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South Dakota State Horiculturist Society

NORTH and SOUTH DAKOTA HORTICULTURE

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NORTH AND SOUTH DAKOTA HORTICULTURE

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CERTIFIED SEED POTATOES

D. J. MacLeod, Dominion Laboratory of Plant Pathology, Fredericton, N. B.

With the increasing prevalence and number of diseases of potatoes, and the greater risk in purchasing seed stock about which nothing is known by the purchaser, has come the realization that the production of satisfactory seed requires special skill and care. Consequently there has been developed in Canada during the past 15 years a system of seed potato certification. In order to accomplish this, fields entered for certification are inspected, twice during the growing season and once after harvest, by a representative of the Dominion Department of Agriculture, to determine as accurately as possible whether the potatoes entered for inspection satisfy the certification standards. The first inspection is made about blossoming time at which stage it is easiest to detect varietal mixtures. Afterwards the grower should rogue out all off-type and diseased plants. The fields should be rogued not once but a number of times during the season. Many certified seed growers have made the mistake of waiting until the plants are nearly mature before roguing, overlooking the fact that plants affected with mosaic, leaf roll and spindle tuber were thus allowed a long period to transmit the disease to healthy neighboring plants. Early roguing will materially reduce the number of plants to be removed, as well as the amount of disease in the crop the following year. In roguing, the entire plant should be removed including the stem, seed piece and tubers, if any. Diseases, such as mosaic and related troubles, permeate all parts of the plant, and if any portion is left in the soil new infections may result. Certified seed in general justifies the extra trouble and expense in producing it. For the information of those interested in knowing whether, aside from all theoretical considerations, certified seed actually yields more than common stock, the following is quoted from the Dominion Bureau of Statistics, January, 1927: "The average yield of common stock potatoes for the Dominion in 1926 was estimated at 148.3 bushels per acre." During the same year records show that the average yield on 10,392 acres entered for certification was 300 bushels per acre. This illustration clearly indicates that the principles, on which seed potatoes are certified, have a firm foundation. It is, nevertheless, true that some lots of certified seed have given unsatisfactory results. Apparently such cases can usually be traced to two causes (aside from fraud)—either the field from which the seed came was attacked by aphids which spread diseases like mosaic, or climatic conditions were such that mosaic affected plants could not be recognized and consequently were not rogued out. Anyone interested in the subject of certified seed potatoes should consult Pamphlet 84 (new series), published by the Dominion Department of Agriculture at Ottawa, which will be forwarded free upon request.

NORTH DAKOTA STATE HORTICULTURAL SOCIETY AUGUST, 1930, NEWS LETTER

A. F. Yeager, Fargo, Secretary

Remember the dates August 21 and 22. That is the date of our annual meeting to be held this year at Grand Forks. The general outline of the two-day session is as follows: Program of papers all afternoon of August 21. Banquet and business meeting that evening. Morning of August 22, tour of points of interest in Grand Forks, including parks, homes, the University of North Dakota campus and last but by no means least, a visit to Mrs. Fannie Heaths' farm home. The afternoon of August 22 will close the meeting with more papers. Incidentally we have some fine talks in store for you including one by Professor Leonard of the university on "Plants of the Past in North Dakota," particularly mentioning the plant life and conditions which formed our lignite beds. Henry Peterson of Moorhead, Minn., will tell how to raise $40,000 worth of crops on 100 acres. He knows, too, for he has helped do it. Our South Dakota friends are invited to our meeting, too, if they feel so inclined.

Remember, too, a silver cup for the best vegetable exhibit and one for the best fruit exhibit also. Red, white and blue ribbons for the best of each variety of fruit, vegetable or flower.

"Cantaloupe Production in Michigan" is a new bulletin from Michigan Agricultural College, East Lansing, Mich. I am particularly interested in it because one of our North Dakota A. C. boys of a few years back is part author ot it.

Have you tried Italian green sprouting Broccoli, also called Calabrese? We are growing it for the first time this year and are much struck with it. It seems sure heading, a little earlier than cauliflower, and the heads which resemble cauliflower except that they are green, taste much like cauliflower when cooked. Try it next year.

While you are watering your plants in the evening these hot dry days you had better not forget to drench the tops, too. A dash of cold water will hold down red spider.

From Ellendale we have received a sample of white Juneberry asking its name and whether it is edible. It's just as good as the purple except in color. These white sports while rare have been reported several times in the last few years.

Caragana seed may be sown as soon as ripe and popped from the shells. Seed sown now if you water it in or rain comes soon will make quite good plants before fall.

Should I cultivate beans when they are in bloom? Yes, if they need it and the vines are not wet. However, cultivate very shallow. The reason for not cultivating when wet is to avoid spread of disease the same thing is the reason why beans should not be picked when the vines are wet.

A bundle of material taken from a well was recently sent in for identification. It was a mass of cottonwood roots which had completely filled the well. This often happens. Willows sometimes act the same way.

Our Golden Gem sweet corn has been silked for nearly a week and no other variety has a silk yet—July 16. The nearest competitor is a white variety.

Some strawberry blossoms sent in when examined proved to be imperfect and without pollen. To get fruit from this variety another sort must be planted near to provide pollen.

A bulletin you will all want is Experiment Station Circular 42 of the North Dakota Agricultural College entitled "Insect Pests of Trees and Garden." Authors are J. A. Munro and Hazel W. Riddle. It is free.

What is Bridal Wreath? In common usage it is whatever species of spirea is most at home in your community. Here we call Spirea Vanhouttei by that name. Perhaps to be strictly accurate this name should be applied only to Spirea Prunifolia which is not hardy here.

If you have access to a cold storage plant where a below zero temp-

erature is maintained we suggest you put a few dozen roasting ears with the husks on it in the freezer for next winter's use.

