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NORTH and SOUTH DAKOTA HORTICULTURE

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NORTH AND SOUTH DAKOTA HORTICULTURE

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THE LAPLAND LONGSPUR

O. A. Stevens, Fargo, N. D.

The migration of these birds is a notable event in late fall and early spring. Like most other species they are not so vocal in the fall, but are conspicuous because of the large numbers in which they move. Great flocks of them drift southward in late October and in April they pass over again, singing as they go. Brown, sparrow-like birds, moving in large flocks over the prairies are quite sure to be Lapland longspurs.

This bird is one of several of our northern species which inhabit the northern countries of both hemispheres, Alaska, Canada, Scandinavia, Russia and Siberia. Their nests are built on the ground among the grasses, mostly north of the Arctic Circle. There the birds are said to be very common and we can readily believe it from the large flocks which fly over during migration. At their nesting grounds, the males have the habit of rising a few yards into the air then fluttering down with a burst of song in the manner of the bobolink.

The European longspurs move southward to the central part of that continent. The American ones spend the winter on the prairies of central United States. In North Dakota a few usually can be found but they are much more abundant farther south where the snow does not remain on the ground long at a time. A good place to find them is in corn stubble where pigeon grass has gone to seed. The birds are not shy, neither are they active or easily seen on the ground. Usually one will walk almost into a flock before a group of the birds will fly up. Pausing then to look for them, other groups will take wing before they can be located. Time and patience will reveal them, creeping about among the stubble, searching for weed seeds which comprise their food at that season.

The male in full plumage is a rather handsome bird with a brown collar, black cap and bib. This marking is absent in the winter plumage when the bird is merely a good sized brown sparrow. Both pumages are much like those of the Harris sparrow, so it is not strange that the two birds have been confused though their seasons and behavior are quite different.

The longspurs seem to have a failing of being too optimistic about the weather. Frequently in spring migration they are caught by storms and many of them perish. An instance of this occurred in Minnesota in 1907 when millions of birds were lost. Similar cases, but with smaller numbers, have been reported at Lisbon, Jamestown and Minot, N. D. during the last ten years.

NORTH DAKOTA HORTICULTURE SOCIETY NEWS LETTER, FEBRUARY, 1931.

C. B. Waldron, Secretary

The notes from Mr. Walter Philbrick, Turtle Lake, N. D., show that a man with the right understanding and knowledge of the thing he undertakes to do can accomplish what the ordinary man considers impossible. The fact that he has succeeded so admirably in establishing a plantation of coniferous evergreens in a part of the state where no native evergreens are found and very little timber of any kind and that mostly along the river, shows that things can be accomplished in the way of tree growing that most of us have never dreamed of. Later we will publish further notes from Mr. Philbrick, particularly on the varieties with which he has had the greatest degree of success.

The attention of our readers is called to the bulletin on vegetable varieties, No. 187, which is a revised issue of a former bulletin printed under the same name. As many of the readers know, this bulletin gives the comparative value of the various varieties of the different garden crops for North Dakota. Copies may be obtained by addressing the Experiment Station at Fargo, N. D. This bulletin will be found of very material aid to those who are making up vegetable lists for the coming season.

Recent experiments upon the germination of forest tree seeds and the pits of plum trees have indicated what has been known by many horticulturists that the freezing during the process of stratification is not necessary nor is it necessary that the seeds be stratified during the entire winter period. There is considerable variation in the habits of different kinds of seeds which require stratification but in general it may be said that if they are placed in moist sand and kept for several weeks at any temperature from 40 to 50 degrees they will germinate very promptly when planted in the spring. It has been found that some seeds which require a temperature of 70 degrees or more when freshly gathered will germinate at a temperature barely above freezing if they have been stratified for several weeks. There are many forest tree seeds such as the soft maple, willows and cottonwoods that have a very short period of vitality and should be planted as soon as they ripen, while others will endure over a period of many years. Anyone having seeds that are ordinarily stratified could probably get them to grow by mixing with moist sand at this time and keeping them in the cellar until the planting period, otherwise they would not be likely to grow until the year after they are planted. This is suggested especially with reference to Russian Olive seed.

This is the time of the year when we get the largest number of renewals from our Society members. They have been coming in very nicely of late and we are hoping that they will continue as the chances are we can do much more for our members next season than we have been able to do in the past. We have in mind the bill pending before the present legislature which calls for an annual appropriation. It is also urged that old members do what they can to secure new ones since there is sure to be a falling off for one reason or another of the old membership. Now that the Society is going so strong we would suggest that each member do what is possible to bring it to the attention of his friends, as it is easier to keep a good organization going than to revive one that is nearly dead. One life membership received last week indicates that somebody has faith in our future.

Marion P. Thomas, in the November Flower Grower, has this to say regarding the wintering of the Madonna lily, "If you can obtain Evergreen boughs, use them to protect Madonna lilies. After Christmas, this is a good way to utilize the tree. Early spring is really the time most damage is done.

