

Remarks on Pruning.

BY WM. SAUNDERS.

Notwithstanding the amount of attention this operation has received from the earliest to the latest contributions to horticultural literature, there is still much room for improvement in its practical application. It is a matter of regret, and tends greatly to retard horticultural progress, that no definite rules can be laid down for guidance in many of its details, that will be found equally applicable in all cases: hence it occurs that the many seemingly conflicting advices given upon certain subjects bewilders the inexperienced cultivator, and makes him doubt the truth of the sentence that says, "In the multitude of counselors there is safety."

Although theoretical advice will be taken only for what it is worth by the man whose practice is backed by long and successful experience, yet there are many who have not had the benefit of such experience, that are easily led to agree with fair and plausible deductions, and only discover their error when it is too late to be recalled.

In the various manipulations connected with the cultivation of fruit trees, pruning is one of the most important, and one of the least attended to. It is true that most people who have fruit trees, generally make some attempt of the kind; but wholesale inflictions of the saw and axe in trimming up the stems, as practiced by many, cannot be termed pruning.

To attain a thorough knowledge both of the use and abuse of the operation, it is necessary to take into consideration the conditions upon which a tree exists, and the modifying influences to which it is subjected. When a seed is deposited in a suitable medium for germination, its first effort is to send roots downward into the soil, which is immediately followed by a corresponding upward elongation forming stem and leaves.

The seed contains within itself all the elements required for this progress; but as soon as leaves are developed, the plant changes its source of nourishment, and is now dependent upon the soil and air for its future support. The elementary substances absorbed by the roots undergo decomposition in the leaves, and the new matter thus prepared passes down the stem and roots, extending their formation.

The roots have no inherent power of extension, but are dependent upon the elaborating functions of the leaves; and although they precede the leaves in the germination of seed, their existence is due to the previous action of foliage, and their increase will be in an exact ratio to the amount of foliage retained.

When we consider, therefore, how essential foliage is to the health and development of the plant, we may well pause and consider what object is to be gained by infringing upon the beautiful system of reciprocal action Nature has established between the roots and branches, resting assured that every branch we cut off exercises an influence either injurious or beneficial to the future well-being of the tree.

This correlative action between the leaves and roots being so intimately connected; it follows that by diminishing the extent of foliage a corresponding check is given to the roots. Their power of action being thus circumscribed, there is less absorption of watery matter into the system of the plant, and the wood is in consequence solidified and well matured, which is indispensable to a fruiting condition.

This effect is produced by pruning when the plant is in full foliage and vigorous growth. If deferred until the leaves perform their allotted functions, a contrary effect is produced. By reducing the branches after the fall of the leaf, the balance of power is destroyed, and the roots have the preponderance: new shoots are then produced with increased size and vigor.

Hence it is a well known axiom with successful cultivators that summer pruning weakens, while winter pruning strengthens a plant. The whole art of pruning is comprehended in the proper application of these principles; and when we consider in this connection the innumerable and widely varied causes which render pruning necessary, we will at once see the folly of attempting to establish a definite rule that will be a safe guide to the inexperienced.

In the practicable application of the above rules, the pruner must be guided by the condition of the tree to be operated upon. In young trees it is evident that a healthy, vigorous, and extended system of roots is the most important consideration. To secure this, we must carefully preserve every shoot and leaf during summer, and prune it down immediately the season's growth is completed.

In an abstract view it does seem a negative practice to allow a branch to grow and then cut it off and throw it away. I confess that, in common with many others, such was at one time my belief, and that something would be gained in establishing the base of a young plant by pinching the ends of strong shoots during summer, with the view of encouraging the production of laterals.

After repeated and extended experiments on a variety of young fruit and also ornamental plants, I am convinced that, as a general thing, the practice is decidedly injurious. No doubt we can thus "shape" the plant at once, but at the expense of future vigor and permanent health. Secure a healthy root action by winter pruning closely a season or two, and then summer pruning may be resorted to with the best results.

The cultivation of pyramidal pear trees is at present attracting some notice, and as pruning

forms a principal auxiliary in securing any desired form, very much will, of course, depend upon the system pursued. No class of fruit trees present a greater dissimilarity of growth than pears—consequently the treatment of each variety forms, as it were, a distinct study.

