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## **The Wisconsin horticulturist. Vol. VII, No. 4 June 1902**

Wisconsin State Horticultural Society  
[s.l.]: [s.n.], June 1902

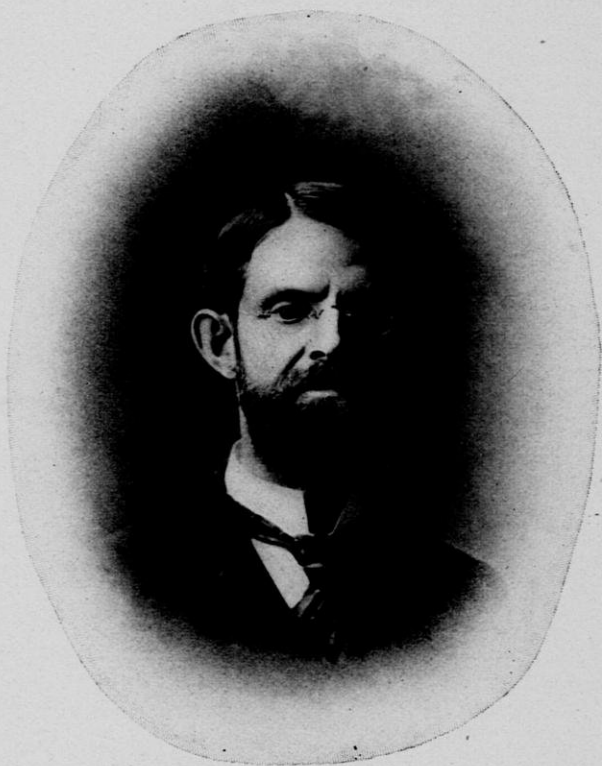
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*E. D. Goff*

# The Wisconsin Horticulturist.

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VOL. VII.

JUNE, 1902.

No. 4.

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## THE SPRAYING OF PLANTS.

By F. H. WEBSTER, Wooster, Ohio.

[Concluded.]

Spraying is not something that can wait on everything else, or in fact anything else. When the time comes it must be done promptly or good results cannot be secured with the most effective insecticides. It seems, sometimes, as though there was a human aversion to spraying, or indeed, to fighting insects at all at the proper time, and that it took a lot of stamina to pull ones self together and put forth the effort at the right time and in the right manner. I do not know whether this is due to the fact that they are frequently so minute, or whether it is because we have insects always with us, and familiarity breeds contempt. Certain it is that the contempt and neglect is common everywhere among our people, and I do not know that they are worse in one state than in another.

We have somehow got the idea that anybody can spray, and we send the hired men out to do this work and flatter ourselves that we have done all that can be done. We have sprayed! It is simply amazing to see the inefficient spraying that is done every year, not always by the hired men, but often by those who have not only the

best of intentions, but are thoroughly honest and earnest, and I may add, fully believe that they have done the best that can be done. Now, do not do your spraying yourself, and do not send inexperienced men to do it, but go yourself and take your men with you. Do not take two men to hold the nozzles, and you do the pumping, or you hold a nozzle and let one of them pump. Have a man to drive and pump, and a man for each line of hose, and you yourself get right down among the men at the nozzels. Watch every movement, and see that not a limb or twig fails to be reached by the spray. No man can do this as you can, and you cannot if you are to handle a line of hose. You must see and direct the work, which is all that one ought to do, and if done right this will prove the most important and profitable part. You can save material by looking to it that the spray is evenly and thoroughly distributed, and not a part of the tree drenched and the other part untouched. Trees should never drip, or the mixture run down the trunk and collect in puddles about the base. The result will depend less on the amount of material used than on the thorough and equal distribution of it. If you are spraying for San Jose scale, a few square inches of surface left untouched will prove veritable nurseries before the season is over. I had hoped that with the whale oil soap, the rains would wash it into the crevices and out of the way places that it failed to reach direct, but in this I was disappointed. I was also in hopes that crude petroleum would spread and thus reach, effectually, small portions of the surface not reached direct, but here again, we find that unless the surface is actually hit by the spray the scale are not only not killed, but keep right on breeding and sending swarms of young to the new growth, thus showing more clearly than ever that the entire surface must be lightly but completely covered in order that the treatment shall be effective. It is simply the same old story, and proves over again what I have stated, and I would no more trust an inexperienced man behind a nozzle, and expect to get satisfactory results, than I would put him at the throttle of a modern railway locomotive and expect him to run it without accident. There are some careful and successful horticulturists who spray properly and at the proper time, but they are few and far between, and I believe that there are more that fail in this particular than in any other connected with their business.

Spraying is an art of itself. It is a profession as yet undeveloped and until we give it more attention and improve upon and develop its practical value we shall never get the full and effectual benefit from it that is possible with our material and machinery. I believe the time will come when spraying will constitute a distinct and separate department of horticulture, and students will, in our Agricultural colleges, be trained in not only the art of spraying, but the sciences that are most necessary in connection with it, viz., entomology, botany and chemistry.

#### SPRAYING MACHINERY.

I shall, perhaps, disappoint you by stating that the spraying machine that is wanted has not yet been invented. We have several good ones it is true, but I fully believe that if I were to buy any of them I would be likely to tear it to pieces and rebuild it anew. When we began the work of treating premises for San Jose scale, in Ohio, we found several problems confronting us, not the least of them being the matter of outfits for the spraying forces. I brought the first steam spraying machine into Ohio, and was at first almost sorry I had not left it at the factory. But the young man in charge of treatment tinkered with it, changing here and there, until we finally got it to be about what was wanted for our work. We could work four lines of hose and it gave us a pressure of 100 pounds to the square inch, so that the highest trees were reached without difficulty. In city work, we could stand it at the curb and run the hose back two or three hundred feet and treat everything that it became necessary to treat. Or, as in some instances became necessary, we could detach all of the lines of hose but one and run this out four or five hundred feet, put on a T and attach two lines of hose to the one and work over a considerable territory, in the most inaccessible places, without taking anything but the men and hose on the grounds. For treating large and small trees, in city and country, a steam spraying machine is about what is wanted, but for ordinary orchard work, I question whether it would pay to purchase one of them. One drawback in orchard work is that the men on one side cannot progress faster than those on the other. If the trees are all of about equal size and none missing, the two pair of men will work about equally rapidly, but otherwise, either one side or the other will

frequently lose time in waiting for the other to catch up, though sometimes they can help each other out. This machine weighs about 2,500 pounds with the tank filled and is thus rather cumbersome in times when the ground is muddy. Taking it all in all, I do not believe that a steam spraying machine will be profitable in orchard work, until they have become more perfected. A good spray pump, mounted on a 300 gallon tank, with a platform that can be raised and lowered, so as to enable the men to reach high trees will probably, at present at least, be found as practical as anything. We found that a barrel pump mounted on two wheels after the manner of a swill cart, was exceedingly handy in out of the way places, and where the trees were not large. The same pump that is used here can be transferred to the large tanks.