"The bloom stalks start a good growth and then comes a late cold spell which results in few if any blossoms in July."

SOUTH DAKOTA NOTES

The State Nurserymen's Association cooperating with the State Department of Agriculture are offering trees to South Dakota farmers for planting on their farms, at a very low cost. This is being done to encourage tree planting also to give the person who has little money an opportunity to secure trees for a windbreak.

Any farmer can secure postpaid, for planting on his farm the following group of trees: 25 Caragana, 25 Russion Olive, 6 to 12 inches; 100 American Elm, 100 Green Ash, 50 Chinese Elm, 12 to 18 inches, for $3.25.

Any school can secure postpaid, for planting on their grounds 30 Chinese Elm 3 to 4 feet for $3.00.

You are required to sign an agreement to plant the trees in well prepared ground and to give them clean cultivation for two years. This is only being fair with the people who furnish the trees at cost.

Send your orders to R. W. Vance, Department of Agriculture, Pierre, South Dakota, and the trees will be sent to you at the proper planting time.

It was decided at the State Horticultural Meeting, that a two day meeting and tour will begin at Rapid City on the morning of July 29th. We will be met by the Garden Clubs at the Hills towns and shown their cities as we continue our journey. The interesting places in the Hills will be visited. The U. S. Forest Service will have a representative who will go with us to one of the logging camps. He will explain the plan they follow in removing the older trees at the proper time so that they will receive the most remuneration over a long period of time and still keep a good crop of younger trees on the land. We hope to have many of our North Dakota friends with us on this trip. More details of this meeting and tour will be given in later issues.

January 28, we picked dandelion blossoms from our State House lawn. The flower stems were very short and the blossoms were not as large as the average blossom in springtime. A man in North Dakota picked some strawberries in mid-winter. These berries were no doubt set late last fall and covered by falling leaves or a mulch of some kind. If such winters do not go down as record breaking they will surely make history for later years.

Look over your dahlia tubers, they may be getting too dry or molding from being too wet.

The new pink violet, viola odorata, Rosina, is reported to be hardy also able to grow in full sun. Fragrant and stems long enough for cutting.

We have stratified Russian Olive seed in the basement a month or six weeks before planting time and had them germinate well.

South Dakota Horticultural Society members send in your membership dues at once so that you will not miss any copies of the magazine.

According to the Rural New Yorker, where package bees were used, but a 25 per cent of fruit was secured while in other orchards 100 per cent set was secured by the use of full colonies.

Comb honey was all sold out in South Dakota during the early part of the season. This was partially due to the honey being wrapped in attractive wrappers. The South Dakota law prohibits this comb honey being openly exposed for sale by the retailer unless it is wrapped. This is a sanitary measure enforced by the Department of Agriculture but it has worked in the interest of the bee keeper.

In spite of the past dry season one of our larger bee keepers harvested over two hundred pounds of honey per colony. The majority of the colonies were package bees. He sold over $4,000 worth of honey.

More honey has been consumed in South Dakota this season than for many years past. The depression has caused the honey producer to sell much of his honey locally. People eat honey and like it. It is only necessary to place it before them in a pleasing manner and call their attention to it.

EXTRACTS FROM THE DIARY OF A TRAVELING MAN

W. A. Simmons

Jan. 14, 1931: (Watertown) With mercury at 12 below this morning, my sources of information are about as limited as those often proclaimed by Will Rogers.

In Fruits and Gardens for December, Dr. John H. Kellogg has a very interesting article entitled "Why We Should Eat More Apples". Varying some the usual one, he proposes the slogan, "Six apples a day will keep headaches away". He says in part, "Most headaches are due to intestinal toxemia, the result of inactivity of the colon. Apples at meals and at bedtime serve in many cases as an excellent laxative, and thus make an end of the headaches by removing the cause."

Continuing, he says, "In many cases it will be found most desirable to substitute apples for milk in the feeding of school children. Undernourished children are often benefitted by the glass of milk which they get at school clinic, but not infrequently the milk is so slowly digested that it is still in the child's stomach when he reaches the dinner table, and the result is loss of appetite and indigestion due to the taking of food into the stomach when it already contains a considerable amount of indigestible food. The apple is, of course, a very different sort of nutriment than milk, but it is of a sort better suited for intermediate meals."

An article in Wisconsin Horticulture entitled, "Shall We Grow Blackberries?" gives the opinion of several growers who hold to the negative, among them Mr. C. V. Porter of Menomonie: "I have abandoned growing the blackberry on account of anthracnose and orange rust diseases. Also the demand is not great, and they bear in August and too often it is very dry which results in a poor crop. Most blackberry varieties should be covered in Wisconsin although I have had some good crops of Eldorado, Snyder and Ancient Britton, without covering. The blackberry is an outlaw, hard to subdue, worse than quackgrass, due to the suckers coming up everywhere."

Another grower comments on the vicious thorns that seem to reach out and grab one as he passes the spot they guard. Until some smart plant breeder brings about disarmament and breeds in more hardiness, few will care to grow them.

