

of the steam cultivator is entirely in favour of the new power; and extended practice has demonstrated that the expense of steam ploughing and grubbing is still lower than the estimate formed from the shorter trials. Heavy clay land can be ploughed by steam with a saving of one-third to one-half the cost by horses, and lighter soils with a saving of one-fourth. A valuable paper in the *Royal Agricultural Society's Journal* has lately shown from elaborate statistics what the average expense of farm-horse labor really is—an item hitherto extremely variable in different localities, and under different managers: and hence we can now take the comparison between the steam engine and the draught animal in definite quantities, and the superior economy of the one can be expressed in money value. But apart from the pecuniary saving—varying much, of course, with the particular form of apparatus you may adopt—the merit of steam tillage comes out in the testimonials alluded to in a much more important form. Not only is the wear and tear of a steel wire rope (that much feared item) found so inconsiderable that a thousand acres, it is alleged, have been broken up without damaging the rope—the rate of deterioration depending much upon the quality of the metal of which the rope is made, the care in working, and the stoniness of the land; but advantages are found that out-balance considerations of expense. Farmers state that they are more independent of unfavorable weather; their wheat seeding was completed a full month earlier, and their spring corn stubble grubbed up and cleaned far faster than before: additional crops have been interloped in the rotation, without risk of getting a farm full of weeds; and what is more important than all this put together, their wheat stubble for fallow has been tilled in the hot autumnal season, and so much of the long rignarole of Spring ploughings and scullings anticipated and prevented as will repay three times the cost of the steam work and give a clearer fallow and a forwarder root crop—worth anything in the present ticklish state of our turnips.

The reaping machines exhibited include the Hesse "Champion," Crosskill's improved side delivery "Bell," Samuelson's "Britannia" self-raking-off reaper, Burgess & Key's reaper with screw platform, and their new platform, and their new hay mowing machine. It is supposed that no less than 4,000 reaping machines were engaged in cutting our last harvest, their value being now fully appreciated in all our chief corn-growing districts.

Among the ploughs—in manufacturing the various parts of which the most ingenious and improved mechanical means are applied to working in wrought and cast iron, as at Belford and Ipswich—we have Messrs. Howard's, Messrs. Ransome & Sim's &c., and the notable new implement of Messrs. Hornsby, which, by its unexpected triumph at Warwick, has made as much ferment among the agricultural public as that once exhibited by the sudden appearance and conquest of Messrs. Tuxford's engine at Carlisle.

Portable steam engines are exhibited by Messrs. Tuxford, Clayton & Shuttleworth, Ransome & Sims, Smith & Ashby, and others; and threshing-machines by Messrs. Hornsby, Humphries, Garrett, &c. The stands—which owing to the demand for space, are limited to two lineal feet each, letting in the aggregate for some £700—comprize the usual immense variety of drills, chaff-cutters, mills, screens, haymakers, carts, crushers, pulpers, pumps, cultivators, and the beautiful collection of cereal specimens, seed samples, and wonderful roots on the stalls of Messrs. Lawson, Gibbs, Sutton, Skirving, and others. One principal novelty is a Canadian revolving harrow, said to be specially effective.

Horticultural.

TROUBLES IN THE FRUIT GARDEN.

No. 2.

Raising grapes by horse power! Why not? In these days when manual labor is in every department discarded as much as possible, and the power of the animal or the engine is substituted for that of man; when almost every operation of Agriculture is, or will be, performed by forces of far greater energy than the unaided hands of man can exert, why should the process of the gardener be shut out from the employment of agencies so potent. Some such idea seems to have seized upon the mind of a noted English grower of grapes, and to have led him to send into the world a volume in which he strongly argues in favor of horse power. This volume fell into my hands about the time when I was pondering the ways and means of obtaining a large supply of this universally favoured fruit. But reader, do not be puzzled. You are wondering how horse-power can be made available for so good a purpose—can be applied to such a use. You are thinking perhaps of speedily drawing the stem in