For applying mechanical mixtures of petroleum, either crude or refined, special pumps are constructed, and the best one now on the market is called the "Sparamoter," manufactured by the Sparamoter company, of London, Canada, and Buffalo, N. Y. This pump works easy and gives more accurate percentages than any other known to me.

Our spray pumps are being rapidly improved, and it is impossible to recommend any single machine. There is this to be considered, in the purchase of spray pumps; if one likes a tool he will do better work with it than he would with even a better one, that he does not like. Hence, the advice to make your own selection is probably the best that can be given. But, by all means get a spray pump of some sort, and use it at the proper time and in the proper manner, and with the proper materials, and I can assure you that it will pay you better than any other piece of property that you can possess.



## FLOWERS AND THEIR INFLUENCE.

EDITH TRELEVAN, OMRO.

Without flowers how desolate this world would be. It would be a face without a smile, a feast without a welcome. Flowers have been loved and cherished for their purity, fragrance and bright, cheerful colors from the earliest day and there seems to be an in-born love for them in the heart of every man, woman and child, which makes itself manifest sometime in life.

Henry Ward Beecher once said: "Flowers are the sweetest things that God ever made and forgot to put a soul into," but in the words of one of our poets—

"Your voiceless lips, O Flowers, are living preachers,  
Each cup a pulpit and each leaf a book."

And in the words of Longfellow—

"In all places, then and in all seasons,  
Flowers expand their light and soul-like wings,  
Teaching us by most persuasive reasons,  
How akin they are to human things."

Flowers are the stars of our earth even as our stars are the flowers of heaven. Held carelessly in the hand of a child or studied by the man of science, they can but awaken in the mind a sense of the beautiful and the good. Ever since the earliest time of civilization, the culture of flowers has received more or less attention and the variety and beauty of flowers, the freshness and fragrance which we associate with them have long been themes for poet and naturalist. The endless forms in which they appear, their adaptation to certain conditions, the peculiar properties which many species possess, though grown in the same soil, heat and moisture, the wonderful changes which they undergo from seed to plant and from plant and flower to seed again, and the wonderful beauty of each individual plant and flower, to say nothing of their utility as articles of food, medicine and clothing, are all subjects of never failing interest to a reflective mind.

Did you ever stop to think that the charm of nature lies in her diversified forms and various hues? The most simple structure that rises from the earth is a marvel in its mechanism and in its growth and coloring there lies a mystery beyond the power of man to fathom. Close communion with nature leads to higher and nobler

lives and flowers expand whatever is best and purest in human nature. Hearts of thousands upon thousands are nourished and uplifted to a sense of a higher power through the influence of flowers. One of the strongest arguments in favor of their cultivation is the ennobling influence they have upon the soul, and the incentive they give to a higher and purer life. We admire the handsome foliage and beautiful blossoms of many of our shrubs and trees, but we love flowers and it is from them of all things in nature we derive the greatest pleasure. There is something in the swelling buds, the opening flowers and spreading foliage, that instils into the mind a clearer discernment of right and wrong and a higher standard of morals.

The association of plants and flowers always tends to educate, elevate, sweeten and refine. Daily contact with them has a decidedly broadening influence upon character. When we find a man who loves his flowers for their own sake, we rarely find a bad man, and their cultivation is more edifying than their use.

Every home in our land should be the seat of an amateur flower garden and especially every farm home. Flowers would add manifold to the attractiveness and home-like appearance of hundreds of farms. Few things are more attractive to the traveler in any country, than the homes of people surrounded and brightened with sweet flowers. We know that such homes are homes of culture and refinement, for so clearly do flowers affect the morals that homes surrounded with them indicate peace and contentment, as surely as their absence indicates lack of these virtues. Children love beautiful things and are fond of flowers. The cultivation of them will modify their tastes and change their natures, and this love cherished will often prove a safeguard from evil in later years.

It is a safe, pure pleasure derived from the cultivation of flowers. The way to expel wrong is to fill the soul with the beauty of what is right, and lower things lose their power when the love of the higher is awakened. Flowers are safe friends, they cheer and uplift and are the forerunners of good books. The poor can have and enjoy them as well as the rich, for it does not require such an education to love and appreciate them as it would to admire a picture of Turner, s.

Flowers make our homes fairer, sweeter and dearer, and the home is "the heart of the world." How much of charm and fresh-

ness they add to the room and their influence is not only refining but restful, and a delight to both mind and eye. When we consider how much flowers brighten our lives and cheer our homes is it any wonder they are so universally loved? More and more as we advance in the scale of refined living do flowers become our inseparable companions. Of one thing we may be sure, naught but pure influences emanate from their presence, for evil is not of them nor in them.

The presentation of flowers is our highest form of compliment to orator or singer, and by their "voiceless language" heart can speak to heart in a way never given to words.

What more beautiful symbol of friendship, tenderness and love does nature offer than sweet, delicate lovely flowers? They contain the language and sentiment of the heart. Gaze into the depths of the pure white lily and see its purity and innocence, look at the modesty of the violet and what an affectionate remembrance is shown by the blue forget-me-not. Then there are the upturned faces of the pansies, each little face having a story of its own to tell.

"Sweet little flower! If skill were mine,  
To paint a face alike to thine,  
As coyish, and as modest, fair,  
Give color true and odor rare,  
I'd know my gift to be divine."

Flowers furnish inspiration for noble thoughts; they seem to speak through their expression of countenances. Some seem to smile, some have a sad expression, some are pensive, others again are plain, honest and upright like the broad faced sunflower and the hollyhock. Flowers are silent but they speak to us as the eye speaks. Many a weary soul without friends or money, finds the dreary hours at the hospital brightened by sweetest flowers, breathing hope of better days to come.

There is no purer, sweeter adornment than flowers. Weddings, funerals, school commencements, banquets, festivals, flower Sundays, Memorial day, all call for flowers.

How many lessons of hope, confidence, patience and truth they have taught. When Mungo Park was traveling in the desert he lay down to die, and as he lay there he caught sight of a flower springing out of the sand by his side, and he thought if God takes care of the flowers in the wilderness he will take care of me and his confi-

dence was not misplaced. When human words are of little avail how the flowers soothe and what fragrant thought bearers for our comfort. "God's dear angels are they in the hour of sorrow; their sweet faces simply say, 'do thou look up,' thou shalt meet thy loved ones on some brighter morrow, never ending joys are thine, do thou but drink thy cup."

Flowers add beauty which is essential to a perfect life and flowers are among the most delicate and subtle expressions of beauty God has given to earth, and we ought to know more about them and learn to love them more, and this love grows the more we cultivate and mingle with them, and in addition the care of them affords needed recreation. To the genuine flower-lover the pleasure in growing flowers more than compensates for all the care and trouble.

The world is full of people who have been blessed by considering the lilies of the field and the violets of the meadows. There is no place, no spot in life, where the ennobling influence of flowers may not be felt. Rest, health, strength and happiness will all come to us if we seek for them in the breezy woods, green fields and fragrant flower gardens.

"Come out into the garden where the crimson phloxes burn,  
And every slender lily stem upbears a lustrous urn;  
A thousand greetings float to you from bud, and bell, and star,  
Their sweetness freights the breathing wind; how beautiful they are.

