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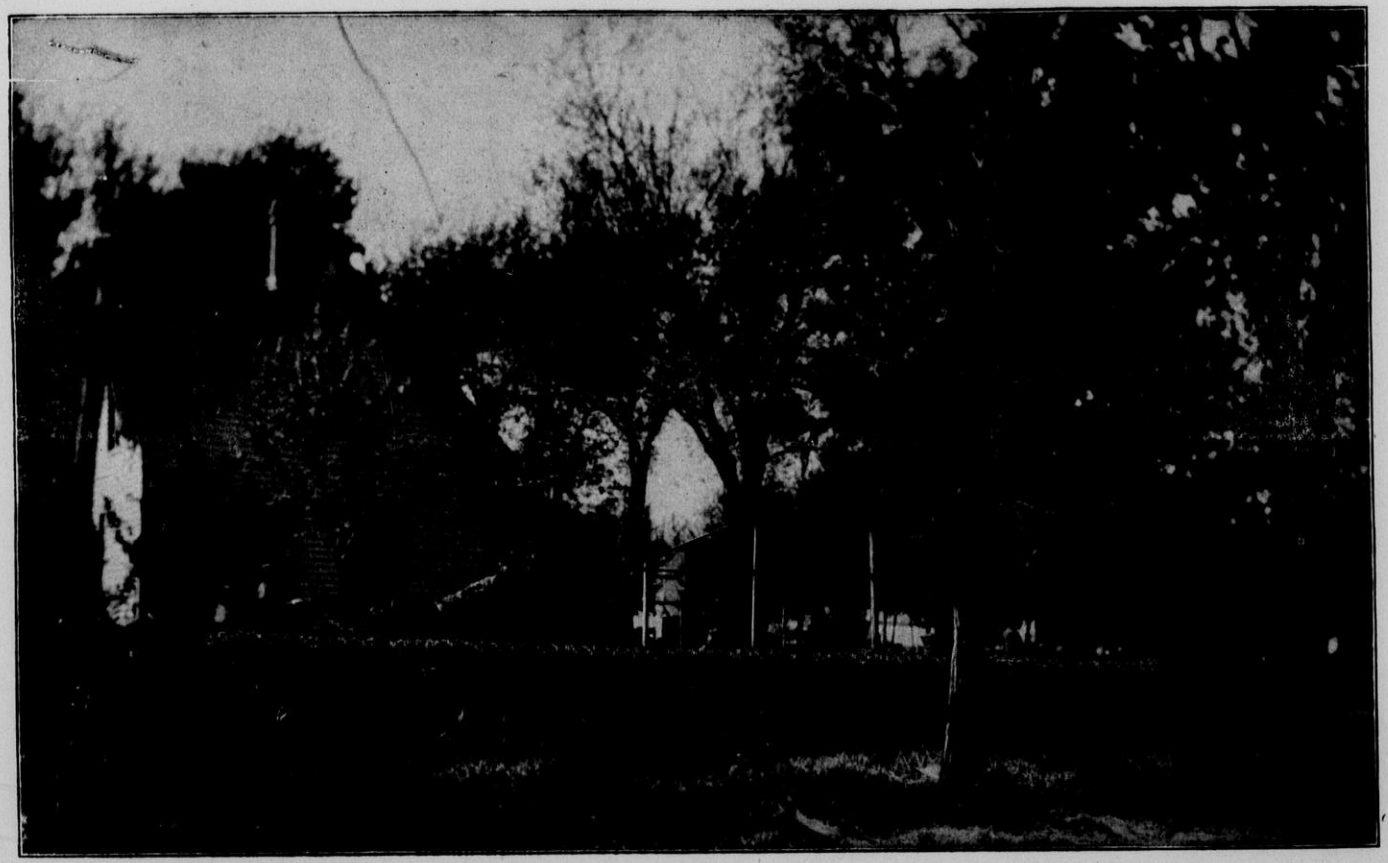

RESIDENCE OF W. W. PENDERGAST, PRES. MINN. STATE HORT. SOCIETY, HUTCHINSON, MINN.
Buckthorn hedge in the foreground.

The Wisconsin Horticulturist.

VOL. V. FEBRUARY. NO. 12

OFFICERS OF THE STATE HORTICULTURAL SOCIETY FOR 1901.

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OUR NATIVE WILD FRUITS.

J. A. Gaynor.

[For the Wisconsin Horticulturist.]

The chief aim of our cranberry association is to develop and improve the native wild cranberry.

I would like very much to see some organization take up the native plum and develop it. This should be done through an organization, because the life of one man is too limited in capacity and time to accomplish much, and it is a work that if worth beginning at all should be continued as long as the fruit is cultivated.

The same could be said of our native blueberry, in fact of the whole genus VACCINIUM.

I believe our native wild strawberry could be made the

foundation of a better strawberry than any now in existence.

We have gathered in and planted at our cranberry experimental station cranberries from all parts of the north cold zone. We at first looked for great gains and superiority in the "foreigners," but we have come to believe that the native Wisconsin cranberry will in the end surpass all others.

Grand Rapids, Wis.

FERN CULTURE.

It is better to begin with young plants, says Vick's Monthly. Be careful not to overpot them. Wash the inside of the pots clean and give especially good drainage. Use open, rich, fibrous soil, light rather than heavy, and instead of filling the pot with soil to the brim leave plenty of room to hold water. Ferns should never get quite dry at the root, yet it will not do to keep them soaking wet. Many of them, especially the maidenhair and gold and silver ferns, dislike being splashed overhead, and hot sunshine must never fall directly upon these delicate kinds. Ferns are sure to be killed by little dribblings of water given every day. The same rule that applies to watering other plants is good with ferns. When the top of the soil looks dry, fill the pot with water to the brim, so that all the ball of soil may have a thorough soaking. It is not best to set ferns in a draft of either warm or cold air.

There is no need to keep ferns in the house all summer, though many people do it. They thrive better outside on the piazza or other sheltered spot, provided the owner will not forget to water them.

An old fern that has filled the pot full of roots may be repotted at any time except in fall. Repotting at this season would interfere with the partial rest which most ferns like to take at this season. With plentiful watering one

can grow quite large specimen ferns in wonderfully small pots. Two points that the fern grower must never forget in potting and repotting are to have the drainage particularly free and to take all earthworms from the soil.

