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South Dakota Horticulturist

Department of Agronomy, Horticulture, and Plant  
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## North and South Dakota Horticulturist, 3(11)

South Dakota State Horticulturist Society

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# NORTH AND SOUTH DAKOTA HORTICULTURE

Volume III

Number XI

NOVEMBER  
1931

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## NORTH AND SOUTH DAKOTA HORTICULTURE

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### SOAK UP THE SHADE TREES

An experienced horticulturist has suggested to the American-News that it urge all tree and shrub owners to thoroughly soak the roots immediately, adding that if the ground freezes up for winter with no more rain, the fatalities to trees and shrubbery throughout the dry sections will be tremendous.

Trees are slow in dying, especially the older ones. For example, they may look all right this fall, and then die gradually next spring or summer, purely as a result of lack of water when the ground freezes over at the outset of winter.

And hundreds of these trees and a large amount of this valuable shrubbery will be killed this winter if no soaking rains make their appearance or if the ground is not otherwise thoroughly soaked before the final freeze up comes.

There are two reasons why we have winter killing of trees and shrubbery here, nurserymen and other authorities declare.

1. The planting of tender nursery stock brought in from the East and South which cannot stand the rigors of our climate.
2. The dry condition of the soil around our plantings during the dormant or winter months.

Probably the latter factor is the biggest one throughout this state, if the old tree claims which are gradually passing from the countryside, are criterions.

Old trees, it is declared, are the ones that are most in need, and the manifest thing to do, now that it is apparent that winter will be upon us before we have soaking rains, is to turn the nozzle of the garden hose at the roots of the shade trees, one by one, until they are thoroughly soaked, otherwise one of the heaviest losses tree and shrub fanciers have ever known in this state will be the result.

Forget the lawns. They can be either revived or replaced, but the old trees cannot. To lose a large part of our old trees, many of which are from a quarter to a half century old, would be an inestimable calamity. They have become so much a part of our daily lives that their passing would be on a par with that of old human friends.

It is not necessary, however, for those with flowing water available to lose their trees.

Turn on the hose wherever it is available. If necessary buy a tank of water and give them a final drink before it is too late. They are worth it, since it will take a generation and more to replace them.—American News.

It is surprising the come-back the flowers staged after the long hot summer. To date, October 22nd, we have not been visited by frost at Pierre and we are enjoying the fine flowers that we should have had last summer.



NORTH DAKOTA STATE HORTICULTURAL SOCIETY  
NEWS LETTER, NOVEMBER, 1931

A. F. Yeager, Secretary

I regret very much the necessity of announcing the death of Mrs. Fannie Mayhood Heath, of Grand Forks, during the past month. Mrs. Heath established a place for herself as one of the outstanding women in North Dakota history. A short time ago when asked what I considered my most important horticultural discovery I made this statement, that it was Mrs. Heath. I have been thankful many times that I was privileged to know Mrs. Heath and to be instrumental in getting into permanent printed form some of her great storehouse of horticultural information. Hers is a very difficult place to fill. One cannot help regretting not only the passing of a great person but also a loss to North Dakota of so much horticultural information which she alone was able to give.

If you have canna, gladiolus or dahlia plants which have not yet been dug they should be taken up immediately. Your dahlia and canna tubers should be stored in sand or dirt in the potato cellar or some similar place and the "glads" in a cool but dry place. None of these will stand freezing.

In a current issue of "Wisconsin Horticulture" R. B. Harvey, of the University of Minnesota, describes a successful repellent for rabbits and mice to prevent girdling of trees. He says to paint the tree trunks and parts likely to be affected with sulfonated oil. This is made by taking one quart linseed oil and heating it to 470 degrees F. outdoors where no fires will be started from accident. Use a container five times as large as the volume of oil. Remove from the fire as soon as the proper temperature is reached and take some distance from the flame. Immediately add the finely powdered sulfur a teaspoonful at a time and stir the material thoroughly after each addition. It will require three ounces of sulfur for each quart of oil. This mixture is then ready to use as a paint. It may be sprayed on the trees by diluting with turpentine. However, as little turpentine as possible should be used. The spraying method is not recommended unless many trees are to be treated as there is some danger of damage from turpentine.

Young seedling trees, the hardiness of which is doubtful, should be protected the first winter or two after setting. Very often young roots are more easily damaged than are old ones and if trees are protected the first year or two the younger part of the root system will be deep enough down so that it will not be injured thereafter. In protecting such young trees, mound dirt over the plant as soon as the leaves are off in the fall, then when the ground becomes frozen a bit, cover with straw or strawy manure. It should all be removed the latter part of April.

A recent mail brought some strawberry plants with the query as to whether they were everbearers. Since these plants appear to have made good growth this year but have not produced any blossoms it is evident that they are not. Everbearing strawberries, if planted in the spring, should blossom that same summer and fall.