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### THE CHRYSANTHEMUM.

Chrysanthemums are best propagated by cuttings as this is by far the most rapid way of obtaining the plants. Be sure that you propagate from good healthy parent stock. They require close attention from beginning throughout their entire growth. This plant is a gross feeder and one that responds quickly to special treatment.

Plants of the preceeding year afford excellent stock from which to propagate. Use the suckers from these plants that are young and tender. Take these from 1 to 2½ inches in length, remove the lower leaves and also the tops of the large leaves, and place in propagating beds close together. They should be kept wet continually until well rooted. When roots are about ½ inches long they should be potted, using good mellow soil which has been mixed slightly with decomposed manure.

## CULTIVATION OF THE COMMERCIAL ORCHARD BEFORE AND AFTER BEARING.

ROY UNDERWOOD, Lake City.

It has come to be a maxim of horticulture that "cultivation conserves moisture" and is, therefore, a practice that is, in some degree, necessary to fruit growing. Other preventives to evaporation are put into use it is true. Mulches are employed, and the need of groves to break the force of the wind has been demonstrated. The fact remains, however, that the condition of the surface soil affects more than anything else the escape of moisture.

It is purely a question of capillary attraction, and a parallel example may be observed in an ordinary lamp wick. When the end of the wick is kept clean, the oil is drawn up rapidly and without hindrance, but let a charred surface remain on top and the oil refuses to draw. The process of evaporation or capillary attraction has been checked by a condition on the surface which prevents the liquid from being drawn up to the flame.

In the orchard the sun and wind are the flame, the surface of the soil is the top of the wick, and the damp soil underneath represents the lower part of the wick immersed in oil. When the surface is smooth and hard the warmth of the sun draws up the water from the sub-soil, and once there it is hurried away by the wind. Now, if we stir this top soil, we produce what has been called a "dust blanket." The condition of the soil in the "blanket" is very different from that underneath. By the process of pulverizing, myriad air spaces are placed between the grains of earth. This prevents the moisture from going through easily, as a large per cent. of the capillary attraction has been destroyed, and the water cannot leap the air spaces thus created. This, in a few words, is the philosophy of cultivation as applied to the saving of the soil's moisture.

It is not within the province of this paper to call attention, except in a general sense to the *importance* of cultivation in the commercial orchard. That has already been done emphatically many times. I will, therefore, not do more than to give a few diary notes, on the subject that have come to my notice in the experimental orchards of the Jewell Nursery Co., at Lake City, Minn. Here, with

nearly 5,000 orchard trees, both apple and plum, have been tested about all the general methods of cultivation advocated, and the present system of orchard cultivation, which I will outline, is in our estimation the best and most prolific of good results.

*Distance to Plant Orchard Trees.* In our Lake City orchards we are finding that in our first orchard plantings we made the common error of putting the trees too close together. In the early days of horticulture in this state the comparatively small size which the average apple tree eventually attained led us to believe that we should plant them close together.

Our first orchard was planted in rows 14 feet apart, with the trees 12 feet apart in the row. Now that we are awake to the necessity of cultivating this orchard, we are confronted by a grave difficulty in lack of space to run the cultivator. We discovered the possibility of this difficulty several years ago, and as a result put in our next large planting 16 feet apart each way. Then followed another 18 feet apart, and now we have by our added experience come to believe that 20 feet is none too far apart for a commercial orchard in Minnesota. In the small garden where cultivation may be practiced on a diminutive scale, this is of course not necessary as the trees themselves do not require that amount of ground.

*Trimming and Pruning.* A word might be said in regard to keeping the trees in proper shape to permit of easy cultivation. Orchard trees should be watched every year and not allowed to sprawl out in a decided manner in any one direction. While we advocate low branching, we at all times aim to keep a uniform head by balancing the branches on one side with complementary branches on the other. A little attention given to this question each season will save many steps later on, for you can now easily cut off branches with a pocket knife that will sometime require a saw if allowed to remain.

*Cultivating the Young Orchard.* Probably most northern horticulturists advocate using the spaces between the rows of a newly planted orchard for the purpose of growing some crop. If the process of cultivation is followed up and the weeds kept down continuously, there is no harm in this, provided all grass crops are strictly avoided. In our observation, however, we are inclined to think

that unless the owner is particularly cramped for space, the best results are obtained by keeping the orchard clear of everything from the very start. Particularly is this true if he desires to bring his orchard into early bearing. It must not be forgotten that whatever is grown between the rows will take from the soil an amount of humus nitrogen and other properties that would otherwise go into the building of the tree. It would, therefore, follow as a general conclusion that not only must a great amount of fertilizer be put back on the ground, but there is also lost a considerable time in bringing the tree to a bearing age.

*Fertilizers and Mulches* are features of orcharding so closely allied in results to the problem of cultivation that they should here have at least a passing consideration. In a young orchard on good land it is not always necessary to use any fertilizer, especially if the cultivation is kept up faithfully; but after the trees have reached a large size, and especially when they have commenced bearing, a small amount of stable manure spread around each tree, when the farm work is not pressing, will more than repay the owner in the size and quality of the crop, and also in the resulting growth of the tree. It is a simple matter of feeding the tree in the same manner as you feed your horse. During the winter, when the horse is doing very little or no work, he will live well on straw or other coarse food, but when you begin putting him in the harness for regular work, you are wise if you begin an immediate increase both in the quality and quantity of his food.

Apply this example to the fertilization of orchard land, and you have a good working basis upon which to act. Remember that by the time the trees are of a bearing age the soil so smooth and apparently devoid of life upon the surface is emmeshed by a vast network of fine fibrous roots reaching in every direction. The more you expect of a tree, the more you must give it in the way of material upon which to work. In many respects it is like a factory machine; the soil and the air furnish the raw material, and the fruit represents the finished product. It is your duty to see that all the cogs are in place and the journals well filled with oil; this is what you do when you cultivate to keep the moisture in the soil, and when you mulch to supply the tree with the rich elements it annually absorbs in its crop of fruit.

*Cultivation of the Orchard Before Bearing.* Supposing that the orchard has now reached an age when the majority of the trees are in bearing, the value and consequent necessity of cultivation is increased by the fact that the tree is now not only adding to its growth in fiber and leaf but is also throwing out a large surplus of its vitality in the production of a fruit crop. As soon as the frost is out of the ground thoroughly, and the new spring shoots begin to appear, cultivation should begin. Through the months of May, June and July the cultivator should be run over both ways at least once a week. The old rule was to cultivate after every rain. In the eastern states, and wherever the rainfall is generally regular and frequent this rule is a good one, but here in the prairie country we have found that the early summer drouths to which this section is subject make it a rule that is not always safe to follow. Whenever it does rain, the cultivation of the orchard should follow immediately after, no matter when it was cultivated last. At no time is the evaporation so rapid as when the surface soil is thoroughly wet, and if we would retain all the moisture possible we must put on our "blanket" immediately, and metaphorically lock the barn before the horse is stolen. But in this latitude the rains are neither frequent nor regular, except in rare seasons, and our chief care is to hold the moisture down during the three, four, five, six and sometimes eight weeks of drouth with which we are all familiar. It is during periods of this kind that the "dust blanket" has its greatest value, and experience in the Jewell orchards, at Lake City, demonstrate that this value is lost if the process of pulverization is not kept up with continuous regularity. The moisture in the subsoil is always coming towards the surface and naturally soaks into the "dust blanket" destroying in a comparatively short time its efficacy in holding the moisture down. The necessity of constant cultivation is thus easily seen. After the middle of August we generally leave the soil alone, except in case of a rain, when a light cultivation is given, care being taken not to jar the trees.

