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NORTH and SOUTH DAKOTA HORTICULTURE

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NORTH AND SOUTH DAKOTA HORTICULTURE

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SHRUBS FOR AUTUMN COLORING

Mrs. M. W. Sheafe, Watertown

Sitting in my east window, looking out on the gorgeous autumn colors so in evidence all about, and at the same time meditating on what to send to our readers for the next copy of our magazine. Suddenly the reflection from the sunset changed the coloring to the most brilliant gold, the sky beautiful rose and grey with a stretch of white in the distance, that one could well imagine was a body of water. The gentle breeze caused the leaves to flutter, and glisten, like so many dancing fairies. As the sun was sinking in the west, the scene changed, and colors disappeared, until the grey of evening covered everything. From this picture, was suggested to me, that mention of some of the shrubs, that color so brilliantly and lend so much to the beauty of the landscape after the frost has taken most of the flowers, might be of interest and help.

One of the newer shrubs that to me seems desirable, as a specimen plant or used for a hedge is, Cotoneaster (acutifolia). The thick leathery, glossy leaves are always attractive, blossoms insignificant but numerous, followed by purple berries, is drouth resistant, and free from insect trouble. This shrub is especially beautiful in autumn when it becomes a brilliant scarlet and gold.

The Japanese Barberry is also desirable as a low growing shrub, very pretty in a foreground planting. It has clear green leaves, white flowers, followed by many elongated scarlet berries that hang on all winter, as the birds do not eat them. The foliage also becomes the most perfect flame color. Gloves are needed for this shrub when pruning, as the thorns are very sharp. It should be found in every planting, as it is not expensive, stands hardship well, but, responds to good care.

The Russian Olive, one of the grey leaved specimens used as a shrub, a small tree, or as a hedge or windbreak is one of our standbys. It has small grey-green leaves, very fragrant yellow flowers, followed by a wealth of glistening grey olives along the underside of the branches. As it withstands the severe winds, is not affected by drouth and supplies a fine color contrast, is very worthwhile. A similar shrub or small tree, is the Buffalo or Rabbit Berry, as it is some times called, very well described by Claude A. Barr, in our September copy. The leaves of this specimen are somewhat more elongated, a silvery grey, an abundance of flowers during April and May, followed in August by egg shaped fruits the size of currants, transparent, clear red.

The Thorn Apple, a native of this part of the country is a very choice shrub, or small tree. It is very hardy, grows symmetrically, bears white clustered flowers, like the plums followed in autumn by abundant fruits, that are when ripe a most gorgeous red. One small specimen, when in full fruitage, is a picture in any landscape.

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NORTH DAKOTA STATE HORTICULTURAL SOCIETY OCTOBER, 1930, NEWS LETTER

C. B. Waldron, Secretary, Fargo, N. D.

Following the resignation of Dr. Cooper who has been president of the Society for many years the Executive Committee unanimously selected Mr. George H. Will of Bismarck for the position.

Mr. Will has not yet been notified of the honor thrust upon him and the committee is wondering how he will react to their high handed action. They are figuring however that when he sees his name in print in this connection he cannot help but accept congratulations becomingly and go on with the job.

And it is to be no small job. At the last session of the legislature the bill giving the society a small annual appropriation failed through a peculiar and unexpected turn of events and with Mr. Will upon the scene of action we are expecting different results next winter.

Mr. Will is possibly the only member of the society whom every other member knows. The fact that he has been in the nursery and seed business all his life and has never been incarcerated nor maimed speaks well for his diplomacy, at least, and it will surely need a diplomat to cause a legislature to look with friendly eye upon any bill carrying an appropriation. All together now, three rah's for President Will.

In our last notes we called attention to the importance of watering all plants before winter. The advice still holds good. In most places the fall rains were not sufficient to find the roots of trees and perennials many of which go down three to four feet.

The calendar and the thermometer both remind us that it is time to get those rose bushes under cover, speaking now of the roses that are roses in the estimation of most rose fans.

There are many methods for protection, all having in mind the same idea, of keeping the plants dry and protected from severe temperatures by some insulating material. In the Fargo parks hilling the plants up high with earth, stretching a two foot poultry netting around the whole bed then filling the interior with leaves covered with brush seems to be the most practical method and it works. Laying the plants down and covering with earth and then with straw and finally with tar paper weighted or pegged down is a method practiced by many and one especially adapted to climbing roses. It is important to put additional earth over the roots to prevent root killing.

Unless it should warm up again the ground around my own roses is already frozen too hard for hilling up. But there is the wheel-barrow back of the garage and I have some dry earth kept under cover for such emergencies.

Those living on farms can find unfrozen earth under the edge of the strawstacks and of course they will be glad to help their city friends out in the present emergency. Of course it may warm up but don't take a chance on those roses.

Recently set perennials should have a good mulching after watering. Roots of most plants are killed at a temperature of some thirteen degrees above zero and the soil may get that cold in exposed places. It is well to remember also that the Darwin and some of the tulips often winter-kill. Cover them up.

SHRUBS FOR AUTUMN COLORING

(Continued from page 2)

From a bulletin from the "Morton Arboretum" the following information regarding planting:—"A pleasing arrangement, if an informal scheme is desired, is to place broad masses of good colored trees and shrubs together in a somewhat secluded out of the way spot where they will form a complete grouping among themselves and furnish a pleasant surprise to those suddenly coming upon them." While this information is intended for large estates it can also be used in a lesser way on the home grounds.

HORTICULTURAL NOTES

Oliver Strand, Field Foreman, Horticultural Department, N.D.A.C.