NATIVE PLUMS AT THE EXPERIMENT STATION.

Frederic Cranefield.

The plum orchard at the Experiment Station now contains about 1400 native plum trees. In addition to these we have nearly 1000 trees from one to three years old in the nursery, many of which will be planted in permanent orchard rows next spring. Of the total number about 250 are named varieties and the remainder seedlings; of the named varieties 200 bore last year.

The best of the varieties, that bore for the first time last year, are Brittlewood, Bomberger, Etta, Freeman, Poole's Pride and De Soto and Japan Cross, Number Four.

BRITTLEWOOD—A very large plum of excellent quality of the Americana species; skin only moderately thick; flesh tender and juicy; stone small and nearly free. From Theo. Williams, Nebraska.

BOMBERGER—Large, oblong, slightly tinged with purple on yellow ground; skin thin, tender and not at all harsh; flesh tender, sweet and rich; above the average in size and quality.

ETTA—Large, nearly round, yellow, striped and splashed with pale red; flesh sweet and rich. A single small graft of one year's growth is the only specimen in the orchard and it is hardly fair to form conclusions from this, but the fruit borne was very fine, attractive in appearance and high in quality.

FREEMAN—Very bright shining red; no bloom; skin thin and tender; flesh crisp, juicy, with a delightful aromatic flavor entirely unlike any other plum tested. This may not

prove a valuable market sort but is very striking in appearance and has a very remarkable flavor.

POOLE'S PRIDE—A very good plum of the HORTULANA type; better than Wild Goose or Pottawatamie; medium to large; skin thin and tender; flesh firm, sweet and rich.

The last one of the list we are obliged to record as De Soto and Japan Cross, No. 4 as it was received from Prof. Budd with no other title. This is a cross between De Soto and an unknown Japan variety. Large to very large, oblong, slightly pointed; resembles Abundance in shape and markings; skin thick but tender; flesh orange-colored, crisp, tender, juicy and rich, with a decided "Japan" flavor; freestone. Tree a poor grower, weak and drooping.

Many other varieties, fruiting for the first time, were also good, but these are the ones that attracted most attention.

Among the older varieties, those that have borne two years or more, we note the following as especially good plums; they are named in alphabetical order:

Aitkin, De Soto, Hammer, Piper, Quaker, Springer, Surprise and Wyant.

The AITKIN is only medium in quality and a poor keeper, but is valuable as an early variety.

HAMMER is very productive and appears to be an annual bearer.

SPRINGER is one of the best mid-season plums in our collection.

SURPRISE is worthy of all the praise that it has received in regard to quality. Our single tree bore a good crop in 1899 and none the past season.

WYANT must still be placed at the head of the list as the best native plum in our collection, hardiness, productiveness and quality all considered.

Other prominent varieties are American Eagle and Hawkeye, both very large, but poor in quality and decid-

edly unattractive when fully ripe, assuming a dull purplish color.

CHENEY has proved irregular in bearing. Unless well thinned, it gives a full crop only about every third year and then overbears.

BARNSBACK is above the average in quality and a perfect freestone.

NORTH STAR closely resembles Surprise in all respects, in fact about the only point of difference is in the shape of the pit.

The varieties that might well be dropped as too small and inferior to be of much value are: City, Deep Creek, Honey, Homestead, Old Gold, Peach and Speer.

The fruiting season of the native plums extends over a period of three months. The Aitkin, Cheney and Le Duc were the earliest, followed by the majority of the varieties mentioned as well as many others classed as mid-season plums. The Wyant follows these and lasts until the late varieties of the Miner type come in, such as California, Champion, Decker's Seedling, Rose A., etc.

Probably the most valuable lesson taught by the variety test is this fact, viz., that every collection should contain a number of late varieties of this type.

Long after the Americanas and Chickasaws were gone, the orchard was still reddened by the scattering trees of the varieties named. Later still than these to fruit were several trees of unknown origin, probably Miner seedlings, which bore large quantities of small, bright red, shining fruits in the greatest abundance, that remained on the trees until heavy frost and after being picked they remained in good condition for several weeks. While the behavior of the named varieties has been a matter of great interest, the study of the seedlings has been intensely interesting and profitable work. Plums have been found in the seedling

orchard excelling in many points any named variety in our collection. The most surprising fact in connection with the seedlings is the fact that the majority are good plums, many being as good as the parents and a very considerable number are better in some respects than the parent varieties. In this connection the seed-bearing parent is meant, as all are undoubtedly crosses, the lack of self-fertility in the native plums having been quite fully demonstrated.

Many of the seedlings showed strong evidence of a Japan cross, in fact the best seedlings were Americana varieties with Abundance or Burbank markings. It would be unwise however to lay great stress on this, as further developments may necessitate a revision of opinion.

The orchards are mainly located on land that had been infested, for an indefinite period, with quack grass. The extermination of this has proved one of the most difficult problems that we have been called on to solve. Partly on account of this pest and partly for experiments in other directions the main part of the orchard has been repeatedly and heavily mulched with marsh hay. There is no doubt as to the value of this method of culture, the mulched trees having made a remarkable growth of wood, as well as producing enormous crops of plums of excellent quality, while the trees not mulched made but little growth and the plums borne were small and lacking in juiciness. The high degree of culture induced by this method possibly accounts in a measure for the excellent showing of the seedling orchard. It is probable that the experiment of mulching will be extended to include the entire plantation. The main objection to this plan is the danger from fire in dry weather. Four rows, 72 trees, of the new commercial orchard were destroyed by fire last summer and it was only by heroic efforts that the remainder were saved.

One of the faults of the native plums is the tendency of most varieties to overbear. In order to have fruit of

good size and quality it is usually necessary to thin the fruit. During the second week in July the fruit was thinned on all trees that appeared to be overbearing. At this time the plums were more than one-half grown and the work could probably have been done earlier with great profit. It is better, however, to thin late than not to thin at all. Of two trees of Hammer that were overlooked at the first thinning and were breaking down with fruit, one was thinned Sept. 1st, after the fruit had begun to color; on Sept. 15th a marked difference could be noted in the size of the plums in favor of the thinned fruits. The plums that were pulled off ripened on the ground and were salable as "seconds."