Thank you very much for the response to my call for membership dues. We have enough money now so that we are beginning to breathe easier. However, there is still a lot to come in. If you do not know whether your membership is paid up to date, send in your cash anyway and we will give you credit as far as it will go. Several people who asked for premiums last winter did not get them, and upon investigation I found they had not paid their dues.

Mr. Orley Shaw, of Roseglen, reports getting 160 pounds of cucumbers from six hills this year. These plants were watered.

A correspondent reports her children eating cactus fruits and asks whether they are wholesome. They are not poisonous and should be as good as any other fruit if you like the flavor. The Indians in the arid southwestern part of the United States depend upon certain kinds of cactus fruits to



help carry them through the year. The main difficulty in using cactus fruits is that they are hard to collect.

We have questions about the value of shriveled grain for seed and as to whether sweet corn several years old is all right. If properly stored, the seed may be good for many years. The length of time seeds may be stored varies with the species. Celery may be good ten years or more, while onion and parsnip seed may lose its germinating power in one year. Old seed should be tested before planting in the field. So far as shriveled seeds are concerned it would be necessary to test them too. Very often shriveled seeds will germinate 100% under favorable conditions. A shriveled seed is likely to be short of stored food material, hence will make a weak sprout. This in turn gives a smaller plant and a smaller crop. Even weak seedlings given extra good care may produce a perfectly normal crop.

In response to my request for experience with the spacing of shelter trees, Gus Olson, of Donnybrook, reports that trees in rows spaced 12 feet apart have come through without any dead ones, while those spaced 8 feet apart have many dead ones among them. He says that Bull Pine and Black Hills Spruce seem to stand lots of drouth. In his letter he quotes Mrs. Heath as saying in reply to someone who complained about the time it takes walnuts to grow, "The years pass anyway whether you plant or not, so you might as well plant walnuts and watch them grow."

Now that the growing season is over we would appreciate any reports you have to make on crop and quality produced from Buttercup squash, Golden Gem sweet corn and the new tomatoes. Mrs. Herman Halle, of Devils Lake, says Buttercup squash is the best she has ever eaten.

In the Michigan Quarterly Bulletin for August directions are given for the control of the eel worm which produces root knots on peonies. In brief it is as follows: Soak the divisions in water at a temperature of 100 degrees Fahrenheit for 20 minutes. Transfer the divisions to water with a temperature of 121 degrees F.; keep in this water for 30 minutes and maintain a temperature of not less than 119 degrees or above 121 degrees. Replant in clean ground. The statement is made it is these nematodes or eel worms which cause peonies to produce many sprouts and leaves of rather small size without producing blossoms. Perhaps you have peonies which answer this description.

It is probably that one of the International Peace Gardens to be established along the International border between Canada and the United States will be located north of Bottineau in the Turtle Mountains. These gardens are sponsored by the National Association of Gardeners and there seems to be money enough behind the idea to establish and maintain such gardens at various points.

To get the most from forced tulip and hyacinth bulbs they should be potted immediately and stored for some time in a cool dark place where the temperature is slightly above freezing before bringing into the house. Hyacinths can be forced after six weeks of such treatment; tulips usually do not force well before mid-winter.

One of our correspondents sent in some seed of plants which were sown as parsnips last year. It proved to be ordinary dock which is sometimes a bad weed.

In attempting to raise strawberries do not expect the impossible. No matter how hardy a variety you have it should be mulched over winter. If your strawberry plants have come through previous winters without mulching I am sure that Mother Nature must have provided a mulch in the form of snow. Even our wild strawberries do not grow out in the open without protection but are found among grass which partially protects them or in places where the snow drifts over them. If you want your plants to come through in good shape, cover them now with three or four inches of good clean coarse straw. This should be removed or else thinned down so the plants can come through it when growth starts in the spring.

A house plant lover writes that her pink geranium has not blossomed for a year and that it seems to grow very tall and coarse and stalky. She



says she has it in a very large pot with very rich soil and that's where the trouble lies. Too much pot room tends to make big plants without blossoms. Smaller pots, a cool temperature and plenty of light will result in more bloom.

Is it possible to plant onion seed in the fall successfully? We would not recommend it, there is too much danger of the seed beginning to germinate before winter and being dead before spring. Real early spring planting is the best, though a few years have had onions come through all right from fall planting. The bulbs were larger than from spring planting. Spinach is another crop sometimes planted in the fall and the result is the same with it.

Every now and then someone sends in specimens of the native white clematis vine for identification. For a small hardy ornamental vine we think this is one of the finest there is. It has showy white blossoms followed by equally showy seed pods.