We have a few Black Walnuts for distribution which should be viable since the squirrels gathered them for us. These little creatures certainly are wise. We found all the nuts spread out to dry on the lower boughs of some nearby Spruce trees.

This year we included seven of the leading sweet potato varieties in our trials here at the College. Some of them made a fair crop, especially the Red Brazil, but the quality was inferior. Ami and Nancy Hall were rather low in yield but had the best quality of any we grew, though somewhat inferior to a southern grown variety which we purchased on the market and baked at the same time. Miss Leeby of the Home Economics Department had charge of the baking tests.

It is time to get the mulch on strawberries and other perennials that need it. The ideal mulch should be free from weed seeds and rather coarse so it will not pack too tight about the plants. A clean, coarse, broken straw makes a good mulch.

Fruit trees should be mounded up to protect the trunks from girdling. If the ground is level at the base of the tree there is a good chance for mice to make nests there. A mound four to six inches high is sufficient.

Inquiries about Golden Gem sweet corn make up a large part of our mail at present. This new sweet corn is certainly getting a good reception from seedsmen generally.

We received a few inquiries about growing popcorn for market. The possibilities of growing it in a limited way for local trade should be very good but as yet I do not believe we are ready to compete with Iowa growers.

Our crop of Highbush cranberries was almost a complete failure this year for the first time. Even last year we had quite a fair crop, though the fruit was somewhat shriveled.

The poor ants often get blamed for doing damage because they happen to get caught on the premises after the damage has been done by some other insect that managed to get out of sight. We received a complaint that ants were boring holes in fruit trees. The real culprit no doubt was a plum or peach borer hidden away in the hole.

We are starting our baking tests with Buttercup squash again this year but plan to eliminate some of the work by first discarding all squash that show an excess of moisture when kiln dried. Prof. Hopper of the Chemistry Department is cooperating with us and has been doing a lot of interesting work along this line.

Some time ago we received some bulbs which we were unable to identify so we planted them. The plants now look very much like the Shamrock, at least they would make a better substitute than some of the clover that is used for that purpose.

Some pods of the Hop Hornbeam or Ironwood tree were recently sent in for identification. The party also wished to know if the trees would be good for farm planting. This tree grows very slowly and I do not believe it would be satisfactory for that purpose.

RETAIL PACKAGING OF POTATOES GROWS IN FAVOR AT THE MARKETS

Increased use of small packages in marketing potatoes last season is reported in a recent survey by the Bureau of Agricultural Economics of the U. S. Department of Agriculture. Potatoes in small packages are intended to reach the consumer in the original container without the necessity of reweighing or repackaging by the retailer. Small bags made of cotton, burlap, or other fiber, and also paper cartons, are used. The bags or cartons usually contain 15 or 25 pounds.—Minnesota Horticulturist.

EXTRACTS FROM THE DIARY OF A TRAVELING MAN

W. A. Simmons

September 6. A recent letter from Mr. H. E. Beebe of Ipswich, S. D. contains the following: "In regard to the flowers in Death Valley, my ideas are the same as expressed to you before. These seeds have not remained dormant at all, but the plants have come up each year. They have, however, been of such small size that they have not been noticed, and the flowers have also been so dwarfed that they are not recognized as flowers until unusual rainfall and climatic conditions bring them to normal size." This is a very interesting explanation and may well be the true one.

September 7. A sign of the times seen in a S. D. hotel: "If you believe in cashing personal checks, we have a number we would like to have you cash."

September 12. Arrived home in time to see our speciosum lilies in bloom. Had always doubted the hardiness of this lily and treated it as an annual, but on being assured it was hardy, I thought wintering it in the ground worth trying.

A year ago last spring, I planted the bulbs unusually deep, about 15 inches and in the fall gave the bed a heavy mulch. They came through the winter safely and this year grew much taller and had many more fine blooms than ever before.

Allen in his bulb book, says few lilies are really hardy and most of them richly repay in increased flowers, mulches that prevent the ground freezing in their bed. The extra floriference of many varieties of lilies in England gave him this idea. He says that even the coral lily, coming as it does from cold Siberia, is not very hardy because in its native habitat, deep snow comes early and the ground freezes very little, even though cold is very severe. It is well to have the mulch extend out for a few feet around the lily bed, he says. Lily growers in Vermont seem to be very successful in raising fine lily bulbs, and there also, deep snow comes early and the ground freezes very little.

September 13. We take pleasure in announcing the affiliation of the Beresford Garden Club with the State Horticultural Society. This club is one of the livest organizations in this very wide awake little city, and holds many meetings during the year and several well attended flower shows. The traveling man and daughter had the pleasure of being entertained by this club at its fall meeting last night, at which the question of becoming an Auxiliary of the State Society was settled.

The club is very fortunate in its choice of officers, Mrs. Carpenter being a very charming President, and Miss Lydia Claussen, a very gracious and efficient Secretary. The President's interests evidently are not entirely confined to flowers, as we can personally testify she raises some very wonderful doughnuts also. Would enjoy having about a quarter dozen of them within reach right now.

Bought a watermelon from a truck load brought in by a farmer today, and was rather surprised to have the former owner insist on carrying it across the street and depositing it in my car. When I got home I learned the reason for this unusual display of service. The melon was light as a feather and seemed to be a waterless watermelon. This was a result of our dry summer, I suppose. The poor thing had to fill up on hot air instead of water.

September 15. Had a very pleasant visit with our treasurer, Mr. H. N. Dybvig at his home near Colton, S. D. He showed me tens of thousands of healthy young lily seedlings coming on, some of this year's planting and some planted the previous spring. These were mostly Regals, though he has good sized beds of several other choice sorts, including coral (L. tenifolium), speciosum, henryi, and even a few auratum. Mr. Dybvig has been much interested in lilies for years, and has raised great quantities of tiger and several elegans varieties. Of the latter he likes the yellow Alice Wilson best.