Many sorts assume a pyramidal habit almost intuitively, while others require the greatest care to bring them into that form; their treatment must be widely different. Taking the "Winter Nelis" as a familiar example of the latter class, we find a straggly, horizontal growing tendency to counteract. To do this, winter pruning must be vigorously preserved in until the plant sends up vigorous growths.

The summer management will then consist in checking the growth of the strongest shoots by pinching their extremities, reserving a considerable portion for winter removal in order to keep up a slight preponderance in favor of root growth.

On the other hand may be cited the Beurre d'Arenberg and M. reau as representatives of a class that naturally form numerous side shoots and laterals. Further than a slight reduction of the first two years' growth, these may be kept in the most uniform shape by throwing the knife aside, and skillfully plying the finger and thumb occasionally on the young growing shoots.

Between these two extreme cases are many intermediate ones. Those having a strong upward tendency of growth, as Urbaniste, Duchesse d'Angouleme, Louise Bonne de Jersey, Vicar of Winkfield, &c., require a different treatment.

Lateral growths near the base must be encouraged by severely pinching the strong central shoots, never allowing them to exceed eight or ten inches without bruising the points between the fingers. To preserve the desired shape in these, will occasionally be found necessary to remove a few of the strongest top shoots altogether during summer, and shorten in the side shoots in the winter pruning.

Another distinct and rather unmanageable habit may be exemplified in the rampant growth of Deurre Die and Triomphe de Jodoigne. These can only be kept within bounds by persevering in close summer pruning, leaving as little as possible for winter removal—otherwise they will, for many years, produce more firewood than fruit.

There is still a large majority that cannot properly be classed with either of the foregoing. These may be termed rapid growers, but at the same time easily formed into any desired shape, throwing out numerous side shoots when the tops are pinched. I might notice the Fondante d'Automne, Bonne de Zees, Golden Beurre of Bilbao, many of the Doyennes, and a host of others that come under this head, according to my observation of favorably situated trees in this locality. Climate, situation, soil, all exert a manifest influence both in habit and vigor of growth, but the general principles by which we are to be guided remain the same throughout.

It may be supposed that the above remarks have reference merely to training, overlooking its effects as influencing the production of fruit. Such, however, is not the case; in securing the one, we also ensure the other. One prevailing cause of sterility in fruit trees is over-luxuriant growth, and summer pruning is the most effectual check that can be applied, unless we resort to pruning the roots.

In fact, it is only by a proper attention to summer disbudding and pinching that the full benefit of good cultivation can be obtained; otherwise it would only encourage excessive wood growth: but summer pruning enables us to derive the full benefit of such generous treatment by the increased quality of superior fruit. By suppressing excess of growth on one portion of the plant the sap is more equally distributed, and fruiting spurs are encouraged on the older branches.

The application of stimulants enables the plants to perfect a heavy crop without a weakened reaction, and a yearly succession of good crops becomes a matter of certainty. Summer pinching to promote fruitfulness may be practiced on trees of weakly and delicate growth without materially impairing their vigor.

Elongation may be checked by bruising the extreme point of the shoot without any reduction of foliage. Grape vines pruned on the spur system, are frequently injured by the wholesale destruction of foliage after the fruit is formed, instead of attending to it early and checking the shoot as soon as the fruit-stalk could be distinguished. No fruit tree is more benefited by disbudding and summer pruning than the peach.

Naturally a plant of rapid growth under favorable conditions, it frequently attains an unfruitful luxuriance. Early attention to the removal of superfluous and pinching the points of the strongest shoots, will not only enhance the value of the fruit, but increase the longevity and health of the tree. [Horticulturist.]

Artesian Wells.

For some years past we have occasionally seen paragraphs in the papers about boring for water in Charleston, South Carolina, which is still pursued with great perseverance under many difficulties. We understand that over 1200 feet of tubing have already been let down, and the boring is still being conducted, although with great difficulty, through a very hard sand stone, twenty-four feet of which have already been penetrated.

An artesian well is now being bored at the sugar refinery of Messrs. Bilcher, St. Louis,

and has attained the great depth of 2200 feet, without reaching the pure element.

Deep wells of small diameter made by boring for water have received the general name of Artesian wells, a name derived from Artois in France, where the first one in that country was constructed. Some general account of these wells, ancient and modern, may be interesting to our readers.