These notes are being written by the hunt and peck system by your secretary in the absence of a stenographer, and while we could write a lot more it will not be done until next month.

Only one final note: Last winter was the worst on raspberries we have seen here, due no doubt to the drought and red spider of last summer. Latham killed nearly to the ground. Chief, the new red variety from Minnesota, and Mrs. Heaths' Black, are outstanding in that they showed practically no injury compared to great damage to the 30 others we have on test.

GARDEN NOTES

F. X. Wallner, Sioux Falls

Fifteenth of July—sow your turnips wet or dry.

Our yellows resistant cabbage is standing up well, while the Copenhagen looks very sickly and little of it will head up.

Barnyard grass or billion dollar grass is the worst weed we have to contend with in our onions. The extreme hot weather of July 7 to 16 was too much for most of the weeders so that the weeds got a big start, and unless we get a rain at once our onions will suffer considerable and be small. Twelve or 15 acres is really too much to put into onions, where the chances are so much against a good crop.

Setting out plants with the thermometer at 100 but with an irrigating line playing a stream of water on them at once.

The sweet potato plants have made a fine growth and looks like there would be some sweets this fall.

See that two growers that used two carloads of sweet potato plants in 1929 are using five carloads. Enough for 1400 acres. That's the way the big growers are reducing the acreage they think the other fellow will reduce so it's a good time for him to put in a big acreage.

As fast as cabbage matures we pull the old stumps and throw between tomato plants for mulch or we feed them, then set out new plants for late cabbage. This is only possible this dry weather under irrigating lines.

Potatoes that we are digging now are small and it looks as though they will not be very good if the drought lasts much longer.

July 18—Still no rain and most all vegetable crops are suffering from the extreme heat and long drought. It will be impossible to reset our cabbage fields, it is well that we sowed them and where we wanted the rows as reseting a whole field this dry weather with or without a machine is impossible.

The national convention of the Vegetable Growers Association of America meet at Milwaukee August 11 to 15. To win the celery or cauliflower championship at this meeting is an honor of which one may be proud, and the Canadians win more than their share.

Michigan has the 300 Bushel Potato Club; Pennsylvania the 400 Bushel Club, but Colorado has a 600 bushel per acre club. Triumph Brown Beauty and Rivals went over 600 bushels.

DECEIVING THE BEES

C. B. Gooderham, Dominion Apiarist

Bees do not work by the clock nor do they cease working when their own food requirements are filled. So long as there is nectar available in the fields and weather conditions are favorable for gathering it, the bees will continue to store honey until all space within their hives is filled. A good colony of bees will often store more than double the amount of honey required for its own use and the surplus is the reward of the beekeeper provided he has the nerve to take it. Bees usually have the unfortunate habit of disputing the ownership of this surplus honey

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EXTRACTS FROM THE DIARY OF A TRAVELING MAN

W. A. Simmons

June 6. Had a very lovely warm day for my trip to Glacier Park. Only three days previously the ground between Browning and the park was covered by six inches of snow, but by the time I arrived it had all disappeared except on the mountains, which I have never seen free from it.

My trip this year was made too early to see the lovely dark blue lupins in bloom, but the pink shooting stars were much in evidence on the surrounding prairies. Also the wild hyacinths, as the dark blue camassias are locally known, were in their glory, fairly turning the moist meadows, where they usually grow, blue. This I consider a very worth while wild flower, and it seems easy to move and succeeds in most any type of soil. It grows to a height of about 18 inches coming from a bulb resembling an onion set, found about four inches under the surface. Carl Purdy claims the Indians ate these bulbs, but if so I think it must have been the tribe known as the Digger Indians, as an Indian would have to be gifted in the art of digging to avoid starving to death in coming into possession of these small bulbs.

Climbing over the high foothills that must be ascended before dropping down into the park level, I found myself back in the pussy willow and dandelion state of spring. Was too early also for the pretty little lemon yellow glacier lilies that are so plentiful later on. The only specimens I saw in blossom were some planted in a sheltered position beside a store building. Have never succeeded in moving these, but do not intend giving up the attempt whenever I am fortunate enough to find them in bloom.

The park season was not to open for about a week, but I found great preparations already being made for the visit of the president in August. Great carloads of poles were being unloaded at the railroad sidings and telegraph and telephone lines were being strung all through the park so that the president would never be out of communication with Washington, and the world could be told each night of the number and size of the fish acquired by this gifted angler. One disgusted local fisherman returned empty handed from a day of toil and reported that the fish must have heard of Hoovers' coming and were saving their bites for the rich presidential bait.

Everyone connected with the park and its concessions is elated at the coming of the distinguished guest, and expect his visit to put the park on the map, as did President Coolidge's visit to the Black Hills.

Mr. Max Pfeander, landscape architect of Sioux Falls, in a recent newspaper article on tree planting, put the matter of cutting back the tops in a very neat way. He likened the roots to assets and the tops to liabilities and said the liabilities must be limited to the assets in order to be successful in planting just the same as in business.

We are indebted to our good friend and fellow life member, Mr. R. Sayre of Chicago for a choice bunch of interesting reading from his able pen. Mr. Sayre likes cats, but we should explain at once, he likes them dead. In disproving the old notion about the long run of bad luck connected with the slaying of our good friend the cat, he offers the following testimony: "Auto driver killed a cat, his baby now keeps healthy—Farmer killed a cat, then struck oil on his farm—Son-in-law killed a cat, mother-in-law died next day. Who kills a cat gains a year—who kills a hundred never dies, and song birds and children live." According to reports, Mr. Sayre repairs to the alley gate of his home each morning, and there meets the small boys with their catch, or rather kill, of the day. The victims are cats, and Mr. Sayre is reported as paying 10 cents for their lifeless bodies. Mr. Sayre may be said to be at the head of the cat racket in Chicago, and when a racketeer in Chicago takes a dislike to any one or any thing, it is their habit to hire some one to kill them. From the above quotation from his leaflet, it would appear that Mr. Sayre also dislikes mothers-in-law, but we are not informed, what if any, bounty he pays on them.