The earlier plums were marketed in berry boxes and the later in baskets holding one-sixth of a bushel. The berry boxes will probably be discarded in future in favor of the baskets. Only very choice plums suitable for dessert use can be sold in the boxes for large enough a price to be profitable. The bulk of the crop was sold at $1.50 per bushel, wholesale prices, or 25c. per basket. These sold at retail for 35c. and 40c. per basket. The price might probably have been $2.00 per bushel, as the demand far exceeded the supply at all times. Early plums have not been in as great demand as the mid-season and late plums.

Experiment Station, Madison, Wis.

[In the absence of Mr. Cranefield the preceding paper was read by Prof. Goff at the Annual Meeting of the Wisconsin State Horticultural Society in January.]

According to Chemist Wiley of the department of agriculture, the annual production of starch from white potatoes in the United States is about 31,000,000 pounds of which fully 12,000,000 pounds come from Aroostook county, Maine.

PRIZE ESSAY.

PLANTING AND CARE OF STRAWBERRIES.

By L. A. Carpenter of Fond du Lac.

[This paper was awarded the first prize, five dollars, given by the State Horticultural Society for the best essay on the culture of the strawberry.]

PREPARING THE SOIL.—The two essentials for success in growing strawberries are a rich well drained soil, which has been planted to some hoed crop for two years to destroy the white grub, and good cultivation. If coarse manure is to be used it should be applied the year previous, that it may decay and become thoroughly incorporated with the soil. Well rotted manure can be applied at any time. Plow the land in the fall and the action of the frost during winter will break up the particles so that it will work up fine and mellow in the spring. The plants should be set as early in the spring as possible that they may get a good start before the weather becomes hot and dry. Just as soon as the soil is fit to work go in with a disc harrow and cut it both ways to a depth of four or five inches and finish with the Acme pulverizer followed by the float, which will leave the surface smooth and fine.

PLANTS.—Plants should be taken from beds set the previous year, and which have never borne a crop of fruit. Experience shows that plants taken from beds which have been exhausted by fruiting are far inferior; both in vigor and productiveness. After digging, the plants should be trimmed, all dead leaves and runners being removed, and all inferior and poorly rooted plants thrown out. Do not expose the roots to the wind or sun or allow them to become dry. If not wanted for immediate planting pack the roots in moist sand or soil and keep in a cool dark place. In this way they can be kept for several days and new white rootlets will start, and the plants will be in better condition to

grow than if planted when first dug. If plants have been shipped they should be unpacked as soon as received, the bunches opened, roots moistened and packed as above until they can be planted.

SETTING THE LINE.—Set the stake with one end of the line attached, at one end of the first row. Pass the line across the field and around a stake set at the other end of the row, and set the stake, attached to the string, at the end of the second row. Now begin at this end and plant to the end where we first started. The line can then be easily pulled over the stake at the other end and will be set ready for the next row. By repeating this at each end the line can easily be moved over without any extra travel.

SETTING THE PLANTS.—Make the rows four feet apart and set the plants from eighteen inches to two feet apart in the row. In setting, we use the spade, two working together. The one handling the spade goes backwards, sets the spade into the ground facing him and presses it down with his foot. He then draws it towards him, at the same time raising it a little, leaving a square shoulder on the other side of the hole. The second man takes the plant, spreading the roots out fan shaped, and places it in the hole against the shoulder, being careful to have the crown of the plant just even with the surface of the soil. The first man then withdraws the spade and at the same time presses the soil back into place with his foot and firmly around the roots of the plant. The difficulty in setting by a mark is that the surface is not level and the plant is apt to be set too deep. A handy tray for carrying the plants while setting is made by putting a bail onto a tin pan, in which water should be kept to keep the roots moist. If the ground is in good condition at the time of setting the plants will not require watering, but if watering is necessary they should be hoed soon after and some dry dirt drawn up around the plant, to act as a mulch in checking evaporation and to prevent the

soil from baking around the plant. Many times, watering without hoeing is worse than not watering at all.

CULTIVATION.—Cultivation should begin as soon after the plants are set as possible. In setting we necessarily tramp the ground, which packs it down and causes rapid evaporation. By loosening the surface soil we break up the capillary action and form a mulch which retains the moisture. If this is done the same day the plants are set, a large amount of moisture can be saved and just at the time when the plant most needs it to repair the damage done to its members by transplanting. A fine tooth cultivator is best, as it does not throw the dirt onto the plants and leaves the surface fine and level. They should be cultivated about once a week and a crust should never be allowed to form. Soon after the plants are set blossom stems and runners will be thrown out; in hoeing, these should be cut off and the soil loosened around the plants. Cutting out the weeds is only a small part of hoeing, for it is just as important to have the soil loose and fine around the plants as it is to have them free from weeds. Keep the runners cut until about July 1st, when the plant will be strong and well rooted and will throw out a number of good strong runners which will make a better and more even row than if the first ones had been allowed to root. After the runners begin to root the cultivator should always go the same way in the row, so as to draw the runners up into the row. As the row widens the cultivator should be narrowed until the rows are about two feet wide. Continue cultivation until it freezes up in the fall. If no weeds are allowed to go to seed there will be little trouble with them the following season as nearly all of the seed near the surface of the ground will germinate the first season.

WINTER PROTECTION.—As soon as cold weather sets in the bed should be covered to protect the plants from the changes of temperature. It is not the cold weather which

kills the plants,—for I doubt if there was ever a strawberry plant frozen to death,—but it is the continued freezing and thawing which breaks up the tissues and, if the soil is at all wet and soggy, heaves them up and breaks the roots. As a general thing the covering should be put on as soon as the ground is frozen solid enough to bear a team and wagon. Plants will sometimes go through the winter without protection and come out with apparently very little damage, but early covering is the only sure way. Plants that were covered just before it froze up have come out in the spring with their foliage as fresh and green as it was in the fall. Cover just enough to hide the foliage. Where it can be had there is nothing better for covering than coarse marsh grass, as it lies up light over the vines, admitting free circulation of air, and contains no weed seeds which will thrive on high ground. If manure is used the fine rotten portion should be worked down between the plants, and the foliage covered with the coarse strawy portion. If the wet, ammonia-soaked chunks are allowed to lie upon the plants they are apt to be smothered and rot in the crown. Leave the covering on in the spring until the plants begin to start, then remove just enough from over the row to let them come up through, leaving the greater portion on the ground to act as a mulch and keep the berries clean. When the plants begin to turn white no time should be lost in removing the covering. If it is left and the leaves become drawn and white the plants will be exhausted. Such plants seldom bear fruit and are worthless.