Jan. 30, 1931: Arthus Streich, Berlin engineer, seems to have originated an improvement in the mulch paper technique of the American, C. E. Eckhart of Honolulu.

Streich accomplishes all the objectives of the expensive mulch paper, by spraying the ground with a solution of one part cellulose to ten parts of water. This produces what he describes as a "Continuous tough skin adhering tightly to the ground".

In our section where the wind sometimes blows, our chief problem with mulch paper was to persuade it to stay in the neighborhood. The manufacturers have suggested various methods of accomplishing this, such as gigantic hair pins, stones, wooden pegs, earth, etc., all more or less inadequate and ineffective, also the cost of the paper has been prohibitive except in the case of especially valuable garden crops. The cost of the cellulose treatment Streich gives as about one half cent per square yard, which should make a yard or so of this within the reach of almost all our readers.

Holes are cut in this "skin" just as is done in the mulch paper, when setting plants or planting seeds, and the cellulose skin conserves moisture and heat, just as the paper does and prevents weeds from growing except around the plants, thus obviating the necessity of hoeing or cultivating between the rows. It is claimed the "skin" can be easily rolled up and removed at the end of the season and will not be dissolved or washed away by rain. This has not been tried, as far as we know, in this country, but it appears promising and worthy of trial.

Feb. 2.: The ground hog failed to see his shadow today, on account of being blinded by the dazzling sunshine of a perfect day, so decided he

had had sufficient sleep and determined to resume active participation in the life of this beautiful world of ours. About 145,000 years ago last Monday Bone Bean, widely respected for his exceptional intelligence, made known to the members of his tribe the fruit of his 39 years experience with the weather.

As few attained such a ripe old age, his words were listened to with awe, and the ideas he gave them, found lodgement in the small hollow portion of their bony tops, where they were soon overgrown by new accretions of ivory, and have remained there ever since. Down through the old Romans and the tribes that peopled old Gaul, came this idea about there being a day in early February so crucial and unusual that to enjoy sunlight on that day, would penalize the race by subjecting them to six weeks more of wintry weather.

The Germans picked the Badger as being the animal that was so sensitive about its shadow, and when they arrived in the eastern part of our country, where badgers were unknown, quickly adopted the Ground hog as the goat, and the idea still goes merrily on. It is to be regretted that the road hog does not share this sensitiveness about his shadow. There is an animal we could cheerfully spare for six weeks, or even more.

The annual meeting of the S. D. society held at Mitchell January 7 and 8, was a very pleasant and harmonious affair, well attended and much enjoyed by all present.

Mr. Robertson presided with his usual skill and added much to the profit of the meeting with his great fund of horticultural information. As usual, he had a wonderful display of the many fine varieties of apples he raises, which attracted much favorable attention.

The Mitchell people were extremely nice to us and contributed liberally to the program, and the newspapers were very cordial in their editorial notices, both before and after the meeting.

It was decided to try the experiment this year of holding a summer meeting on July 29 and 30, and Rapid City was selected as the place of assembly, with a drive through the Black Hills as a special attraction. It is believed this meeting will prove very popular with our members and the Hills are at their best at that time of the year.

The selection of the place for our regular winter meeting was left to the executive committee with the recommendation that one of our smaller cities be selected with the idea in mind that the local attendance in such a town would be greater than in the larger places where so many other attractions always conflict with those we have to offer.

Important things to do in March: Pay your dues; if you are a life member, send the Secretary 25 cents for a year's subscription to the magazine. If you are an annual member, send him one dollar which will entitle you to the magazine for a year, and your choice of one of our plant premiums.

Our Secretary works very hard to get out a very creditable magazine and stretches the dollars as though they were made of rubber. The least we can do is to aid him by promptly sending in our membership fees, and getting in new members as the opportunity offers.

Our prices are moderate but it does require some money to conduct the society and we hope you will help us by sending in your renewals promptly. In the words of the Kingfish, "Brederen, .pay yo dues."

On the morning of January 13th, the thermometer registered below zero at Pierre. The first time this winter and only once since. One can't help sympathizing with the weak-hearted that go to California and Florida.

Trees mulched late in the season after the frost has penetrated deeply into the ground may do more harm than good. The frost is held in the ground long after the top begins to grow and the top is weakened or may be killed out right from starvation.

The early orders for seeds and nursery stock are more apt to be delivered on time. They may be out of your choice plant late in the season.

THE LAKE REGION OF SOUTH DAKOTA

Representative C. S. Amsden, Milbank

Many people of the Northwest are just beginning to realize that South Dakota has an asset which is not general in the United States. Minnesota, the state of ten thousand lakes, has advertised the fact of its lakes as an asset to the state, with much success.

With the easy access to its resorts by way of modern travel, distance has been materially shortened and people are now taking their vacations away from home, and no place, from a rest and recreational feature can equal that of the shores of a beautiful body of water with shore lines bordered by natural wooded space, and beaches of glistening sand; where boating, bathing and fishing breaks the monotony of idleness.

