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VOL. IV. OCTOBER. NO. 8

FLOWERS FOR SNOWTIME.

Under this heading the Rural New-Yorker gives some practical suggestions about growing bulbs for winter blooming in the house:

It is now quite time to plant the bulbs for Winter flowering. The soil needed is the same for all—good loam mixed with well-rotted manure. Fresh, pasty manure must not be used. The pot must have drainage material in the bottom—broken pots, rough stones, or lumps of charcoal—for though these plants need moisture, there must be no chance for the soil to become sour and soggy.

ROMAN AND DUTCH HYACINTHS.—Every one likes hyacinths, and they are very easily forced. First to bloom are the small varieties known as Romans. They come from Italy and the south of France. In potting these, we would just cover the bulbs with earth, putting three of them in a five-inch pot. We wish the bulbs to make root growth before aspiring to leaves, so, after watering well, we would put the pots down cellar in a cool place, with two or three inches of earth or litter over the top. The Dutch hyacinths should have half of the bulbs left above ground, and each bulb needs a five-inch pot to itself. Single hyacinths are best for forcing, though a few of the doubles may be used. Among good single sorts are Grandeur a Merveille, La Grandesse, Mme. Van der Hoop, Paix de l'Europe, white; Macauley, Fabiola, Gertrude, Amy, pink or red; Charles

Dickens, King of the Blues, Marie, Baron Von Tuyll, blue; Heroine, Ida, La Pluie d'Or, yellow. Double varieties suitable for forcing are Bouquet Tendre and Grootvorst, rose; Blocksberg and Pasquin, blue; Jaune Supreme, pale yellow; Prince of Waterloo, Florence Nightingale, white.

GROWING IN WATER.—Hyacinths are very easily grown in water. When so treated, they should be put in a cool, dark closet until they have made a good growth of roots. The water should be changed before it becomes foul; a bit of charcoal is a valuable aid in keeping it sweet. The following varieties are recommended for growing in this way: Lord Wellington, double blush; Blocksberg; Goethe, double yellow; Prince of Waterloo; Charles Dickens, Heroine; Voltaire, single white; Baron Von Tuyll.

TULIPS.—Tulips will be later in blooming than the hyacinths, the best varieties coming in about February and March. The little Duc van Thol varieties—crimson, scarlet, rose, white and yellow—are very early and very dwarf, and though we like them outside, we would rather have larger sorts for forcing. They will bloom indoors, by Christmas. Put two or three tulip bulbs in a pot, and just cover them with earth, but no more. Put away in the dark like the hyacinths. All the singles are good, and the earliest doubles. Good single varieties are Artus, scarlet; Belle Alliance, bright crimson; Canary Bird, Yellow Prince and Chrysolora, yellow; Rose Gris-de-lin, rose and white; Keizer Kroon, red and yellow; La Reine, rosy white; Coleur Ponceau, red and white; Vermilion Brillante, vivid scarlet; Duc d'Orange, yellow and orange. Doubles suitable for forcing are Rex Rubrorum, scarlet; Duke of York, rose, white edged; Gloria Solis, red and yellow; La Candeur, white.

The Polyanthus Narcissus, known as Paper-white, is an early bloomer with fine large flowers. The bulbs should be just covered with earth, three in a five-inch pot. Treat like other bulbs, and bring up to the light in November, but they must NEVER be frozen. Poet's Narcissus and double daffodils may be treated just like tulips and hya-

cinths. They will not stand extra heat, and must not be hurried into bloom.

SMALLER BULBS.—Snowdrops, Siberian squills and Crocuses are pretty bulbous plants, and are very easily forced, but they are better potted about the middle of September. Last Winter, however, we had a dozen purple Crocus bulbs which were not potted until the middle of October; they gave us a pot full of bloom in February, and made a very satisfactory 15-cents' worth.

ADDITIONAL SUGGESTIONS.

A writer in Vick's Magazine cautions the bulb buyer to avoid the bargain counter. Cheap bulbs are dear at any price, yielding more often a harvest of disappointment than the coveted crop of lovely flowers.

FOR HYACINTHS: Provide good drainage, and in filling the pots, provide a hollow for each bulb, and place them with the crowns just above the surface. Press the earth firmly about them, but do not force or press the bulb down. Set the pots in a pan of tepid water until the moisture begins to show at the surface, then set them in the darkest corner of a cool, dark cellar for six weeks at least, and much longer if you want to. The absence of a cellar need not prevent one from growing bulbs; a dark closet will answer very well, and if it be on the cool side of the house so much the better. The first hyacinths I ever grew indoors took their long beauty sleep in a zinc-lined jelly closet. The flowers were perfect. I have never had finer, and that was a long time ago. Examine the bulbs occasionally, and do not permit them to become dry. The soil should be kept moist throughout, but not soaked. They may be brought up when the pot is well filled with roots, or they may be left until the buds begin to show. The main point is to avoid hurrying them. So, when brought up, place them in a strong light, but not sunshine, for one or two weeks, according to their development. One must use judgment. Then place in full sunlight in a cool room; give

plenty of air and moisture, and they will grow strong and stocky, with flowers of greatest substance.

TULIPS: Tulips make a gorgeous addition to any collection. These must have a cool temperature, or the buds will blast. Give them a sandy soil and plant deep, covering with an inch of soil above the top of the bulb. Keep soil moist, but not soaked. Set away like hyacinths. Three or four may be planted in a pot, or several in a box, with fine effect. When first brought up, keep in strong light until the foliage turns green, then in full sunlight. The Duc van Thols are most excellent for indoor flowering, and embrace a lovely range of color.

THE CHINESE SACRED LILY.

If you have not tried growing this lily, try it this fall. If the bulbs are covered with a dark brown skin, as they are apt to be, remove this and cut off all the old roots; they will start quicker and do better. Take a deep glass bowl or earthen jardiniere; they do better in glass. Place the bulb in the dish, and pack pebbles around it firmly, so that the strong roots when they form can not overturn the plant. Pour warm water into the dish until it comes rather more than half way to the top of the bulb. Place bits of charcoal in the water. Set the dish at once in a window where it is light. Replenish occasionally with fresh warm water.