CARE OF THE BED AFTER FRUITING.—The largest and finest fruit is produced the first season, but it usually pays to pick a bed two, and sometimes three, years. Just as soon as the last berry is picked the bed should be mowed. Let it lie and dry a few days and, if such as will burn readily, go through and shake it up a little over the row, so that the fire will run over quickly, and when there is a good

breeze set it on fire and burn it over slick and clean. This will destroy any insects or fungus disease there may be upon the plants. The plants at this season are exhausted from fruiting and are partially dormant and the fire will do them no harm; but it should not be delayed long after picking is finished. If the bed is not burned over, the rubbish should be raked up and drawn off. When the bed is cleared go in with a plow and turn two furrows between each row, which will throw some of the soil up over the plants and narrow the rows up to about one foot wide. Then take the harrow and harrow it thoroughly both ways, until the soil is smooth and fine. This will take out some plants but there will be plenty left. New leaves will soon start and in a short time runners will be thrown out and, with good culture, will make a good row by fall.

SHALL THE FARMER GROW CHERRIES?

L. G. Kellogg of Ripon, Wis.

[Paper read at the Winter Meeting in Oshkosh.]

Since the program of our meeting was published I have concluded the subject I have chosen is scarcely broad enough so I shall endeavor to present with a limited experience some thoughts upon the CHERRY AS A COMMERCIAL FRUIT.

The question of cherry growing has been somewhat neglected or overlooked by this Society, yet I doubt if there is a fruit among the whole list that is more appreciated by the good housewife and family, for canning and preserving purposes, than is the cherry.

There are certain varieties that are practically hardy and congenial in nearly all the well drained prairie and clay soils of the state. It is my experience that when the cherry tree is given intelligent care and management cherries can be successfully grown, and when the trees arrive at a bearing age they will be far more profitable than the ordinary crops we usually grow upon our farms.

The demand for fine cherries is growing rapidly, which is indicated by the prices obtained in the open and local markets the past two seasons. When strawberries were selling in the Minneapolis markets for $1.00 to $1.25 per 16-quart case, cherries were in good demand at $1.50 to $1.75, and sold readily in the local market at $1.25. We will admit that you can secure a crop of strawberries the second season from planting, providing, however, the drouth, the winter and spring frosts do not upset your nice laid plans. It will take at least five years from the planting of cherry trees before we can reasonably expect a paying crop of cherries. However, they often begin bearing in a small way in two or three years. Until the trees come into bearing the land between can be utilized in the growing of other cultivated crops, the margin of profit upon which should pay the entire expense of care and pruning, and the cultivation be a benefit to the growing trees.

For a period covering the years from 1880 to 1890 the small fruit industry was very profitable (especially to the commission merchant) and was placed in the foreground by the institute workers almost to the exclusion of the Cherry, Plum and Apple. With the easy and rapid methods of propagation of small fruit plants, there was an immense planting throughout the state and the close competition in the markets brought the price of berries below the actual cost of production and marketing. This no doubt was a blessing in disguise, for the reason that many of the wage earners and their families in the larger cities were enabled to enjoy fruit upon their tables, at least a small portion of the year. I have no desire whatever to discourage the planting of small fruits, but think there is a broader field for education among the larger fruits. We have graduated, as it were, in the preparatory course, or the production of small fruits, and we are now ready to enter upon the study

of the more intricate problems of the production of the Cherry, Plum and Apple.

Let us consider for a moment the different methods of the propagation of the cherry. There are three methods by which the cherry may be propagated. First, by suckers or sprouts. These sprouts are permitted to grow two or three years, are then dug and transplanted as individual trees. These are the trees which furnished the cherries for the early settlers of Wisconsin, or until the advent of the Early Richmond and other varieties grafted or budded upon the Mahaleb or non-sprouting root. Thirty years ago these old Morello trees produced some fine crops of cherries. From the continued transplanting from these cherry thickets and the tendency to degenerate, I have observed that the majority of these trees now produce only a few worthless, wormy cherries. I would discourage the planting of trees propagated in these cherry thickets and consider them entirely worthless as compared with the newer varieties propagated upon the non-sprouting roots.

The second method by which the cherry may be propagated is by grafting, a method which is employed very seldom by nurserymen.

The third method, or the one by which a very large percentage of our commercial cherry trees are propagated, is by budding upon the non-sprouting Mazzard or Mahaleb seedling stocks. These seedling stocks are grown from pits one year in France and imported into the United States. The nurserymen will transplant or line out the seedlings, grow them until the month of July or August, insert a bud of the variety he desires to propagate, and cultivate, prune, and care for them two years longer before they become merchantable trees. Thus it requires four long years to produce a merchantable cherry tree from the pit. These trees are designated in the catalogues and known in the market as 2-year No. 1, 2-year No. 2, etc., for the reason that they are usu-

ally grown two years after the bud is inserted. These are the trees I would recommend for general planting upon all of the well drained prairie and clay soils of our state.

It is unnecessary to go into the details of planting as the same general rules will apply to the cherry as to the apple or plum. However, there is one point I will allude to and that is "PLANT DEEP." The holes to receive the tree should be not less than twenty inches deep. I believe thousands of trees die annually on account of too shallow and careless planting. When planting a cherry tree cut the top back at least one-half, to mere stubs or spurs. This will nearly or quite insure the life of the tree and cause a good growth the first season.

If given good cultivation the cherry tree upon the Mahaleb root is a vigorous and rampant grower and should receive a severe pruning or thinning of the top for four or five years after planting, or until the tree comes into full bearing, after which it will need but very little pruning. Prune with the one idea, "a well balanced, open, symmetrical top."

