

vices of a farm hand, while a good mechanic at any other employment would obtain thrice that sum. A man that had mechanical skill sufficient to whittle out a cider-tap, make a wooden linchpin, and turn a grindstone, would do very well for a farm hand, provided he was physically endued with the power to work and possessed the will to do it. Perhaps there was no business that required so little exercise of the intellectual faculties as farming under the old regime. Plow and sow in the spring, harvest in the summer and autumn, and thresh in the winter, about covered the ground of necessary knowledge.

All these things have undergone a change within a few years. The best hand now employed upon a farm is not the man who can cut the neatest swarth or thresh out the most grain with a flail. Farm machinery is working a wonderful revolution in agricultural processes, and is doing much of the work better and much more rapidly than it was executed by the old hand process. We remember an old farmer who prided himself upon the splendid manner in which he broadcast his seed wheat, and he would point to the green field in the fall after the grain was up, proudly contrasting it with his neighbor's streaked ground. But at length that neighbor purchased a grain drill, and the comparison thenceforth was decidedly in his favor. The old farmer could never speak complacently of a grain drill afterwards, declaring it would ruin all skill in sowing, and enable a mere clodhopper to scatter seed equal to the best wheat-grower in the world.

Who would think at the present day of falling back upon the flail to do the threshing of our grain? And yet, the writer remembers to have heard it gravely argued that a threshing machine was a miserable invention, and vastly inferior to the flail; that it was far better for a farmer to hire a couple of men two or three months in the winter to thresh out his wheat than to have it done by a machine in as many days. "It spoiled the straw," it was said; "the cattle would not eat it half as well as they would that thrown out day by day as threshed by a flail;" with other arguments equally as cogent, and which would now be regarded at least as evidences of partial insanity.

The gang-plow, the wheel-cultivator, the hoe-rake, the corn-sheller, and, above all, the mower and the reaper, are additional illustrations of the revolution that is going on in the agricultural departments of human industry, brought about by the direct application of scientific knowledge and inventive genius in the substitution of machinery for manual labor.

All of our energetic agriculturists are adopting machinery more or less, as their surplus means will admit; and the lively rattle of the mower and the reaper will very soon be heard in innumerable fields that never before, in gathering the harvest, felt any-

thing but the slow-paced movement of the cradler. This intelligent desire on the part of the farmers to do their work by machinery instead of human muscle, has, within a few years, built up large establishments where agricultural implements are made. They rival, in many instances, the machine-shops of manufactories and railroads, and employ great numbers of men. The prominent objects in an agricultural warehouse are no longer the plow, the rake, and the scythe, although these are by no means dispensed with. The mower, the reaper, the drill, and other kindred instruments, now occupy the foreground, and the farmer, well to do in the world, pays as many dollars for a machine to do his work as formerly for the simpler instruments he paid cents.— But the difference is more than compensated by the rapidity and certainty with which the work is executed, and the reduced number of hands employed. A few men in the harvest-field at two dollars a day very soon absorb the entire cost of a reaper.

In view of the change which is taking place in the processes of agriculture, it behooves our farmers, especially the young, to educate themselves with some reference to these points. No human knowledge ever came amiss, and we never heard of a man, farmer or otherwise, who knew too much, although there are very many familiar instances of individuals placing too high an estimate upon their own abilities. A thorough knowledge of Natural Philosophy, especially in the department of mechanics, is of the highest importance to the farmer; for in many of the implements, as much skill is requisite to use them successfully as to use an ordinary steam-engine. The time is not far distant, if indeed it is not to-day, when good mechanical abilities will be as much needed in agriculture as in the trades, and will be as amply rewarded.

#### THE ROLLER AND ITS ADVANTAGES.

THERE is no agricultural implement so seldom met with in this country, perhaps, as the roller; and yet it is one of the most useful of utensils. Where your ground is soft and loamy, if you have not time to pick up the stones upon it, you can roll them in, and produce, at little expense, a smooth and clean surface, rendering your fields free from hummocks, and fitting them for plowing and mowing. And it has been mentioned by some that the roller is a useful implement upon ground in which the frost has heaved out the grass and clover roots. It may possess an advantage in this respect, and no doubt would be a fine thing to level and press down damp land where clover is sown, and would be likely to heave.

The roller which we would recommend for general advantage, is made with two separate rollers, each