 2 boys.

Weight of Earth moved per yard, ascertained first when going deeply and doing ½ an acre per hour, 33 stones, equal to 998 tons per acre, or about 500 tons per hour. In this case, however, as already stated, the stoppages were frequent, the power being insufficient.

In the second case the weight of earth moved when the cultivator was going shallowly and doing 1 acre per hour, was ascertained in three instances—

No.	Stones.	lbs.
1	24	4
2	19	7
3	22	0

Average weight of earth moved per yard 21 12
 Weight of earth moved per acre 660 tons.

Weight of earth moved per hour by the so-called 10-horse power engine and 5 men and 2 lads 660 tons.

5. Fowler's so-called 14-horse power engine, with 6-tined cultivator.

Labourers Employed—3 men and 2 lads.

Weight of earth moved per square yard ascertained in five instances:—

No.	Stones.	lbs.
1	22	7
2	22	7
3	20	0
4	24	0
5	20	0

Average weight of earth moved per square yard.. .. . 21 10
 Weight of earth moved per acre .. 650 tons.

Weight of earth moved per hour by the so-called 14-horse power engine, 3 men and 2 lads 1240 tons.