*Weeds.* A word should be said about weeds and grass in the orchard. The thoroughness of cultivation which we advocate would not give them a chance to start. We do not allow one spear to show its head in our orchard, and this is a rule that should be followed. Never let them get a start. If you are beginning cultiva-

tion on new orchard land, where the weeds have already obtained a foothold, stamp them out with unrelenting vigor. Tenacious weeds and roots should be pulled up by the roots and carted out. In this connection, I might say, never plant a blackberry root in your garden or orchard or, in fact, any place where you may want to cultivate. They are one of the most difficult things to exterminate, especially the hardy varieties.

*Cultivation After the Crop has Been Picked.* In some sections where the autumn season is long extended, with alternating warm, wet weather and cold spells, it is not a good thing to continue cultivation after the harvest of the crop. Our experience in Minnesota, however, has proven that the opposite rule should apply here. Fall weather in this latitude is decisive, and when it comes it is with sufficient severity to check the growth of the tree in time to prepare it with well ripened wood for winter. Only a few times in our 33 years' history of orcharding at Lake City do our records show that trees have gone into winter with wood insufficiently ripe. Our policy now, therefore, is to renew cultivation as soon as the crop is off and there is no further danger of jarring the apples from the tree. There is considerable growth made by the tree during this time, especially if the season be favorable, and as our growing season in the north is very short, it is a decided advantage to give the tree all the growth possible while the warm weather does last.

*Implements* The chief requisites for a cultivator to be used in the commercial orchards are three in number: 1. A cultivator that will cover the ground with the greatest possible rapidity. 2. One that will go as near as possible to the tree without injuring it. 3. A construction that will pulverize the soil to its greatest degree of fineness. This is a question regarding which there is a great amount of discussion, and we have no doubt but there are a large number of cultivators made that perform the service equally well when handled properly. We have tried many makes and have invented several ourselves. A cultivator that will work with two horses is a necessity for large orchards, as a one horse implement will not cover enough space, and the time of the driver is wasted. At present we are using a large spring tooth cultivator, such as may be obtained at almost any farm implement house. This is arranged with levers to regulate the depth by lifting the teeth out of the ground when necessary. It

is made in two sections and we have rigged up a long evener, to which we attach one section at each end, which causes them to work out under the branches next to the trees, while the team travels in the center of the space between the rows. After going through the orchard once in this manner we replace the long evener with the short one, which brings the two sections together, thus covering the space not taken in the first time. By going through the orchard in this way, and then crosswise once, we find that we can put the soil into a very fine and powdery condition, even after a severe rain. We have also used with good success a common farm drag. In fact any implement that will pulverize the soil to the depth of two or three inches is well adapted for the commercial orchard, provided it is an arrangement that will not injure the bodies of the trees.—Minnesota Horticulturist.

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### THE STRAWBERRY.

Among the varieties of small fruits the strawberry seems to be less affected in its welfare by being placed upon different soils. Not so with most other fruits; the currant must have a special class of soil and location to do its best, the gooseberry also. Blackberries do better on a heavy black soil than upon loamy soils. But the strawberry, with proper care and attention, has been reported doing well upon most all soils and locations. There is hardly a state in the union that cannot raise strawberries, and look at what the soil is composed of in our states.

While each of the different soils may compose the elements necessary for the growing of the strawberry, still there are other things that must be considered.

My experience in the growing of the strawberry has been upon loamy soils, and there are various reasons why a loamy is preferable to others. Loamy soils are more easily cultivated. They warm up more quickly in the spring. Rains are more evenly distributed amongst its soil particles, and its conservative power of holding moisture is far better than heavier soils. When the question is asked experienced strawberry growers what soil they prefer they invariably tell you loamy soils.

For the location of the strawberry bed secure, if possible, one with a gentle slope to the east, south or west. Sod land which has been pastured is about the best, and after being cropped to potatoes one year is in fairly good condition for the strawberry field. Barnyard manure is the best fertilizer one can give to the strawberry. Forty tons to the acre of good manure is not too much and this should be well mixed with the soil. Probably the best way is to top dress our land with the manure in the fall, then plow very shallow, just enough to cover the manure. Allow this to remain in this condition until spring. As soon as you are able to get on the land in the spring, plow again, setting the plow in quite deep. This will make the soil loose to the depth to which the plant is set, and place the manure in a position where it can be easily obtained by the plant. As soon as plowed secure a spading harrow and go over the piece at right angles to the plowing, so as to get the soil and manure well mixed and pulverized. Follow this with a drag and you are ready to mark and set plants.

Let the rows be straight and plants set on the marks made. It is much easier to cultivate and care for the plantation if rows are straight. Strawberries are, as a rule, planted in rows  $3\frac{1}{2}$  feet apart, and distance apart in the row is governed by the variety grown. If you are planting for hill culture, which will be explained later on, rows need not be as far apart, and plants can be set closer together in the row. The matted row system is by far the most successful way of growing the strawberry. By this method the rows are planted  $3\frac{1}{2}$  feet apart, and plants 18 to 24 inches apart in the row. The plants are allowed to send out runners which set, filling up the solid row, and leaving a path between the rows of vines. The strong growing varieties, which set plants very rapidly, can be set further apart in the row, while those which are slow to put forth runners, should be set closer in the row.

Hill culture is not as a rule as successful on large acreages as the matted row system. While there are a few who have been successful, on a small scale, with hill culture, raising a certain kind, the majority of strawberry growers prefer the matted row system. Hill culture consists of planting certain varieties which are not great plant makers, in rows closer together, and allowing them to set plants. In other words as soon as runners appear they are pulled

off and all the energy of the plant is put in the crown. While my experience with hill culture has not been very extensive, still I am convinced that those starting in the growing of strawberries will be disappointed if they attempt hill culture on a very large scale.

Having our ground in readiness for our plants let us next consider what varieties we should plant. No one can tell you what varieties to plant, and this must be determined by yourself. There are hundreds of different kinds and each one has its merits, its peculiar habits of growth, its time of blossoming, fruiting and ripening. One variety may do in a certain locality and be an entire failure in another. There are so many changes which the plant must undergo; the conditions of climate, soil and location are so different, that a variety which has been successfully grown by one person may be an entire failure with another. It is with the fruit grower as with any business, increase the business as you go along. When you find out what variety does well with you on a small scale, plant more. Have a small plot for testing varieties, in other words, sample the different kinds and find out what is adapted to your soil. By this I do not mean to test all the varieties of strawberries, because if you did you would need a good sized farm. So many varieties are thrust upon the market now that many of the new beginners are deceived. Secure a few plants of the different kinds from some reliable grower, whose soil, location and conditions are similar to yours. You will then be able to determine which varieties will do well with you, and not that you have planted one, two or five acres of one variety when some other will be better. Make your wants known to the reliable plant grower and he will advise you what variety is best suited for you. Find out what variety is sold most readily in the market, and if that one can be successfully produced by you, that variety should be planted.