THE CARE OF TREES ON THE STREETS OF CITIES.

[Extracts from an address delivered in Philadelphia, August 1, 1899, by John C. Lewis, City Forester and Landscape Gardener.]

Having decided on the variety to be planted the next thing is the selection of the trees. It is imperative that the trees be healthy, vigorous, free from scars or wounds and insects in any form, and having an abundance of energetic, fibrous roots, with robust and straight stems.

HOW TO PLANT is next in order. On unpaved sidewalks the operation is easier than on paved walks, for there is nothing but plain digging to be done, while on a granolithic pavement the crowbar takes the place of the spade and the operation is slow and tedious. The rule I adopted four years ago, and which has proved successful, is this: On an unpaved sidewalk, where nothing obstructs, the hole for the tree should be dug three feet square and three feet deep and refilled with rich earth free from all deleterious substances. On a paved sidewalk, where the aperture is about two feet only, excavate till at least a full-size cart load of rich earth can be deposited in the hole made, the depth being considered rather more than the width in this case.

In filling in the new soil about half a bushel of OYSTER SHELLS should be mixed in, which will absorb and render harmless the gas which is poison to tree life and which percolates through the sub-soil from the numerous gas-mains.

FIRMING.—Care must be taken to firm the earth as it is filled in, and in the performance of this operation the human foot is far preferable to the rammer; the elastic tread of the former produces a better firming effect and excludes the air far better than the latter.

In planting the tree, carefully observe the surface mark on the stem and avoid planting too deep. My rule is to raise the earth one or one and a half inches above the nursery ground line, so that when the ground sinks to its normal condition, which it invariably will, however well firmed or rammed, the tree will then be at its proper depth.

PRUNING AT THE TIME OF PLANTING: Pruning is necessary both in the branches and roots. In my opinion, as the root is the most important feature of a tree, it should receive the first and greatest attention. The ends of all trunk roots should be pruned off, broken roots removed, and

any cancerous or fungoid growth, however minute its appearance may be, must be pruned away, the operation being performed with a sharp knife and not by shears. Of the use of shears I will speak a little later on. Now as to head pruning. Practice teaches us that the beautiful symmetrical form of the tree obtained by the patient and skillful assistance to nature by the nurseryman in the trees natural element, cannot possibly be maintained under adverse conditions. The only remedy, therefore, is to extend further assistance to nature by judicious pruning into a reduced symmetrical form natural to the true type of the tree according to its variety, thereby relieving the tree of a burden it cannot possibly carry, and assisting it to reproduce itself in a healthy form under its new conditions.

I do not in all cases agree with the practice of puddling the roots of trees immediately prior to planting, but prefer giving a liberal supply of water at the close of the firming. When the water has disappeared the soil should be filled in slightly above the surface line and leveled off without further treading or firming, and if the weather be dry the earth should be kept moist by an occasional watering. This applies to spring planting only, for rarely, if ever, is it necessary to water trees that are planted in the fall season.

The infant forest giant has many enemies to contend with when ensconced on our sidewalk, aside from the underground conditions. The cart-driver frequently breaks off a branch to switch his horse; the small boy loves to swing around and around its bending stem; at night cats may be seen sharpening their claws in its bark, from which wounds are made; the boy with a knife (and what boy has not a knife?) is very fond of trying it on every tree, especially a young, newly planted tree with tempting smooth bark; he passes, and older boys that are supposed to know better, do not hesitate to hitch their horses to the convenient sidewalk tree; the horse at once gnaws at the bark or

young shoots, or both, and often leaves it irredeemably mutilated.

TREE PROTECTORS: To guard the tree from the attack of its worst enemies, I find the half-inch mesh, galvanized wire cloth placed loosely around the stem and fastened with wire, to be not only economical but the most protective of all the several designs of so-called tree guards. This can be removed or enlarged at will according to the requirements of the tree. It is proof against the grasp of the swinging boy, the claws of cats, the edge of the jack-knife, the death dealing bite of the horse.

Among the many drawbacks incident to the life of a city tree is the contraction of its outer bark. The roots may take hold of the soil, which we can tell by external evidence in the growth and vigor of the branches, but sometimes a check occurs and the tree stands still. This, I find, is caused by being bark-bound, or, as we would say in reference to an animal, hide-bound. The reason that I ascribe for this is that vegetation in the city, especially in the more crowded parts, does not receive the full benefit of the nightly dew. The dew falls over the city as well as the country, but the smoke, heat and gaseous vapors arising from the city either absorb the dew or impregnate it to such an extent that it loses its life-giving properties and destroys its efficiency. Now, to remedy this bark contraction, I find scoring gives relief to the tree. This is performed by drawing the point of a sharp knife down the stem to the ground, leaving a furrow from top to bottom. The salutary effect of this scoring process will be discernible in a very short time by the renewed energy of the buds and twigs or infant branches of the tree.

COMBATING THE CATERPILLAR: Time will not permit me to enlarge on this question of extermination, and sufficient to say that the means used by the department are

three and are as follows: Remove and crush or burn the cocoons whenever and wherever found, spraying with Paris green in weak solution at the rate of one pound of Paris green to four hundred gallons of water, or if necessity requires the strength is doubled. This, however, is the exception and not the rule. It is not the quantity of Paris green used that renders it efficient, so much as the agitation and distribution of it. These are exterminators, while the third means is a preventive. The trees are girdled about six feet from the ground, with a device known as "Piller Catter," which consists of a cotton bandage to which an adhesive paste is attached. This prevents the caterpillar from ascending the tree and places it in a convenient position to be crushed. Now, while each individual tree owner cannot command the use of a steam sprayer, that cannot be used as an argument why his tree or trees are not protected from the caterpillar, for he can produce equal effects in a small way with an ordinary greenhouse syringe, as with a steam spraying machine, especially so if the number of his trees is limited to one or two, and those on his sidewalks, which are easy of access. With the aid of a tall stepladder, a syringe and a bucket of solution, a great number of the trees on our streets can be protected and preserved, and at a nominal cost.

LARGE BERRIES.