He takes up several new lily varieties each year and soon will have about all of the sorts possible in our climate, growing on his place. He even has a very fine bed of our pretty little wild lily, L. philadelphicum naturalized, and apparently happy, on his place.

September 24. Newspapers today bring the sad news of the passing of Mr. Horace J. Ludlow, introducer of the Okabena apple, at his home in Worthington, Minnesota. Mr. Ludlow was well known to many of our members, as whenever our meetings were held within a reasonable distance from his home, he was always with us, and our reports contain many fine papers from his pen.

Born in New Jersey 87 years ago, he came to Minnesota in 1881 and was an active horticulturist during all the years of his residence there. By his precept and his example, he did much to transform the bare prairie of western Minnesota, into the garden spot it now is. Though living to an age but few attain, Mr. Ludlow absolutely refused to grow old, and his mind was vigorous right up to the last. His was a merry soul, spreading much sunshine along life's way, enjoying a good story and having many good ones of his own to trade therefore. His friends were limited only by the circle of his acquaintance, and all will mourn his passing.

September 26. Spent several hours on the Custer Battlefield today. The old German caretaker, a soldier who was near the field at the time of the battle and whose acquaintance I made several years ago, retired last year and his place has been taken by a younger ex-soldier, a Spanish War veteran. As the tourist season is over, he was able to devote considerable time to me, though at the height of the season, he told me, they often have 500 visitors a day. He allowed me to read copies of the official dispatches regarding the battle, those of General Terry being especially interesting. There is a National Cemetery of 640 acres adjoining the battlefield, capable of affording a last resting place to half a million, he told me. As the various frontier forts were abandoned, the contents of their cemeteries were brought here for permanent interment and these were brought in their entirety, grave stones and all, and these latter include many strange little monuments. Many of these were brought from money chipped in by their fellow soldiers for soldiers who had died of disease. Not all that are buried here were soldiers as some were marked "civilian" and some officers' children have rather pretentious monuments.

A rather pathetic proof of the high rate of infant mortality that existed at these lonely frontier posts, exists in the large number of markers labeled Smith infant and other such names, the poor baby evidently never having had a given name bestowed on it. The entire place including the battlefields on the ridge above it, is terribly bare of all horticultural adornment, with not a tree, shrub or blade of cultivated grass adorning it. Nothing but the old native prairie sod with a few yuccas and other wild flowers. This will always remain true of the battlefield, the caretaker told me, but an effort will be made to obtain an appropriation to put in a pumping station down on the Little Bighorn River, and get water up so that the cemetery can be landscaped and beautified. Certainly it would seem that a great country like ours could afford to do this much for its fallen heroes. On the battlefield a small marble marker shows where each dead soldier was found by Generals Gibbons and Terry when they came up and put to flight the Indians who were attacking Reno. These are widely scattered over a distance of nearly a mile and are usually but few in a place. Near the large monument, where General Custer's body was found, there were about twenty, but either the command was excessively deployed or a vain attempt to escape had been made by many, or perhaps a running fight had been made and some had succeeded in getting a considerable distance away.

Probably after their return to the ridge from the river bank, much demoralization existed and concentration was impossible. Was surprised

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TULIPS—PLANTING AND VARIETIES

Thos. W. Hobart, Sioux Falls

Broadcasts 4:30 P. M. over KSOO every Monday and Thursday

Every fall for the last 30 years I have been called upon to answer these two questions about tulips. What is the best way to plant tulips, or how should tulips be planted, and why do my tulips commence to die out in two or three years after planting?

In answering these I will give my own experience and observations over a period of 40 years here in Sioux Falls.

Planting—Because the white grub worm and several varieties of wire and other earth worms are over fond of tulip bulbs, I some 35 or 40 years ago commenced making all out-door plantings of bulbs in sand. In the old days of formal design or carpet bedding I removed all soil to a depth of six or seven inches, then spread evenly over the whole surface of the excavation a layer of sharp sand to a depth of two or three inches. In this 1 arranged the bulbs which were of the early double or single varieties (under color) in the desired pattern or design, placing them about six inches apart and pushing them well down in the sand. When all were set they were evenly covered with another layer of sand making the whole depth of sand in the bed about four inches. About one quart of fine bone meal and three or four pounds of pulverized sheep manure was added to each bushel of the earth that had been removed and well mixed, this enriched earth was then replaced. Because of the added sand this would raise the surface of the bed above the surrounding ground, which is an advantage as it was used to raise the center of the bed so that surplus water drains away preventing too much moisture around the bulbs which will cause them to rot (if in excess) while they are resting or dormant in midsummer.

This sand planting prevents worm injury as worms will not work in pure sand, and furnishes the drainage that helps prevent the summer rotting of the dormant bulb.

We had many beds so planted that gave excellent satisfaction and increased in bloom over a period of 8 to 12 years. While other plantings not using the sand died out in 1 to 3 years. We follow the same general method at present, though as we now plant the beautiful Darwin-Rambrant, Breeder and Cottage Tulips so much in vogue and do less bedding and with more informal plantings among shrubs and perennials we of course modify the procedure to the extent that in shrub or perennial borders we usually plant small groups of twelve to twenty or more bulbs of a single named variety or color in a group and these groupings irregularly throughout the border. For some of these we remove the earth in an area large enough to hold the whole number of bulbs, and place the sand and otherwise plant as described above.