If any of you have what you think is some extra nice hollyhocks we would like very much to get some seed of them. It strikes me that with people doing so much breeding work with dahlias and "glads", attempting to get larger and better blooms, the same people should be more appreciative of the hollyhock. After all, it is hard to find anything which will make more of a display than good background planting of a fine strain of hollyhocks. If we get in a collection of good material we will try to pass back some of the seed to our membership in a year or two.

We were asked whether it would be safe to use potatoes for food which were stored in a bin which had been sprayed with corrosive sublimate solution. When the potatoes were put in, the floor was very wet with the solution but the walls were dry. Our reply was that the potatoes should be all right to use excepting the ones which were soaked with the solution on the floor. While corrosive sublimate is a deadly poison, it could only get on the potatoes as a solution, hence the bulk of the potatoes in the bin would be perfectly safe.

Tulips for spring blossoming in the garden should be set now. The bulbs should be put in the ground about four inches deep and if it is dry it should be watered. I would suggest that you mulch the place with straw or grass until early in the spring and then rake it away. We found tulip bulbs planted in exposed locations without mulching often fail to winter. Bulbs set now will produce good roots before winter comes on and a good layer of mulch will keep the soil from freezing and allow still further root formation.

Some of the reports we have had from people who have tried Bison tomato indicate that we had best warn anyone who plants this variety not to prune the vines. This variety has been particularly developed so it does not require pruning. The result is that if it is pruned the yield is likely to be below that of other kinds. Without pruning, we believe them a winner for the North.

From Hensal we have an inquiry as to the value of the banana melon. This is a variety of muskmelon with a very long shape. Our experience with this variety has been that it produces all right but the quality is very inferior. If is the muskmelons having poor quality that give people the idea that muskmelons and pumpkins mix, which is not true, though I will admit the flavor might lead one to believe that such has been the case.

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Any of the following bee journals, American Bee Journal, Gleanings in Bee Culture, Beekeepers' Item and Bees and Honey, may be secured for one year by a member of the Beekeepers Association, by sending fifty cents to Mr. Munro.

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Plans are made to send each member of the N. D. B. A. a select untested queen again next year.

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The rabbits will soon be girdling the trees. Paint them with a repellent or wrap them with some material which will not permit the rabbits to eat the bark.



## EXTRACTS FROM THE DIARY OF A TRAVELING MAN

W. A. Simmons

Sept. 6: Mrs. Gould of Minneapolis writes, "We visited the Minnetonka gardens of the millionaire miller, James Ford Bell, Tuesday. Dahlias like dinner plates. But aside from the hundreds of beautiful trees, hedges of all sorts, a palatial tiled swimming pool, I was most interested in about 50 feet of peach trees trained to the walls of one of the greenhouses. The eaves of the house projected about two feet and to the edge were attached heavy duck curtains on rollers, which are lowered when frost threatens. They are trained flat to the south brick wall and loaded with ripe peaches.

This little bit of poetic prose is characteristic of Kahlil Gibran, author of the "Prophet."

"In the autumn I gathered all my sorrows and buried them in my garden."

"And when April returned and spring came to wed the earth, there grew in my garden beautiful flowers unlike all other flowers.

"And my neighbors came to behold them, and they said to me, 'When autumn comes again at seeding time, will you not give us of the seeds of these flowers that we may have them in our gardens?'"

Sept. 21, Fargo, N. Dak: Had a very pleasant visit with Dr. Yeager at the A. C. today. They have erected a monument in the shape of an 175 foot brick smoke stack, with an inside diameter of 8 feet there this summer, which can be seen for many miles.

The professors there deny that this was erected to carry off the hot air generated by them in the class rooms, and venture the opinion that, had it been necessary, for that purpose, a much higher one would be required at some of the stations in other states.

Dr. Yeager was found out in his test tomato plots where literally thousands of varieties of all sizes, shapes and colors were bearing abundant fruit. In the greenhouse, hundreds of others were in the blossoming stage, growing in pots, making it look more like spring than fall.

The Doctor has evolved a method of finding out the character of the seedling tomato, as to size and shape at blossoming time, so the selection is made then and much time and space saved.

On removing the petals and upper portion of the tomato blossom, a tiny tomato already formed, is disclosed, relatively large if the completed life growth was destined to produce a large fruit, or small, if a small fruit would have been produced. This discovery of his makes year round tomato breeding possible, with only a small amount of green house space used. Each year he produces what we think is the finest possible variety of tomato, only to throw it into eclipse the following year with one still better.

He has one this year that seems to run entirely to fruit, with only a very small amount of foliage. The plant reached a height of barely 15 inches and occupied a space of barely that many inches square, but produced an amazing load of large smooth fruit. It doesn't seem possible to improve on this, but I would advise against any one betting he won't do it.