The largest berries are usually grown by amateurs on fall set plants. They sometimes cost more of care and skill than they are worth in the market, but the finest berries are never sent to market. Who ever saw a two-ounce berry in the market? And yet it would require nine such to make a quart. At our strawberry meeting last month, Mr. Sherbondy exhibited the Wm. Belt and Belle three and one half inches in diameter, but they were cox-combed,

and would hardly weigh over two ounces. Mr. Davis, of Massachusetts, has grown the Margaret of good form, and over three inches in diameter. All records have been broken this season, by A. T. Goldsborough, who exhibited a four-ounce berry at the Agricultural Department in Washington. Six berries carried in on June 5th weighed, respectively, 4 ounces, 3.2 ounces, 2.88 ounces, 2.56 ounces, 2.56 ounces. Average weight of each berry 3.06 ounces. The six berries filled a quart box and weighed a total of 18.4 ounces. Circumference of largest berry 10.5 inches. Diameter 3⅝ inches.

Mr. Goldsborough makes a specialty of foreign varieties, and these six mammoth specimens were grown from plants of an English variety, which he will have for sale in due time. If you take the Strawberry Culturist—published at Salisbury, Md.—which every grower should do, you will hear from Mr. Goldsborough occasionally.

The soil that produced these mammoth berries had been used as a cowyard for twenty years, and was as hard as an asphalt pavement, besides being very rich. It was not stirred or broken up in any way, but was covered to the depth of five inches with woods earth (sandy), and the plants were set about Sept. 10, 1898. The whole surface was covered with lawn clippings, but, of course, the leaves were left exposed. Being sheltered on the north and west with a fence and building, the plants continued to grow until very late. Liquid manure was applied several times during the fall. After growth was stopped in the winter, the crowns were thinned to three to each plant. Early in April the mulch was pulled back from each plant, and a handful of rich soil was worked into the surface to the depth of half an inch. After blooming, liquid manure was applied twice.

The leaves were arranged to shield the fruit from the direct rays of the sun; and when the hot days of May came,

cotton cloth was put over the bed to protect it from the noon sun. It was held in place by bent wires which kept it fourteen inches from the ground. As soon as the fruit was set five or six specimens were selected on each plant, and all the rest removed.

Each grower has his own methods, and some of Mr. Goldsborough's will be considered strange. The hard soil, late planting, thinning the crowns and shading the plants with cloth will be new to many. Much might be said in favor of firm soil, but this is not the place. There is far more in it than appears at first thought. Late planting insures an unchecked growth during the growing season; and this is exceedingly important. Mr. Beaver, who is probably the most successful grower in Ohio, favors rather late planting so as to avoid any check to the growth, which is so apt to come in August to early set plants. Thinning the crowns is exactly the same as cutting off superfluous wood from a grapevine. The same method may be adopted with great advantage with peony plants and pieplant. Shading the growing fruit lengthens its season of growth. If one could keep a berry growing all summer before it commenced to ripen, it is plain that it would grow very large.

Since writing the above I have heard of another successful grower who has raised a four ounce berry, and a good many that weighed over three ounces each. He carried to the office of the Farm Journal a quart box that was filled to the top with four berries. The variety was the Glen Mary. The name of the grower is Joseph Haywood, and he lives near Philadelphia. The soil is rich, clay loam. Here is his method:

Plants were set in May, in rows six feet apart, and three feet from each other in the row. Soil enriched with stable and hen manure. Beds were elevated to afford good drainage, by earth taken from the paths. Runners were allowed to root fifteen inches apart until they occupied a strip three and a half feet wide. All others were cut off as they appeared. Beds received the most careful culture all

summer and fall, not a weed being allowed to start. As soon as the ground froze, fully three inches of half rotted stable manure was spread over the beds, and the paths left open to let surplus water pass off readily. In early spring the paths were filled with straw to keep the ground moist, and prevent weed growth. A few of the plants needed help in getting up through the covering, but the most of them made their own way. This deep covering retards the blooming until danger from late frosts is past. If very large specimens are desired, the fruit must be thinned.

At a strawberry show in Kentucky the Clyde was shown so large that five made a quart. Such success can only come when every precaution is taken to supply the wants of the plant. Any injury to roots or leaves, any check for want of food and water, or any exhaustion from producing runners will prevent the best results.

M. CRAWFORD in Strawberry Culturist.

THE STRAWBERRY BED.

(From a paper read by R. M. Kellogg before the summer meeting of the Michigan State Horticultural Society, August 10, 1899.)

The natural home of the strawberry is in a moist, loamy soil, rich in humus or vegetable matter. It will not flourish in a hard, flinty, lifeless dry soil. The claim that the root of the strawberry will penetrate any hard soil, the harder the better, is true only to a very limited extent.

It requires at least two years to bring land of moderate fertility to a condition to meet the ideal requirements of the strawberry grower. The application of large quantities of stable manure, raw, or even commercial fertilizers at one time, just before the plants are set, is bad. All manure must be thoroughly decomposed, actual dirt, before they can be taken by the plants. Rank, unfermented manure,

coming directly in contact with roots is always an injury and frequently kills the plant or causes it to make a viney growth. My idea is to manure heavily in the fall and winter and in the spring plow shallow, and then sow cow peas at the rate of at least two and a half bushels per acre, sown broadcast. When they have attained two or three leaves and the stems have become slightly woody the weeder should go over them breaking the crust and destroying the young weeds which germinate first, and then again in ten days to keep the surface mellow until the leaves so shade the ground that weeds are smothered. These peas will gather a large amount of nitrogen and fill the ground with an immense mass of humus.

WHEN TO PLOW: Some careful experiments have convinced me that it is a great blunder to plow ground in the fall and leave it bare during the winter. The rain drops and frequent freezing and thawing puddles the surface causing it to dry out. A careful experiment of plowing alternate strips in the fall and spring will convince you of the injury done, unless some cover crop is used. In any case the peas should not be turned under until the wood is thoroughly ripe. It is vegetable fiber we want, and this is not secured by plowing under green stuff, which is practically water.

HOW TO PLOW: Formerly I was an enthusiast for deep plowing, but I am thoroughly convinced that in ordinary soils the turning under of ten inches is about five inches too much, unless you have sufficient vegetable matter to put it in the proper mechanical condition. Subsoiling is of prime importance on hard pan or gravel clay.