In some instances individual holes are dug with the trowel to a depth of six or seven inches, a tea cup of sand is placed in the bottom, the bulb set in this and covered with more sand and the earth replaced. In this border planting these later blooming and taller growing tulips are set from six to eight inches apart and nearly always in color groups that will blend well with the shrubs or perennials in which they are planted that are likely to be in bloom at the same time.

Tulips do a whole lot better if not dug up and replanted each year, as if they once become established there is much better chance of their increasing in number than when disturbed each spring. Also don't cut the leaves off in the spring when done flowering as the leaf growth after flowering is what prepares the bulb for the next spring's flowers, so let the leaves grow and die naturally.

A Few Words on Varieties

The so called early tulips are generally more dwarf like in growth than the later varieties although many of these now grow to good heights. They come in nearly every color and color combination, and

because of their former eveness of growth and blooming habits were much used in formal or carpet bedding a few years ago.

They come in both single and double flowered types, some of the double kinds rivaling the best peonies in size and color of bloom. Some of these should be included in every planting as they have a beauty wholly their own. The **Darwins** and **Cottage** types are planted so generally here now that they hardly need description, they follow the earlier varieties in time of blooming, have beautiful large cup shaped flowers on tall stems, come mostly in solid colors. The Darwins run from light pinks to very dark purple almost black, with beautiful lavenders but no yellows.

The **Cottage** types are much like the Darwins in season and growth but the flowers are more delicate in form and colorings, running from delicately tinted white through the pink and yellows, many are very sweet scented. When you buy Darwins mixtures that contain yellow flowers, the yellows are always from the **Cottage** group.

The **Rambrants** are breaks or sports from the **Darwins**, and on account of their odd colorings and varieties are becoming very popular. They are very decorative.

The **Breeder** tulips are supposed to be close to the parent or original types. They blossom in May and while not so tall as the Darwins produce larger flowers in many rare colors, including browns, bronzes, purples, blue-blacks, dull golds and dark lilacs all exquisitely blended. Include some of these in your bulb plantings.

There are several other types not much planted now that I will not attempt to describe.

There is considerable disagreement among planters as to the best time to plant in fall. My own experience over a period of nearly 50 years has been that there is some danger in too early planting especially in wet seasons as last fall. The bulbs are liable to make too good a growth before winter sets in, and the dormant flower bud starts out of the bulb (some last fall got near the surface of the ground). When this happens the flower bud freezes and is destroyed for the following season, causing the bulb to come blind. These bulbs will usually recover and flower a year later. When I have been able to plant just before freezing I have always had the best of success. However, it is always best to get the bulbs into the ground as soon as you receive them, for they lose vitality very rapidly if left laying around, and they never seem to recover from this and after blooming feebly one or two seasons fade away and disappear.

The best bulbs having the strongest vitality arrive in October and November, and having had longer to mature being the last dug in Holland always give much better results than those that are dug earlier and arrive in this country in September.

GRAPES

Are Black Hamburg and Campbell's Early grapes hardy here?

The Black Hambury grape is most assuredly not hardy in Minnesota. So far as I know, it is not grown anywhere in the central or northern part of the United States except under greenhouse conditions. It is not a good outdoor grape, even in a mild climate, but is a forcing grape used in greenhouses. The Campbell's Early is a fairly hardy grape, although it requires protection in Minnesota. This protection can be secured by pruning the vines in the fall after the leaves are off, then laying them on the ground and covering with soil.—W. H. Alderman.—Minnesota Horticulturist.

Mr. A. T. Glassco, county agent of Rock county, tells us in Wisconsin Horticulture, that farmers who sprayed five times secured a crop of apples free from worms, while the ones who sprayed only three times had apples that were 25 per cent wormy.

SQUASHES AND PUMPKINS OF THE NORTH DAKOTA INDIANS

George Will, Bismarck, N. D.

The title of this paper probably requires a little clarifying before proceeding with my story. In the minds of most of us there is a very decided haziness as to just what the difference is between squash and pumpkin, and further there are prevalent many mistaken notions as to the ability of the various vine crops to intercross. The squashes and pumpkins are all comprehended in three botanical species cucurbita pepo, moschata and maxima. C. pepo is the true pumpkin though many of our so-called squashes belong to the family. Its chief characteristics are a very deeply lobed or cut leaf and a five sided stem which separates completely from the fruit when fully ripe. C. Mochata is a somewhat variable type with varying characteristics. The leaves are usually deeply cut into three lobes where C. pepo varies from 3 to 5; white patches are nearly always present in the leaves along the veins, these are occasionally present in C. pepo also but not along veins. Flowers are larger and on the average lighter colored than in the other two species. C. Moschata is a species of pumpkin also.

Cucurbita Maxima is the sole species properly called squash. These are always viny plants, leaves kidney shaped and not cut or lobed, stem soft and not separating naturally at the point of contact with the fruit.

To the C. pepo group belong all of our field and sugar pumpkins, as well as such so-called squashes as the Fordhook and Table Queen, the flat or scalloped summer squashes, the crooknecks, the marrows, and the Mandan and Chinese Chirimen. To the Moschata group belong the cheese pumpkin, the Cushaws and the Japanese Pie, Quaker Pie and Sweet Potato Pumpkin. To the Maxima group belong such real squashes as the Hubbard, Winnebago, Arikara and Kitchenette and the turban types as well as the so called mammoth pumpkins such as King of the Mammoths.

There is very conclusive evidence that all three species were present in America before its discovery, and all three were grown by the agricultural Indians for centuries prior to that time. In fact so far back does the taming of the wild plant go that up to the present no definite wild ancestor for any of the three species has been surely discovered, though a Florida wild gourd is suspected of being the parent of the C. pepo group.