The older fruit growers can well remember the time when the strawberry was grown without regard to the sex of the plant. They did not know there was a male and female, staminate and pistillate, perfect or imperfect blossoms to the strawberry plant, and if all female, pistillate, or imperfect flowering plants, were set out, they would only produce small, imperfect fruit. Now those same varieties which produced small, inferior fruit, planted with the male, staminate, or perfect plant, bring forth an abundant crop of saleable fruit.

The next question which confronts us is, what amount of staminate are needed to fertilize the pistillate varieties, and how shall they be planted? This question fruit growers differ on. Much depends upon the variety and also the season. Some of the staminate are much better fertilizers than others, being heavier yielders in pollen. Some years the atmosphere is in the right condition for the pollen to disseminate among the pistillates, and again, as it was the past season in our locality, the time of fertilization was cloudy with frequent showers making it impossible for the pistillates to become well fertilized and consequently a small crop of poor quality fruit. The pistillates are as a rule more productive than the staminate and we would be inclined to plant as many pistillates as possible and still have them well fertilized with staminate. At one time one-half staminate and one-half pistillates were used, then one third was considered enough, and for the past three years we are planting one-fourth staminate to three-fourths pistillates which seems to be enough. I am satisfied from experiments tried that one-fourth staminate and three-fourths pistillates, or, one row of staminate to three rows of pistillates will fertilize the plantation sufficiently. There are some varieties of staminate that are heavier yielders in pollen and would no doubt fertilize more than three rows, and then other staminate being weak in pollen would not be able to fertilize as many. It is not good policy to be sparing of the staminate. Better have too many than not enough. Now the question will naturally arise: Why plant the pistillates at all? Why not plant all staminate and not be bothered by both? If our staminate were as good yielders as the pistillates then there would be no necessity of both, but we have as yet to find any staminate that will equal the heaviest yielder in pistillates.

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### A VACATION IN EUROPE,

By EMMA JACOBSON, Chicago, Ill.

[Concluded]

We "did" London after the most approved tourist fashion in about five days, and then crossed the channel to Paris, the place where all good Americans are said to go when they die. While not realizing exactly my ideal of what heaven ought to be, yet Paris is

undeniably a beautiful city, clean, well-kept and elegant, with alluring shop windows and gay attractive boulevards.

We lodged opposite the Garden of the Tuileries, said "garden" consisting of a sandy desert, with here and there an orange tree in a tub, and similar inspiring things. Conventionality of design is characteristic of most of the noted gardens of Europe, such as the famous grounds surrounding the palace at Versailles; the Boboli Gardens in Florence, and the Vatican Gardens at Rome, all are laid out in geometrical designs of bright colored flower beds, or conventionally trimmed shrubs and hedges. The Vatican Gardens, when viewed from the top of St. Peter's dome looked for all the world like a patch-work quilt, such as our grandmothers used to make.

One of the enjoyable drives of our trip was that from Paris to Versailles, a distance of some twenty miles, through magnificent forests, as yet unspoiled by civilization, and past lordly villas and country seats. The road was smooth and hard as any of our city boulevards, and yet the five horses which drew our conveyance (three leaders and two wheel-horses) had great difficulty in drawing us up the hills, not so much due to the greatness of the load, as to the poor quality of the horses. The whole five of them put together, boiled down and reconstructed, would scarcely make a respectable team such as a Wisconsin farmer would care to drive. What was true of these horses might also be said of three-fourths of the cab horses which swarm through the streets of Paris, and it is often astonishing to see how little meat a frame of skin and bones requires to keep it upright. Cab-fare costs less than one-fifth as much in Paris as it does in Chicago, but then one only gets the service of about two-fifths of a horse, with an indeterminate fraction of a man as driver, hence the cheapness.

Leaving Paris one evening just as the rosy hues of the setting sun were reflected back from the waters of the Seine, we traveled all night in about as comfortless a fashion as Americans will only submit to in Europe, and were greeted by the rays of the rising sun as we rolled along the banks of the turbulent Rhone, up to where it emerges, purged and purified, from the tranquil bosom of Lake Geneva.

The waters of Lake Geneva are famed for their beautiful translucent blue, a color which is unique in nature and has never yet been exactly reproduced in art. Here, across the surface of this lovely

lake, we caught our first glimpses of snow-clad peaks in the distance, and in the afternoon, after a short ride by rail, found ourselves in a diligence penetrating the heart of the mountain fastnesses which guard the pearl of the Alps, the valley of Chamounix. For twenty-eight miles we rode along the base of mountains, following the course of the Arve, a sputtering mountain stream, each turn in the road disclosing new visions of beauty.

We entered the valley when all the lower world was shrouded in twilight, but away up above us in the dusky sky there glowed with a soft, ruddy, tender glow, the snow-clad summit of Mt. Blanc. Our last anxiety at night, and first thought in the morning was, will the weather be favorable for a good view, for many a time the mountain is capricious and hides itself behind a veil of clouds or mist; but lo, when we threw open our shutters the sun was shining in rare brilliancy, and before us stood revealed in all its majesty, green base, bare rock and sparkling, glistening summit.

Ever conscious of the presence of that silent beauty, we wandered up and down the valley, breathing the delicious mountain air, gathering blue-bells on the banks of the rushing Arve, and modest for-get-me-nots from the brinks of the numerous tiny mountain streams. We cannot linger long in this enchanted valley, for "beyond the Alps lies Italy," the land

" \* \* \* where the cypress and myrtle  
Are emblems of deeds that are done in their clime;  
Where the rage of the vulture, the love of the turtle,  
Now melts into sorrow, now maddens to crime."

The glamour of poetry and romance with which the bards of all ages have invested Italy for us, still possesses our minds as we catch the first glimpses of silvery olive groves, fair villas and picturesque towns set up high on the tops of bare brown hills. Some illusions are bound to be dispelled when we come face to face with the "dago" in his haunts and encounter the flies, and fleas, and smells of Italian cities; but picturesque the Italian must ever be, and interesting too, with his nervous, excitable manner, a type so totally different from our calm, self-controlled Anglo-Saxon people. The amount of nervous force expended in shouting and running and gesticulating before a train could get under way from each station, seemed sufficient to run that train for several miles, if properly applied.

The habit of the Italian people of changing night into day is

rather trying to the tired tourist who desires a good night's rest, for one is liable to be awakened almost any hour up till daybreak by shouts of laughter and loud talking in the streets, while during the hours of daylight one is just as apt to stumble over prostrate forms of sleeping Italians in doorways, on the pavements, or almost anywhere where nature happens to succumb to the demand for rest.