For a succession of cherries for four or five weeks I would recommend the planting of Early Richmond, Montmorency and Ostheim. There are many other varieties, some of them good and many of them worthless. I would call your attention to the Russian varieties of the cherry which were introduced from Russia by Prof. Budd a number of years ago. While the Russian varieties may have proved productive and successful in Iowa, they have, with the exception of two or three varieties, proved a failure in Wisconsin, on account of the flower buds being too tender to withstand our severe winters.

There are miles of roadside that could be utilized by the farmers of Wisconsin in the planting of cherry trees which would not only furnish an abundance of delicious

cherries for the family but become a source of revenue and add value to the farm. Frequently the village or city lot could be made more attractive by the planting of a hedge-row or individual cherry trees for the purpose of hiding or screening some unsightly building. In fact what is more beautiful, as well as useful, in its season in furnishing healthful fruit for the sustenance of the human family, than a cherry tree loaded with large, red, ripe cherries. Plant cherries!

CULTURE AND CARE OF SMALL FRUITS.

By C. Phillipson, Oshkosh, Wis.

[Paper read at the Winter Meeting.]

THE STRAWBERRY.

Of all our small fruits the strawberry is the queen and is especially a native of a cold climate. It adapts itself to a larger range of soils than any other, but it requires a soil rich in phosphates.

Prepare your strawberry ground by turning under a heavy coat of manure in the fall; further prepare and plant the next spring. For field culture plant rows running north and south if possible, about four feet apart and from one and one half to two feet apart in the row, according to the habit of the plant. If you plant of the pistillate varieties, at least every third row should be of a staminate variety that will be in blossom at the same time as the pistillate.

The time of planting depends upon circumstances; it may be done with safety from the time the plants begin to grow in the spring until they are in blossom, but usually the earliest planting gives the best result. It is well, however, to plant at a time when the plants will at once commence growing. Use only good strong plants from a bed that has not yet fruited, being careful that the roots don't

get dry at any time while out of the ground. The conditions of success in transplanting are that the plants be kept from drying while out of the ground, that the roots be put in close contact with the soil, that the crown be kept level with the surface and that shade and moisture be supplied until the plant has recovered from the effect of removal.

Almost as soon as the plants are transplanted cultivation should commence. The object is not so much to kill weeds as to keep a loose surface, so that the water coming up from the subsoil by capillary attraction, may be prevented from reaching the surface and escaping, when the plants commence growing. Keep the blossoms and runners off until the plants have become strong, after that let them form a matted row, two feet wide.

As plants grow until freezing weather sets in, mulching must be delayed until the ground is frozen. Any kind of straw may be used; that most free from weed and grass seeds is best. The object of mulching in autumn is to prevent rapid thawing. When once frozen the frost should come out very gradually.

THE RASPBERRY AND BLACKBERRY.

The raspberry seems to do well on any soil suitable for corn, but to reach perfection it must be planted on rather heavy soil. Prepare the land by plowing down a good coat of well rotted stable manure in the fall, and, if the land works properly, the blackberry and red varieties of raspberry may be planted in the fall, care being taken to firm the soil well around the roots and to place a forkful of mulching on top of each plant, to prevent the frost from heaving them out of the ground.

The black raspberries had better be planted in the spring. As raspberries start growth very early in the spring it is best to plant as soon as the ground can be put in proper condition. Plant in straight rows, six feet apart for the red varieties, and seven feet for the black caps and black-

berries; three and one half feet is the proper distance in the row.

When the canes of the blackberry and black caps have reached a height of two feet, pinch off the tip so that laterals will start out along the stem and form a bushy top. Do not prune the red raspberry in summer, but let the whole energy of growth go to a single straight cane in order to get good ripened wood, ready to resist the change of temperature.

Cut them back in the fall to from three to five feet, leaving only the hardest wood to meet the frost. The cutting out of the old bearing canes, immediately after fruiting, is often neglected, to the detriment of next year's crop. There are several reasons why this work should be done as soon as the canes are through bearing; all injurious insects, which may be secreted in the canes, are destroyed; it lessens the liability of attack by fungous diseases; it gives the new canes a better opportunity to grow; more thorough cultivation may be given and the cutting is more easily accomplished. The raspberry and blackberry plant has a sort of dual nature; it dies every year and yet renews so it bears fruit regularly in season. The new cane seems to have an individuality, its foliage does not seem to aid the bearing cane in perfecting its fruits or perform any aid in growing anything but itself, and for this reason it is not affected if the old wood is cut out as soon as its bearing season is over. Some support must be provided for the bearing canes, to keep them off the ground.

THE CURRANT.

The currant is essentially a northern fruit and of all the most easy of production. It is perfectly at home in all this region; its culture is so simple and it adapts itself to so many different soils and situation that none need be without it. Plant in rows six feet apart and three feet in

the row. If planted on a larger scale plant five feet apart each way and cultivate both ways. Keep the plant young by cutting out the oldest canes each year and leaving some new canes, keep the worms in check by using hellebore.

The gooseberry is another northern fruit and should be grown in much the same way as the currant.

THE GRAPEVINE.

The grape requires a firm, dry soil and absolutely clean surface culture with plenty of room to extend in summer and for the sun to shine on the soil around the plant. Plant in rows running north and south, if your land is nearly level; if not, plant according to the lay of your land, from eight to nine feet apart and the same distance apart in the row. Cultivate and feed them well and they will go to work and keep at it as long as you live.

The first condition of successful grape growing is healthy foliage. Any system of culture and pruning which fails to secure this is at fault. I would not advise summer pruning except pinching back the laterals. In most parts of the state the vine must be allowed to extend its summer growth to an indefinite profusion beyond the fruit to retain foliage enough to properly ripen its fruit.

Prune the canes in the fall to two buds. If there are too many canes, so many that even one or two shoots from each cane will cause crowding, cut them out altogether; cut canes that are allowed to remain back to two buds. Before freezing weather sets in lay the vines down and cover with earth.

I do not wish to say much on the varieties of small fruit. It seems to me to be a question of locality and market. Plant only those varieties that have been tried and found profitable. If you wish to try newer varieties, plant only a limited number and if they succeed with you plant more. Don't plant more than you can take care of.

