

amount of work in the same time, or they must consume an increased amount of food, or they must speedily show by their depreciated condition the wear and tear which has been silently going on by the uneconomical expenditure of their powers. Force cannot be generated—it must have its equivalent somewhere—either time or material must be given to balance it; and either or both of these must be paid for somehow. From my own calculations, I am inclined to think that the money equivalent of horse power 6 by 9 furrow per acre in ploughs is about 2s 6d per cwt. of draft on the lightest soils; but that this ratio of costs increases with any increase of resistance offered. Now, if we could draw out any scale of this sort, it would readily be seen upon what soils horse power could economically be employed, and where steam could be introduced with advantage in the cultivation of the farm; for steam, we must recollect, owes no allegiance to the laws which limit animal power. Our trial experiments so far are in accordance with our previous ideas—that on light soils steam exhibits but a small advantage over horse power, so far as mere cost is concerned, but that on medium and heavy soils its great economical advantages are seen increasing as the natural difficulties of the soil increase. The vast strides, said the lecturer, which agriculture has been making during the few past years in all the processes and operations of the farmstead and of the field, in the economical manufacture of both animal and vegetable food, have stimulated our engineers to assist us in compelling our fields to pay an increased tribute to the increased intelligence and requirements of the day, and have prepared the master minds of her followers to receive steam cultivation as one of the most important and acceptable offerings that could be made to her. Already the white flag of steam tillage may be seen flying in various parts of the country, and each inventor as he brings his machine into successful operation in the fields, finds no lack of encouraging purchasers. Let the memory run back but a short fifty years, and note the changed condition of our fields. The careworn soil may indeed deplore the days of easy farming and long idle fallows—it has since then known no rest. For ever knocked about, it never knows in what form to expect its next blow. Its surface forced to wear a regulation garment of everlasting green—drained of the moisture it treasured in the depths of its old lazy content—pierced with fistulous passages of miles of hard piping—submitting to all sorts of rough treatment, scarifying, crushing, drilling—ploughed, and harrowed, and rolled, to the utter confusion and pulverization of its clod existence—every kind of horrible compound that fish, bird, man or beast can conjointly or severally furnish, driven into its texture—when early clothed with nature's youthful verdure, soused, irrigated, and polluted with liquid extract of solid nastiness. Though thus abused, and under a constant screw, it has proved grateful; it has shown its powers to be equal to the requirements of the day—to meet low prices by quick returns—and has met the lessened value of its productions by a continued increase in the amount produced. We have seen steam, too, leaving its factory-home and enlisting in the service of the farm; and our new and faithful ally has been welcomed far and wide, and has found a home in the farmsteads of well-nigh every county of the kingdom. In the early days of our acquaintance we tried its powers with natural hesitation and diffidence both of our own wants and of his strength; but as our acquaintance improved, and we could better understand its value, we threw aside our reserve, and confided to it the important conversion processes of the steading, and grateful for the benefits it has conferred on us then we now, with an increased confidence, intrust to it the still more important production processes of the field. Let us then aid its progress as much we can within our respective spheres, confident in the belief that the day is not far distant when it will justify its claims to be considered as the greatest in its results of all the advances which have from time to time lent a hand in revolutionizing the agriculture of our country.