The lake region of South Dakota stands in a class by itself. In the

northeast corner of the state as it is, we have in part, the lowest altitude in the state, that of Big Stone Lake, a body of water fed by millions of springs, which has a low water altitude of 962 feet and a high water mark of only 5 feet above the low altitude. This lake has a shore of approximately seventy-five miles on both sides of the lake, with numerous camping sites and resorts to furnish accommodations for the many who take advantage of the natural beauty of its surroundings.

These words regarding Big Stone Lake are not used to discredit any other section of the Lake region. In Roberts county alone, there are eighteen lakes covering an area of nearly nine thousand acres. Nearly as many in each, Marshall and Day counties in which the natural scenic surroundings are unsurpassed. Fishing and hunting in season attract people from the far East. Red Iron, Clear Roy, Buffalo, Pias Blue Dog, Pickerel, Waubay, Enemy Swim and the numerous other lakes in this region are bordered by wooded areas with beautiful shore lines. The waters of which lakes are clear and cold being fed by springs. So the fish are firm and palatable when cooked. While referring to these particular lakes, we cannot with propriety fail to mention Codington county with its beautiful Lake Kampeska and that now famous Medicine Lake, where people affected with certain diseases are securing relief and per-

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MORE GARDEN MISCELLANY

Mrs. M. W. Sheafe, Watertown

Scottish folklore says:

"March borrowed frae Aprile
Three days, and they were ill;
The first o' them was wind and weet,
The second o' them was snaw an' sleet,
The third o' them was sic a freeze,
That the birdies legs stack to the trees."

If the above legend is true, our time for a short while will be spent in studying the catalogues and ordering our supplies to be ready when the time for planting arrives. What a joy the catalogues really are, coming as they do from east, west, north and south, overseas and farthest north, each a work of art and filled with information of help to everybody. Each as it comes I read, mark and label as though it were the first ever seen and there are many things with which I would sooner part than my shelf of garden catalogues. Science, art and skill in printing shows markedly in the evolution of the catalogue. Children loved the old timers with their cabbages so large, a ladder was placed to reach the head upon which little men were climbing up and walking about on top as though on a city block. I cannot recall any catalogues fifty-two years ago when, with my parents, we came to this well named "Land of Sunshine".

However I do know mammoth vegetables of all kinds as well as fine crops of grain and corn were raised. They had to, to be ready for the annual visitation of grasshoppers, which lasted until everything eatable was devoured and some things even a voracious present day cut-worm would refuse to tackle.

About the only flowers cultivated, in those days were (convolvulus) morning glories, planted at the windows to help in keeping out the hot sun, that shone twenty-four hours a day for three hundred sixty-five days a year.

Through the efforts of nurserymen, catalogues, Horticultural Societies, Garden Clubs and magazines spreading instructions and encouragement, the great transition has been made in this prairie country and from year to year we see progress being made, but, there is much more to be done.

We are all interested in natural flowers dried for decorative use during the winter. A new plant (to me at least) was found at our florists in the late autumn, labeled "Caspia". It attracted my attention at once as well as my admiration, but it was a stranger to all present. Search through books, catalogues and everything I had did not reveal the newcomer, but thanks to the new catalogues we find "Caspia" is a member of the Statice family. Description is meagre as follows: "Caspia" The multitude of spikes two or three feet long of small flowers of a tender lilac and is a perennial and very dainty and desirable. As to the hardiness of this plant in our climate I cannot speak as yet, but will try it and hope others may do the same.

Thalictrum (meadow Rue) in the various forms are pleasing in the garden. The foliage is dainty as a fern but more lasting when used for cut work and is very decorative in the borders. Aquiligifolium and Dipterocarpum are especially desirable and are both perennials.

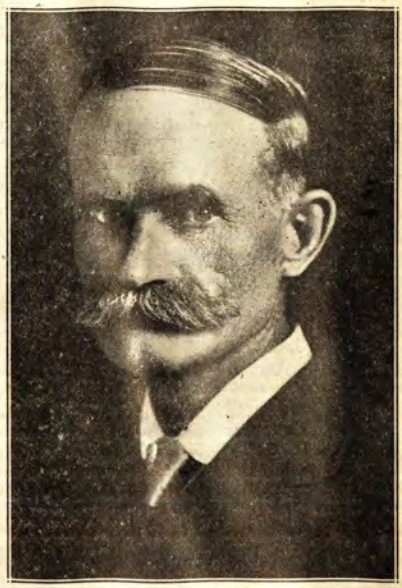
Some of our readers are, no doubt interested in Rock Gardens, or Stepping Stones plantings. Thymus, (serpyllum) or (serpyllum album) is very attractive and delightful, planted between the stones, or, as a border to trail over rocks. This plant grows readily and makes a thick mat of very fine fragrant foliage, so very dainty one hates to even bruise it, but it soon recovers and smiles acceptance of our apology.