WOOD ASHES are a specific fertilizer for the strawberry. They not only dissolve the plant food already in the soil, rendering it immediately available but they impart to the

fruit a firmness and bright color especially desirable. Their caustic properties require that they should be applied some time before the plants are set and diluted by being worked into the soil.

To plow this vegetable matter to the bottom of the furrow, leaving the dense soil at the surface, is a blunder often made. It leaves the ground bottom side up. We want as much of this vegetable matter at the immediate surface as possible. It not only prevents the crust formed by the rain drops puddling the surface, but it separates the soil grains so that the rise of water by capillary attraction is very slow, and the ground will not dry out quickly. If necessary to plow a second time to accomplish this, it will be found the most profitable work connected with the fitting of ground. It will be much more than compensated for by the subsequent cultivation, since the crust will not form as thick as if the surface was poor in humus.

Another thing on which I wish to place especial emphasis is the rolling of the ground a day or so, not more, before the plants are set, to give the water a chance to draw up so the ground will be moist, and aid in the accurate setting of the plants. If it be left several days the surface should be loosened up an inch or two with the weeder or very light harrow, to conserve moisture.

I most decidedly prefer to set plants so as to form a hedgerow, and after all the plants are filled in, the rest of the runners are clipped off with the rolling runner cutter. It works perfectly where there are not too many stones. I prefer to attach it to a hand wheel-hoe, as it can be used more skillfully than on the cultivator.

CULTIVATION: We always cultivate immediately to prevent escape of moisture where the earth is packed down hard around the plant. Cultivation must be shallow, thorough and frequent. I have never seen a tool equal to the

Planet Junior twelve-tooth cultivator with the pulverizer attachment. It leaves the surface perfectly level and loose, so the water below is prevented from rising to the surface by capillarity.

Cultivation adds no water to the soil but it does hold that already there for the use of the plants. It aerifies the soil so that the millions of living organisms which prepare the food for the plants can do their work and, at the same time, it renders other minerals soluble so the plants can take them up and make a vigorous growth, and last and least it is done to prevent the encroachment of weeds. Most any grower will cultivate to destroy weeds, but neglects it when necessary to accomplish the other equally important results.

Examine texture of your soil and determine how thick the loose earth or dust mulch should be, and never allow the teeth to go any deeper. Some soils require two inches, and very few exceeds three inches. No person must expect to grow fine fruit who sends the cultivator teeth down among the feeding roots and tears them to pieces.

TO PREVENT STRAWBERRY RUST.

Strawberry plants should be grown in a special plat from carefully selected plants which show a tendency to form strong fruit buds. The propagating beds should be sprayed with Bordeaux mixture immediately after the plants are set, using the atomizer sprayer as it will give the plants the finest mist. It will destroy every spore of rust and leave the foliage as clean and waxy as the newest growth.

For several years I tried to eliminate this disease by selecting plants which would resist it. We all know it is a fungous growth and, under favorable climatic conditions, will spread very rapidly. Some varieties are more susceptible to it than others, and these are our most productive

sorts when kept freed from it. This year we have sprayed every ten days, using a cart with an Eclipse barrel pump sprayer with three nozzles, taking three rows at a time.

The other day I offered a visitor a dollar each for every leaf he could find on the farm containing a live spot of rust. Although diligent search was made, he did not replenish his bank account by finding a single leaf. It is well known that strong fruit buds or roots cannot be secured without healthy foliage and plenty of it.

Rust is propagated by spores, and if all these are killed in the propagating bed, we shall have little fear of having our crops lessened or destroyed by it in the fruiting field.

BLACKBERRIES.

The Eldorado has proved itself a remarkably reliable sort. While the canes are not as upright, they do not sprawl like Agawam. Kittatinny, if entirely hardy, would have retained its place at the head. It has a habit of bearing through all the fall months. Erie is by all odds the poorest blackberry that I ever planted. It is difficult to eradicate it from the ground. Both of the Wilsons are tender; and the same is true of Minnewaski. Agawam is one of the sweetest and most delicious of all the berries. Snyder has a hard core, and without abundant rains is hard and small. It has filled the bill, however, as a market fruit because it has been entirely hardy, while the canes are models of growth.—E. P. POWELL, New York.

LOUDON RASPBERRY.—No red raspberry has ever been introduced which has so many points of excellence. It stood the great freeze of last winter like a scrub oak. If anyone has heard of a failure, we should be glad to know of it and the cause.—R. M. KELLOGG, Michigan.

KNIFE VERSUS SHEARS.

Mr. John C. Lewis, City Forester of Philadelphia, prefers the knife for the following reasons: The drawing together of the tissues by the action of the shears bruises them, leaving a rough surface and causes decay, and this applies to branches as well as to the roots, whereas the knife leaves a clean smooth surface, and the liber or inner bark forms a callous covering from which new fibers start and form roots, thus supplying new feeders to the tree. In reference to the branches, the shears leave the ends rough and bruised, and death to the immediate part is the result. Decay sets in, and time will tell us whether one inch, one foot, or the whole branch succumbs to the operation. Whereas, if the knife is used the liber exerts itself and gradually envelopes the wound till it disappears from view. I do not by any means wish to disparage the use of shears for general purposes, for in this time of keen competition they cannot be dispensed with, for both shears and the knife can be used. The shears can do the trimming, but the knife alone can do the pruning. The operator can go over the tree, both root and branch, with the shears, trimming the parts an inch or so beyond the pruning point, and then follow with the knife and do the pruning expeditiously. The foregoing applies only to small trees, such as are usually planted on our streets. In larger trees both shears and knife are laid aside and the saw and broad chisel are used.

In support of the enlarged method of pruning several thousand trees and many of the largest, are today in evidence in our beautiful Fairmount Park. I could there point out to you numerous amputations, some of which extended over twelve inches in diameter, that are now nearly covered with new bark, and thousands of others that are entirely covered, and but for my association with the trees themselves even I could not locate the parts pruned. After pruning, all wounds from one inch and upward in diameter should receive a coat of paint, which will prevent the decay

of the heart wood, and the kind used in my many years of practice is boiled linseed oil colored with lamp black. Why I prefer this and not coal tar put on hot, as some recommend, is because linseed oil is a vegetable production and therefore analogous to the tree, while coal tar is a mineral production and contains carbolic acid, which is injurious to plant life. It is optional whether lamp black is used or not, the only recommendation it has is that it turns to an invisible green color in a short time and thus hides the bareness of the amputation, and without which the wound in a large tree would be very conspicuous.