In Genoa we were struck by a species of architectural painting both unique and ingenious, in that it sought to reproduce on the smooth side walls of houses by means of the paint brush the same effect as that presented by the rough-hewn and probably more expensive real stone of the front. More curious still were the windows painted on the walls, and the imitation was so clever that it often became difficult to tell which was the real window and which the sham, as in most cases, lace curtains, looped exactly like those in the neighboring window, were reproduced with painstaking care, and even a bird-cage was sometimes added, to make the deception more real.

We visited the famous Campo Santo at Genoa (the burial ground of the city), which consists of a huge parallelogram of gray stone, with an open gallery of white marble extending around an inner court. All along the gallery are marble monuments of exquisite beauty, some groups representing biblical scenes, others the family of the deceased in life-sized figures, gathered with bowed heads about the tomb. On asking our Italian guide if all the dead of the city were buried in this vast and splendid mausoleum, he replied: "Oh no, only ze rich people are buried here." Further inquiry developed the fact that "ze poor people" are buried and allowed to remain in the ground contained in the inner court for a number of years, the length of time depending on the amount of money that the family of the deceased can afford to pay for the privilege of his being covered by mother earth, then the remains are disinterred and dumped indiscriminately in one great heap. This bone yard is not one of the show places of the city.

The ride from Genoa southward presents a succession of beautiful pictures to the eye, the blue Mediterranean dashing its snowy surf against jutting brown rocks, a villa here and there surrounded by blooming oleanders, stretches of sandy beach with brown-skinned Italian children sporting in the waves that rolled up high on shore,

and over all the cloudless brilliancy of the Italian sky, all this gave an impression of life and warmth and color truly Italian.

The farther south we go, the sparser grows vegetation, the barer the hills, the meaner the houses, and as we leave the sparkling Mediterranean and enter upon the Campagna surrounding Rome, the desolateness of the country becomes absolutely painful. After a week's stay in Rome we turned again northward, and the green fields of Tuscany and Lombardy afforded a grateful relief to the eye after the barren waste of the Roman Campagna, and when we caught sight of a field of thrifty Indian corn, our joy was complete. All along the railroad were rows of mulberry trees, with grapevines planted midway between and trained up the tree on either side, and the rapid motion of the train produced the curious effect of the trees joining hands and engaging in a merry dance along the way. Then came one of the most delightful days, when on a slow river boat we glided peacefully down the Rhine, with its vine-clad hills and picturesque ruins and landed late in the evening at Cologne. Next day we visited the Cathedral, with its exquisite turrets and spires of Gothic design, then on again across Belgium, to Brussels, where we spent two days. One impression received in Brussels I cannot pass without mentioning. We were awakened in the morning by a perfect pandemonium of yelpings, barkings and snarlings, and on looking out, beheld the great market place covered with small vegetable carts to which were hitched big sturdy dogs, each of which seemed to be on a war footing with his neighbor. It was a curious spectacle, and we were impressed still more with the hardness of conditions in Europe, where even dogs have to work.

From Brussels we went to Antwerp; there took a channel boat to England, and when once more in London, prepared ourselves for the homeward voyage.

And now that I am near my journey's end, I feel that I have been able to give very little of special interest to the Horticulturist. Had I known as much of horticulture then as I have since learned from the Wisconsin State Horticultural Society, my observations might have been of more value in this line; but as it is, I offer this rambling sketch, to give some idea of how much can be seen and enjoyed by busy people in less than three months' time, and I will say that there is nothing so restful in the world as to put the ocean

between oneself and one's business for a short time. The expense of a trip to England and France, and perhaps Holland, need not be much greater than that of a trip to California, and the interest of the journey is certainly much greater. There is so much of that that is beautiful and instructive to see, and even the drawbacks of life there, have the advantage in that they will cause one to come back a ten times better American than before.

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### WHAT THE EXPERIMENT STATION IS DOING FOR HORTICULTURE.

BY THOS. S. BIGGAR, Fulton, Wis.

#### LADIES AND GENTLEMEN:

I assure you that I consider it a great privilege to come before this honorable gathering to mention a few of the things the experiment station is doing for horticulture. I, being a student of the short course, you naturally will expect my remarks to be from the student's standpoint, and so they will. So, I will not mention what the station has done or is doing by way of experiments, but will confine myself to the student.

There are two classes of people which we short course men are constantly running up against. The first class are those who imagine we think we know it all, or, in other words, that our heads are swelled. Now this is not the case for our heads were all larger at the beginning than they are now, for we found that there was so much that we did not know, and so little that we did know, that we almost have no heads at all. By the way this isn't a bad lesson to learn, either.

Now, to the other class belong those that think that because we have attended the college of agriculture we ought to know it all. This is a worse mistake for us than the other, for we well know that we cannot, in the two short years we are here, grasp all the facts that a lifetime of study and experience have given many of you. I well know that you know many things better than I, but, on the other hand, I know many things about horticulture better than I did before I entered the short course. A student may come here with little or no knowledge of horticulture and before he leaves he will have learned many things concerning plant culture. He will learn

that certain soil and climate conditions must be favorable to the crop's growth. He will learn how to study and control these conditions. He will learn under what conditions seeds germinate best, and how to select seeds that best germinate. Much time is given in showing how by different methods of cultivation in early spring we aerate the soil, make it warmer and dryer, and how later in the season we can best retain the soil moisture.

Last season I saw a farmer plow under ten acres of rye that had about headed out and then try to make tobacco plants live on it. The rye had taken nearly all the moisture out of the soil and left it so loose that the water the transplanters left around each plant soon soaked away, and they soon died. Three times he tried to get a good stand but it was a failure. This mistake cost him about \$1000. I saw another farmer roll his ground when it was too wet, and the tobacco grew but little on that piece.

Now I don't think a short course man would have made those mistakes, for he has not only been taught how to do things, but when and why. Sometimes, about the time we get everything to growing nicely and the horticulturist is just ready to go fishing, along will come some bug, worm or fungus growth which if not properly handled may ruin the whole crop. Here, again, the student is trained in ascertaining the cause and cure of diseases of plants. He will know what measures to take with the codling moth, apple maggot, scales, scabs, blights, etc. Any interested student may become an expert in the compounding and application of fungicides and insecticides. This study of the cause and cure of plant diseases I consider one of the most important things in the whole course, for who enjoys a wormy apple, a scabby potato or a gnarly plum, and why must we when they can be prevented?

After we have matured a crop for market we are but little ahead if we cannot sell it. Nothing aids more in the disposal of a crop than the proper picking, crating, boxing or barreling of the same. Here, again, the student learns the best time and method of picking fruits and the best ways of keeping them cool and dry. If it is apples, how to sort and then box or barrel them so they will sell well, and aid him in selling another crop.

Many are the facts, illustrations and practical points given the class as to the best methods of fertilizing the soil. The students are

made to understand the principles involved in plant growth, how it is that some plants exhaust the fertility of the soil, while others do not, how rotation of crops will help preserve the fertility. The importance of the legumes will be impressed upon his mind. It makes almost no difference what line of farming we may carry on in Wisconsin the legumes have a direct or indirect bearing upon it.