An annual having all the desirable qualities and none of the opposite is "Centaurea" (Royal sweet Sultans) there are several shades all of which are desirable. "Suareoleus", Yellow sweet Sultan, is very attractive in a delicate yellow. Montana a perennial is not worthwhile, to my notion. These plants grow rapidly and bloom continuously if not allowed to produce seeds.

NEW FRUIT TRIALS

John Robertson, Hot Springs

Some new varieties of fruits that we have have had on trial long enough to fruit, and which we think have value above some of the older kinds are: Melba, Early McIntosh, Lobo, Earlham, Monona, Sharon, Sasha, and Haralson apples; Dolgo, Olga, Sugar, and Izo crabs; Patten, Minnesota No. 1, Tait No. 1, Tait No. 2, and Mendel pears; Oka, Tecumseh, Minnesota No. 83, Minnesota No. 194, Underwood, and LaCrescent plums; and the Chief red raspberry. This will appear like quite a big list; and still, we have kept it down to a comparative few of what we think most valuable and worthy of special notice.



JOHN ROBERTSON

While the great majority of demand is along the lines of older and more fully tried sorts, and as good judgment should be, yet in the way of progress there is considerable demand for new sorts. While some of the varieties mentioned may be had from our home nurserymen, there is a number that may only be had through those of other states, or the source of Experiment Stations. This is one of a few good reasons we might show in favor of laws making it as easy as practical for the buyer to procure his stock where he wishes and from whom he wishes, providing he is not importing something that will be an injury to others around him. More enlightenment, together with fewer restrictions, will encourage planting that eventually brings the home man more business.

I realize that each sort of new fruit I've mentioned should be described separately, but that is not possible in an article of reasonable length. In fact I am only touching briefly on several subjects that should have attention separately. In this we have to cover things rather collectively. The apple sorts, Melba, Early McIntosh, and Lobo are named about in order of ripening; the Melba ripening about the same time as Yellow Transparent, but being a milder acid red apple. The Earlham, Monona, and Sharon, are all very fine quality sorts that came through the Iowa Experiment Station, keeping well past mid-winter. None of the sorts mentioned in these two paragraphs are of real first degree hardiness, but still we think all may be grown in some sections.

In this connection we have observed, that first plantings of fruits in a new section is usually confined to a few of known hardiest varieties. We might call this the first generation. During this period there has been much doubt as to whether fruits might be grown successfully. This was exercising proper caution. But, as the first generation of planting is passing away in some sections, there is an ambition to include some better sorts in new plantings. Those who have had a measure of success have concluded that they are not limited to a comparatively few sorts of poor quality. This article is not written with intention of encouraging the planting of tender varieties of fruits in the more pioneer sections, but we do feel that the time has come when better sorts should be favored in some sections, especially with planters who have learned through previous experience. We have often mentioned the McIntosh as being an ideal apple to grow where possible. This fits in in keeping next after

the Lobo, and is the standard in quality that the first three imitate, as hybrids of it; thus making some of the superior quality of the McIntosh available much earlier in season. Sasha is a hardy early bearing sweet apple of medium size and fair quality, keeping well along in winter. Haralson is latest keeper, of fair size and quality, and the hardiest late keeping apple to appear so far. While all of the crabs mentioned have superior qualities, we will only make special mention of the Izo. The fruit of Izo is very large for a crab, makes a fine flavored sauce, and keeps well along in winter; but aside from this we especially recommend it for planting with the object of top working some of the more tender apple sorts onto later. Trees of Izo are of good form, limbs strongly united, bark unusually smooth, and most all varieties seem to agree in making a fine union and growth when grafted onto it.

Pears have not done very well over the northwest so far, partly on account of lack in hardiness, but mainly because of blight killing the trees prematurely. Of the new varieties I mention, the Tait sorts are extremely hardy, and produce fruit of medium size and fine quality, though not keeping more than a few days. Patten is hardy, and the best and most shapely grower of the lot, producing fruit of above medium size, fair quality, keeping about one month; does not appear to produce young, nor bear heavily during first years in fruiting. Mendel, and Minnesota No. 1 appear about the same in hardiness, which is less than the others. Minnesota No. 1 is of good size, and very fine quality, though it does not keep long. Appears to be an early and heavy bearer. Mendel is smaller, fine quality and a good keeper. Neither one indicates quite the desired vigor in growth. It will take a number of years to get the measure of these different sorts in the relation of each in resistance to blight. In planting pears two or more different sorts should be included, as most sorts are self-sterile in blossom.

While we have the Oka listed along with plums, it is more of a cherry in size, and a very good fruit. The Oka should be planted in connection with Opata, or other sand cherry hybrid, in order that it bear well. The LaCrescent plum ripens about mid-season; is of about medium size, a greenish yellow color when ripe, superior in flavor and sweetness. The other sorts mentioned are all red plums of above average size, and of above average quality. Tecumseh is very early to ripen; with the Minnesota No. 83 latest, but not much after mid-season.