THE HISTORY OF HORTICULTURE IN WISCONSIN.

Prof. E. S. Goff, University of Wisconsin.

Business recently called me to the nursery of the venerable F. K. Phoenix, at Delavan, Wis. In company with the genial, and now somewhat infirm proprietor of this well known nursery, I spent several hours most pleasantly in walking about the extensive grounds.

In spite of his three score and fifteen years, Mr. Phoenix preserves a remarkable memory, retains his hearing well, and I believe reads without glasses. His enthusiasm for horticultural progress appears undiminished, and he is extremely optimistic in his faith in the future. His horticultural work at Delavan commenced in the thirties, a whole decade before our state was born, and he showed me seedling apple trees more than sixty years old!

An abstract of our conversation would make an entertaining and instructive chapter for the Horticulturist, but I wish now to call attention to something that seems to me of more importance, viz. the history of horticulture in our state, the writing of which was committed to the late Mr. J. C. Plumb, of Milton, and which has been temporarily brought to a standstill by his tragic death. This work

should not be postponed. A pioneer like Mr. Phoenix can furnish more data for such a compilation than all of the files of all of our newspapers, and so much more easily!

Mr. Phoenix says he hopes to live seventy-five years longer, and I am sure we all wish he might, but in any case, it is time the first volume of our history was written. I sincerely hope that our executive committee will take up this subject at the very first opportunity, and will make provision to have the work completed within the next year.

PROTECTING BLACKBERRIES AND RASPBERRIES.

The work of laying down and protecting all kinds of bush fruits is not half so great as you imagine. Those who have practiced it year after year claim that eight dollars per acre will lay them down and take them up again ready for the cultivator and fruitage, says R. M. Kellogg in the Michigan Fruit-Grower. The work is done very rapidly. First prune the bushes and remove all the litter. Then beginning at the end of the row, remove a spade full of earth next the crown on the outer side, so the crown can be pushed over. This may be done through the whole row first. Then insert a six-tine stable manure fork on the opposite side from where the soil was removed, and gently pry and push the crown over, at the same time pressing the canes gently with the foot, and the roots give so the cane lays flat on the ground, while a second man throws a spadeful of earth to hold them in place. The next hill is then pressed over, the tops coming on the roots of the first one, and so on through the row. When all the rows are laid down, take a mouldboard plow and one horse, throwing a furrow each side toward and over the bushes, taking care not to let it go deep enough to touch the roots, and then dress them up with the hoe so that a slight covering shall be over all.

Many merely put on enough dirt to hold them down

and finish covering with straw, drawing it on with two-horse wagons. Where straw is plenty, this is the cheapest and best, since it can be left around the bushes to act as a mulch and eventually be worked into the ground to add humus, which so greatly aids in conserving moisture and aerifying the soil. The straw will give sufficient protection and be worth all it cost after putting it into the ground.

SUGGESTIONS FROM THE FAIRS.

THE ILLINOIS STATE FAIR.

The attendance was large and the exhibits were of the first order. We wish especially to congratulate the fair managers on the fact that the fair this year was in all senses a clean one. There was not an objectionable feature on the ground. No kind of gambling was permitted, and no shows whose character approached in the least the vulgar. A man could take his wife and children to the fair and tell them to go where they pleased with the assurance that they would see and hear nothing of an immoral nature. Two men with coffee privileges were caught selling whisky on the sly and were promptly expelled from the grounds. The fair this year was a splendid educational object lesson. Everyone interested in agriculture in any of its branches could find food for study during all his time of stay, even if he were fortunate enough to remain during the entire fair week.

The live stock exhibits were fine in quality and large in quantity.

The display of fruits was good but not so large as would have been made had the fruit crops of Illinois turned out better than they did. Of course practically no peaches were shown, and the varieties of pears were few. In the

apple exhibit were seen very good specimens of most of our stand-bys and a few new ones.

In the manufactures building was placed the exhibit of the University of Illinois. This consisted of object lessons as to various methods of protecting crops as well as of products. One exhibit showed a field of corn protected by a tarred line, and by it a field of corn that had not been so protected. The exhibit was made from life and the corn shown had been taken from two fields lying side by side. In the protected field the corn was good, in the unprotected field it was practically destroyed. Near it was an exhibit of a dipping arrangement to cure smut in oats. The legend "Dip seed oats in water at 133 to 137 degrees for five minutes," appeared in large letters over it. It could not help but be instructive. Another exhibit showed a log hewn and coupled for making a dust furrow to keep out chinch bugs.

One of the principal events of the fair was the flower parade. This consisted of fifty-two carriages each richly decked with some flower or imitation flower. Perhaps it would be better to say that each carriage was a rolling bank of flowers of one particular variety.

On the days the writer visited the fair the crowds were immense. Moreover they seemed to be present to see the exhibits and not to amuse themselves only, as has seemed to be the case on some former occasions. Two or three small shows were so poorly patronized that they were threatening to shut up their tents, even though the crowds were pouring in almost solid masses past them. For some reason the people did not care about shows this year. It is an encouraging sign, for it indicates that the state fair at least has reached the place that it was at first intended to occupy, that of being to the whole people of the state a great object lesson in agricultural and mechanical advance and a stimulus to enterprise and industry.—Farmers' Review.

THE MICHIGAN FAIR.

The display of apples was large and very good, showing that Michigan can yet produce fruit of this character of an exceptionally good quality.

The only thing lacking in this department was, during the last day, a need of several extra attendants to see that the fruit was not handled and carried off. A large amount of the finest specimens of all varieties was stolen. It might be considered a slur on the public to have a strip of 24-inch chicken fencing protecting the fruit, but it seems to be necessary to have something of the sort.

