

will sink" out of the reach of the roots of the cultivated crops. I thought every body knew that all the soluble parts of manure were washed out by the rain, sometimes through the subsoil, and sometimes, as in undrained clays, down the water-furrows. The grand point is, as Lawes has shewn, to get the land into such a state that the nitrogen, phosphoric acid, &c., may be caught by the roots before they can escape. A. P. S. talks of "impervious clays;" he digs a hole, he fills it with water, which water remains till it evaporates, and he does not see that in digging the hole he "puddled" the bottom: a drain, laid down in a proper manner, would soon show him that his clay was not impervious, and an analysis of the drainage water would shew him that the best and most costly parts of his manures do sink through the land, clay though it be.

*Single versus double-horse carriages.*—I have tested for myself the relative advantages of one-horse-carts and waggons in harvesting both hay- and grain-crops, and I find, after many experiments, that three horses in carts will do as much work as five horses in waggons. I have put up, in one day, three stacks of wheat-sheaves averaging four hundred bushels each stack—horses and carts employed, nine. My neighbour, with the same number of horses and four waggons hardly completed his second stack in the same time. The distance traversed, was the same in both cases. This was in England, just thirty years ago. The points to be attended to in building such carts as I speak of are these. First, the body to be as near the ground as convenient, and second, the load to be placed in such a way that the inclination be to shake down towards the centre, wherefore, the hind- and back-rails or ladders must have a slope towards the centre. Moderate-sized loads will get over the work quicker than big loads: there is much waste of time in getting up the last 25 sheaves if the straw is dry: they often slip off and cause double work.

A large dealer in artificial manures tells me to-day (August 17th) that he has only sold *five tons* of superphosphates, bone-dust, &c., for use in the province of Quebec and the Eastern part of Ontario, during the season of 1883! Compared with the quantities of these manures employed by the farmers in the States as aids to farmyard dung, these sales are insignificant, and I was not surprised to hear that the dealer in question was about to relinquish his business in Montreal.

*Loads of dung.*—A very vague phrase—a ton or a cubic yard of dung may be a convenient way of expressing approximately a certain quantity of manure, but even then, much depends upon the state or condition of the manure. Hence, when I see thirty loads of dung recommended as a dressing for an acre of land in this province, I conclude that the carts are very small, or the dung very light and strawy. But, when I hear an Englishman talk of ten cubic yards, or a Scotchman talk of ten tons of dung, I can form a pretty fair estimate of the quantity employed.

*Preparation of land for roots.*—The finest crops of mangels I ever saw were grown by Lord Lovelace, at Ockham, in Rutlandshire, Eng. The system that used to be followed at Ockham is peculiarly suited to heavy lands, and as mangels do better on the raised drill than on the flat, I can recommend all growers of that root to give Lord Lovelace's plan a trial next spring: it is as follows:

Seven or eight loads of dung (of fifty cubic feet each) are laid on the stubble in the fall and ploughed down. In the spring, it is cross-ploughed and well grubbed, and harrowed to a smooth surface. As soon as possible after this, the

ground is drilled up at a width of thirty inches with a double mouldboard plough, and the subsoil-plough follows immoderately along the furrow, stirring the land ten or twelve inches deeper. Eight or ten more loads of dung are spread between the drills and covered by splitting the drills as usual. The seed is then put in, with or without bone dust or other aids; and as soon as the plants are up, the spaces between the drills are subsoiled, so that the whole of the field is thoroughly stirred, and the young mangels are then set out in the ordinary way. The effects of the second subsoiling, when I saw the farm, in 1845, were very apparent. Five or six weeks after the plants were up, the rootlets or fibres were nearly "shaking hands" across the spaces between the drills; the subsoiling in the furrows had heaved up the drills on which the plants were growing, and they seemed to float on the soil. The farm-manager told me at the time that the plants occupied the entire surface so rapidly, that, after setting out, no hoeing was required: the shade of the leaves prevented a weed growing.

This system seems to me to unite the best features of drilling on the raised surface and on the flat: the dung is close to the seed, and yet, after the second subsoiling, the plant finds itself on an almost perfectly level bed. Subsoiling need not terrify any body, if conducted in this way, as only one team is at work at once, whereas, when the usual plan is pursued, the subsoil-plough must follow immediately in the track of the other plough, and a lot of horses are required. A strong, broadish share on any plough, with a wheel in front on the beam, and the breast taken off, will answer pretty well for this purpose.

The crop of mangels at Ockham averaged, I was told, forty-eight tons an acre.

We used not to care much about trotting races in my time in England. The taste was all for flat-races under saddle—even hurdle races and steeplechases were considered *infra dig.* Still I should be the last man in the world to wish to detract from the credit the Americans deserve in having reduced the time occupied in trotting a mile from 2 m. 50s., to 2 m. 10½s. Maud S., who has "made that time" must be a wonderful beast. Still, it is not fair to compare her with our English racers over the flat, as they start from a standing position, whereas the American trotters come up at full swing—*scoring*, as it is called; it is not the horse that can gallop the fastest over a mile, or a mile and a half, that wins the race in a Derby or St. Leger; he must have pluck enough to stand being *collared*. I remember well, too, when, thirty years ago, Mr Ten Broeck sent his good Virginia horses over to England; the boys (negroes) sent their nags off at score, and our English Jocks could hardly sit on their saddles for laughing. In a little time, the foreigners began to "come back" to our horses, and after the distance post, were entirely out of the race. With Newmarket boys up, however, Ten Broeck's nags showed that theirs was not the fault. Oh! that wonderful turf at Newmarket; six inches of sandy loam on a subsoil of chalk; as springy as a fiddle-string, and as dry as an ash-heap an hour after the hardest rain.

Ellis of Barming, near Maidstone, was the largest Hop-grower (in acreage, not in corporal measurement, though he was a portly man, too,) in England. His orchards were as extensive in proportion, and he thoroughly looked after his business. Wherefore, as we seem to be going largely into the fruit business in this province of Quebec (whether wisely or not I do not say, though I have my own opinion), I offer a plan of Mr Ellis' for the destruction of insects—blight, as we Kentish people call it—on apple-trees. Poor old fellow! I