A near miracle has occurred in Death Valley this year. This usually driest spot on earth received showers on 19 days in May of this year and the place has been transformed into a veritable fairy land of flowers. It is said that 100 varieties of flowers, many of them unclassified, can be gathered in a radius of 50 yards. The seeds of these flowers must have been lying hopefully in the dust dry soil of the desert for how many years we can only guess, waiting for this chance to grow.

Such a chance may not appear again in the lifetime of anyone now living, but it is safe to say that seeds from this year's crop will be waiting patiently in the dry soil for another opportunity to stage a flower show in the desert.

In the Market Growers Journal, Mr. R. C. Munsell of Pennsylvania gives his method of saving tomato seed. He points out that we should consider the plant, in making our selection for seed, and pick out only good specimens from thrifty plants well fruited with good tomatoes of the desired type. The tomatoes selected for seed should be allowed to remain on the vines until dead ripe. The pulp should then be squeezed into a rather tall container and allowed to stand in a warm place until fermentation takes place, which usually requires about two days. Then by stirring the mass, the seeds will separate from the mass and drop to the bottom. The pulp is then lifted or poured out and water added and poured off several times until the seeds are perfectly clean.

The seeds are then poured out on a cloth to dry and after drying thoroughly are put away in a dry, frost proof place, and out of the sun, to be kept until wanted for planting. He advises against adding any water to the mass during the fermenting period, as to do so would make many of the seeds sprout.

Now is the time to make up your annual iris order as August and early September are the ideal months for setting them. Improvements in the newer sorts are so great that no one should be content to let a single planting season go by without adding a few of the better ones. Ambassador has been voted the best iris and is not high in price. Better order a few this year.

Also better come to the meeting of the North Dakota Horticultural Society at Grand Forks in late August. Those that have ever attended these meetings need no urging, but many who have never been to them don't realize the great treat they are missing.

Mrs. M. L. Countryman of St. Paul contributes the following: "Do right and fear no man, don't write and fear no woman."

DECEIVING THE BEES

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and their methods of arguing the question are not only pointed but painful to the person of the opposition. In the past, the usual method of settling the question was to first destroy the bees with sulphur fumes and then to take all the honey in peace. This method, however, was like "killing the goose that layed the golden egg" and valuable property was destroyed. The newer method is to take the honey without the bees knowing anything about it. A piece of equipment known as a bee escape board is placed beneath the supers of honey and the bees passing down through the escapes are unable to return to the supers. If these boards are put in place during the afternoon of a day on which the bees are flying well, the supers above will be free of bees the following morning when the honey can be removed without painful altercations with the owners. Not more than two full depths or three shallow supers should be above the escape boards at one time, otherwise it will take a longer time to clear them of bees, nor should there be brood or queens in the supers, for then the bees will not leave them at all. Bulletin No. 33 of the Bee Division, Central Experimental Farm, Ottawa, not only describes the bee escape board and how to use it but also shows a photograph of it.

PRUNING ORNAMENTAL SHRUBS AND HEDGES

A. E. Hutchins

(Courtesy Minnesota Horticulturist)

The pruning of shrubs is a subject with which nearly every one should be familiar. Most of us have a few shrubs, at least, around our homes and it is up to us to make them appear to the best advantage. Many people have the idea that shrubs should be sheared into formal shapes. This idea in general is all wrong. The natural growing habit of the shrub is usually the most attractive and it is only in strictly formal situations that the formal shaping of shrubs should be attempted.

Keeping this in mind, we should avoid putting shrubs in places for which they are unsuited and in which they will eventually require severe pruning or cutting back. If a shrub is to be planted beneath a window, select a low growing type which will not cover the window in a few years. Never select a low growing shrub and try to make a tall shrub out of it by pruning and vice versa. In other words, select the right shrub for the right place and thus eliminate much of the pruning which would be necessary otherwise.

There are several reasons for pruning shrubs. One of these is to train the plant to form its most attractive habit. Often because of environmental conditions, one side, or certain shoots, will develop more rapidly than others and thus give the plant a ragged appearance. As a corrective operation, these branches may be cut back or cut out, always being careful to preserve the natural habit of growth of the shrub.

Certain plants may lack vigor, especially when young or first transplanted. Cutting back, one-third to one-half, during the dormant season will often enable the plant to make a more compact vigorous growth and also enable it to withstand exposed conditions. When doing this, however, do not shear the plant off but cut the shoots individually at different heights, conforming, as nearly as possible, to the natural habit of growth. In many cases, shrubs will produce a great many shoots or stems to the detriment of the plant as a whole. By judicial thinning, the remaining shoots will be benefitted and there will be a renewal of growth in the shrub. To keep the plant attractive and of a desired size, a few old stems should be cut back to, or nearly to, the ground each year. This enables new growth to come up from the bottom and keeps the shrubs in a continuous state of youthfulness. Since the shrubs can be kept young and attractive by this system of renewal pruning, the big, overgrown, rough-appearing shrub should never be present. If you do have a shrub of this type, however, renovate it gradually by removing a small part of the old growth yearly. Do not insist that it be remade all at once because this is impossible. It is a long, long process and the prevention of this condition is much easier than the cure.

Many branches or tips of branches die from year to year and these, together with any diseased and insect infected parts, should be removed. Open, well separated shrubs are less apt to be attacked by insects and diseases and, in case of attack, can be much more effectively sprayed than the very compact shrubs.

