

### THE GENERATION WHICH PLANTS—NEVER EATS.

Beyond question, the form of fruit trees best adapted for all the functions of growth, health and reproductiveness, is the pyramidal or conical, varying in species from the tall spire to the flattened dome. A single seed dropped in cultivated ground, throws up a shoot which, in its after growth, when unobstructed, forms more or less nearly the model to which we should shape our cultivated trees. How to do this at the least expense both of time and the healthy constitution of the tree, will be the subject of this Essay.

We must first look to the structure and physiological necessities of the tree. The genius of Harvey gave us the secret of the circulation of the blood in the animal system, and strikingly parallel are the processes of vegetation. The chyle formed from the digested food in the stomach, is injected by the action of the heart through channels that ramify and spread over the surface of the lungs where in contact with the oxygen of the atmosphere, it commenced its vital combustion, and then returning to the heart is by it driven through the internal arteries to the extremities. Running in minute vessels over the termini, such as the fingers and the toes, it returns in the external veins, depositing the matter that increases the size and weight of the body. So the sap chemically changed by the lacteals and absorbents of the roots, is by the secret forces of vegetable life impelled up the cellular arteries of the woody trunk and limbs, until it reaches the leaves, whose functions correspond so exactly with the lungs of animals. One great exception, however, proves the glorious harmony of the various parts of the Almighty Father's handiwork.

Our lungs reject the carbonic acid gas, which, twice breathed begets disease. The leaves drink up this poisonous gas as their proper atmosphere, and the sap thus aerated, turns over the termini of the leaves, passes down under their surfaces, and again courses back between the bark and the wood, depositing the carbonaceous and ligneous fiber of growth, and the saccharine and albuminous matter of fruit.

Over the terminal buds, as over the ends of the fingers, meet the coming and departing liquids, and to the terminal buds they are attracted with greatest force, and there they of course leave the greatest abundance of the food prepared. All Pomologists know how vigorous is the growth of the terminal shoots, and with how much difficulty they are restrained, so as to allow other parts of the tree to receive their proper and harmonious growth. We can always cut away sufficiently to bring the tree into balance; but as was said by an eminent surgeon, that surgery, or the excision of a diseased member, was but a barbarous confession of inability to cure it. So the cutting and pruning of an extraneous gourmand limb, is but a barbarous proof of neglect or ignorance. Nature needs but little assistance, but that little should be afforded at the proper time.

As plants and trees are grown in close nursery rows, they take an upright, cane-form, because like trees in a wood they are all struggling for the light, and lift their heads, by successive-terminal growths, each to outdo his fellow.

I am often reminded of the horrible confinement of those unfortunate prisoners of Hyder Ali in the Black Hole, when I see the crowded and suffocated trees of a nursery. If radial or side shoots should be formed, they are ultimately dropped by decay—rejected as useless, because their function of supplying healthy sap is lost; they are suffocated amid the multitude of breathers.

But usually no branching spurs are formed, and upright and slim grows the tree which is to furnish the future generations with fruit. Ignorant customers demanding tall trees, induce complaisant nurserymen to encourage this factitious growth, and the tree goes forth, to be planted in an enclosure where grass roots bind and torture its roots; grain stalks smother and stifle its branches; cattle brouse on its lungs; and hogs grub up its rootlets; and the second generation after the planter, eat the first fruit thereof, and forget to thank him, who himself long slumbering in the ground, has perhaps in some rural burial spot furnished the elements of growth to trees his negligence denied in life.

Let us look at the difficulties in the way of preparing the ordinary nursery trees for the true form of fruit trees—the conical or pyramidal—branching from the ground. If