Another improvement we would suggest would be a systematic and plain way of having the name of each variety of fruit so placed that they could not fall or get out of sight of those passing and making a study of varieties. A card laying on the fruit or plate is not enough. Nine-tenths of those who visit the department are not posted, and yet the majority of them would like to know the names.—Michigan Fruit-Grower.

The Milwaukee Sentinel has this to say of the Walworth County (Wis.) Fair: A special feature will be the exhibition by the Racine Hatcher company. Three hundred eggs have been set and timed and the last will break the shells on Friday, the closing day of the fair. Gambling will not be permitted this year and no intoxicating liquor will be sold. The stock sheds are filled and the cattle exhibit is equal and in many respects superior to the show at the State fair last week.

SAUK COUNTY FAIR.

The Sauk County Fair had an unwelcome visitor, an uncomfortable North Wind, whose chilling presence kept many from the grounds. The exhibits were generous and attractive in all departments. We heard one enthusiastic

farmer say that the show of corn was the best ever made in this county—or any other!

The fruit exhibit was excellent, considering the havoc last winter's cold made in Sauk County orchards. Wm. Fox of Baraboo made a fine show of both apples and grapes and carried off the first premium on both; the second premium on both went to Henry Simon. Mr. Fox took all the honors on plates of grapes. The amateur's premium for greatest collection of apples was awarded to Mrs. Ramsey.

The show of flowers was pretty enough for a State Fair. William Toole, Hugh Hills and Mrs. Cahoon were the leading exhibitors, although we noticed some beautiful salvias sent by Mrs. J. M. True. Mr. Toole received premiums not only on pansies but on best collection of many other flowers, geraniums, sweet peas, gladiolus, petunias, pinks, perennial phlox, stocks and dahlias. He was awarded a premium on best and greatest variety of seedling dahlias raised in 1899.

In the fruit exhibit was an appetizing display of fresh strawberries from the berry field of William Rounds.

From a conversation with Mr. Fox we gathered a few hints regarding varieties. He considers Lowland Raspberry a fine eating apple for early summer. His favorite apples, however, are Northwestern Greening and Wealthy. His N. W. Greening trees stood the severe winter. He likes the tree and the fruit and is going to plant more next spring. He will also plant more Wealthy, "which is so beautiful it will always sell." Doesn't like the Newell Winter; tree tender and apples seldom perfect. Thinks Repka Malenka too small and ill-shapen.

In the vegetable department were magnificent melons. We did not have a chance to test the quality, but the size was enough to take one's breath away. One mammoth watermelon was said to weigh seventy pounds.

Some of the people, shivering in the icy blasts from the north, blamed the management for not holding the fair a

week earlier. Others were equally positive that it should have been held a week later. Not one seemed to remember that it was held at the very same time last year and then the weather was too warm!

THE BRUSH HEAP OF 1899.

By Prof. E. S. Goff, University of Wisconsin.

[Paper read at the Summer Meeting of the Wisconsin State Horticultural Society.]

Mr. President, Ladies and Gentlemen: I feel as though I have an apology to make as I did not finish my paper, and I did not write on the subject I gave to our secretary. I started to write on the brush pile, and then it occurred to me that it is not what we cannot do, and what we have lost, but what we can do and what we have left that is the most sensible thing to write on. I suppose that most of us know that the southern part of Wisconsin, all of the northern part of Illinois, and part of Iowa, was without snow during that remarkably cold weather in February. I have been studying much to see what the effects have been of that peculiar condition. I will give you a little report of our Experimental Orchard, but I will report on what is left of it and not what we lost of it. I will read what I have written and then I will talk a little longer.

After giving my subject to our secretary it occurred to me that I had not chosen the right side of the question. It is the positive facts that are the most helpful in this world —not the negative ones. What the fruit grower of Wisconsin most needs to know is not what varieties cannot be depended upon for our state, but those that can be depended upon. It is these that he must plant and care for, and fail or succeed with. I have, therefore, decided not to give you the inventory of our brush-heap, but rather to recount the varieties that have survived the past winter, which was

exceptionally trying in southern Wisconsin where no snow was present during the severest weather. I therefore went through our orchard and separated the trees that survived the past winter and that give promise of surviving the present season, as nearly as I could into four classes. The first class includes those that seem quite unharmed by the winter and are making a vigorous healthy growth; the second, those that are doing well, but are making too little growth; the third, those that are making very little growth, but yet appear to be in good condition; and fourth, those that, while they promise to survive, have not as yet developed their normal number of full grown leaves.

Our Experiment Orchard, as some of you know, is located on a north slope, moderately steep, on which the soil is a light clay loam, underlaid at a distance of about 3 feet with sand. The trees are of various ages, from one to eight years, but the trees less than three years old are not, as a rule, reported in this list. A considerable number of the trees are top-worked. The ground was cultivated last season until the latter part of July when it was sown with sapling clover. The ground at the beginning of winter was rather dry, though perhaps not drier than it had been for several autumns previous.

It is of interest that the younger trees survived rather better than the older ones.

Of the apples I have enumerated, in the first class, are Virginia crab, No. 8 M. (Russian), No. 18 M. (Russian), Hibernal, Hoadley, Crampton's Seedling No. 3, Cross (Russian), Duchess Seedling Nos. 1 and 2 (Morgan), Hybrid Seedling (Barnes), Antonovka (Russian), and Isher Wood; the latter top-worked on Milton or Lake Winter crab.

In the second class I have placed Chester, Seedling-Dartt, Seedling 26-Dartt, Minnesota crab, St. Johnsbury Russet, Charlamoff (Russian), Continental, Prunus, Noblesse, Shield's crab, No. 2 M. (Russian), Gros. Mogul (Russian), Gideon, Duchess Seedling No. 3, Morgan, seed-

ling from S. I. Freeborn, Early Sweet (Russian), Crimea Bog (Russian), Anisovka (Russian), Borovinka (Russian), Bogdanoff White (Russian), Crampton's Seedling No. 1, Bogdanoff (Russian), Bethel, Blummer, Excelsior and Pioneer.

In the third class I have placed Pensaukee Russet, Dartt's Hybrid No. 3, Downing's Winter Maiden Blush, Native American, Milton crab and No. 12 M. (Russian).

