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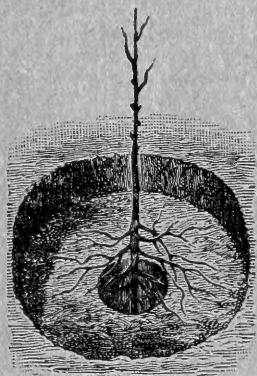
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ART OF TRANSPLANTING



TREES, VINES, ETC.,

BY

JOHN DOLLINS,

Crozet, Albemarle County, Virginia.

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John Dollins
1887

→THE ART OF TRANSPLANTING TREES, VINES, ETC.←

That systematic practice is just as productive of art in the mode of transplanting uprooted tree and vine-plants into successful reestablishment as it is in any other branch of the hortulan of the garden, be the same on pruning, cross-breeding, etc., in any of the divisions of arboriculture, pomiculture or viticulture, there is no question. But there is a question, *a momentous question, to be propounded involving its sterility* as combined with practice in the written manuals of the most popular hortulan books, journals and the wide-spread catalogue of the day; and that question is, *Why do such a large percentage of freshly transplanted tree and vine-plants perish to death annually, and the survivors fail to flourish as might reasonably be expected*, if real art has been combined with practice, as written for a guide in all those works widely promulgated? That art has not furnished the happy conditions proclivous to the life-surviving organs of the plant in the re-introduction to its normal element, the earth. The planter as he stands and beholds his dead and sickly subjects in the falltime must give a solemn affirmative; and cry aloud, in his sorrows, to science for the sweet-milk of art mammalated from the breast of mother nature, to give to his suffering subjects. But the reader may say, we have enough criticism, condemnation and sorrow, why do you not come to the point and let us have the sweet milk. Not quite yet am I ready to give it down, although it is true we all have the cow of nature, and her udder is always full of milk; but first we must make her easy acquaintance, as she is of a formal disposition, before we take the liberty to draw her teats, lest she kick the pail over and spilled milk can't be picked up. And so it is, not only in the different branches of vegetable physiology,

but of all the branches of every subject with which we have to deal in animated nature; then and not until then are we prepared to deal rationally with our subject. Therefore, in the cause of our subject as above headed, we must first make the familiar acquaintance of the radical tree, that is of its natality as we find it implanted in its two elements of earth and air, and learn not only of its anatomical structure, but of its habits of adaptation to the twin elements of its existence as well. But perforce of non-acquaintance with the technical phraseology in anatomical and physiological botany, as taught in the text-books of the schools, which is at best understood but by the few, and however serviceable to them, presents to the many an etymological stumbling-stone in the "spring-path of science which leads to the pure fountains of primeval nature," I must content myself with the use of such phraseology as I have learned to apply to things as I see them hirsuted in the sylvan pages of the Great Book of Nature, and why not? Have I not eyes to see, sense to guide and a serving mind to search among the hieroglyphy of those sylvan pages for the golden grain of life, as it were, bulletin-boarded at every turn to the right or left in the road of our pilgrimage on earth in search of joy and happiness, temporal and eternal?

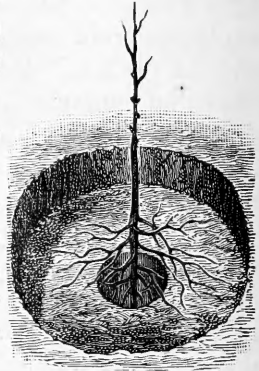
Of what is a tree, both of the higher and lower order (and the vine is the same as a tree) organically considered?

The whole anatomy of an uprooted tree at its pubescent majority presents the figure of a circumscribed shaft or trunk in two united sections, ramified alike at either end but in opposite directions from the junction with a continued curve-linear reduplication in miniature form of itself, both sections extending and augmenting alike, the only difference being adaptation to elementary conditions in the co-work of construction for the purposes intended.

