prepared for wheat sowing, there are the wheat stubbles to be fallowed for the green crops, usually a tedious and costly affair—with winter and spring ploughs, scarifyings, draggings, rolling and harrowings, before a satisfactory tilth is obtained, and all the couch and other weeds got rid of; while on many strong clays a whole year's fallow is necessary before the necessary conditions can be secured. But an autumn day's dry tillage, when the root weeds are young and weak, and the temperature of the earth and atmosphere high, is of far more value than a week's work after the cold and rains of winter; and with the cultivator in its various forms we can pulverize the soil with the efficiency of the old Roman plough, and leave it either open or ridged up to the mellowing action of the still powerful sun. We may fairly expect by autumnal cultivation to save two ploughshares in the fallowing—the land is kept more clean and at a lower cost—moisture is retained in the turnip land by avoiding tillage during the drying winds of the spring—and on clay soils a root crop is obtained upon part of the otherwise bare fallow; yet only under the most favourable circumstances and in but few localities, can this advanced and desirable system be carried out successfully, owing to our limited power and the pressure of other operations. So that steam cultivation was, as it were, a new faculty, cleansing and preparing our land at a reduced cost, fertilising it by autumnal exposure to the sun and air, forwarding the preparation for our spring seeding, and placing within our reach profitable crops, which hitherto have been comparatively unattainable. This is no imaginary picture; it may be seen as the result of a four years' practice by Mr. Smith at Woolston, where a strong and cold clay farm of the most pauperising character under the old system, has been converted into a soil, "deep, rich, absorbent and friable as a garden." The ruinous dead fallow is abolished, yet the farm is a pattern of cleanly culture; and, without purchased artificial manures, very heavy crops of roots and grain are grown with a produce and a regularity quite unknown before. This change has been effected by his new system of steam cultivation, which has produced him a regular increase of at least eight bushels per acre, while the entire cost of preparing his land for seed has been (on the average of the four years) only 11s per acre. Mr. Mechi tells us that he has found a like increase on his heavy open clays due to the employment of Fowler's steam plough; and in some light soils in Suffolk the effects were equally satisfactory. The superior power of steam to horses in time, in force, and in cost—all and each of deep importance to the farmer—would be more readily recognized were we to give a little more consideration to the cost of horse power than is usually done. Hitherto our trials have had reference to the comparative merits of the implements used, and important results have been obtained as to their relative drafts in the same soil. What we want now is to ascertain the comparative resistance of different soils, and then calculate the cost of draft per acre in each; this would give at once a clear notion of the important part that steam is likely to play in our field operations. We have a good starting point for our calculations in the known value of the draft force of a horse. Every one knows the enormous difference in the texture of our soils, which our somewhat imperfect dynamometers have shown us to have a range of draft of from 2 cwt. to 12 and 14 cwt. for the 6 by 9 furrow; and yet few of us have correct ideas of the different cost of Norfolk and Kent ploughing, or of the increasing ratio of expense, where the resistance exceeds that which horse-power can economically overcome. The draft power of a horse in ordinary condition is estimated at 1¼ to 1½ cwt. Let us take the maximum, which would show us that a soil offering a resistance of 3 cwt. was a fair test of a pair horse power, and that they would readily do such work without extra keep and without losing condition. Double this draft, and make your horses struggle through it and what is the result? Either they must do a considerably les