I would, however, like to say a word in favor of the

Lovett strawberry and the Hilborn blackcap raspberry. The Lovett is one of the tough, hardy varieties that never disappoint the grower; it has a perfect blossom and bears heavily; the fruit is firm, medium to large size, conical and of good color and quality. The Hilborn is a good all purpose berry, ripening a week or ten days after the earlier sorts; though not so large as the Gregg it yields double the amount of fruit and is much hardier; it continues in bearing a long time.

ORCHARD CULTIVATION.

F. H. Chappell, Oregon, Wis.

[Read at Winter Meeting.]

Much has been said about cultivation of orchards. Much depends on where we are located. What will do in some climates will not do in Wisconsin.

I have lived in Wisconsin thirty-four years and have tried many methods with fruit trees. Have grown some in the sod; this does not give moisture enough in our extreme droughts. Two years I mulched them with tobacco stalks; this caused the trees to grow too fast and some kinds blighted very badly.

Moisture is essential to the tree or it will die. We can supply moisture in two ways; one way is to mulch with fine sand four or five inches deep, the sand to extend as far out as the branches. It will receive the rain as it falls, will retain the moisture two months or longer and it is easily watered when needed.

Another way to furnish moisture is by frequent cultivation, at least once a week when it is dry; do not cultivate when the ground is wet. I had some apple trees in my nursery four to five feet high. I cultivated these trees very often, so the ground was as fine as ashes. The trees grew so fast that the new branches bent down and some of them

were much out of shape. I stopped working them to check the growth and ripen the wood. Four or five years ago, in a dry season, a nurseryman sent me fifty Moore's Arctic Blue Plum trees unexpectedly and very late in the spring. I heeled them in a row and worked them very often; as they were on my way to a field where I had other nursery stock and crops to work, they were worked as often as twice a week. I did not lose a tree; all grew finely and did well.

Two years ago last spring I sold to a man living four or five miles southeast of New Glarus fourteen apple trees, telling him to work them once a week and make the soil fine. In the fall of 1899 he came to my place for some more trees. I asked him how many trees he lost of those I sold him and he said "Not one, every one is alive and doing well." I then asked what he had done to them. He said he did just as I told him, then he took a fork and showed how he made the soil fine, as he was a Swede and could not talk very well. Another man that has bought trees of me for five or six years past told me he had lost but one tree.

Now a little about sun scald. July and August are the most trying months with the tree, as the sap commences to form into a grain of wood the last of June, a creamy substance in a stand-still condition. When there is a lack of moisture in the ground the hot sun cooks this creamy substance on the southwest side of the tree, as we have seen so often in Wisconsin. The borers will then deposit their eggs in the bark and when hatched will go through the bark to feed on this creamy substance and then through the tree to finish it. I do affirm that there never was a tree killed on the southwest side except for lack of moisture. Now try it and see for yourself. These are good reasons why we should cultivate orchards to retain the moisture. Cultivate lightly as late as the middle of August and later if very dry, making the soil fine to act as a mulch. Light cultivation will not start new growth.

Another great point is WHEN TO PRUNE AND HOW. Do this the first of July, then the sap is a creamy substance too thick to bleed much. It will crowd out a little where a limb is cut, but will help it to heal,—will heal much faster than at any other time of the year. If cut then the wood will not bleed to make it black-hearted. If you trim when the flow of sap is going up to feed the buds and to form the leaf it will bleed. If a tree is transplanted in Fall or Spring, trim it in the Spring. Do not trim in the Fall; the heavy freezing deadens the wood and cleaves the bark and makes the wound larger and as the wood is more dry it takes much longer to heal.

In trimming much care should be taken to cut out all inside limbs that will rub each other. Trim about a foot and a half up on the main limbs; as the tree enlarges trim higher to give more sunlight to the crotches, then they will not split with heavy loads of fruit. By cutting out all fruit spurs in the lower branches the fruit buds will form above and the fruit will be of better color and larger, also the weight of fruit will bend the limbs out and give more sunlight to the limbs above.

Do not manure young trees, it will blight them and cause them to make too late a growth for the winter. When a tree will not make a proper growth with good cultivation then it will do to fertilize it.

I would further say, when you transplant a tree do not cut back any limbs. The next bud below the cutting has to take its place to form a limb and there is a little dead wood which will never grow any smaller, the remaining buds below will make out a thicket and you will have a brushheap for a tree. As much as possible remove all suckers as soon as they appear.

Labor is worse than lost when it is spent in doing harm to somebody.

"THE CULTURE OF AMERICAN GINSENG."

The writer of the above entitled article, published in your January number, criticises with considerable severity the extravagant exaggerations of other writers on the same subject and in doing this he is apt to lead one to believe that he is not guilty of exaggeration and is worthy of our confidence. But if he is not guilty there are a few things he ought to explain.

China has just as good soil for growing Ginseng as can be found in America. The Chinese Ginseng root brings a higher price than the American. The Chinese have had hundreds of years experience in growing it and they can employ labor for that purpose at a tenth of what it costs here. How can we then make it profitable to compete with them in this root? Are Mr. Kelsey's motives in writing the article missionary or mercenary? If he has seeds and roots to sell and can start a fad I can see "millions in it" for HIM if he is in a position to take in the "fadists" as fast as they are likely to be created by such articles.

What he says is far more likely to deceive than the writings of those he criticises. But until Mr. Kelsey explains the matter of profits more fully some of his readers will suspect that there might be more profit in opium for the Chinese market than in Ginseng. Opium of course might be more harmful to the Chinese than the worthless Ginseng, but if it is more profitable what have we to do with morals when we are trying to make money in "lawful trade" with the Orientals! J. A. G.

There are plenty of men in the world who cannot be given the care of anything more complicated than a wheelbarrow without subjecting the man who put them there to the charge of cruelty to animals.

BEST FIVE APPLES FOR SOUTHERN WISCONSIN.

Henry Tarrant, Janesville, Wis.

[Paper read at the Winter Meeting.]

Mr. Herbst, our secretary, wrote me asking if I would give a paper on the above topic for the winter meeting. I replied that I would endeavor to do so. But on thinking the matter over I find it quite difficult to name only five varieties of apples for this section of Wisconsin, about six miles from the State line south.