Oct. 1, Grand Forks: The Great Northern R.R. Co. has pretty hanging baskets hung around its depot here, at intervals of about twelve feet. The baskets are made of wire, lined with moss, and the central plant in each basket is a yucca, with flowering plants surrounding and wandering jew hanging down from the edges. The company has a greenhouse at Spokane and these baskets are prepared there, and shipped out to the stations of the company in all the larger places. The papers had been carrying ads about a mother and baby whale being on exhibition in a long box car, so I allowed the door tender to separate me from a quarter, and went in to see them. Of course both were dead or they would probably have strenuously objected to being hauled around the country in this fashion, but they were marvelously embalmed, and perfectly preserved. The mother was lying on her side with the



mouth open, so one could get a clear view of the maxium swallowing capacity. It appeared she might possibly get down a golf ball, but this was as large an object as she could manage to get outside of.

It made one believe that Jonah must have been feeling pretty small the day the whale took him for a ride, according to his story.

Many modern husbands have attempted more or less fantastic alibis to account for unexplained absences from home, but I have yet to hear anything that could compare with Jonah's. And the funny part of it is that Jonah's was believed, while some of our best efforts in that line are at times seriously questioned.

Evidently the swallowing capacity of the whale was far exceeded by the old Jewish people of his day, for they must have believed his yarn or they would not have put it in the Bible.

Oct. 2: Ceres wheat seems not to be relished by grasshoppers. Mr. Wm. Montpetit of Beaulieu, N. D. told me practically all of his crop, including other varieties of wheat, and oats, barley and flax were destroyed by this pest, this year, but they left untouched 19 acres of ceres wheat, and it threshed 20 bushels per acre. With the possibility of having grasshoppers with us again next year, this may prove to be a life saver again, if his experience with it is borne out by others in the infested districts. Perhaps in his summer fallow work, the ground was stirred at just the right time to destroy the grasshopper eggs, so none were hatched in that particular field.

Scientists tell us we should not remove the peel of the apple, that in doing so we are discarding valuable vitamins. English scientists report that the amount of vitamin C in the peeling is six times as great as in the flesh nearer the core. A press report carries the information that an ever blooming rose has the distinction of being the first plant ever patented under our new law, that protects the originator of new plant creations.

My friend, Mr. W. F. Sonderman of Kennewick, Wash., writes that the apple growers have had the hardest fight of their lives with the coddling moth this year. This is borne out by the apples from there, that we now find on the market. We have grown to expect their apples to be entirely free from worms, but this year this is far from being the case. No doubt the worms contain some valuable vitamins, as well as the peeling, but personally I have no intention of eating either.

Oct. 4: Mr. E. S. Crabb of Shoshone, Wyo. who seems willing to try most anything in the fruit line, once, writes that the Kahinta plum is a very nice annual bearer of large plums and does not require as much thinning of the fruit as its sister, the Waneta. He writes further, "This summer I had two varieties of plums bear for the first time, the Omaha and the Tawena, little sister of Waneta and in many ways superior to Waneta. It is lighter in color, more round, not quite as large, but nearly freestone and far superior in flavor. In fact I fell in love with it.

"The mother tree was sent me on sand cherry root, but I think it is a mistake to use this root for a plum tree of this size. It averaged about 1.6 in diameter. The Omaha is also a good plum, I have had it for five years. Almost every winter it killed down, but this season it bore a very nice crop of large round plums of very good quality."

He also likes the new Minnesota No. 194 plum very much.

Obtaining scions of this plum in April of this year and grafting them on to a bearing tree, one scion bore fruit this, the first, year, a record that may be tied but hardly beaten. Most of us have been so well satisfied with the Waneta, we have not given the attention it deserves to the Tawena. Probably it should be extensively planted.

While one sees many people picking flowers, but few are seen gathering seed. A few flower seeds gathered this fall will do wonders next summer.

Often it is the early freezing during the early winter that kills many plants. Do not delay mulching too long.



## PLANT LIFE OF THE PAST AGES IN NORTH DAKOTA

Dr. A. G. Lonard, Grand Forks

Our knowledge of the plant life of the past in North Dakota is based on the fossil remains of the plants found in the rocks of the various geological formations of the state. These are shown on the chart, which is a geological section of these formations as they occur in this region.

They all belong to comparatively recent periods of geological history and the fossil plants found in them date back perhaps 20 to 30 million years. Compared with the estimated age of the oldest rocks of the earth, which many geologists believe are 500,000,000 years old, the formations in this state are young. Plant life had been developing for countless ages and had reached a high stage of development before the earliest period in which such life is found in North Dakota. In fact, the plants of the Cretaceous Period, as it is called, in the rocks of which our earliest plants occur, are very modern in appearance.