The reasons so far given are the main ones for pruning, but there are a few other reasons for pruning special cases. One of these is the production of large flowers and long stems. Hydrangea paniculata and the hybrid and perpetual tea roses are often cut back very heavily. This, of course, cuts down the number of flowers, but it does increase their size and stem length. The more hardy roses, such as the Rugosa group, should be pruned during the dormant season in the manner advocated for the other ornamental shrubs.

Certain shrubs, such as the red and yellow twigged dogwoods, are planted to a large extent, because of the color effect of their bark. Since the bark is brightest at the end of the first season's growth, this type of shrub is often cut back rather severely to produce as much of the new wood as possible.

The home owner will probably run into other minor reasons for pruning, but these, in general, can be met as they come up by using common sense and following the fundamental rules of pruning.

Having discussed the reasons for pruning, the next thing which comes to our attention is the time to prune. This varies with the time and habit of flowering of the shrub to be pruned.

Early flowering plants bloom from buds formed on the twigs which were produced the summer before. Spirea Vanhoutte and lilacs are good examples of this group. This type of shrub should be pruned immediately after flowering.

Summer Pruning

In regard to summer pruning, there is one precaution which must be taken. Do not prune too late in the summer. August 1 is probably about the latest date upon which it is safe to prune in this region. The reason for this is that, if pruning is done later than this, the new growth produced is tender, does not have a chance to harden off, and most of it will kill back during the winter with a consequent loss of flowers the next spring and summer.

On the other hand, such shrubs as the hardy hydrangea and Spirea Anthony Waterer, produce their flowers on wood grown during the same season as the flowers. This group should be pruned during the dormant season. Probably the best time to prune is early in the spring. The reason for pruning in the spring, rather than late in the fall or winter, is that many of the more graceful shrubs, when covered with snow, produce a very beautiful winter effect. This effect would be lessened if parts of the shrub were removed earlier. As far as the welfare of the shrub is concerned, however, the pruning may be carried on at any time after dormancy sets in in the fall until it is broken in the spring.

Another feature which must be taken into consideration is the flowering habit of the shrub. Certain shrubs are terminal flowering; that is, the flower is borne in the bud at the end of the previous season's growth. The lilac is a good example of this type and, if winter pruning is done, great care must be taken not to remove the tips of the branches or the flowers will be destroyed. The Spirea Vanhoutte represents a different habit of flower development. In this type, the flowers are produced by auxiliary buds on the previous season's growth. Winter pruning of shrubs of this type will usually result in the loss of many of the beautiful sprays of flowers. Therefore, both of these types fall into the class which should be pruned right after flowering. On the other hand, shrubs in which the flowers are produced on wood formed during the same season as the flowers bloom should be pruned during the dormant period.

In connection with ornamental shrubs, the pruning of hedges should be given some special consideration. Hedges may be of two general types, the informal hedges often used as a screen in front of some unsightly object and the formal hedge.

The Spirea Vanhoutte is often used for an informal hedge and serves the purpose very well. Shrubs, in a hedge of this type, should be pruned by the same methods as are followed with the other ornamental shrubs.

When the formal type of hedge is used, a much more intensive system of pruning is followed. Hedges need light at the bottom as well as at the top in order to maintain good foliage at the bottom and sides. The plants grow much stronger at the top than at the bottom, however, and this difference in growth should be equalized by cutting back more heavily at the top than at the bottom and sides. Ordinarily the hedge should be as wide or wider than it is high. Tall, narrow hedges may be maintained with such shrubs as red and white cedar, which have a natural tall, narrow habit of growth.

The best time to prune hedges is in June, just after the new growth has been made. Cut the new growth back one-half or two-thirds, and then the new leaves remaining will set many additional buds which will branch out the next year and tend to thicken up the foliage. It may be necessary to prune again later in the season but this later pruning should not be delayed later than August 1, however, since the new growth pro-

duced after a later pruning may not get hardened off before frost with the result that it will be winter killed.

Pruning does not require any great training or technique but still it seems to be quite difficult to get any one to prune shrubs who will do it right. In order to prune shrubs correctly, it is only necessary to remember a few fundamentals which, stated briefly, are:

1. Prune at the right season.
2. Do not do any unnecessary pruning.
3. Prune mainly to train the shrub in its natural shape, to remove dead, diseased, or insect infested parts, and to renew vigor.
4. Keep shrubs in good shape and condition by a system of annual renewal pruning which removes only a few old shoots each year.
5. Do not shear shrubs into unnatural shapes except rarely as a specimen of what can be done with certain kinds of shrubs or in strictly formal situations.
6. Shrubs, in informal hedges, should be pruned in the same manner as the other ornamental shrubs.
7. Formal hedges should be as wide as tall and should be pruned early in the summer by cutting back one-half to two-thirds of the new growth. This in general is the only place where formal shearing of shrubs should be done.

LIST OF SHRUBS SHOWING TIME AT WHICH THEY SHOULD BE PRUNED

Prune Right After Flowering

Species	Common Name
Amelanchier	Juneberry
Berberis	Japanese Barberry
Crataegus	Thornapple
Cotoneaster	Cotoneaster
Cornus	Dogwoods
Diervilla	Weigelia
Euonymus	Burning Bush
Forsythia	Forsythia
Lonicera	Honeysuckle
Philadelphus	Mock Orange
Prunus	Flowering Plum
Ribes	Ornamental Currants
Spireae Arguta	Spirea Arguta
Spirea Thunbergi	
Spirea Vanhoutte	
Syringa	Lilacs
Viburnums	Highbush, Cramberry, Snowball Sheepberry Wayfaring Tree

—Wisconsin Horticulture.