While we have so many varieties that are doing well and are profitable for the orchardist, we depend upon local markets for our sales, which are good and are likely to be good for some time to come, for the planting of apple trees has been neglected; the older orchards are dying out fast, with very few renewals.

But the design of this paper, I take it, is to be the starting out right of young men and those who have felt little interest in this subject, giving a reliable list of trees that will be hardy and profitable.

First I will name Duchess of Oldenburg, too well known to need any description. It will take care of itself, except a little thinning out of the top in the center. To have your tree long-lived do not let it overbear; thin out some of the fruit soon after blossoming and the tree will carry more fruit to perfection than if all is left to overtax it.

Second, McMahon, a Wisconsin seedling. This variety does not overbear with me, but is a good cropper and a most excellent apple for culinary purposes and is an October apple, large and handsome, sells on sight. The tree is a good orchard tree, good foliage, needs but little pruning and is satisfactory.

Third, Wealthy, a Minnesota seedling; a first class all-around apple, good cooking and good dessert; fruit will keep till January, if gathered before it is matured, but you

must see that the tree does not bear too much or it will drop its fruit before it is marketable. It is a very handsome red apple. I received the prize, two dollars, on a specimen of this variety at the Wisconsin State Fair last year—the "best Fall apple"—and it was a beauty.

Fourth, Northwestern Greening, a Wisconsin seedling, a very handsome apple and of fair quality. While it has not been tested as to hardiness as long as some other kinds which I have fruited I am inclined to put this in my list as one of the five. I have some other varieties which I think more of, but for a new beginner I think this may give satisfaction with judicious pruning, keeping the top open and giving plenty of sunlight; if you do not the fruit will have this black fungus on it, spoiling the fruit for market. It does not keep so well as I should wish and in fact I have much better keepers, but on the whole I would recommend to plant Northwestern Greening.

Fifth, Flushing Spitzenberg. This is an old Eastern variety, but is well adapted to southern Wisconsin, as the old trees bear witness to its hardiness, trees over fifty years planted; I know of two or three planted in 1846 and others of more recent date; a winter apple of good quality, red in color and a reasonably good keeper; does not overbear, but bears some every year. I consider this my best winter apple and can recommend it for planting in southern Wisconsin.

I cannot close this paper without stating my wish that the list asked for had been larger, say ten varieties.

As we here are dependent on local markets, which are the best kind for the orchardist, I can name five more varieties that will work well with the five named in this paper, and are good and profitable: Yellow Transparent, Peterson's Charlemoff, Patten's Greening, Wolf River, Dominion Winter.

I regret I have not named a good winter sweet. I do

not know any better sweet than the Tallman, which has been neglected, but there is a demand for this variety with us.

BEST FIVE APPLES FOR NORTHERN WISCONSIN.

This subject was assigned to Mr. A. D. Barnes of Waupaca who in a concise, well-written paper gave his choice and the reasons therefor. He named Duchess, Wealthy, Northwestern Greening, Tallman Sweet and Walbridge. Said of Wealthy: "It comes nearer to perfection than any other apple to me known, on account of hardiness of tree, wonderful productiveness, fine quality, splendid color, fair size." Tallman Sweet he characterized as an "all-around sweet apple—no better sweet apple on earth." He described Walbridge as a "hard-hearted little fellow that stays by us after all the rest have gone. Tree hardy, annual bearer, if carefully pruned and fruit thinned, one of the very best keepers, in fact it is not good until February or March."

BEST FIVE APPLES FOR CENTRAL WISCONSIN.

Dr. T. E. Loope of Eureka.

Your secretary in putting me on for this topic has given me a greater task than at first appears. I leave for Tarrant the five best apples for Southern Wisconsin and for Barnes the five for Northern Wisconsin. It is enough for me to tackle Central Wisconsin. My home is there and if I know anything about apples that knowledge is confined to that section. Barnes, in treating of Northern Wisconsin cannot be supposed to criticise me, nor can Hatch living so far north. Tarrant, living south, is subject to the same rule, as is also Kellogg, Tuttle, Johnson and all others in that section. Philips might crowd into my territory and spring the list given in the December Horticulturist,

but so few in our section are familiar with those varieties that I think I can get the verdict.

In selecting my five varieties I do so from the standpoint of "the greatest good to the greatest number,"—the man with a garden—the farmer—the mechanic—the laborer. I must have hardiness, productiveness, quality. Then I must cover as much of the year as possible, so that all classes can have the king of all fruits as a constituent of his food supply, as an appetizer, as dessert or adjunct.

My first, as I read, is in every one's mind—even the man with the "hobby apple" says "Duchess of Oldenburg." Hardy as an oak, prolific as none other, quality for cooking unexcelled, early, large, beautiful. Short of season, I grant, but it is delicious canned and dried. Did I hear a sneer about the dried apple? I have a most profound pity for the depraved, vicious and uncultivated taste of any one who does not, at some time of year, yearn for dried apple sauce. It is delicious. Why, the nectar upon which the gods subsist is flavored with dried apple juice!

Next I name Wealthy, that most delicious apple for late fall and early winter. It needs no encomium, it speaks for itself. It is hardy, productive and has the quality.

As I write, there stands before me on the table a large beautiful apple, green with a yellowish tinge. You know it before I speak—Northwestern Greening. If I left it out I suppose the Society would expel me. It is a hardy tree and the apple keeps well into spring. I don't much like it, but it must go in the list.

Then comes Fameuse, than which there is no better dessert apple. The salivary glands exude their secretion at thought of its exquisite flavor. Tree hardy, biennial bearer; subject to scab; season fall and early winter.

The fifth is a sticker to me. I have covered the season as far as may be. We have plenty of fall apples that could be put in the list, McMahon, Longfield, etc., but I want a

better winter apple than N. W. Greening, it doesn't fill the whole bill. We have not grown Ben Davis, Baldwin and other standard winter fruit that the eastern states grow sufficiently to entitle them to a place. Perry Russet comes nearest to the mark but it is a late, shy bearer. Shall I put it in?