CACTI THAT STAND 25 DEGREES BELOW ZERO

Fannie M. Heath, Grand Forks, N. D.

Of the nearly one thousand different varieties of trees, shrubs, and plants that make up my collection nothing else causes as much surprise to the visiting public is that there are entirely hardy Cacti, Cacti that will stand a twenty to thirty degrees below zero temperature unprotected and unharmed, and no other portion of the grounds gives more days of freshness and beauty than that devoted to our Northern Cacti.

Opuntia polycantha and Opuntia missouriensis with very thorny sections or joints and splendid large, pale lemon yellow blossoms shading to red at the center with quantities of sparkling red anthers in some plants and all yellow blossoms in others. These plants form huge mats three to four feet across and five or six feet long, and from twelve to eighteen inches high and are covered with blossoms. I have counted as many as thirteen buds on a single one of their dozens of sections.

Opuntia rafinesquii with darker green sections and very few spines is apparently a shy bloomer, at least it has never blossomed for me.

Opuntia fragilis, with small sections about an inch wide by two inches long and just covered with vicious spines is also supposed to be a shy bloomer but did beautifully for me our past two very dry summers, has blossoms showing the same color variations as the two former and surprisingly large for the size of the plants. Mr. W. A. Monda, the

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TOMATOES (Continued)

Thomas W. Hobart, Sioux Falls

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

These plants set in May in warm seasons will often ripen some fruit as early as June 20th to July 4th but the quantity and quality of the crop is materially lessened by early setting if the season is cold.

Our records covering twenty-eight years from 1895 to 1922-3 show that never once did the night temperature reach sixty degrees and hold it steady for six nights in succession earlier than June 8th, generally not until June 12th, once on June 22nd and once May 22nd.

Our plants set on these dates bore fruit as early generally from a few days to a week earlier over a period of twelve years with the exception of but two seasons as did those of our competitor who set plants earlier, although we sometimes furnished them with our plants.

Invariably our later set crops were so superior that we often received two dollars to two dollars and fifty cents per bushel for fruit for canning, while others sold at one to one dollar and fifty cents. Those who bought from us giving the reason that they packed solid twenty to twenty-two quarts of highest quality meaty fruit against fourteen to sixteen quarts of watery seedy pulp from the others.

Nature's efforts are toward reproduction and in general the greater danger of destruction the greater the effort for reproduction. Hence the tomato plant exposed to too great a degree of cold or stress tends to set a large quantity of seed, either more to a given fruit or a greater quantity of seed bearing fruit. In either case because of the harm done by excessive stress the fruit do not develop to the largest size that they are capable of.

I believe that all who have studied these things will agree that the number of seed any given tomato fruit will contain is determined at the instant the ovule becomes fertilized by the pollen, that if that fruit contains, say, three hundred seeds and grows to a weight of three ounces it will be quite seedy and contain a large proportion of seed pulp to the solid meat. If by right growing a plant can be made to increase the size of the individual fruit borne to six to nine ounces each, these fruit will contain but one half to one third of the seed and seed pulp to the solid meat which will form the bulk of the fruit as compared with the smaller fruit and consequently will have more solid meat and be of far higher quality.

The number of seeds in any given tomato is determined at the time the fruit is set. The size to which that fruit can be grown is wholly in the hands of the person who grows the plant that produces the fruit. Limited only by the largest size to which any given variety may possibly be grown.

Mr. Sparks of Earliana fame wrote me that his average fruit weighed about six ounces, that few grew to eight ounces. The Hallidays of Northern New York who grew a specially selected strain of Earlianas wrote me that they averaged six ounce fruit and one peck seldom one-half bushel to the plant. By our method of hardening off and growing to temperature standards we had Earliana plants from seed from both the above growers that bore from three pecks to one and one-fourth bushels of fruit, from each plant of which we picked from eight to twelve pounds of fruit that weighed eight ounces up to ten ounces to each individual fruit.

Some five or six years ago my oldest son Paul, by special mulching the surface of the soil for a space of some twelve to eighteen inches around each plant with the wizard sheep manure and bone meal mixture to a depth of one and one-half to two inches and with the aid of a Rainaway overhead irrigation line grew three plants of Earlianas that produced five bushels and one peck of fruit by measure, these fruit weighed from six ounces to fourteen ounces each, there were some fruit smaller in size that was not counted or weighed.

One of these plants bore over two bushels of fruit. Hundreds of people visited his gardens and saw these plants. The Daily Argus Leader

hearing of them, sent their staff photographer and had an engraving made of one branch of the six branches on the plant. This branch bore some forty odd fruit none of which weighed less than eight ounces. I gathered the last thirteen fruit from this plant in September and took them to my friend A. K. Pay. These thirteen fruit weighed five and three-fourths pounds.

How We Grow the Plants

Whether we grew these plants in the house hotbed or greenhouse the seed were always sown in flats or shallow boxes made of lath, these flats were three inches deep by sixteen inches square, outside measurements.