To understand thoroughly the *radical* principles of this anatomy in manner of construction, habit of adaptation, etc., most particularly of the radical end of the shaft under ground, is of the highest importance to transplanters, as perfect suc-

cess depends alone upon the happy *natural* conditions given in the mode of anchorage in the soil and subsoil of the earth, and to make this matter plain I will consider it synthetically from the germ of the kernel of the seed to the time of transplanting from the nursery. The seed scattered in the soil casts out a stemlet of cellular wood and bark-fibre extending vertically both ways down and up from the midriff of the kernel; this constitutes the concentric trunk or shaft-line of the forming figure, which casts out alternately around its circumference, as the radical driving end of the shaft descends, and the airiating end rises, a ramification of lateral organs in miniature form of itself, which cast out again and again in reduplication, from their sub-shafts based in the fundamental trunk-line, extending in all directions, and conforming to elementary bounds. From the above exposition of the building up of the anatomy of the tree, be it correct, it is easy to see that the multifarious offices of the shaft and those of its branches are, in some respects, at least, widely different. I shall here drop the discussion of the aerial end and confine myself to the earth end of the shaft, which more directly concerns the object of this work. The best European authority which I have seen says that the tendency of the roots of trees is downwards and that the deeper the soil is cultivated and enriched the less the roots will ramble. Lazy things! But this theory is not well-founded in fact; it takes no notice of distinction in the character, habit and purpose between and or the vertical plung or tap-root, as vulgarly called, and that of its angulating aggregation of prop-supports and their soil-grappling feeders, but all of the system is treated as one and the same root, all parts being adapted alike either to the deep, cool, moist, mineral sub-surface or to the sun-warmed and air-penetrating, nitrogenized soil in which, notwithstanding the flattery of the theory as above expressed, the ramblers at the right temperature go apace unbridled. I have now, I think, arrived briefly and plainly at the climax of my scientific investigations, which induced me as a benefactor to my fellow-

man to write this essay and advertise it for sale. Staking all of my reputation as a student of nature on the lone proposition of *characteristic difference between the vertical shaft drive of the tree-plant and that of its lateral membership in position, habit and purpose, by which I am to solve the problem of easy, successful reëstablishment*, and in order to do so in the plainest manner I have had a small synoptical engraving of a naked tree-plant and an open anchor-bead made together, which I here present to show the form of the radical drive and its relative position to the under surface in the second narrow, but deep, excavation in the centre of the first flat bottom removal, which see. The office of the radical in the deep, but narrow, circular pit is to penetrate deep into the surface, first, to form the fundamental basis of the upper works, by penetrating deeper and deeper in the earth as the aerial end of the shaft rises and takes on soil; Second, to cast out from its circumference a progeny of soil-feeders, which also become base props in their trunk-lines at the junction to keep the tree steady; the radical having less and less disposition to cast out as it extends down; the principle part of the aggregation may be found about one foot below the surface-junction. The third work of the radical is to search for soluted mineral salts in the cool, deep earth, to be drawn up to the sun-famishing leaves in a drought, whilst the nitrous feeders near the scorched plain is inactive, by the syphonic cellular system of wood and bark fibre of which it is all composed, to sustain the life and health of the tree through the ordeal of adversity. A work most surely of vital importance.



The office work of the aggregation is to ramble away from the direction of the trunk-line just between the soil and the sub-soil, whether cultivated or not, according to its depth of about one or one and one-half feet deep, for the nitrogen-

ous salts in solution there to be found, and sent to the trunk by the same power as the first, and lastly by all of the system the tree is anchor-beaded firmly to the ground.

Now it is easy to see *my art* demonstrated by the above, and hence the necessity of a whole root stock tree plant to commence with, because if the plant has been propagated on section-cut stock stems, either the one or the other, perhaps both, of the vital principles of the root system have been broken into and the plant is a cripple at the beginning, which no after nursing can possibly cure; therefore take note but the whole root system to transplant or so little disfigured that the vital union is not destroyed.

The time to transplant deciduous trees of all kinds is in mild (moist, if possible) weather, any time during dormancy. Vines the same, and evergreens later in the spring; never in autumn, just after the growth has started. The greatest care should be taken to keep the resinous roots moist and fresh, as hot sun, or dry wind, will kill the tender fibre-strings in ten minutes, if left exposed, and no amount of water can bring them to life thereafter, and must die however well transplanted.

Now, the practical work of transplanting is like the old receipt for cooking a rabbit—first, catch a rabbit, etc. I will add a counterpart. First, procure young, (maiden plants are preferable) thrifty, *whole-stock* plants, 4 to 6 feet high, single, straight stems, not over two years' old, from propagation, worked from the upper leading branches, of fruit-trees on clean stocks one year old only, so sheared as to preserve both vital principles of its root-system, and one only to the scion. To prepare the plat for a new orchard where there is room to plough the land: turn it over with a three-horse plough, twelve to fifteen inches deep, in the fall; season let it alone in that condition till early spring, then with the same plough turn it back. Never mind harrowing, I don't like fallow made too fine and level until the heavy spring rains have passed over; then carefully mark it off, for apple, in rows thirty to

thirty-five feet apart, not minding the right angles and diagonals, but mark the places near as may be so as to get the best site in the soil for the tree to grow in, within four or five feet any way from the would be crossmark, directing the rows to suit the best plane of the land, whether straight or not.