FRUIT CROP SITUATION

John Robertson, Hot Springs

The general fruit crop in the Southern Black Hills will be short of that of a year ago. There was near a full average crop a year ago. A lighter crop usually follows a heavy one; then, too, the late freezes this past spring, coupled with much cloudy and wet weather during a long period at blossoming time, reduced the set. This and the fact that bees could not work, caused a weaker set, so there has been more than normal drop since.

In our own orchard there is some representation in most all varieties in the various divisions, though nearly all of the self-sterile sorts have set sparingly. Such varieties as the Zumbra and Oka sand cherry hybrids have set very little fruit, while the Tecumseh and Waneta plums have a very good crop. The Opata, which is one that is usually overloaded, has only a moderate crop. Plums happened to be in full blossom during the most unfavorable weather, so suffered most.

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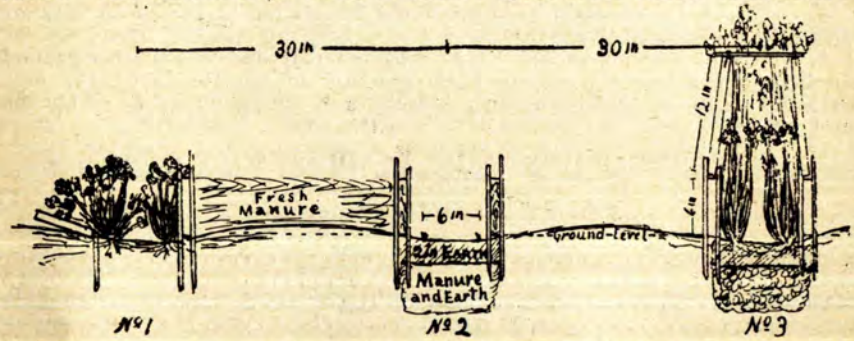
CELERY AND TOMATOES

Thos. W. Hobart, Sioux Falls

This is written for the amateur gardeners who may wish to grow a small amount of celery of superlative quality and crispness. While it is perhaps too late to be of use in its entirety as to the manner of setting the plants, the principal of manuring and watering can be adapted to any manner of setting you may now have.

The drawing so plainly shows the mode of operation that little explanation is necessary. The plants (White Plume and Golden Self Blanching) that I used in this planting were about six inches high at the time of setting out in late June or early July (we have set as late as August) and were three inches apart in double rows about four to five inches apart. The double rows being 30 inches apart from center to center.



In making these rows a Planet Jr. Wheel hoe with the double mouldboar plows was used going twice in each row, then the loosened earth was raked to the center between the rows as is plainly shown, making it about three inches higher than the rows proper so that all drainage was toward the rows of plants.

As soon as the setting was completed six inch fencing boards were set on each side of the rows as shown in the drawing and held by short pieces of lath, those on the inside of the boards being driven about one inch lower than the ones outside. These lath were nailed to the boards so as to be ready to support the 12 inch wide bleaching boards as shown in No. 3 of drawing. Short pieces of lath were nailed on top of the six inch boards every four feet along the row to keep them from spreading when the bleaching boards were set. This also kept them from caving into the row when the fresh manure was packed in.

Figure 1 shows how the inside lath stakes were first driven, then the six inch boards were slid under the foliage and raised to the upright position, then the outside stakes were driven to hold in position.

Figure 2 shows how sterilized sheep manure was dug into and mixed with the soil under each row; this was covered with about three inches of black dirt, as I was afraid the manure might burn if in direct contact with the roots of the young plants (there is, however, no danger of burning if plenty of water is used) the fresh manure without too much straw was piled to the depth of about a foot between the rows as shown and tramped down to near the level of the row boards, this later rotted and sunk to not more than three or four inches deep.

All the soapy wash water from both the face and family washings including all that from two or three other family washings that Mrs. Hobart was doing at the time, was carefully saved and used on the manure between the rows, using a 12 quart pail to every four to six feet of rows. This leached out the richness of the fresh manure (both horse and cattle manure was used) and such celery as we grew you cannot imagine.

In three or four weeks these plants were 17 inches high and bleaching boards 12 inches wide were set up as shown in Figure 3; these were drawn

together until four inches apart at the top and were held with short lath nailed every three or four feet across the top as shown. The lath stakes that held the narrow side boards held the bottom of these bleaching boards in place as shown and the cross lath on the top of the narrow side boards provided an air space, which is necessary when bleaching celery in hot weather to keep from burning or rotting.

There were in this patch four double rows each 80 feet long, averaging seven plants per double foot of row or 2000 plants, which was the number set. The bleached portion of these plants was about 26 inches long and was so tender that the bunches had to be handled more carefully than a new born baby. If you took a trimmed plant by the root stalk after it had been crisped in cold water it immediately broke off a few inches from your hand; if you gave it a whipsnap jerk it would break into a hundred pieces; while they lasted they drove all other celery from the market and brought a higher price than celery had ever sold at in the market prior to that time.

About tomatoes, I should like to add to Professor Yeager's notes for July, not only give plenty of room and do not trim or support your plants, but also notice that where the branches touch the earth they start root nodes or growth. Stake these down or better yet bury them in the earth and hoe or cultivate carefully as you would a separate plant, the result will be that you will have large plump meaty fruit the whole season through instead of small illshaped fruit in the late season. I will try and tell more of the science of tomato culture next winter or spring.

THE IRIS

Mrs. M. W. Sheafe, Watertown

It is a question whether to call the iris a rainbow flower or a flower of chivalry—Greek mythology shows the iris as the personification of the rainbow.

Longfellow calls it "A flower born in the purple to joy and pleasure." Ruskin calls it the flower of chivalry, having a sword for its leaf and a lily for its heart."