The following account of Artesian wells in Amsterdam was given in 1846 by M. De Thury, Inspector General of Mines, in France:

Amsterdam on the Amstel, at the extremity of the Zuyderzee, is situated upon modern alluvial deposits of marine argillaceous sand, alternate, of unknown thickness, but which cannot be less than from thirty to forty metres—and this has rendered necessary for the foundation of its churches, palaces and public monuments, piles driven very deep and solid. The city required good water. The first attempt to attain it by boring was in 1605, when they reached the depth of 252 feet. The second attempt was made in 1840—how deep they went we are not informed—but some old men say thirty to forty metres. [A meter is a little less than thirty-nine and a half inches.] The third attempt was made in 1837 to 1842, when they attained a depth of 174 metres.—The Director of the Observatory of Utrecht, says, that after having pierced through a bed of sea shells, they entered a bed of very hard black fossil wood, which some compared to the ancient piles of old London bridge—others compared them to Lignite. Below this bed they found sand alternating with beds of shells, turfs, numerous remains of marine animals, but they do not say at what depth they found these bones of animals, or buried forests.

Moro Crave, an Engineer, desired my opinion in 1845, as to the depth at which we could attain good water, which would rise to the surface or above it. From my observations and theories, I said that probably, at the depth of at least 200 metres, water would be found good and come to the surface, but that it might require a depth of 300 or 400 metres.

The art of boring for water ascends to the most remote antiquity. It was practised with great success in Egypt, Arabia, Persia, China, India, Armenia, Greece, Italy, and finally in France. Such Artesian wells have been called Chinese wells, Egyptian wells, Greek wells, Lombard wells, Modenese wells. A great number of such wells—among others those in the Oases of the Deserts of Africa—are merely Artesian wells like our own. They went down to what the Arabs styled the "Subterranean Sea." In many of these, the waters rise still above the surface of the ground, forming fountains of more or less elevation. The stations of the Caravans are fixed about these fountains.—The perpendicular direction and small diameter of these wells decide the question. They were bored mechanically, as we now do; but we cannot say at what period they were bored, or to what people they are due.

The modern Artesian well in Paris, at the Grenelle, was bored by Mulot to the depth of 575 metres, and the water rises in it 33 metres above the surface of the earth.

We are indebted to Judge Meigs, of the American Institute, for the following additional facts:

"Olympiodorus, who flourished in Alexandria about the middle of the sixth century, states that when wells are dug in the Oases of Africa to the depth of two hundred, three hundred, and sometimes five hundred yards, rivers of water gush out from their orifices, and agriculturists use the waters to irrigate their fields."

The oldest Artesian well, known in France, is in the ancient convent of the Chartreux, a celebrated monastery, the capital of one of the convents of the Carthusian Monks, at Lillers in Artois, (whence the name Artesian) seven miles from Grenoble, in old Dauphiny. The old Chartreux is in one of the most admired and romantic situations in the whole range of the Alps. This Artesian well is believed to have been made in the year 1126. Others of great antiquity exist in Stuttgart, in Wirtemberg.—The Chinese are said to have made such wells for thousands of years.

As to the supply of water at great depths, it was long ago believed that the water of seas entered the lower strata of the earth by infiltration. Aristotle, Seneca, Cardan, and Descartes, supposed that the waters are driven up to the earth's surface by the central heat of the globe. The most natural explanation is the fall of rain, which finds its way down, and through certain strata, like so many inverted syphons, returns to the surface. The celebrated fountain of Vaucluse, comes forth a considerable river at all seasons, and gives in the driest times 4780 cubic feet in a minute, but after great rains, three times that quantity.

The Chartreux well is in the middle of an extensive plain, where not the most insignificant hill is to be seen.—[U. S. Magazine.]

WILL YOUNG BULLION EVER BE RICH?—It has become very much the fashion, now-a-days, to say, "Oh, young Bullion will be rich when his father dies;" and to understand, thereby, that young Bullion is sure to be rich one of these days.

But the proverb concerning a "slip between the cup and the lip," holds good in this case as in all others, and young Bullion may die before old Bullion does, in which case he would never become rich—in this world's goods, at any rate. Nor is his chance of living so much greater than the governor's (as he terms him) as may be at the first glance imagined.

Suppose old Bullion to be fifty-five years of

age, young Bullion twenty-five. Old Bullion is a Bank director—young Bullion is "one of the boys;" old Bullion turns in every night at ten—young Bullion is "on a time," till 4, a.m.—Balance of health is in favor of old Bullion.