To open the bed for the plant, spade and shovel off the fallowed soil at the place in a circle two to four feet in diameter, twelve to fifteen inches deep, or as deep as cultivated with the plough, to a clean flat bottom. In the centre of this circular flat excavate, with a post hole auger or digger, or any other suitable tool, a second narrow hole two to three feet deep; this is to open the way in the hard underground to receive the drive end of the radical root to its extremity, preserving unbroken the circular bench, because that is to form the foundation of the prop-arms to the tree when extended, and to prevent the logging of the plant in the rainy seasons. Should the sub-soil be of a close nature, *two of the most important little items of art ever yet picked up, to furnish some of those happy conditions* promised in my advertisements. And, again, I stake my reputation on the art engendered in the moulding of this entire anchor-head. The opening has been made to receive at once the vertical top-shaft to its extremity, and yet the foundation has been left intact for the prop-arms which introduce their string-feeders to their proper element in the most natural way. Next, set the root of the plant right down in the deep hole, commence to fill in fine, rich soil right on the root, and as the excavation is being filled draw up the plant correspondingly until its sectional junction is even with the top-surface, let the filling in the meantime, after the deep hole is full to the even of the bench, be only piled around the plant in a mound. Next take a round stick, about the size of an umbrella staff, tapered to a blunt point, and insert it many times down in the deep hole all around and about the roots, and by this little tool properly used the soil will be carried and firmed into every cranny about the roots. Next, with the same tool, straighten out the surface

roots on the bench, giving them as natural a direction in equal distribution around the collar of the plant as may be, and if one side is heavier than the other turn the excess towards the prevailing wind, finish by continuing to fill and straighten out the roots until the level is reached, and an inch or two above, and that plant has so far received the happy conditions of reestablishment.

About putting trees into places where the land cannot be conveniently prepared with the plough, I stand a stake or mark, and spade two spades wide all around the mark, finishing up same as above, and brake down the circular wall with the mattock. These directions will do for all trees of the higher order and also for the lower and reduced scale according to their size and habits. As to the distances apart that must be governed by the size and the habit of the kind and the space to spare for the same. Of course, they should all be cultivated frequently during their early stages, especially in early spring, green weeds, leafy bushes, straw and trash of any kind bedded around the plants is of great value. It keeps the sun from drying out the moisture and the surface mellow. Set no stakes by the trees, but watch them carefully after storms and keep them straight up to the vertical line and the leader well in the centre of the branches, as they will soon begin to appear, which should have close attention in the early stages of the plant so as to give even balance and symmetry to the tree, both of trunk and branch. It is best to keep the head pretty thin for several years, more in the form of a skeleton than of a plump figure, so that there will be no crowding of branches in after years. The height of the shaft to the first limb should be governed by the size and habit of the kind of tree, high enough to prevent heavy limbing to the detriment of the leader, and it is often that the largest limb should be cut away to preserve even balance to the head.

Now a word about the old mode of square, flat bottom, dug-out pits so much patronized, and I shall close. They are

usually dug out two to three feet in diameter, eighteen inches to two feet deep, then filled in one-half full, and if the transplanter is very particular woods mold is used; the plant is then set in and the roots straightened out as best it can be done, which is at best badly done; the tap-leader is bent to a curve giving it the wrong direction, and the soilers squatted around against the prison walls and soil cast on until the hole is filled up, and then tramped around, and it is *finished* to the pity of not the plant, but the *poor knowledge* of the transplanter, because he has only made a bog-hole to drown the plant, which he has given all wrong directions to, in wet-weather and pot-hodded in dry weather to its death in the prison walls in which he has confined it, and if the plant should barely survive this treatment it is more like a Mississippi sawyer swayed back and forth, by the wind instead of water, in its unrested anchorage, and in which there is no art at all. Yet a great editor of a fashionable art journal wrote me, the other day, that the tap-roots of trees would take care of themselves. If this be so, then the branch roots surely, on the same theory, could do the same thing, and all that would be necessary to do would be to force the roots into the ground in any way. I pitied him.

JOHN DOLLINS,


P. O. Crozet, Albemarle Co., Va.



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