The oldest remains of the plant life which formerly lived in this state are those from the Dakota sandstone. This sandstone not only underlies the entire state except a portion of the Red River Valley, but is found in the states to the south as far as Texas. It does not appear at the surface anywhere in North Dakota, so that our knowledge of the plants living while the Dakota Sandstone was being deposited is based on the fossils occurring in this formation in other states, such as Kansas and South Dakota. It is this sandstone that the artesian water is found and thousands of flowing wells draw their supplies from these beds of sand rock.

Some 500 species of fossil plants have been described from the Dakota sandstone, most of them being the leaves of the angiosperms or flowering plants. They include six species of ferns, 12 cycads and 15 conifers, among the latter being the pine. It may be of interest to mention just a few of the other trees living at this time whose fossil leaves are found in the Dakota sandstone. Included among them are the following: birch, cinnamon tree, dogwood, common persimmon, eucalyptus, beech, fig, (about 50 species), holly, walnut, laurel tree (24 species), tulip (24 species), magnolia (18 species), plane tree (20 species), poplar, plum tree, oak (36 species), buckthorn, willows, sassafras, and Sequoia.

It will be seen that in the above list are many trees, like the fig and magnolia, each represented by many species, which today are found nowhere in this region. The climate of the time was evidently much milder than today. The distribution of the plants also shows that it was more uniform, and the climatic zones were not so well marked as at present.

As we have seen from the geological section of the state, the next four formations above the Dakota sandstone are of marine origin, having been formed in the sea which covered the region. In this sea were deposited the several thousand feet of shales penetrated by the many deep wells. These shales contain the remains of marine shells, but practically no plant fossils are found in them, since the conditions were not favorable for their occurrence in these sea deposits. But on the land areas at this time plants must have been present.

Aside from the Dakota sandstone, our knowledge of the plant life of the past in North Dakota is derived from the Lance and Fort Union formations. These are confined to the western part of the state, as shown on the geological map. It is in the Fort Union formation that the great majority of our lignite beds occur, though the Lance carries some lignite. Since the flora of the Lance is very similar to that of the Fort Union, we may limit our discussion to the latter formation.

The Fort Union shales and sandstones are of fresh water origin, having been deposited in lakes, and the conditions were favorable for the preservation of the plant life of the time, since about 300 species have been described from this formation.

What were the conditions in western North Dakota during the thousands and hundreds of thousands of years of Fort Union time?

The region was a great flat plain occupied by many lakes, in which the shales and sandstones were accumulating, but the numerous lignite beds of



the Fort Union are evidence that the region was also occupied again and again by swamps, many covering hundreds and thousands of square miles. They were probably formed by the partial filling of the lakes with sediment brought in by rivers, thus converting them repeatedly into swamps. In these swamps grew trees and other plants much as in the peat bogs and marshes of northern Minnesota today. The coal-forming vegetation growing in these North Dakota swamps consisted very largely of coniferous trees, including varieties related to the Sequoia, cypress, juniper, and arbor vitae, together with some firs and spruces. The woody material of these trees, including trunks, stems, and branches, comprises roughly 75 to 85 per cent of the whole mass of the lignite. That the vegetation accumulated in some of these swamps for thousands and tens of thousands of years is indicated by the fact that several of the lignite beds have a thickness of 20 feet and two or three a thickness of 35 feet. That the coal swamps recurred repeatedly in many parts of the region is proved by the presence in some vertical sections in river bluffs and buttes of as many as 15 or 20 lignite beds, the majority of them, it is true, of no great thickness but each one representing swamp conditions at the time of formation. Among the lakes and swamps in the upland areas there grew many varieties of trees, including, according to Knowlton, the poplar, oak, walnut, fig, elm, maple, birch, alder, dogwood, hickory, box elder, buckthorn, viburnum, witch-hazel, horse chestnut, and bittersweet, interspersed with these were scattered conifers and gingkos. Thus during Fort Union time North Dakota and adjoining areas were covered with dense forests. Osborn thus describes the region as it was at this period: "Vast stretches of subtropical and more hardy trees were interspersed with swamps where the vegetation was rank and accumulated rapidly enough to form great beds of lignite. Here were bogs in which bog iron was formed. Amid the glades of these forests there wandered swamp turtles, alligators, and large lizards."

From the above discussion we see that the plant life of past ages in North Dakota has been very different in many respects from that of today. The presence of eucalyptus, fig, magnolia, and Sequoia is evidence of this. However, as stated in the beginning of this paper, the plant remains found in the rocks of the state are geologically recent. If we had the records of the older periods, we should find the plant life of these far different from our modern forms.

## TURTLE MOUNTAINS SELECTED FOR PEACE GARDEN

Charles McCaffree, Pierre

An International Peace Garden is one of the most appealing suggestions which the Horticulturist has presented to its readers. Since our last issue the site has been selected as a part of the plateau known as the Turtle Mountains, some of which lies in North Dakota and some in Canada. The Almighty planted man in a garden, and the garden influence has been one of the most ennobling to mankind down through the ages.