Old Bullion takes a glass of brandy and water, and don't eat anything before going to bed—young Bullion devours oysters, woodcock, broiled chicken, at horribly indigestible hours, and drinks champagne and Scotch ale, till he blesses the man that invented soda water, when he wakes up next morning. Balance of health in favor of old Bullion, again.

Old Bullion goes down to the Bank in an omnibus about 10. a.m. About the same time, young Bullion is going it with a fast horse to "the great race," incurring the danger of being run over, of being run away with, and of running over somebody else and getting split.

Balance of safety in favor of old Bullion.

If old Bullion should receive a challenge, he would forthwith have the sender bound over to keep the peace; if young Bullion receives one he "goes out" and runs the chance of a bullet in his thorax.

You don't find old Bullion promenading very often, the gout won't allow it; young Bullion is all the time on a tramp, over sidewalks under which are steam engines, across streets where runnings over are frequent. Old Bullion don't go traveling—young Bullion is on the move all summer; and steamboat blowings up and railroad collisions are frequent now-a-days.

Balance of safety still in favor of old Bullion.

Old Bullion is never out after dark; young Bullion, like cats, travels principally at night, and stands a very fair chance, in the present state of society, of having his head and a slung shot acquainted some dark night.

Old Bullion has against him thirty years and the gout; young Bullion has the risk of late hours, champagne suppers, fast horses, "pistols and coffee for two," street crossings, boiler-bursting, railroad smash-ups, and fractured craniums.

So the chances, you see, are not so very much in young Bullion's favor, after all.—[Waverly Magazine.]

MODERN AND ANCIENT ALEXANDRIA.—The Rochester Union contains a letter from B. F. ANGEL, dated from Cairo. The following is an extract, illustrating that something is doing even in old Egypt:

Modern Alexandria can scarcely be said to have any distinct characteristic. It is neither wholly European or Oriental, but an admixture of both. Its population is made up of Turks, Albanians, Syrians, Greeks, Jews, Copts, Armenians, French, Germans, Italians, and English. From 6,000 people previous to the Pashalik of Mohammed Ali, it has increased to 130,000, and is at this time rapidly improving in wealth and importance. The European quarter has wide streets and elegant public and private buildings, and the trade is mostly controlled by Europeans—the business and language being French.

Its palmy days, this city embraced a circuit of fifteen miles, extending from the Sea to Lake Mareotis, and contained a population of six hundred thousand. It was founded by Alexander the Great after his conquest of Syria, 336 years before the Christian Era, and was laid out in the shape of a Macedonian cloak, with a bridge or causeway connecting with the Island of Pharos. It attained to great consequence and splendor under the Ptolemies, and as late as A.D. 640, when captured by Amer, under the Caliph Omer, was remarkable for its wealth and magnificence. Amer, in a letter to the Caliph, thus describes his conquest: "I have taken the great city of the West. It is impossible for me to enumerate the variety of its riches and beauty, and I shall content myself with observing that it contains 4,000 palaces, 4,000 baths, 400 theatres of amusement, 12,000 shops for the sale of vegetables, and 40,000 tributary Jews."

The great Alexandrian library contained 700,000 volumes, including 200,000 belonging to it by Marc Antony.

The Chicago Press tells the following story:—

"A lady was one evening in her drawing room alone, when the only inmate of the house, a brother, who had been betraying a tendency to unsoundness of mind, entered with a carving-knife in his hand, and, shutting the door, came up to her and said: 'Margaret, an odd idea has occurred to me. I wish to paint the head of John the Baptist, and I think yours might make an excellent study for it. So, if you please, I will cut off your head.' The lady looked at her brother's eye, and, seeing no token of jest, concluded that he meant to do as he said. There was an open window and balcony by her side, with a street in front, but a moment satisfied her that safety did not lie in that way. So, putting on a smiling countenance, she said with the greatest apparent cordiality: 'That is a strange idea, George; but would it not be a pity to spoil this new lace tippet I have got on? I will just step to my room and put it off and be with you again in half a minute. Without waiting to give him time to consider, she stepped lightly across the floor and passed out. In another moment she was safe in her room, whence she easily gave the alarm and returned, when the madman was secured."

You have no business with other people's business; but mind your own business and that is business enough for any business man.

It's with old bachelors as with old wood; it's hard to get them started; but when they do take flame they burn prodigiously.