Remains of both the pepo and Moschata types are found among the ruins of the cliff dwellings and old pueblos. Both of them as well as the maxima type are pictured or modeled in pottery and stone in both the Mexico-Central America area and Peru. All three of them are described by the earliest visitors to the various Indian tribes all the way from the Atlantic coast through the Iroquois area, down the Ohio valley, along the Mississippi, through the south and into the arid Pueblo regions.

In our own state the information so far available would tend to show that vine crops have been grown for three hundred years or more, first by the Mandan Indians, our earliest agricultural Indians, next by the Hidatsa to whom the Mandans taught agriculture, and later by the Arikara or Ree Indians who brought agriculture with them by slow stages from the far southwest and who first entered South Dakota more than three hundred years ago and North Dakota probably at least two hundred. Excavation in the old village sites of the Mandans never goes very far without turning up various items of agricultural remains including charred corn and corn cobs, bits of squash or pumpkin rind and stem, sunflower seeds, beans, and squash or pumpkin seeds, apparently nearly always of the C. pepo type.

The oldest historical reference which we have to the squashes and pumpkins of the Indians of North Dakota is now 192 years old. The French explorer, La Verendrye, who visited the Mandan Indians at their

Heart River villages in 1738 says at one point in the journal of his stay among the Mandans "They brought us more than 20 dishes of wheat (by which he meant corn), beans and pumpkins cooked together."

From that time on we get references to squashes and pumpkins in nearly every report and journal from travellers along the Missouri, including the Lewis & Clark Journals. Our best informant, however, is the German Prince, Maximilian of Wied, who lived with the Mandans for some months in 1833 and 1834 and goes into more detail than most of the travelers. He lists the different varieties of gourds, as he calls them, saying that they had yellow, black, striped, blue, long and thick shelled, these being the names by which the Indians called them. We have no definite description of the varieties grown by the Arikara, but at least in recent years they have been the same. According to several accounts that tribe seems to have been particularly partial to pumpkins and the quality of their small orange pumpkin is often mentioned.

Through the terrible catastrophes of the 1830's when most of the tribes in addition to continual harassing by the Sioux went through an epidemic of smallpox which reduced them by more than half on the average and cut the Mandan Indians to a bare handful, the three tribes, the Mandan, Arikara and Hidatsa, preserved their agricultural crops and varieties and carried them on down even to the present.

Some 20 years ago after considerable difficulty, I secured from a Mandan Indian, James Holding Eagle, seed of the Mandan warty white and green and white striped squash which came mixed and as one variety. At the same time he presented me with a small tobacco sack of seed collected from different families which when planted yielded numerous types and sorts of pumpkins and so-called squashes, badly mixed by crossing. A number of years were spent in unscrambling the mixture and the results were interesting in the extreme as well as of considerable practical value. All of the types separated out had the common qualities of extreme earliness, extreme hardiness, drouth and cold resistance, and are I believe the earliest members of the species.

Commercially the Mandan Squash and the Ft. Berthold Pumpkin have been introduced into commercial channels from the types found in that motley collection. Both belong to the cucurbita pepo family and I believe all the others found also belong to that group. It is possible that there were some moschata included but very doubtful as they all seemed to cross. It has been experimentally proved by Messrs. Erwin & Haber of the Iowa A. C. that cucurbita pepo, moschata and maxima practically never make natural crosses with each other although different varieties of the same type are continually crossing. Certainly no seed of a member of the maxima group was contained in this lot of seed.

The types which gradually emerged and undoubtedly traced back to original pure varieties were first the Mandan commercial squash variety in two forms, one creamy white, the other white striped with dark green, sometimes almost overlaid with green. These were flattened globes for the most part with a very hard shell when mature and very warty. From this type was also isolated a flat scalloped squash which was discarded as of no special value. Then there was a black green type almost identical in appearance with the Table Queen, but of poorer quality and greenish white flesh. Of the same color was a squash shaped like the Fordhook, and a still longer type. Next were the real pumpkins of which there were several. First the small orange colored pumpkin, slightly flattened and lightly ribbed. Then there was a rather large, nearly spherical cream colored pumpkin of rather thick flesh and larger seeds. There was a small considerably flattened cream color pumpkin, and one very similar but light yellow in color. These were all soft shelled and typical Connecticut Field types. Then there were two pumpkins with somewhat harder shells one being yellow with green stripes, the other yellow with green stars dotted over the surface which gradually faded and disappeared as the pumpkin became over ripe. These had a

thin hard shell on the outside which became softer with age, and were only slightly flattened.

Of the maxima type the only one so far collected is the one which we have introduced as the Arikara squash. The seed of this was secured by Dr. Melvin R. Gilmore from the Arikara Indians on the Ft. Berthold reservation. It is of fair quality, the earliest of the maxima type we have ever seen and very prolific. It has attained a good deal of popularity, as has its relative the Gilmore which is a cross between the Arikara and the Winnebago, the latter a squash of very high quality from the Winnebago Indians of Nebraska, but rather late and a poor yielder in our latitude.

This completes the list of cucurbits which have so far been recovered from the Indians of North Dakota. In general characteristics they are all very similar as regards the characters of earliness, hardiness, drouth resistance and ability to grow and sprout in cooler weather than the ordinary varieties will, as well as ability to lay in cold ground without rotting. They also have the characteristic of blooming on a very small bush growth and maturing a few fruits very rapidly while the bush develops into a vine and spreads rapidly if conditions are favorable, or remains a dwarf bush if they are unfavorable.