I believe in a few years I could name the apple that will fill the bill. Don't say "Hobby" to me for I have none of the trees to sell. I only wish I had. I hope to have sometime. I wish to puff an unknown apple, the Parmetta, formerly Rushford. I believe it will be hardy and productive. The original tree has stood the last seven crucial winters, somewhat crippled but "still in the ring." It is a beautiful large apple with greenish color, changing to red late in the fall. Skin thick and inclined to be rough, spherical in form, mild subacid of extra quality. When seen on the tree in masses of even size and perfect form it will cause an attack of palpitation in any apple crank and he will feel like falling down to worship. It is curculio proof so far. In our own orchard where all other apples were distorted and worthless this apple was smooth and fair. Season December to May. If further experiment justifies my estimate this will be first on the list in time.

I think I know a good thing when I see it and can taste it. At the risk of some one yelling "Hobby" at my new apple, I must call your attention to the Fameuse Sweet, a seedling of the Fameuse, the tree standing the blasts of thirty winters in an exposed situation and in impoverished soil and June grass sod; medium to large, a dark red with snow white flesh, good quality, sweet; taste for yourselves. If you don't like its looks or quality don't set any of the trees in your orchard, but if you don't you will be a poor man in February, March and April, when you can have delicious sweet apples to eat. This apple will be one of five in the near future.

ANOTHER SEMI-CENTENARIAN APPLE TREE.

After reading of the big apple tree described by Mr. Hoxie in the October Horticulturist, I thought a description of a tree in my orchard would be of interest to Wisconsin apple growers.

The tree is the only one left of an orchard planted about 1847. Formerly there were two trees of the same variety in the lot, one being destroyed by a tornado about ten years ago. The tree has a girth of 56 inches two feet from the ground. It has a spread of branches 17 feet each way from the trunk and is about 28 feet high. The variety is Roman Stem, a winter apple of high quality but medium size. The old tree is still vigorous and productive and apparently good for another ten years at least. It was a good sized tree, bearing fruit when our family came in possession of it in 1853.

GEO. C. HILL.

Rosendale, Wis.

THE WINTER MEETING OF THE WISCONSIN STATE HORTICULTURAL SOCIETY.

For several years some of the members of the Society have felt as did the sea-sick little girl who prayed "O Lord, please make things DIFFERENT." So this winter things were "different,"—the meeting was held at Oshkosh instead of Madison and in January instead of February.

It was a grand meeting, one of the most interesting and profitable meetings in the annals of the Society. The papers were thoughtful and practical, many of them the result of laborious study and research, and the discussions, for the most part, were impersonal and to the point. At the first there was a feeling akin to homesickness, because we missed so many of the friendly faces and familiar voices wont to be seen and heard. We thought it would be a lonesome meeting with Mr. Philips not there, nor Mr. Dartt, nor Mr. Tut-

tle, nor Mr. Hirschinger, nor Mr. Stickney, nor Mr. Perriam, nor Mr. Cranefield, nor Mr. Moyle, nor Mrs. Vie Campbell. Yet it was pleasant to welcome so many new members; and there were enough of the "old stand-bys" to give the discussions a familiar ring,—Mr. Hatch, Dr. Loope, Geo. J. Kellogg, Mr. Toole, Mr. Tarrant, Mr. Chappell, Mr. Barnes, L. G. Kellogg, Prof. Goff, Mr. Coe, the Messrs. Edwards, Mr. Hoxie and others.

We were especially favored with a coterie of distinguished guests from other States. Michigan sent R. M. Kellogg, the president of her State Society, and Prof. Taft of her State Agricultural College. Illinois was represented by Prof. Green of her Agricultural College and Mr. L. R. Bryant of Princeton, a nephew of the great poet whose name he bears. Minnesota's honored delegate was W. W. Pendergast, the beloved president of her State Society. Prof. H. E. Van Deman, late pomologist of the United States Department of Agriculture, was with us most of the time and was a "host" in the discussions, although the primary object of his visit was to represent the Pan-American Exposition. This he did so ably that we are all planning to be "put off at Buffalo" next May!

Oshkosh, through her Mayor, welcomed the Convention and gave it a room in her City Hall. A local florist adorned the rostrum with beautiful plants and fragrant flowers, roses, carnations, narcissus and Chinese lilies. The large exhibit of apples and local exhibits of winter vegetables were arranged on tables along the sides of the room. The hotel service at the Tremont House was admirable, all that could be desired in convenience, courtesy and cuisine.

Early in the session by motion of Mr. Hatch, Messrs. Pendergast, Bryant and R. M. Kellogg and Profs. Van Deman, Taft and Green were made honorary members of the Society.

In the discussion which followed Dr. Loope's paper some one asked for a variety of apple that "wouldn't blow off." Mr. Chappell was on his feet at once to recommend the Dominion Winter. In the great wind storm which took off so much fruit last fall, there were only a half dozen or so apples

on the ground under the Dominion Winter trees.

The paper on Improvement of Trees and Plants was earnest, scholarly and suggestive, worthy of its author, President Pendergast of the Minnesota Society. He refers to the Chinese as "plodding along their weary, unprogressive ways in the tracks which their grandfathers left behind them;" says "the great secret of success in life is to do some useful thing well, a little better, if possible, than any one else can do it." "The apple has come to us from the little wild crab which even an ostrich would not eat." "From that wild crab has been developed the king of all the fruits of the earth." We must seek to develop it yet higher. Mr. Pendergast details a plan for doing this which in the course of time "will give us the apple we are seeking and when one comes many more will bear it company."

EDITOR'S NOTES.

Through the courtesy of the Minnesota Horticulturist we have a picture of President Pendergast's home. Mr. Pendergast stands in the center of the picture, behind the buckthorn hedge. The hedge is 27 rods long, the plants being set a foot apart. "It is not affected by the coldest winters or the hottest, driest summers."

Premium Essays.—There were three on the Care of an Apple Orchard, A. D. Barnes received 1st prize, Geo. M. Tong of Sturgeon Bay, 2nd. On Grapes 3, Geo. J. Kellogg 1st, no second. On Planting and Care of Strawberries 7, L. A. Carpenter of Fond du Lac 1st, H. E. McGregor of Appleton 2d. On Raspberries and Blackberries 2, Geo. J. Kellogg of Lake Mills 1st, C. Phillipson of Oshkosh 2nd. On Flowering Shrubs 1, by Geo. J. Kellogg, 1st prize.

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