Much has been written about the iris that is new to some, whose knowledge of this beautiful flower is not extensive. Then, too, we all forget, and it is well to review and refresh our memories from time to time.

There are many gorgeous flowers that attract and hold the attention of the casual observer, as for instance, the Oriental Poppy. But the delicate, refined beauty of the iris is not seen at once, and only to those who, seeking for closer acquaintance, gaze into the heart of the flower is found, the real beauty.

To truly describe a flower of such changing hue is impossible. "Mysterious as the opal, with its ever changing fire, its marvelous structure, more wonderful than the orchid, so fragile as to be crushed by the slightest pressure; its beauty seems wholly ethereal, making you dream of far away things like the smoky clouds at dusk, or the rainbow glistening in the sun." If you yield to the magic spell of the iris, it will lead you into a wonderland of delight.

In this part of the world, the first glimpse of the iris may be had, when the "Pumilas" appear in April, as they are only a few inches tall, and, one purple flower on a stalk, they make a neat border around a walk or drive, coming so early and, blooming so long, makes them very welcome, after the long winter. Following closely upon the heels of the Pumilas, we have the "Intermediates" in many colorings and combinations. They are also profuse bloomers, about ten inches tall, and fill the gap until the "Germanicus" group comes upon the stage in all their gorgeous beauty.

Following this group are the "Siverecas," an entirely different type, that prolongs the blooming season, and is a choice addition to every collection. The iris is one of the easiest perennials to grow, good drainage and sunshine, and the vital requirements, any kind of soil suits them except an acid one. Lime is required in their daily menu. Bone meal is the best fertilizer to use, but sparingly. Keep the planting free of weeds, and soil

loosened about them. Planting or replanting should be done now, as the resting period ceases soon after blooming, and during that time it is well to make any change of grouping or thinning out. After clumps have become congested the flowers are smaller, and they crowd each other out.

It is well to thin every three or four years, depending upon the varieties, some are stronger and develop more rapidly. There are several ways of thinning out, the most satisfactory this writer has found is to dig the entire clump and separate the sections or fans, removing any portions that are weak or diseased. If to be planted in the same place, remove some of the soil and replace fresh adding a sprinkling of lime. The foliage should always be cut back, and root growth also, as the feeding roots are all that should be underground; the rhizome, fleshy part, should be above the ground so it can bake in the sun. "Plant an iris as you would sit a duck on the water, its feet in and its back out." Close planting is a very great mistake unless for quick effect; groups of three, five or seven of a variety set a few inches apart makes an effective picture if placed in front of shrubs or other green background. After planting, water, but do not soak, as irises are killed by too much water, rather than too little. If roots seem dry when received, do not soak as other plants, as that is quite apt to create root rot and cause serious trouble. It rot appears on apparently healthy clumps, and is a choice variety, remove the decayed portion, cleanse thoroughly and dust the root with sulphur, replant in fresh soil and, nine out of ten times you will save your plant.

In combining irises with other plants, several things should be considered. After flowering time the iris starts a new set of feeding roots and, until mid July, one may dig close to the clumps without injury, so that shallow rooting plants, perennial as well as annual, may be set in the freshly prepared soil. As the season advances the iris clumps develop many fibrous roots that reach deeply into the soil, and are quite upset in their scheme if disturbed by the strong roots from other kinds of plants. Deep tap rooted plants like Gypsophila and Oriental Poppies do well in the company of the irises. Plants that overhang the irises affording too much shade to the roots is at times disastrous. In my own garden, ferns four feet in height have almost usurped the space of a planting of "Flareceus" and they thrive, were it a very race choice variety, there would be none left to tell the tale. There are so many choice colorings in the iris it is quite difficult to make a choice, will mention a few of my favorites from 40 or more varities: Fairy Ma Mie, White Knight, Monsignor, Alcazar, Shikiuah, Seminole, Lena Williamson, Ambassadeur, Khedive, Lohengrin, Her Majesty, Archeveque, Prin Victoria Louise, Rhin Nixe, Mrs. H. Darwin and Perfection.

FRUIT CROP SITUATION

(Continued from page 9)

Some new varieties of apples are in bearing for the first time, that we hope to report on later. Pears are a light crop, excepting that we have three large trees of Sudduth that have a heavy crop. This sort blossoms a week later than most others, and at same time as apples do, so is not so much subject to late freezes. Hansen's Pushkin pear, after bearing a good crop last year, is well set again this year. While this puts forth blossoms with the earliest, it appears to be very hardy in withstanding cold.

Currants are a poor crop, due to a poor set and subsequent thinning by the fruit maggot.

Raspberries have set a fine crop, though the harvest will be much short of that in years when there has been enough moisture. We now have a number of plants in the Sheppard black raspberry that are bearing heavily. This is a very hardy kind, standing winters well without cover, but the berries are rather small for market purposes.

The weather has been extremely hot and dry for the past month, so that there will be some injury through effects of drouth, even though good rains come soon.

WILD FLOWERS OF SUMMER

O. A. Stevens

July 1 is the approximate date which separates the flowers of spring from those of mid-summer. Coarse weeds begin to dominate the woods and roadsides. The sunflowers and their relatives include many species whch may be cataloged both as wild flowers and weeds.

The milkweeds belong especially to the summer period. A milky liquid (latex) is found in many groups of plants including the spurge, dogbane and dandelion as well as the rubber tree. The milkweed family proper is recognized by the peculiar structure of its flowers. The pollination mechanism of these rivals that of the orchids and proves a pitfall to many insects, sometimes including the honeybee. One low growing species with yellowish white flowers blooms in June, but the well known common milkweed produces its huge purple tassels in July. Over most of North Dakota the showy milkweed occurs, perhaps more frequently. It differs from the preceeding in that the leaves are a little pointed and the individual flowers larger but fewer in a cluster. The swamp milkweed with brilliant red blossoms is rather local in the southeastern part of the state. The whorled milkweed is a common prairie plant blooming in August. The flowers are small and white, not especially showy, and the many leaves are very slender.