On the average the quality of the fruits of these native North Dakota cucurbits is not as good as that of the ones from further south. The pumpkins, however, seem to be of quite satisfactory quality and the Arikara squash is I believe rapidly improving with selection for quality. Altogether it would seem that we have in these native varieties, gifts to us from our Indian predecessors, some very useful and valuable additions to our list of vegetables.

Before leaving the subject possibly it might be of interest to add a few words on the methods in which the Indians used their squashes and pumpkins. The common or hard shelled types were usually gathered, with the exception of a few left for seed, when about the size of an apple and still in a green state, the patch was gone over every four days and all of the proper size picked. They were then sliced into ring ¼ inch thick, threaded onto small rods and laid between rafters of the corn scaffold in front of the lodge to dry. After drying they were strung on strings made from dog bane and packed away in caches in the ground for winter use. The pumpkins were not gathered till mature and were cut into long ribbons much as an apple is peeled. These ribbons were plated or braided into loose mats which were hung up to dry also, and later stored for winter.

The ripe hard shelled fruits were broken open, the seeds taken out and saved and the flesh boiled with a little sweetening and a few squash leaves and eaten alone, they were also cooked with beans and corn, and with meat. Pumpkins were preferred when boiled with meat into a thick broth. The ripe squashes of the hard shelled types were also sometimes broken into pieces and roasted in the coals. The dried squashes and pumpkins were usually boiled with dried sweet corn, beans and meat and in various combinations of this kind made some very palatable dishes which were much praised by many of their early visitors.

I trust that this little account of another crop of our Dakota Indians has been of some interest, and perhaps it may stimulate some interest in further experiments with their varieties and tests of their qualities.

We have in the Black Hills a low growing spirea with white blossoms. The plant is similar to Collosa Alba except that it has one single stem instead of the bush form from the ground.

Leaf galls are the one thing that seem to be more abundant this year than usual.

Try mixing honey with a good grade of peanut butter. It is being sold as honey spread on the market. The nut flavored honey is very good.

GARDEN NOTES

F. X. Wallner, Sioux Falls

October 5. We have sold a lot of watermelons from Vermillion, Mitchell and Yankton. In fact the Sioux Falls market has taken a lot of the melons from these places. The Kleckleys Sweet are the favorite, while the Light Icing from Mitchell is very good; it has the fault of the hollow center on account of the long drouth.

This is also the 45th anniversary of a cold spell, five below zero, should a change like that come soon we would lose a lot of the crop as we are still picking green vegetables, tomatoes, melons, peppers and spinach.

October 15. This seems to be the 50th anniversary of the big snow the year I landed in Dakota. Thirty years ago we also had a blizzard and a cold spell on this day. Its turning cold here today and looks as though history will repeat itself.

October 19. Three days of cold freezing weather, the ground is frozen five to six inches and I am afraid it will get even such crops as the carrots, beets and cabbage that we have not gotten in as yet. We also have a week's digging of parsnips and oyster plants. Many fields of potatoes are still in the ground and perhaps will be lost. We have our celery trenched just in time. Two big loads of onions are still on the wagons, covered, waiting for a favorable day for the topper.

Our Honey Rock muskmelons were a little late as they were just ripening when the freeze came. This is of the honey dew type but they require a longer season.

The two rows of sweet potatoes yielded a good crop except where the moles got at them. Do not tell me that moles do no damage in the garden.

Boulder Dam is a warning to the vegetable industry. The mass production they fear will put still more of the little growers out of business.

The sweet Spanish onion is the big thing in onions, one grower in Nebraska had fifteen acres whereas the year before he had only one acre. I find it did better than all others even when not irrigated.

They say its entirely proper now to use the knife in eating lettuce, splendid cooperation between lettuce growers and manufacturers of knives.

Onions are again a glut on the market selling below cost of production, ninety cents to one dollar and twenty-five cents in one hundred pound lots. While cabbage and potatoes are double this amount and they require no hand work. It seems there is a big crop in spite of the drouth.

EXTRACTS FROM THE DIARY OF A TRAVELING MAN

(Continued from page 6)

at one sentence in General Terry's report, in which he says that there were a number of white men, among the attacking Indians. A bronze tablet on the battlefield has inscribed on it a verse from "The Bivouac of the Dead," as follows:

"On fames eternal camping ground
These silent tents are spread,
And glory guards with solemn round
The bivouac of the dead."

When one looks down on the long rows of marble markers in the cemetery below and realizes what "these silent tents" are, a great pity wells up in him for the poor boys whose lives were so quickly snuffed out. Had Custer waited a few days for General Terry, there would have been a very different outcome.

BEEKEEPERS' NEWS NOTES

J. A. Munro, State Entomologist, Fargo, N. D.

A special subscription rate of 50 cents per year for the American Bee Journal has again been secured for members. This represents a real saving as the regular rate is $1 per year. To benefit by the special rate, the subscription must be forwarded through this office. Gleanings in Bee Culture may also be had at 50 cents per year. Keep up with the times and subscribe to both magazines. If you wish to subscribe to these magazines add the proper amount to your annual dues ($1.00) and send same to J. A. Munro, secretary-treasurer, State College Station, Fargo, N. D., and you will receive proper credit.

A beekeeper of Sanborn, N. D., asks directions for using calcium cyanide to kill bees. This compound is usually on the market in powder or flake form and is known under a variety of trade names. Ordinarily, one teaspoonful of the fumigant placed inside the hive (on the bottom board) will kill a colony of bees in a very few minutes. The hive entrance may be closed to retain the fumes.

