

dence or living testimony of the benefits of a well educated agricultural community, we could point to Scotland. In that country, an established system of general education has been in operation for a number of centuries, and it may be said that the great bulk of the population of that devoted country, are morally and liberally educated. A more industrious, and at the same time, intelligent nation of people, cannot be found; and although the country is among the least favored for agricultural purposes in Europe, we find that the wages of agricultural laborers are higher, and that higher rents are paid, and greater profits made from the land, than in any other country in Europe. An instance may be cited in this our own day, where a Scotch tenant farmer had made £100,000, and scores, were from £10,000 to £20,000 each, had been made upon highly rented land. The best farmers and gardeners of England and America, employ Scotch foremen to manage, or take the lead in managing their farms and gardens—and to what must this success and preference be ascribed?—Simply, in our opinion, to the high state of their educational instructions.

The agriculturalist builds up the foundation of all society, and his honesty, labor and frugality in a great measure sustains them. No class can live independently without him; and why should he not occupy that rank in society that his useful and honorable pursuits so fully entitle him to? We see no good reason why the cultivators of the soil should any longer exhibit an apathy upon a matter which is of such vital importance to themselves and their families, and may we not add, to their country. Let the farmers who have intelligence and discrimination enough to appreciate the advantages of which we have been speaking, endeavour to arouse from the fatal lethargy in which they are enveloped, and reclaim the dignity which they have lost as a class, by their own neglect.—*Halifax Paper.*

THE NATURE OF SOILS.

"The study of the soils and of the rocks that lie beneath them has led geologists to conclude that the loose materials of which the soil is composed are derived from the solid rocks that lie beneath them—that there was a time when these rocks were everywhere on the surface; but that gradually, by the operation of the rains and other natural causes, these rocks have been worn down and disintegrated, till what had been solid rock became the loose materials which form the soil. These rocks are essentially of three kinds—limestone, sandstone, and clay or slate, the latter in various degrees of hardness; so that if you want to know the kind of soil in any given district, you have only to inquire into the nature of the rocks which form the substratum of that district. But, besides this, the physical examination of the soil tells a good deal of its nature. For instance, if you were to take a quantity of soil of a given weight, and pour water over it in a vessel, then allow a minute or two for the heavy particles to subside, and pour off the water with the lighter particles floating in into another vessel, and repeat this till all the lighter particles were carried away, then again dry the heavy materials and weigh them a second time—the difference between the first and second weight of the soil would give the amount of the fertilizing matter contained in the soil; for all the vegetable or fertilizing substances would be carried off in the water, leaving the inorganic and unfertilizing substances behind. Exactly the same result would be arrived at by heating a quantity of soil of given weight in an oven or other place—the vegetable

matter would be burnt out, and the difference between the first weight and that of the residuum would be the amount of fertilizing substances in the soil. These are rude chemical texts, but when you examine the soil by more refined analysis, you discover that there are eleven substances, every one of which are necessary for the growth of vegetation." This the Professor said he would dwell upon more particularly in his next lecture. He then referred to the subsoil and that part of the soil to which the vegetables did not usually penetrate.—"Every farmer knows that a few years after he has limed the surface of his fields, the presence of the lime becomes gradually less and less, till it altogether disappears. Now, it happens that this lime is to be found sunk into the subsoil. The cause of this might be easily explained, for when you consider the action of the rains, &c., you see that their tendency is to carry fertilizing substances from the surface down to the subsoil. It becomes, therefore, a matter of importance to know whether it would be advisable to bring up the subsoil to the surface and mix the two together. This is not in every case advisable. For instance, here is a section of a soil 18 inches deep, which I have received from a place in Renfrewshire, the surface of which contains a certain quantity of fertilizing substances, while the subsoil contains only half the quantity. It is clearly inadvisable, therefore, in this case, to do more than, by draining, to open up the soil, and let the roots of the plant draw from the subsoil that nourishment which it is capable of affording."—*Lecture at Edinburgh on the 10th January by Professor Johnston.*

HINTS FOR TRANSPLANTING.

1. Many persons plant a tree as they would a post. The novice in planting must consider that a tree is a living, nicely organized production, affected by good treatment as an animal. Many an orchard of trees, rudely thrust into the ground, struggles half a dozen years against the adverse condition before it recovers.
2. In planting an orchard, let the ground be made mellow by repeated ploughing. For a tree of moderate size, the hole should be dug three feet in diameter, and twelve to twenty inches deep. Turn over the soil several times, and if not rich, mix thoroughly with it some compost or well-rotted manure. In every instance the hole should be large enough to admit all the roots easily without bending. Shorten and pare with a knife, any bruised or broken roots. Shake the tree gently while this filling is going on. The main secret lies in carefully filling in the mould, so that every root and even the smallest fibre, may meet the soil; and to secure this, let the operator with his hand spread out the small roots, and fill in the earth nicely around every one. Nine-tenths of the deaths by transplanting arise from the hollows left among the roots of trees by a rapid and careless mode of shovelling the earth among the roots.
3. When the hole is two-thirds filled, pour in a pail or two of water. This will settle the soil and fill up any little vacancies that may remain. Wait until the water has sunk away, and then fill up the hole, pressing the earth moderately around the trees with the foot. The moist earth being covered by the loose surface soil, will retain its humidity for a long time. Indeed we rarely find it necessary to water again after planting in this way, and a little muck or litter placed around the tree upon the newly moved soil, will render it quite unnecessary. Frequent surface watering is highly injurious, as it causes the top of the soil to bake so hard as to