The National Association of Gardeners first sponsored the plan and it is significant that the meeting was held at Toronto, Canada, the only time the Association has ever met north of the line between the United States and Canada.

Henry J. Moore of Canada, was appointed Secretary of the Peace Garden Committee, and to his foresight and energy much of the results may be ascribed. South Dakota gets an interest in that J. W. Parmley, President of the Canada-to-Canal Highway, which passes the site of the Peace Garden, has been a leader in the project. Congressman Hall of North Dakota has been a representative of that state's interest.

This would be a park covering several miles square on which there are about a hundred lakes, native timber and a great deal of natural interest. The land is not mountainous. It is rather a high plateau. The Canadian postoffice is at Boissenan, Man. and The American at Dunleith, N. D.

The Garden will be an example to the whole world, giving a practical demonstration that two nations — Canada and the United States — have lived side by side for over 100 years, with nothing separating these two countries



but an imaginary line close on to 4,000 miles long. No guns — no forts — no battleships and no soldiers are to be seen along this imaginary line, all of which is in accordance with the Ghent treaty, signed in 1812, and the Rush Bagot convention of 1814.

The financial objective of the Garden is \$5,000,000; four million of which will be set apart as an endowment fund, for perpetual upkeep. Five million dollars on the face of it looks like a vast sum of money to raise, but we will be surprised if this amount is not greatly over-subscribed. As soon as the International committee put their seal of approval on the recommendations of the sponsoring bodies, the campaign for funds will be put underway. The amount will be raised by popular subscription in the States, in Canada and other parts of the British Empire. The United States is expected to raise \$4,000,000 and Canada \$1,000,000. While undoubtedly there will be (and there has been already without solicitation) large donations, the object is to get as large a number as possible to subscribe to the fund — especially the children of the United States and Canada — they will be the men and women of tomorrow, and the very fact of their being shareholders in a Peace Garden will have a psychological effect for peace that will for all times be difficult to erase.

It is the intention of asking both governments to internationalize or make neutral the site of the Peace Garden. This will give the citizens of Canada and the United States — Children of a common Mother — a feeling of ownership in the whole of the property, and will make this bordering strip of territory "A Land Without a Line."

Upon the site, will be held a great international Peace Picnic each year. Already two have been held and a movement is on foot to have the governments of the United States and Canada set aside a day in the interests of universal peace, a legal international holiday inspired by the thought of the Garden and devoted to the cause of universal peace.

Mr. Moore writes: "What an ideal! A beautiful Garden, a memorial symbolic of life and resplendent in beauty, radiating that beauty to the hearts of men, a pledge that the greatest nations of the world, greatest because their traditions have been different from those of all other nations, that they have never found it necessary to resort to war in one hundred and eighteen years, nor to lift a hand one against the other.

The eyes of the world are upon this project. The world does not ask "will it succeed?" It says, "God speed!" And only they of impure heart would oppose it, but "Blessed are the pure in heart, for they shall see God." The millions of gladsome people will see Him in His Garden. There they will find Him as down through the ages they go, for this Garden, enduring as long as the earth itself, will last because it is built on the rock of brotherly love. Millions will gather here at the greatest peace memorial symbolizing the greatest example of international good will and fellowship the world has ever known."

## THE SHORT-EARED OWL

O. A. Stevens

Late in the fall and early in the winter this owl may frequently be seen flying over the fields or meadows. It is easily recognized as a large gravis brown bird flying rather slowly but steadily, not far above the ground. It is not unlike the marsh hawk but has the short rounded wings and general fluffy appearance of an owl instead of the trim, clean cut form and dashing manner of a hawk.

The short-eared owl is migratory, but is deliberate about the matter and often will be found in North Dakota at Christmas time. It is one of the most widely distributed of bird species and is found practically all over North America, nesting from the central states north to the Arctic regions. Similarly it occurs all through the northern parts of Europe and Asia, throughout South America and in Hawaii.

This bird does not live in the woods as do the majority of owls, but is at home in the fields and meadows. It is by no means strictly nocturnal but



often will be seen during the day, especially toward evening. The nest is placed on the ground among the grasses of a dry slough. The eggs, like those of other owls are white, and are about one and a half inches long and one and a quarter inches wide.

The short-eared owl is regarded as one of the most useful of the birds of prey for it feeds chiefly upon mice. Various other small animals, insects and some birds are included in the diet. There is much evidence that the birds are an important check on field mice. It is said that in Europe when the owls have been nearly exterminated in certain districts, the mice became numerous and troublesome. In other districts an increase in the mice has attracted numbers of the birds. During a plague of mice in the southern part of Scotland in 1891-92, the owls appeared and remained to nest farther south than was their usual habit.