A beekeeper of Devils Lake, N. D., asks about the construction of a top entrance for hives, used in connection with outdoor wintering. We referred him to an article on the subject in the October, 1930, issue of Wisconsin Beekeeping. A recent visit to Mr. Jack King's apiary at Buffalo showed that he is trying a few top entrance hives, along with the others that he is wintering outdoors. For this type of entrance, Mr. King used a cover, very similar to an inverted bottom board, with tunnel leading from the entrance to the outside of the packing.

Incidentally, Mr. King showed me a pair of hive lifters which he finds very useful for moving hives from one place to another. He had them made by the local blacksmith from a piece of quarter inch round steel. Each piece of steel is bent near the center to form a handle and the ends are bent in about an inch to form claws. Mr. King tells me that he will soon be leaving for Crawford, Miss., where he will spend the winter with the Jensen's Apiaries of that place. Sorry that friend King will miss our winter meeting but we will hear from him some other time.

The North Dakota Bee Supply Company is to be congratulated on its splendid honey and beeswax exhibit shown in Moorhead during the week ending October 11, and in Fargo for the week ending October 18. Honey, both comb honey in sections and extracted honey in glass, from the Goose River Apiaries of Hillsboro, N. D., and beeswax candles from the apiary of the Sisters of St. Benedict, Crookston, Minn., featured the exhibit. Many favorable comments have been received on this exhibit.

Several inquiries have been received of late as to the value of Hubam sweet clover (annual variety) as compared with the common biennial sweet clover, from the nectar producing standpoint. Most authorities agree that there is no difference between the nectar gathered from Hubam sweet clover bloom and the common sweet clover. In other words, either source will produce the same fine quality honey. It is pointed out, however, that the Hubam variety comes into bloom a little later than the common variety, but blooms continuously until frost or unfavorable weather prevents nectar gathering by the bees. Editorial comments in some of the recent bee journals remark on the spotted condition of sweet clover in some of the honey producing territory of this country. These writers recommend beekeepers to sow Hubam next spring in case the common sweet clover has been killed out. Hubam, unlike the common sweet clover, will bloom during its first year of growth.

January 20-22 has been tentatively decided upon for the annual meeting of the North Dakota Beekeepers' Association and winter short course in beekeeping to be held at Fargo. This is Farmers' and homemakers' Week and has in the past always proven a satisfactory time

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NOTES TO NURSERYMEN

J. A. Munro, State Entomologist

From time to time a list of North Dakota nurserymen and dealers in nursery stock is requested from this office. The following is a list of all those who are licensed to deal in nursery stock in North Dakota:

Nurserymen—Anderson Nursery Co., Devils Lake; Golden Rose Plant Co., Fargo; Bottineau Forestry School, Bottineau; Devils Lake Nursery Co., Devils Lake; Gregg Nursery Co, Garrison; Hankinson Nursery Co., Hankinson; Fannie M. Heath Nursery Co., Grand Forks; George Hedner Nursery Co., Wahpeton; Home Nursery Co., Lefor; Livesay Nursery Co., Jamestown; Macks Nursery Co., Jamestown; Mulhair Nursery Co., Lucca; Northwest Nursery Co., Valley City; Riverside Nursery Co., Amenia; Rognlie Plum Farm, Esmond; Schmitz Nursery Co., Lark; Shotwell Floral Co., Fargo; Peter Voiss Nursery Co., Grand Forks; Wahpeton Floral Co., Wahpeton; Wildrose Nursery Co., Wildrose; Oscar H. Will & Co., Bismarck.

Dealers—O. J. DeLendrecie Co., Fargo; Fargo Floral Co., Fargo; Hankinson Floral Co., Hankinson; Herbst Department Store, Fargo; S. S. Kresge, general office Detroit, Mich.; Lake City Nursery, Fargo; Magill Seed Co., Fargo; Rose Hill Nursery, Fargo; Sacred Heart Nursery, Fargo; Woolworth Company, head office, Minneapolis, Minn.; Berg Nurseries, head office, Minneapolis, Minn.

Nurserymen will be glad to hear that North Dakota currant and gooseberry plants (other than European black currants) may be shipped into any state in the union, subject to the requirements of Regulation 4 (a). This regulation reads as follows:

(a) Restrictions applying to interstate movement from any state—currant and gooseberry plants (other than European black currant plants) shall not be moved or allowed to be moved out of any state unless the car, box, bale or other container thereof is plainly marked to show the names and addresses of the consignor and of the consignee and has attached to the outside of said container a valid state nursery inspection certificate of the state from which the shipment is made.

Each such shipment moved interstate into any state having a legally established blister-rust control area shall bear on the outside of the container a control area permit (Form 415) issued by an inspector designated to act for the plant quarantine and control administration in such state.

No variety of currant or gooseberry plants shall be shipped into any state in which the planting and possession of such variety is prohibited in such state by any state law or regulation. (A regulation of Rhode Island prohibits the planting of flowering currant plants (Ribes aureum and R. odoratum) and such plants may not be shipped into that state).

The writer will appreciate having reports of borer injury to ash in connection with a study being made on this problem. To date, quite a number of persons have reported this pest as causing serious injury especially to ash in shade and shelterbelt plantings. The specimens sent in have included both the carpenter moth larvae (Prionoxystus robiniae Peck) and another borer which is much smaller and believed to be the lilac borer (Podosesia species). Both these borers have been responsible for killing a high percentage of ash trees in many plantings throughout the northwest.

Washing apples in preparation for market is becoming more popular.

Raspberries that are covered produce larger berries and more of them, even though they may live through the winter without cover. Try covering part of your patch. Better just leave a few uncovered for a check.

TREES

Otis Dill, Rapid City, Landscape Architect for Gates Nursery

The groves were God's first temples, and in the presence of the one finds peace, quietude and inspiration.