In the fourth class I have put Patten's Seedling No. 6, Dartt's Hybrid No. 5, Twenty Ounce, Avista, Martin, Talent, Hotchkiss Greening, Randall's No. 9, Grocery, Dartt's Hybrid, Nellie, Striped Winter (Russian), Buckskin, Wealthy, Gilbert, seedling from W. H. Guilford, Baldwin Seedling, Dartt, Hartman, Saxton, Bloomfield, Minnetonka, Ostrakoff, Matthew, McIntosh Red, Longevity, Upham, Dark Red, Politic, seedling from A. M. Johnson, Grisley, Murphy's Greening, Arabka (Russian), Venus, No. 9 (Gideon), North Star, Newport Winter Sweet, Grundy, Randall's Best, Hazenkoff, Babbitt, Kinnaird's Choice, Oldenburg, Iowa Beauty, Duchess Seedling-Walker, Golden Reinette (Russian), Getman, Garfield, Dale Greening, Extra Early, Seedling E. O. (Dartt), American Codling.

The brush-pile list I will not read, but it is longer than any other except the fourth.

Our pears were mostly destroyed by blight last season. Of the few left, Vermont Beauty and Sudduth look best, and Wilder and Peffer's No. 3 look fair.

Of cherries, King's Amarelle has already matured a fine crop of excellent cherries. Dyehouse, Large Morello, Late Morello, Geo. Glass and Lutovka were very little injured except in the loss of a small part of their flower buds. Brander, Orel 23, Orel 27, Bessarbian, Early Griotte, Strausse Weischelle and Griotte du Nord have suffered more seriously, individual trees of some of these having already joined the brush-heap, and more will follow.

Of plums the Americanas are all right, with the excep-

tion of one tree of the Quaker, which is marked for the brush heap. Our crop of Americana plums will be perhaps the largest we have ever had. Of the Europeans, Orel No. 20-(Russian) is bearing the most fruit. Moldovka, with its synonym, Yellow Dame Aubert, and Orleans look well; Green Gage and Weimetz seem not badly injured but are bearing no crop, while English Damson, Orel No. 19 (Russian), and Bradshaw have suffered severely; the latter two will not survive. Of Japanese plums, Berckman's, Maru, Burbank and Strawberry look best. Abundance is badly injured and Bailey will die. The Pottawattamie plum (Chicasaw), which has never missed a crop before, has one tree entirely dead and the other without a fruit.

Raspberries, where protected, escaped with very little harm, and all varieties are bearing well except Eureka.

The "Tree" blackberry is entirely dead, and a plat of Ancient Briton, one-third acre in extent, was practically a total loss, though a row of the Ancient Briton in the variety plat escaped with little harm. Barnard, Bonanza, El Dorado and Bangor all look pretty well; Loganberry is badly damaged.

Columbus, Industry and Triumph gooseberries are badly damaged; other varieties and all of the currants seem uninjured.

Of the grapes, Worden, Massasoit, Rustler, Ebony, Monitor, Green Mountain, America, Brilliant, Solincrup, Colerain and Potter's seedling are least injured, and Rochester, Niagara, Rogers No. 33, Rutland, Early Ohio, Mills, Moyer and Bertha are severely injured. Empire State and Marie Louise are dead.

So much for my written list. Now, the question arises, Why is it that the Duchess apple, and some others that are supposed to be ironclad, are among our poorest? I cannot answer it. Why is it that the hardy ones have died and some that were not as hardy, have lived through? Can we

depend upon this past winter as a test winter? It seems to me that the records are broken. There are some valuable points that have been brought out, however, not only in my own experience, but in my correspondence with others. We have had over 100 letters from Wisconsin, Minnesota, Illinois, Iowa and Manitoba. While there is much confused testimony, there are a few points which I think are really valuable. One is that wherever trees are grown on crab stocks, in comparison with other apples, the crab stocks have stood decidedly better. Why are we planting common apple seeds and crown grafting and budding our apples on the common stock? Why not work them on crab stocks? This last winter has proven, it seems to me, that crabs are decidedly hardier in the root than the ordinary apple. This past winter certainly teaches us that we must have not only a hardy top, but also a hardy root. Is there any particular objection to using seedlings of the crab instead of seedlings from the common apple? The seed might cost us more perhaps. This peculiar condition, though, may not occur again in 20 years, but we want to fortify ourselves against it. Nurserymen cannot afford to have their full stock wiped out, as has been done this season in some cases. This is an important point.

Another point brought out by the correspondence is that the reason for the wide-spread destruction of roots was not only the dry condition of the soil, but the fact that there was no snow on the ground. Last week in Chicago Capt. Watrous read a paper on the Destruction of the Root, and said that the reason was that they had had a very heavy rainfall at the beginning of the cold weather, that the rain turned into a blizzard, and that the excessive water caused the killing. My correspondence shows that where there were two inches of snow on the ground, the trees did not suffer at the roots. Where there was snow during February, there was no killing to speak of. Our apples would have survived if we had had snow in February. Another

point brought out, is that the raspberry is vastly hardier than the blackberry.

There is one other point that I wish to speak of. During the spring of '98 I made a careful examination of roots. I found in every case that I examined, that the roots started from the tip. That was new to me, because I had the idea, gathered from nurserymen and others, that the fibrous roots always die in the winter, although I had never found this in books that rank as good authority. This year the condition is reversed. Except in the hardiest stock, nothing started from the tips. The amount that the roots killed back depended on the hardiness of the species. The only instance that I found the roots alive to the tip in the apple, was in a single specimen of the Whitney crab. I found trees of the Virginia crab that were alive almost to the tips, within 4 inches or sometimes within 2 inches. On many of our cherry trees we dug for a considerable time before we could find a live root, even of trees that had leaved out, bloomed and set fruit. It would sometimes take 15 minutes before we could find a root that was not dead. The same was true with our pear trees. We would wash with the hose, and find the roots to be black and dead clear through. The growth on most of our apple trees has already stopped. Whether or not it will be resumed, we are watching to see. It looks as though the effects of last winter will remain for a long time. What the ultimate effect will be, I cannot say. If we have a dry season there will probably be great destruction even after this. Many of our trees are now beginning to wither. If we had had six weeks of drought, I should not be surprised, but after all the rain they have had, they ought not to wither now.