Before the advent of the sterilized and shredded cattle and pulverized sheep manure we always used fresh cattle manure free from straw and trash; this we heat sterilized in a cook stove oven until bone dry and all weed seed and insect eggs (and incidentally all germs of plant diseases wilt and damping off blights, etc.) were destroyed. This baked manure was broken up as fine as we could do so by hand and then rubbed through a three-eighths inch mesh heavy wire sieve, the fine stuff was mixed, one ten-quart pail to eight to twelve pails of good black dirt (also heat treated) and about one quart of rose growers' steam bone meal added and all thoroughly mixed and evenly dampened through eight to ten hours before using.

The coarse parts of the manure that did not go through the sieve were placed in the bottom of the flats so as to cover evenly one-half to three-fourths inch deep and watered to wet through and set aside.

The flat bottoms and sides being of lath spaced about one-fourth inch apart were lined with a thickness of newspaper a few holes being punched with the finger over some of the spaces between the lath to let water through easily.

After the coarse manure was placed in the bottom of each flat had become moistened through it was hammered down with a brick then the prepared soil was filled in more than level with the top and "struck off," i.e., leveled off even with the top of the flat by a lath drawn across the top. This soil was then packed down firmly with the brick also. This would mash it down below the top of the flat about one-half inch.

A layer of clean (sterilized) fine black soil was then sifted over the surface of the flat to the depth of one-fourth inch, in which rows one-fourth inch deep and one and one-half inches apart were marked off across the flat. The seed sown (as below) and covered with fine sifted soil and all firmed down evenly with the brick. (The soil when settled should be perfectly level, any unevenness is likely to cause trouble by holding too much water if watered overhead as has to be done in hotbed or greenhouse when growing plants by the thousands). The flats were now set in a large pan made for the purpose in which a level of one and one-half inches of water was kept constantly and allowed to stand until the soil on the top of the flat showed evenly moist by capillary action. This takes from ten to thirty minutes; the flats are now lifted out and allowed to set and settle some ten to fifteen minutes.

It was our aim to test out our seed stock by sowing a flat or two about March 1. We could then determine the rate of germination. In our regular sowing from March 20 through April we would aim to sow so as to have at least one good plant to every half inch of row. This would give about thirty plants to each row and nine or ten rows to the flat gave two hundred fifty to three hundred plants to the flat.

After the seed was sown each flat was covered with a sheet of glass to prevent the surface from drying out by evaporation, and the flat was set direct on the hot water pipes under the greenhouse benches.

Where these plants were exposed to sunlight, as some were, a newspaper was laid over the glass to keep the light out.

The pipes averaged eighty-five to ninety degrees at all times. The flats were watched very closely, as under these conditions one hundred per cent germination takes place in thirty-six to forty-eight hours. As soon as the white seed leaves are breaking evenly through the earth the

glass is removed and in ten to twenty-four hours the flats are set on the benches in direct sunlight.

Now comes the place where the difference in growing methods takes place. These flats are still moist enough to carry the plants two to four days and before any water is applied they are allowed to become dry enough so that the two seed leaves show definite signs of wilting. (We generally allow them to wilt until the leaves droop flat with the stem and even allow the stem to show signs of drooping). If the weather is cloudy just enough surface sprinkling is done to revive the plants; if sunny with indications of continued fair weather the flats are set in the water pans containing not more than one inch of water and allowed to just show moisture at spots on the surface by capillary action. The plants should now be about three-fourths of an inch high and showing the first rough leaf. They should never at any time be watered enough so that they will grow soft and spindly.

After this watering by either method depending on the weather as I have stated above, the flats are allowed to dry out again until the plants wilt enough so that all the leaves hang down nearly flat with the stem.

They may be allowed to dry out so that the plant stem show definite signs of wilting also. But, this must not be allowed to go too far at any time or else the fruit bearing qualities of the plants will be curtailed from one-half to two-thirds of their natural capacity when rightly grown by our method.

(Note: It was by this extra severe wilting process the plants being allowed to wilt each time until the whole plant laid down flat on the ground and the stems showed signs of shrivelling that we grew for several reasons our cutworm proof plants).

This wilting, watering process is kept up with the first sowings until the plants are four to five weeks old—later as the days become longer the process works faster and three to four weeks will give the same results. At this stage if the details have been closely followed the plants will all be of an even height of about two and three-fourths to three and one-half inches with stems one-eighth to three-sixteenths of an inch thick and of a dark green or greenish purple color. The individual plant if pulled up will show six to eight times the root system of plants the same age as ordinarily grown, the stems instead of being soft and brittle as those grown by old methods are so tough and pliable that they can easily be tied in a knot without breaking or injury.

(To be Continued)

CACTI THAT STAND 25 DEGREES BELOW ZERO

(Continued from page 42)

"New Jersey Cacti Man" places this variety among the ten best entirely hardy Rock Garden plants.