Botanically, a tree is a perennial plant with a single woody stem, or trunk, not less than 25 or 30 feet high. It differs from other woody plants chiefly in size.

Many full grown trees are from 2 to 10 times 25 feet high and the tallest of them extend upward from 300 to 400 feet.

The average life of nearly all classes of trees is more than a hundred years and many live several centuries. Though the tree grows as long as it lives, it grows more slowly after it reaches maturity, the oak for example, reaches maturity in 120 or 200 years, and after that the annual layers of wood are very thin. The oak is said to live a thousand years. As Dryden expresses it: "Three centuries he grows and three he stays supreme in state, and in three more decays." The Charter Oak must have stood several centuries when in 1687 the Charter of Connecticut was concealed within it. The tree was blown over in 1856.

The Washington Elm was an old tree when Washington in 1775 took command of the American Army under its protecting shade, and it still stands. Many of the great trees in the region of the Rocky and Cascade mountains are from 800 to 1000 years old. In 1900 there was felled a giant California Redwood that began its existence in 271 B.C. A scientific study of the trunk of this tree revealed many interesting facts in history. It was 1763 years old when Columbus discovered the new world and some of the big trees are older than this. (See Sequoia).

We have the elm tree. It is one of the most beautiful trees in America. It is noted for its beautiful foliage and graceful spread. In 1837 the pest of European elms, the elm leaf beetle, appeared in the United States and Canada and has since spread throughout America. It is very small, about one-fourth of an inch long and is of a yellowish brown color with three indistinct stripes on the wings. The grub of this beetle is like a caterpillar, first black, gradually changing to yellow, with three dark stripes.

The trees should be sprayed well in the spring about two weeks after the grubs have come out of the pupa stage to feed on the new foliage. The elm is also bothered by a little worm called a borer. There are two kinds of them that work on the tree the most. One called the long tailed borer, of a brownish color about an inch long and has quite a number of legs, and can travel very rapidly. He is very distinctive to the trees especially the oak and maple. The other is a little white worm with a black head and is short and stubby. He is the most destructive of them all. It works on the cambium bark. Often they will girdle a tree and kill it outright, but more often they work where a limb has been cut off and not properly treated. The limb will crack open and water will gather there, and then the fungus sets in. This makes a nice place for the borer. You can most always tell when one is at work by the discolored discharge coming from his hole. He should be cut out immediately before he has an opportunity to do much damage. Then the bark should be sealed and treated. If a tree surgeon is available you should employ his services, if possible, for this work.

Tree surgery has proven very successful if properly done. This work is expensive at the most, but an inexperienced man is indeed expensive, for you pay him for his work, then in a few years you will have to have all this work done over, only it will be much worse this time for the worm has been eating all these years.

Some people have gathered the idea that if you cut into the heart of a tree you will kill it, but that is a mistake. I have cut the entire heart out of a tree for 8 or 10 feet. Nothing left but a shell, then put braces into it to keep it from bursting, then fill it. It will heal over this

filling in 10 or 12 years and will live for a number of years. I worked upon a tree this spring in Lebanon, Ill., for Mrs. Morris of the Morris Packing Company. It was a white oak tree. These small borers had been working upon it. When I got them all dug out I could get into the cavity and sit down it was so large. I received a letter from her saying it was doing very nicely now.

Very few trees in South Dakota die a natural death, the greater part of them starve to death for lack of nourishment. Every two years large trees should be fertilized very heavily. This can be done by digging holes about 12 feet apart all around a tree about the end of the limbs. The holes should be about three feet in depth. A post hole digger is very good for this purpose. Put about two feet of fertilizer in the hole then earth on top. This should be done in the fall, then the next spring look at the difference in your foliage, it will be much greener and healthier looking.

BEEKEEPERS' NEWS NOTES

(Continued from page 13)

for the meetings due to the other many activities going on at the Agricultural College at that time and the reduced railroad rates in operation. Plan to attend this meeting. Further announcements will appear later.

J. H. Beatty of Fargo brought to the attention of the writer the finding of a swarm of bees that had taken up its home among the branches of a small shrub. The bees had built a quantity of comb, reared brood and had stored a good amount of honey when found. The colony was discovered several miles north of Fargo and was captured by cutting the branches which held the combs, bees and honey.

South Dakota Premium List

1.—Anoka apple, usually bears the second year.
2.—Lilium Elegans, red, three bulbs.
3.—Gladiolus, 12 bulbs.
4.—Iris, three varieties.
5.—Oka Cherry, one plant.
6.—Peony, red, one root.
7.—Peony, pink, one root.
8.—Peony, white, one root.
9.—Chinese Elm, 18-24 inches, two trees.
10.—Dolgo crab, that good jelly crab, one tree.
11.—Haralson apple, the large red winter apple, one tree.
12.—Latham raspberry, three plants.

The annual membership fee for the North Dakota State Horticultural Society is one dollar. Send a first and second choice of free premium together with the one dollar to C. B. Waldron, Secretary, Fargo, N. D.

North Dakota Premium List

25.—½ lb. Golden Gem Sweet Corn.
26.—Pkt. Bison tomato.
27.—Pkt Progress tomato.
28.—Pkt. Buttercup squash.
29.—2 Pixwell gooseberry plants.
30.—2 Abundance gooseberry plants.
31.—2 Ash Leaf Spirea (Sp. Sorbifolia) plants.
32.—2 Chief raspberry plants.
33.—12 cuttings of red-twigged willow (Salix Britzensis).
34.—Pkt. Purple Ground Cherry.
35.—1926 Horticultural Handbook.
36.—1928 Horticultural Handbook.