"No, Willie, dear," said mamma, "no more cake tonight. Don't you know you cannot sleep well on a full stomach?" "Well," replied Willie, "I can sleep on my back."—Ex.

DEATH OF FRANCIS WILLIAM LOUDON.

It becomes our sad duty to chronicle the death of another honored life member of the Wisconsin State Horticultural Society, F. W. Loudon.

Mr. Loudon passed peacefully away at his home in Janesville Oct. 2, at about four o'clock in the morning, after an illness of three weeks' duration. He did not appear to suffer pain, but complained that he was tired and could not get rested. The funeral services were at the family residence and interment in Oak Hill cemetery.

Francis William Loudon was born at Strafford, Vermont, December 17, 1818, and was the eldest child in the family. He grew to manhood at Strafford and learned the trade of tanner and shoemaker with his father, who was engaged in these lines.

In September, 1845, Mr. Loudon was married to Miss Clarissa Hunter, and removed to Janesville, engaging in the boot and shoe business. He was the first shoe and boot manufacturer in Janesville, and at one time forty mechanics were in his employ.

Mr. and Mrs. Loudon had three daughters—Martha J., Maria R. and Florence M. After the death of his wife, Mr. Loudon again married, his bride being Miss Elizabeth McDonald of Sturgis, Mich. To them three children were also born, they being Jessie L., James G. and Mary Elizabeth. His wife and all his children are left to mourn the loss of the husband and father from whom they had known only love and kindness.

In 1852 Mr. Loudon retired from business and turned his attention to horticultural pursuits and had gained a national reputation as an originator of fruits. The famous "Jessie" strawberry, which he named in honor of his daughter, was one of his productions in this line. The Loudon raspberry is another production no less noted. He had also

originated some cherries and grapes of superior merit which he had hoped soon to introduce.

Mr. Loudon was a republican in politics and a member of the Episcopal church. He was held in the highest esteem by all, and his death will be the occasion of much genuine sorrow.

SHORT COURSE IN AGRICULTURE, UNIVERSITY OF WISCONSIN, MADISON, WIS.

WHAT IS THE SHORT COURSE IN AGRICULTURE? It is a line of instruction covering two terms of fourteen weeks each beginning about the 1st of December each winter. It is especially designed to meet the wants of young men who wish to gain a better knowledge of practical and scientific farming that they may become intelligent stockmen, dairymen, gardeners, etc.

WHO MAY ENTER THE SHORT COURSE? Any person not less than sixteen years of age who has a common school education. Students from Wisconsin pay no tuition fees, but an incidental fee of $5 will be charged such student for material used. Those from other states pay fees amounting to $20 per term.

WHAT ARE THE EXPENSES FOR BOARD, ROOM RENT, BOOKS, ETC.? The student will pay about $60 per term.

DAIRYING. Short Course students are taught dairying as it should be practiced on the farm, including careful drill with the Babcock Milk Test, the use of hand separators, working and printing butter, etc. Students who intend to become cheese factory or creamery operators should take the dairy course proper, which is a distinct line of instruction. For information concerning Dairy Course write Prof. E. H. Farrington, Madison, Wis.

ENGINEERING. Students are given instruction in the management of steam and gasoline engines and other farm

motors, but it is not the object of the Short Course to train students for the profession of engineering, therefore, the amount of instruction in this line is limited.

WHAT STUDIES ARE PURSUED DURING THE FIRST WINTER? Students complete blacksmithing, book-keeping and farm dairying and receive part of the instruction in animal husbandry, horticulture, agricultural physics, veterinary science, debating and parliamentary practice; the second winter the studies mentioned as having been begun in the first year are continued with instruction in the economics of agriculture, elementary agricultural bacteriology, elementary agricultural chemistry, planning and drafting farm buildings and the running of engines.

CAN A STUDENT OBTAIN WORK WHILE ATTENDING THE SHORT COURSE IN ORDER TO PAY SOME OF HIS EXPENSES? Our students are with us but a short period and while here will find every moment of their time profitably occupied by the work and instruction given in the course. Any attempt to do outside work will seriously interfere with the studies pursued. Past experience has shown that those who have attempted to pay expenses while with us by manual labor usually fell behind in their studies.

TIME FOR ENROLLING. At any time before the opening of the course. All applications will be entered in the order they are received and places held. If for sufficient reasons one must withdraw, he is at liberty to do so upon notifying the College by a letter stating that fact. Students should forward applications at as early a date as possible.

ROOMS AND BOARD. Club table-board during the past term cost from $2.20 to $2.35 per week; private board $2.25 to $3.00 per week. Furnished rooms, heated, lighted and cared for cost from 50c to $1.00 per week for each student where two occupy one room.

The next term opens Tuesday, Dec. 5. For circular and further information address R. A. MOORE, Manager of Short Course, College of Agriculture, Madison, Wisconsin.

EDITORIAL NOTES.

Owing to our absence in a distant State we had failed to learn, in season for a fitting obituary, of the death of M. A. Thayer. For several years Mr. Thayer was the faithful and efficient president of our State Horticultural Society. He had become a national authority on the cultivation of small fruits, and his death will cause profound and widespread regret.

Some honored guests from New England, who left our home October 18, were fitted out with a little box of fresh home-grown strawberries for lunch.

On the seventh of October we had a strawberry shortcake for dinner, not a doll-house affair, but a full-size two-story short-cake with a generous layer of strawberries on each story. The berries were from the field of one of Baraboo's leading berry-growers, Mr. Wm. Rounds. Mr. Rounds sold several crates of strawberries in September, as large and beautiful and fragrant as summer berries, though not quite so sweet and juicy.

A. Clark Tuttle recently showed us two Russian apples of the same variety; one was picked this fall and the other a year ago. They were of good size and handsome, although the old apple, like an old girl, had lost some of its delicacy of skin and daintiness of complexion. If we remember aright the variety was Switzer. If this is wrong Mr. Tuttle must speak out in the November magazine and correct the error.

A few of our readers are still in arrears on this year's subscription. It will be a personal favor to us if such will kindly remit. Address

THE WISCONSIN HORTICULTURIST,
Baraboo, Wis.