

which, the pick had to be called into active play, and which often overlaid a lighter coloured, sandy, open soil. In many places this subsoil varied in its texture and shade from light buff through reddish brown to dark gray and black. Now I have listened patiently to all the numerous theories of cause and cure, from river fog and want of lime to cutting off the taproot and paving the tree pit with flag stones, and have believed in them, and faithfully tried them, and yet in three years from planting out I have never seen a living Fameuse tree as a reward for my credulity. I have never had this subsoil analysed, but am inclined to believe that therein lies the trouble, and that protoxide of iron is the enemy against which it is useless to struggle, and until I hear of a better theory, this one will suit my purpose as well as any other; which brings me to another subject, viz., that of deep versus shallow ploughing. Of course I am fully aware of the great value of a uniformly deep rich soil when you have it, and that deep culture should go hand in hand with it, but are we right in being in such a hurry to plough down beneath the influences of Nature's laboratory all the materials that she for centuries has been collecting upon the surface ready to be worked up into wholesome plant food? burying her carbon filters, which, if left near the surface would catch and hold most of the soluble substances upon which plants thrive, sending down the raw material from which she by the influence of air, heat, and moisture manufactures these compounds, and leaving them, for years perhaps, buried where their decay would be so slow as to render them partially useless, and bringing to the surface in many cases a deleterious subsoil devoid of all vegetable and fertilizing material, which requires years of culture, and quantities of manure to bring back to the state in which the surface soil originally was. I have seen sods which were buried four feet deep under an embankment brought up after thirty years almost as unchanged as the day they were buried, whereas, if near the surface, two years or less would have seen their perfect disintegration. Fence-posts seldom show signs of decay five inches below the surface and within those five inches seems to be the active workshop for preparing the food for future crops. If deep culture must be the order of the day, may we not plough shallow and flat on our loamy soils and send down the subsoil plough to stir and lighten up to any depth you like the uncertain foundations of our fields, and keep the vegetable mould as near the surface as nature meant it to be, for does she not invariably conduct her fertilizing operations upon the plan of "top dressing"? The leaves, bark, twigs, and blossoms of trees have since the world began been piling on the surface all their fertilizing properties, and when the forest disappears, the dead and decaying leaves of vegetation which follow add their share in the same way and place, the droppings of all animals are deposited on the surface, while the humble earthworm silently but surely brings up from various depths the best top-dressing we can wish for. Then, are we not often rash in upsetting all these conditions of things and giving ourselves much trouble, loss of time, and expense, in trying to redeem the loss we have occasioned? I am willing to admit that a soil which will bear deep culture should receive it, even by very deep ploughing, but I do believe that most of the soil which has but recently been brought into cultivation from its forest state should be handled carefully, and, before its virgin loam is ruthlessly turned down out of sight, let a portion of each annual ploughing be tried at various depths ranging from four to nine inches, where practicable using a subsoil plough in the same experimental way, and note the result during several succeeding years.

W. A. HALE (1).

(1) I will discuss this letter next month.

A. R. J. F.

Vick's Floral Guide for 1887.

This really beautiful ANNUAL reaches us with the new year. It is really a most agreeable new year's gift. We commend it to all interested in horticultural matters. The cost (10s) is purely nominal, as this amount will be returned in seeds with the first order addressed to James Vick, seedsman, Rochester. We have tried Vick's seeds annually for many years back, always with full satisfaction.

ED. A. BARNARD.

Ferry's Catalogue and Seeds.

We heartily commend both Catalogue and Seeds from D. W. Ferry & Co., Windsor, Ont. The catalogue is carefully printed and highly ornamental. The seeds are excellent and offered at reasonable prices. Our readers will do well to test such seeds in comparison with those they generally obtain from other firms. Such tests if carefully made every year, even on the smallest scale, would prove of great benefit.

ED. A. BARNARD.

AYRSHIRE CATTLE.

Among the various breeds of cattle whose merits for the shambles or the dairy have justly won them popularity, the Ayrshire is of the most recent formation. The nineteenth century was from 10 to 15 years old before the cattle of Ayrshire, which have since become known by the name of the county in which they originated, are known to have possessed those distinctive characteristics and that power of transmitting them with certainty to their progeny, which would entitle them to be considered a breed. The changes effected in the appearance of the Ayrshire within the last 50 years have been considerably greater than in cattle of any other well known breed; for in this period the improvements made in Ayrshires have been of a more radical nature than those effected on any other breed. As may be inferred from its recent formation, it is preëminently a breeders' breed, owing its origin less to environment—surrounding conditions—and more to care and judicious selection than any of the other well known breeds. (1) More than a century ago, it is true, the rough cattle of Ayrshire had a local reputation for hardy and deep-milking qualities, but the meagre descriptions that have come down to us from those days show that they differ greatly from the Ayrshires of to-day. It is generally believed that the cows from which both they and the Short-horns are descended were the country cows belonging to the district between the Wear and the Tees, and it is quite probable that some of these cows—immemorably good milkers—were bought by Scotch dealers or drovers when returning north after disposing of their "droves" of black cattle in England. On the cows thus introduced, it is very likely that West Highland bulls were used for crossing; for cows of that breed have always been good milkers, and the Ayrshires of to-day often in color, and always in the size and shape of their horns, afford clear evidence of West Highland blood. Moreover, both breeds are spiteful and pugnacious in disposition, and ever ready to gore or rip up each other whenever a chance offers, even when bred together. The Jersey, Guernsey, Short-horn, and even the Holstein are all supposed by different authorities to have contributed either by direct crosses on the original rough, but hardy, stock, or by "dashes of blood" to the formation of the breed, and some of the distinctive traits of all these breeds occasionally, by atavism, crop out in the modern Ayrshires.

Medium in size, short in the legs, excellent foragers, with clean, strong bones, and not a pound of superfluous flesh, cows

(1) And therefore certain to fall all to pieces the moment the breeder's care falls off.

A. R. J. F.