One of my favorites of early summer is the fringed loosestrife, a plant found in the woods and also along water courses or in moist grass land throughout the state. The name comes from the fringes of hair on the leaf stalks from the base of which come slender stems with golden, saucer-shaped flowers. I find the plant disappointing in cultivation for it spreads freely and the flowers fall soon after opening.

The prickly pear cactus blooms early in July. It grows in profusion on the hills and on the clay flats between them in many places of the western half of the state. The large yellow flowers with their wealth of petals and stamens are borne in profusion. The joints of the stem are usually about two inches wide but vary greatly. It may be noted that the groups of spines upon them are arranged in spiral lines. These are the places where leaves and branches would appear. A form of this plant with stems less than an inch wide is frequent on low alkaline flats. I have not seen it in flower.

The prairie clovers, purple and white, are some of the most characteristic prairie flowers of late July and August. The thimble-shaped heads are composed of closely set small flowers with protruding stamens. These plants are among the few members of the pea family which do not have the flower shape so characteristic of that group of plants. Both flowers and leaves of the purple flowered species have a pungent aroma which is lacking in the white flowered plant. The lead plant, so called from the gray hairy leaves of many small leaflets, is another exception in flower structure. Only the broad upper petal (standard) is present. Against the deep purple of this, the orange colored stamens make a striking contrast. The plant is shrubby but only about a foot high, bearing long spikes of flowers. Its season and habitat is about the same as that of the prairie clover though it seems to prefer good soil, while the other thrives well on stony knolls.

A native Spiraea is quite common over the eastern part of North Dakota. It grows in depressions of the prairie or other places where there is a fair supply of moisture and begins to blossom the first of July. At the same season comes a larkspur with tall slender stems bearing nearly white flowers. The prairie thistle is one of the many members of its family which may be considered both a weed and a wild flower. It is a native species and is common all over the state. The name Bull Thistle frequently is applied to it, but the plant described under this name in the books is an introduced plant found chiefly in woodland pastures in the extreme eastern park of North Dakota.

The common evening primrose also is weedy. Beginning about July 10, it produces long stems bearing yellow flowers an inch wide. The plant

reaches a height of three feet, the coarse woody stems often branching near the ground. It is a biennial and produces only a rosette of leaves and a carrot like root the first year. On account of this habit of growth it is found especially in fields left uncultivated for a season or in ground where similar conditions occur. Most of the members of this family begin to flower earlier but continue on through most of the summer. The white stemmed evening primrose has a peculiar hard stem with a sort of bark which peels off in strips. It is a perennial, bearing large white flowers, and is found especially in sandy soils.

WATER LILIES

George W. Gurney, Yankton

(Paper given at the last annual meeting)

The subject given me is water lilies. I will, therefore, deal but briefly with lily pools. In studying the instructions given regarding the construction of lily pools in various magazines and garden annuals, one is very apt to get the idea that the construction cost is prohibitive. This, however, is not the case. Anyone can have a lily pool that can secure a barrel, tub or similar container. Of course, there is more satisfaction in having a larger pool. You can put lots of money in a concrete pool, reinforcing and making heavy walls besides getting high priced labor to construct same. On the other hand, ordinary labor is all that is necessary to put in one of the very best of pools.

The writer's pool is an inexpensive pool about eight by fourteen feet constructed in the following way: I dug a hole the shape of the half of an egg the proper depth, placing heavy woven wire as reinforcement next to the dirt, holding it in place with staples that I made of heavy wire and bent for the purpose. These staples placed over the wire, held it the exact distance from the soil that I wished. Then the concrete was mixed and plastered on with a trowel until about three inches covered the entire surface. At the level of the ground, cobblestones were placed almost touching which gives the pool a very natural appearance. After water proofing it with pure cement, in a day's time or so the pool was ready for the lilies. The pool has now stood three winters and has given excellent results.

The lily pool seems to be a hobby with many people in Yankton. There are a large number of pools now constructed, all of them good, and a great many varieties of water lilies and other aquatic plants have been grown there under different conditions. My system is to fill the pool to proper depth with properly mixed dirt which contains rich drift soil fertilized with bone meal, at the rate of about one pint to a bushel of dirt. I like the system of growing the lilies in this way for the reason that I am sure that I have produced better lilies than others who plant in various containers, placing these containers in their pools, for the reason that they have plenty of soil on which to feed. I do not have any deep spots in the pool. These deeper pools are just a little dangerous where there are small children.

The lily pool, of course, wants to be placed where it receives the most possible sunlight. In many cases, these pools may be placed in a part of the yard where a natural background already exists. If not, prepare a good background. For the larger pool, you can arrange gravel paths or flagstone paths clear around, or if you prefer, only on one side. There are better chances for the arrangement of a good background where the walks do not entirely circle the pool.