Mammillaria vivipara and mammillaria montana are very much alike and it takes counting of the clusters of spines at the ends of each of the little tube-like parts that go to make up the ball-like plants to determine the difference. Mammillaria vivipara has purplish tinged pink blossoms and montana clear pink; both have smooth reddish green berries a half-inch thick by three-fourths inch long, edible if you are hungry enough.

Mammillaria missouriensis while far from being as handsome as to blossom has bright scarlet berries that keep fresh and pretty for a whole year if allowed to do so by the birds. These add very much to the beauty of the plant.

Most Cacti if given good drainage will stand a lot of watering and many losses occur from their being kept too dry.

THE LAKE REGION OF SOUTH DAKOTA

(Continued from page 39)

manent cure by bathing in its waters. Any person can enter the waters of this lake with the utmost safety whether he can swim or not as the waters are so charged with mineral that he could not sink if he wanted to.

In this article I have only carried a minor part that might be said of this great asset to South Dakota, its Lake Regions.

The name "A. F. Yeager of North Dakota" and his Golden Gem and Golden Sunshine sweet corn is the big thing in all seed catalogs. The Gem at 30 cents a pound, the Sunshine at 15 cents and up. Even the Market Growers Journal has a picture of Miss Mary Betty Yeager with an armful of Golden Gem sweet corn for Christmas dinner and the story entitled "Christmas Sweet Corn in Fargo."

PLANT PREMIUMS FOR 1931

Select your premium now from this fine list and send in your membership fee.

Members of both societies may select one premium from Groups I and II or two from Group II or one only from Group III.

GROUP I.

1. Yellow Flowering Currant, 1 plant.—Oscar H. Will & Co., Bismarck.
2. Champa Cherry, 1 plant.—Oscar H. Will & Co., Bismarck.
3. Japanese Peas, ½ pint.—B. L. Schmitz.
4. Tartarian Honeysuckle, 4 plants.—Wildrose Nursery Co., Wildrose.
5. Virginia Creeper, 1 plant.—Wildrose Nursery Co., Wildrose.
6. Amelie Gravereauz Rose, 1 plant. (Regular price $1.50)—The Northwest Nursery Co., Valley City.
7. Asa Gray Peony, 1 plant. (This peony rates 8.1; color, lilac pink.)—Riverside Gardens, Enderlin.
8. Pixwell Gooseberry, 2 plants.—Horticultural Department, N. D. A. C.
9. Abundance Gooseberry, 2 plants. Horticultural Department, N. D. A. C.
10. Ash Leaf Spirea (Sp. Sorbifolia) 2 plants.—Hort. Dept., N. D. A. C.
11. Chief Raspberry, 2 plants.—Horticultural Department, N. D. A. C.
12. Red-twigged Willow (Salix Britzensis), 12 cuttings, Hort. Dept., N. D. A. C.
13. 1926 Horticultural Handbook, 1 copy.
14. 1928 Horticultural Handbook, 1 copy.

GROUP II.

15. Golden Gem Sweet Corn, ½ lb.—Originated by Hort. Dept., N. D. A. C.
16. Bison Tomato, 1 pkt., determinate growth type.—Hort. Dept., N. D. A. C.
17. Progress Tomato, an improvement over Red River, 1 pkt.—Hort. Dept., N. D. A. C.
18. Buttercup Squash, family size, high quality, 1 pkt.—Hort. Dept., N. D. A. C.
19. Purple Ground Cherry, excellent for preserving or pies.—Hort. Dept., N. D. A. C.

GROUP III.

20. Anoka Apple, very early bearing, 1 plant.
21. Sugar Crabapple, very fine for sauce, 1 plant.
22. Gladiolus, 16 bulbs.
23. Peony, red, 1 root.
24. Peony, white, 1 root.
25. Lilium Elegans, red, 3 bulbs.
26. Iris, three varieties.
27. Babys Breath, two roots.
28. Delphinium, Gold Medal, two roots.
29. Sweet William, Everbearing, two roots.
30. Rose, Crimson Baby Rambler, one plant.
31. Spruce, Black Hills, 6-12 inches, well rooted.
32. Caragana, 6-12 inches, 10 plants.
33. Buckthorn, 6-12 inches, 10 plants.
34. Oka Cherry, one plant.
35. Chinese Elm, 18-24 inches, two trees.
36. Zumbra Cherry, bears early, large, fine cooking, 1 tree.
37. Tom Thumb Cherry, bears young, very prolific, dwarf, 1 tree.
38. Dolgo Crab, our finest jelly crab, one tree.

Tear off the coupon and mail with $1 to R. W. Vance, Secretary, Pierre, South Dakota, if you live in South Dakota, or to C. B. Waldron, Fargo, North Dakota, if you live in North Dakota.

Please enter my name as a member of the South Dakota Horticultural Society for the year 1931 and place my name on the subscription list to receive your monthly magazine regularly. Fifty cents of the dollar is for my subscription to the magazine. Stamps will not be accepted.

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