The late William Dutcher told of keeping a short-eared owl in captivity to study its habits. The attempt was rather unsuccessful for the owl never became tame but seemed to grow wilder. It greeted visitors with hisses and snapping of the beak. Mice were its favorite food, other meat usually being refused. When mice were provided, the bird always seized them first with its feet, then swallowed them whole. Owls of course, have the habit of swallowing their food and disgorging the indigestible parts at a later time. These pellets, consisting of bones, fur, feathers, etc., have furnished one important means of studying the food habits of the birds.

#### DIGGING DATE AND RHIZOCTONIA CONTROL OF POTATOES Dominion Experimental Farm, Charlottetown, P. E. I.

Rhizoctonia is one of the most troublesome diseases of potatoes, and while its control is usually sought by treating the seed potatoes, nevertheless, additional importance is attached to the dates upon which the crop is harvested. Investigations conducted by the Division of Botany, have demonstrated the influence of digging dates upon the occurrence of the Rhizoctonia sclerotia which indicate the presence of this disease on potato tubers. These sclerotia are simply the winter or resting stage of the Rhizoctonia fungus and their development depends, to a considerable extent, upon the conditions prevailing at digging time, for it is generally agreed that moisture and low temperatures stimulate the fungus threads to form up into the characteristic knots or sclerotia. It is apparent, therefore, that anything which will divert these natural influences, will, likewise, render unnecessary seed treatment the following spring. This is what happens when the crop is dug early. In the Maritime Provinces digging operations usually begin about the fifteenth of September, which, in normal years, is about the time when the Rhizoctonia fungus transforms into its resting stage.

These circumstances have been the basis of "Date of Digging" experiments at the Charlottetown Laboratory of Plant Pathology. The land chosen for these tests was known to be heavily infested with Rhizoctonia, and, in order to secure the most accurate possible information, each digging date was represented by four replications arranged in a manner giving uniform spacing throughout the plots. These investigations showed that the earlier the digging dates, the less did Rhizoctonia develop on the tubers. After September fifteenth the disease occurred commonly, the amount increasing directly with the lateness of the digging date.

In the light of these observations, therefore, when determining the best time to harvest the potato crop, especially where this is to be used for seed, it would be advisable to keep in mind this phase of Rhizoctonia control.

#### NOTES

Staking shrubs and trees set this fall in unprotected places will help to prevent loss caused by the wind shaking the plant and loosening the roots. Amore vigorous growth will result next season from the staked plants.



## MORE PERENNIALS IN THE DAKOTAS

A. L. Truax, Crosby, North Dakota

In my last article I spoke of Perennial Phlox and its value in our Dakota flower gardens during the months of July and August. In the same number of North and South Dakota Horticulture, Mrs. Sheafe of Watertown, South Dakota, in her article "Phlox, Its Culture and Place in the Garden" gave valuable instructions as to the cultivation and care of this splendid perennial.

Then in September when most of the Phlox have passed, the great family of the Compositae must be relied upon to furnish the backbone of the perennial garden in the Dakotas. Of these by far the most valuable are the Perennial Asters. Autumn asters, Michaelmas Daisies, Starwort, Frostflower, Farewell-Summer, they are sometimes called. That they are adapted to our soil and climate is evidenced by the large number of native varieties growing wild on our Dakota prairies. Many of them have been hybridized and improved in Europe, until today we have many handsome named varieties in all shades of lavender, blue, mauve, purple, red and white.

Most of the improved varieties have been developed from two types: the New England Aster (*Aster novae-angliae*) and the New York Aster (*Aster novae-belgi*). Unfortunately many of the *novae-angliae* type flower too late to be of value in the Dakotas, where freezing weather often comes before the first of October. I have the *novae-angliae* aster Mrs. F. W. Raynor in bloom in my garden at this date, October 9, but while it is very fine, being the nearest approach to pure crimson of any hardy aster, it evidently cannot be depended upon to bloom here in normal seasons, when October usually finds the garden frozen. The *novae-belgi* type usually flowers in September and named varieties of this type such as Climax blue, and St. Egwin, pink, can usually be depended upon to come into full flower anywhere in the Dakotas.

But whether you try the named varieties or not, by all means transplant the native varieties into your perennial garden, where they will thrive and improve under cultivation. They will furnish a wealth of bloom in late August an early September. *Aster oblongifolius* and *Aster sericeus* abound in dry spots on the prairie, on buttes and gravelly hills, and it is amazing how they will stand drouth and yet bloom abundantly. In the same dry and exposed places may be found the Golden Aster (*Chrysopsis villosa*) which forms a foot high mass of yellow unsurpassed by any flower I know. Then on the summits of dry and gravelly hills may be found a dwarf form a *aster oblongifolius* which grows only four or five inches high and which makes a fine edging for the taller varieties. A picture of this little gem as growing in my garden may be seen in "Garden Magazine" for May 1925. Speaking of edgings, on the same dry hills may be found a form of *Alopappus*, (I believe it is classified as *Stenotus amerioides*), which is as fine a yellow dwarf in August as *Alyssum saxatile* is in May.