Do not make the mistake of planting too many lilies in a pool as many of these varieties cover considerable space but always select a variety of colors. There isn't a better lily for a center lily than the blue tender water lily. They are always satisfactory. The past three years, I have tried the Pennsylvania, a very large flowered variety of a rich azure blue and a very free bloomer; the William Stone, a star shaped purple flower and a very strong growing variety, an excellent cut-flower variety and very productive, producing flowers on long stems and holding them well above

the water, the leaves of which are very attractive and prettily scalloped; and Bluebird, which is very similar to Pennsylvania. Of the three blue varieties, I really like the William Stone best. I have tried the Zanzibariensis Rubra, a bright rose crimson tender variety, which is a free bloomer and an excellent variety. On account of there being a shortage of hardy blue varieties, I advise the blue for a centerpiece in your pool rather than the red variety. There are many hardy red varieties, the Gloriosa leading all of them. Although not quite as deep red as James Brydon, Conqueror or Escarboucle, it more than makes this up in the fact that it is an easy lily to bring through the winter. It will produce more flowers than I believe any other two varieties of hardy reds, and it may be grown in a rather small space. I have tried several varieties of yellow. For ordinary planting, the Marliacea Chromatella is a very satsifactory yellow lily. It is low priced, hardy and easy to grow. For small pools, the Mexicana is a very superior variety. However, if you want something just a little out of the ordinary, plant the Sunrise, averaging over ten inches in diameter, producing beautiful, sulphur yellow flowers continuously from early spring until your pool is coated with ice. The leaves of this variety are exceptionally large and red mottled or spotted red. I have grown other varieties of yellow water lilies that I will not mention on account of them not producing a sufficient quantity of flowers.

Of the apricot-bronze shade, the Commanche leads all other varieties and is acknowledged by practically all as the leader. Its color is a wonderful combination of apricot changing later to a deep coppery bronze. This is a wonderfully productive variety and one of the strongest growers and one that I shall plant another year. This was one of the earliest and latest bloomers in my pool. It has been described by one water lily enthusiast as follows: "Brilliant, glowing, amber-red overlaid with yellow deepening to red with age. A steady free bloomer, one of the first to open in the spring and among the vanguard in the fall. The plant is sturdy and hardy, thriving under the most adverse conditions. An excellent all around sort."

Of the pink varieties I have tried, I like the Rose Arey exceptionally well. This particular variety was awarded a silver medal by the New York Horticultural Society. The flowers are deep cerise pink sometimes reaching eight inches in diameter. The petals are pointed and have a noticeable curl. The Marliacea Carnea is a delicate soft flesh pink deepening toward the bases of the petals. It is also an excellent variety and planted, no doubt, more than any other one. Is exceptionally hardy and easy to grow, not as large flowered as some of the other varieties but a good one.

The white water lily does not seem to be planted as extensively as other varieties. Probably on account of its color. On account of lack of room, I did not have a white lily in my pool in 1929 but will try to have one in 1930. The Morning Glory as indicated by its name opens very early in the morning. They are of fair size and the color of this Morning Glory is a delicate shell pink almost white at the petal tips shading deeper at the center of the flower. The delicacy of the shading of this flower cannot be described. The native white pond lily is good but will not compare with the Morning Glory. For small pools or tubs, I have found the Aurora and Mexicana giving excellent results. Both yellow.

The Egyptian Sacred Lotus lilies are not planted as much in the north for the reason that the season is altogether too short for them. They, however, are very popular further south.

The night blooming water lilies should be included wherever possible as many of us do not have the opportunity of seeing the day blooming sorts which usually are open from 9 o'clock in the morning until 3 or 4 in the afternoon, while the night blooming varieties commence opening at that time, continuing until morning. Of the night blooming varieties, I have tried the Juno, a white variety, and George Huster, a red, which are magnificent varieties.

A lily pool is not complete where it contains only lilies. Other plants are just as important and, of course, in order to make this lily pool an

attractive place, a place where you will spend a great many pleasant hours, you must add fish, frogs, snails, clams, tadpoles and turtles. With these added to the lilies and proper background and if room, a rock garden in connection with the lily pool, you will make that part of your yard a place of beauty which possibly had not been so attractive in the past.

THE EIGHTH MID-WEST HORTICULTURAL EXPOSITION

This exposition will be held at Shenandoah, Iowa, November 11 to 16, inclusive, 1930. This exposition includes the 18 middle western states and consists of exhibits of fruits, flowers, vegetables, edible nuts, honey products, home canned products, garden club exhibits, educational demonstrations and student judging contests.

Growers of horticultural products are cordially invited to attend and make exhibits. Copy of the premium list can be secured by writing R. S. Herrick, Secretary, Iowa State Horticultural Society, State House, Des Moines, Iowa.

SOUTH DAKOTA HORTICULTURAL MEETING

Professor L. E. Longley, Division of Horticulture, University of Minnesota

In January the writer had the privilege of attending for one day the meeting of the South Dakota Horticultural Society at Watertown. During that day the ornamental side of horticulture was most featured. Several interesting papers dealt with various phases of ornamental planting and flower growing. The report of Mr. Ford, the extension specialist in horticulture of the Agricultural College, was especially interesting. He is putting on a three-year program in Home Beautification. Last year he emphasized the arrangement of the home grounds and his report indicated that practically every community was reached. This year he is emphasizing the use of flowers in the home grounds. The discussion and papers indicated that a good response is being obtained from this intensive program.

The meetings were presided over by the President, Dr. N. E. Hansen, who contributed very much to the various discussions from his fund of horticultural knowledge. Mr. Robertson gave an interesting talk on his experiences in growing apples in the Black Hills. He had an exhibit of fruit of a number of varieties, such as McIntosh, Cortland, Delicious and others. He showed that good fruit can be grown in that region. All in all our South Dakota friends showed they are progressing in the important lines of horticulture and especially along the lines of home beautification.—Minnesota Horticulturist.

Our mention of honey locust and black locust recently has brought forth the question as to how to distinguish between the two species. The black locust has small thorns much like rose thorns on new wood, while the honey locust is either thornless or more often bears very large branchy thorns on the heavy stems. These large thorns are in reality simply modified branches.—Wisconsin Horticulture.

The State Department of Agriculture and markets of Wisconsin have ruled that drinks cannot be sold under the name of a fruit unless made entirely or in specified amounts from fruit juices. Synthetic preparations can be sold under coined names but they must not refer to or include the name of any fruit.