Every year there are one hundred men going out from this station who have had an excellent training in the theory and art of pruning, of grafting and of making green cuttings, men who would not make the mistake I once saw made of setting out a large strawberry bed with plants, every variety of which bore an imperfect blossom. The student might not know which phase of the moon to set the plants in, but his study of fecundation would have taught him that he would get no fruit from imperfect blossoms alone.

But I need say no more concerning the training of the students, suffice it to say that in the two short years we are here a vast amount of condensed information gleaned from years of experience has been hammered into us which we can elaborate and use to advantage in the years to come. Every year there are about three hundred students taking the two year's course. Every year there are about one hundred in the graduating class. This year I believe the class numbers one hundred and twelve.

Now I want to ask you if these one hundred and twelve students who have made a study of plant culture, who have had their ideas broadened on the subjects of plant growth, and who have been trained to think and act intelligently, won't they be a help to horticultural interests?

Won't a man who has been trained to study his environments and how to improve them, how to select stock that is best suited to his environments be a factor in the upbuilding of horticulture?

It is not only what knowledge we have gained, but it is the coming in contact with the different professors, men who have done much in the advancement of all lines of agriculture, and thus raising our ideals, that makes the course of such importance. For after all, the height of a man's ideals measures his life's work, and so those who make agriculture their life work will be far more useful to the interests of horticulture than they would otherwise have been had it not been for the Experiment station.

## WHAT THE PLUM CURCULIO DOES.

M. V. SLINGERLAND IN RURAL NEW YORKER.

I wish to make the following comments on the article: The curculio begins laying its eggs very soon after the calyx of the blossom goes off from the set fruit, but the curculio does not make the crescent-shaped cut and then lay its eggs in this cut. Before laying its eggs, the curculio eats a little hole through the skin and then eats out a little pocket in the flesh of the fruit just underneath the skin. The beetle then turns around and pushes her egg through the little hole into this pocket. She then turns around again and cuts the crescent-shaped slit through the skin just in front of the egg-hole, and extends the cut by eating the flesh until it undermines the little pocket in which the egg is laid. Thus the egg laying is completed before the crescent cut is made, and the whole operation takes two or three minutes.

The correspondent is also mistaken in thinking that he kills the curculio by spraying Bordeaux and Paris green into the crescent shaped slit. He may be able to control the insect with this spray, but he does not do it in the way which he suggests. This same notion was discussed at the meeting of the Western New York Horticultural Society a few years ago, and that spring I happened to be in a plum orchard just at the time when the curculio grubs were hatching and beginning to eat. One can readily determine when they hatch, for very soon afterward a little drop of gum oozes out from the point where they are working. Anyone can very quickly determine, by carefully cutting into the plum, that the little grub never goes into the crescent slit, cut by the mother curculio for the purpose of undermining the egg pocket so that the growth of the fruit at this point will not crush her very tender egg. A week or more elapses from the laying of the egg to its hatching. During this week the crescent cut partially heals or fills up, and it will be found that the little grub does not have to go through or into this slit to get into the more fleshy part of the fruit. Therefore there is no possible chance to poison the little grubs by putting a poison spray into these crescent shaped slits. The satisfactory results which have been attained from using poison against this pest are due to the fact that the beetles feed upon the foliage to some extent, and they are thus killed with the poison, but not the little grubs in the fruit.

## EDITOR'S NOTES.

The greatest strain upon a tree is when it is maturing its fruit. The best way to thin the fruit, will be after it has arrived at that stage, that you will know which is about to be the best developed, and then take off the poor ones. Let no two apples touch if possible. With the Northwestern Greening, they invariably decay where they touch one another, either from this cause, or from insect depredations.

H. E. Van Deman says: "Evaporation is the real cause of winter killing. We know that sometimes we have our trees and our berry patches killed out at the snow line. All below the snow-line may be safe, even the tips of the branches under the snow, the fruit buds may be all alive. A large part of the winter killing is done long before winter ever comes. Anything that we can do to prevent evaporation is just the thing to do. If we can get fixed in our mind the one fact, that we are tilling our orchards and berry patches for the purpose of keeping the top surface as dry as possible, so as to have the under soil as moist as possible we will be abundantly paid."

There are only three Russian cherries that give promise of any value in Wisconsin. The Osthiem, Kings and the late Morell. Quite a number were tried at the Experiment Station by Prof. Goff and almost all failed. Some of them winter killed and others were entirely worthless. Some of the trees grew finely and the fruit was pretty good in quality. The above three were the only ones worth keeping.

The Brittlewood plum is the largest in size of any native plum grown at the Experimental station at Madison. In quality it ranks first of the Americanas and is very productive.

The Springer plum is one of the best Americana plums. It bears almost every year. It was named after the late Mr. Springer by Prof. Goff to whom the trees were sent in 1890. It was found growing wild in the vicinity of Mr. Springer's home.

The peach leaf-curl and the plum pochet are botanically closely allied. As the peach leaf-curl is controlled almost perfectly by the

Bordeaux mixture, the same treatment can be given for plum pochet. Spray once early and once late.

A very weak kerosene emulsion will kill the Aphis plant louse. A strong tobacco water is also recommended. Take ordinary cheap tobacco, boil that up until it has a good rich color and spray your trees or plants.

Experiments tried with the strawberries at the Iowa State Experiment station, located at Ames, shows that Lovette ranks first in yield and quality over 84 other varieties. In yield the following in the order named: Kansas, Beder Wood, Afton, Warfield, Longfellow and Seaford. The five most productive staminate were Lovette, Beder Wood, Saunders, Amouts Parker Earle and Capt. Jack. The five most productive pistillates were Kansas, Afton, Warfield, Longfellow and Duff.

The above varieties were all grown on a typical black prairie loam, of uniform character and nearly level. Matted rows were formed two feet wide and all other plants were destroyed. Winter protection was given and removed in between the rows in the spring.

Many prominent nurserymen and fruit growers attended the twenty-seventh annual convention of the American Nursery Association held at Milwaukee.

Those from outside the state who attended were J. H. Hale, the peach king; F. W. Taylor, at present acting chief of Horticultural department at Louisiana Purchase Exposition; Prof. L. H. Baily, of Ithaca, N. Y., and many leading nurserymen from all sections of the United States.

Strong resolutions were adopted endorsing the bill now before congress which provides for the inspection of all nursery stock transported from one state to another. and that received from foreign countries.

The election of officers resulted in the selection of Charles J. Ilgentritz, Monroe, Michigan, for president; E. S. Lake, Shenandoah, Iowa, vice-president; George C. Seager, Rochester, N. Y., secretary, and C. L. Yates, of the same place, treasurer.

A committee on exhibits was elected for the next annual meeting to be held at Detroit, Michigan, consisting of F. C. Edwards, Wisconsin; E. S. Welch, Iowa, and Howard Davis, of Maryland.

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**IN MEMORIAM.**

PROF. E. S. GOFF, MADISON.

DIED JUNE 6, 1902, AGED 49 YEARS.

Emmett Stull Goff, professor of horticulture in the University of Wisconsin, died early Friday morning, June 6th. Professor Goff was born in 1852 on a farm near Elmira, N. Y. His early training, like that of many others who have achieved success, was had in the common schools and at the plow-handles. In 1869 he was graduated from the Elmira Academy; appointed horticulturist at the Agricultural Experiment Station, Geneva, N. Y., in 1882; appointed professor of horticulture in the University of Wisconsin and horticulturist of the Wisconsin Experiment Station in 1889, which position he held until the time of his death with increasing credit to himself and the institution.

The equipment of the department of horticulture at the time of his appointment was very meagre, consisting of a very limited plantation of small fruits and office room in Agricultural Hall. Less than a dozen students sought horticultural work at this time. During the past school year over three hundred students received instruction from Professor Goff in a splendid building devoted to horticulture, with the added advantages of field work and observation in several acres of nursery and fruit plantations, containing thousands of specimens and hundreds of varieties. This growth of the horticultural department, although following to some extent the growth of the Agricultural College in general, is due in no small measure to the persistent untiring efforts of Professor Goff.

His "Principles of Plant Culture," and "Lessons in Pomology," each representing months of hard labor were the outgrowth of his experience in the class room. The professors who have built up the splendid course of instruction in the short course were pioneers in the work and were compelled to furnish texts for class work as well as to demonstrate principles. The execution of these two works by Professor Goff was accomplished almost wholly in hours and days

that should have been devoted to rest and recreation, leaving him without a reserve force to fall back upon at the end.

Professor Goff's work in the field of investigation entitled him to rank with the leading scientists of the present time. His first important work was a study of the apple scab fungus. In connection with Professor Gallaway he conducted the first successful series of experiments with fungicides for the controll of this disease. He was a pioneer in spraying.

The fact is not generally known that Professor Goff invented the kerosene attachment to spray pumps. This device so commonly known as the "Weed & Gallaway" attachment was first applied to the old Nixon tripod pump, and the original model is now in the Horticultural Building.


His experimental work, as recorded in the reports and bulletins of the Experiment Station, is remarkably full and valuable. His recent investigations in regard to the formation of flower buds has attracted worldwide attention. While ranking as a horticulturist much of his work in recent years was regarded with attention and respect by leading botanists. Earnestness and persistent application to duty in spite of ill-health and other obstacles mark his work.

His home life, his church work and his social relations were well defined by these words of his pastor: \* \* \* "A kindly, christian gentleman." Volumes could tell us no more. He was a member of the Congregational church and an earnest worker in many causes that aimed at the uplifting of his fellow-men. No such cause in the city, no matter how humble, but recieved material aid from him.

Kind and considerate at all times, his scholarly attainments, his spotless life, his unswerving honesty of character and purpose, his constant and untiring application to his duty, won for him the admiration and sincere affection of his friends and associates, and their inheritance is an inspiration to better lives and nobler deeds.

He leaves one child, a son thirteen years old, his wife having died a year ago.

FREDERIC CRANFIELD, Madison.



EUREKA, WIS., JUNE 21, 1902.

*Rooms of Rushford Horticultural and Improvement Society.*

To the members of the Wisconsin Horticultural Society in summer meeting at Waupaca:

The following resolutions were this day tendered to our society by Dr. T. E. Loope, unanimously adopted, and respectfully submitted to the State Society as a small token of our appreciation of the merits and character of an ardent co-worker in the lines of horticulture and its many co-ordinate forms.

WHEREAS, Inexorable death, who loves a shining mark, has removed our Professor Goff, and

WHEREAS, We recognize in him a most estimable man and a profound horticulturist, therefore

RESOLVED, That the Wisconsin State Horticultural Society has lost a scientific worker, a friend in all good works; a scholar, whose fame was not bounded by the limits of state or nation, and our state; a scientist, whose place cannot be filled, and a modest, unassuming man whom to know was to love.

RESOLVED, We deplore the fate that called him away in the zenith of his life work, and tender our sympathy to the State Horticultural Society and all who have known him.

RESOLVED, That these resolutions be forwarded to the summer meeting of the State Society at Waupaca.

Attest: W. H. BECKER, Pres.  
H. H. G. BRADT, Sec.

WAUPACA, WIS., JUNE 27, 1902.

*Resolutions adopted at Summer Meeting of the State Society.*

The committee on resolutions appointed by your president having met on this date, offer the following resolutions, to be adopted by the society and printed in our annual report.

RESOLVED, Whereas death has taken from us our friend and co-worker, Professor E. S. Goff, we hereby endeavor to express our sorrow for our loss, and our love and esteem for one who was ever directed by christian kindness in his intercourse with his fellow-men. Our Wisconsin State Horticultural Society will ever miss his wise councils and friendly presence, and the cause of horticultural science has suffered a loss which cannot be recovered. As a friend and brother we will ever hold him in loving remembrance.

RESOLVED, That our society hereby express to the members of the Waupaca Horticultural Society and their friends, their sincere thanks for their hearty welcome and kind entertainment.

RESOLVED, That it is the pleasure of this society to tender to Mr. and Mrs. Barnes, our thanks for all they have done in entertaining this society during this summer meeting of 1902.

RESOLVED, That it is the sense of this society that our thanks be tendered to Mr. and Mrs. Churchill for their cordial invitation and for the opening to our inspection their handsome grounds.

RESOLVED, That our thanks be tendered to the ladies and gentlemen who appeared on our program, Wednesday evening, and gave us such choice music for our entertainment.

Com't. S. H. MARSHALL.

WM. TOOLE.

L. T. LAITEN.

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OMRO, WIS., JUNE 13, 1902.

*Resolutions adopted by the Omro Horticultural Society.*

The members of the Omro Horticultural Society learn with sorrow of the death of our esteemed friend and co-worker, Professor E. S. Goff, therefore be it

RESOLVED, That in the death of Professor Goff the state of Wisconsin and the State Horticultural Society lose one of its most valuable and efficient members. Therefore, be it further

RESOLVED, That the Omro Horticultural Society unite with the Wisconsin State Horticultural Society in sending to the relatives and friends of the deceased a message of our condolence and respect.

FURTHER, That a copy of these resolutions be spread upon the records of our society.

E. J. LEWIS.

W. P. BUSSEY.

R. T. DARROW.

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**DAHLIAS.**

Most any soil that has been well enriched is suitable for growing the dahlia. They need plenty of air as well as sunlight and should not be planted close together. About three feet apart is the proper distance. A medium sized tuber with a single sprout usually give the best results. Plant about six inches deep and draw dirt about the tuber as it grows. The soil should be kept free from weeds and well stirred until time of blossoming. They should then be mulched with hay, straw, or any course litter. Don't plant too early as blossoms are much better in size and color, later in the season. Planted early in June is the proper time to plant. After frost, take out the tubes immediately, and after drying for about a day, place in a box, or barrel, of dry earth, and keep from frost, heat and dampness.

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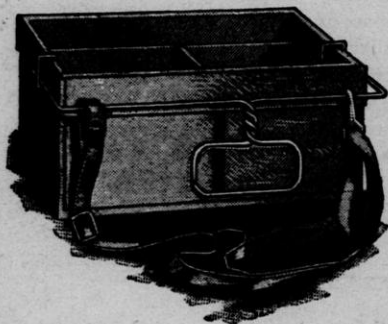
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