Then there are other perennial Asters for special purposes, *Aster acris*, a fine European variety, grows eighteen inches high and is smothered in a mass of violet-blue flowers in August and September. *Aster amellus*, a foot high produces large and showy flowers of a rich bluish-violet in July and August. *Aster alpinus* grows only six inches high and produces showy blue-purple flowers in May and June and makes a good edging.

The only objection I have heard raised against Perennial asters is that they are "weedy." I do not find this objectionable however, here in the Dakotas. They do scatter a large amount of seed and often come up in places where they are not wanted, but those not wanted are easily destroyed and the rest transplanted to vacant places in peony and iris beds, where they hide dying foliage and cover the beds in September, with a mist of blue-gray that blends beautifully with the hazes and the changing leaves of Autumn. With the white of Phlox Jeanne D'Arc, the mauves, blues and lavender of these autumn asters, the yellow and chestnut red of *Heleniums Autumnale superbum* and *Autumnale rubrum*, and the dark blue of *Aconitum napellus* which often linger on into September, a beautiful garden picture can be painted before the reign of Winter finally descends upon the "Land of the Dakotas."



**BEEKEEPING NOTES****J. A. Munro, Sec'y.****N.D.B.A., Fargo, N. Dak.**

Plan to feature honey during National Honey Week, November 9-14. The American Honey Institute suggests the use of store window displays and bee and honey exhibits. Remember that honey is nature's most healthful sweet and people should be made generally aware of this fact.

A Honey Calendar for 1932 has recently been put on the market. It is attractively illustrated and in addition to showing the months of the year, contains dozens of tested honey recipes. It is priced at 25c and may be secured from the John F. Hawkins Company, Chester, Pennsylvania.

In connection with nursery inspection work throughout the state, I am interested to find that a number of the nurserymen keep bees. They run the colonies as a sideline but realize the advantage of the bees as agents of cross pollination of fruit bloom. I have noticed this combination of nursery and bee raising carried on at Garrison, Grand Forks, Jamestown, Lark, Mandan, Turtle Lake, and Wahpeton.

A valuable series of articles on the wintering of bees in North Dakota has appeared in recent issues of the American Bee Journal. In these articles Mr. Charles Engle, commercial beekeeper of Fargo, has stated the results of his experience of wintering colonies both in cellars and in packing cases out-of-doors. This office has received a number of copies of the issues and will be pleased to mail them to interested parties as long as the supply lasts.

Do not make the mistake of screening the entrances to confine bees in the hives during winter. This advice is for beginners only. Every year we receive letters during the late winter months from parties stating that their screened colonies died. The screening, of course, causes the bees of the colony to become panicky, bringing about death in a short while.

Here is a bulletin that should be in the hands of beekeepers who use package bees. It is Bulletin 97, "Package Bees," and may be obtained from the Publications Branch, Department of Agriculture, Winnipeg, Manitoba. Another most valuable bulletin which has appeared of late is Bulletin 305, "Beekeeping in Missouri," and may be obtained from the College of Agriculture, Columbia, Missouri.

A party from Oakes has asked us if we know of anyone in the market to buy a few hives of bees. We do not know of anyone in that vicinity in the market for same. If the bees have been state inspected and provided with a certificate of health within the past year, there should be no difficulty in disposing of the hives locally. The state law requires a certificate of health to accompany the sale of bees and all used beekeeping appliances.

France, West Virginia, Arizona, and now Missouri demand certificates of inspection and sanitation to accompany importations of honey.

We have an inquiry from a beekeeper who plans to kill off a few colonies rather than winter them over. For this purpose we recommend the use of calcium cyanide granules, grade G. It is sold under the trade name of Cyanogas and if not obtainable locally may be purchased from the Minneapolis Drug Company, Minneapolis, Minnesota. Usually from a teaspoonful to a tablespoonful of granules is sufficient to kill a colony. It should be placed on the bottom board just inside the hive. Afterwards close the entrance with a shovelful of earth or a piece of gunny sack to confine the fumes. Cyanogas retails for 30c to 50c per pound and is sold in various types of containers ranging from one-pound to 100-pound sizes.

Not long ago a beekeeper called into the office to make inquiry as to whether or not the source of honey could be determined after extraction. He reported having secured, in addition to a fair production of white honey, a small amount of amber colored honey very similar to buckwheat except in taste. We advised him to send in a sample for examination. It may be possible to determine its source through the pollen grains present in the honey.

Every season we hear of mice disturbing cellar wintering colonies. Owners can rid their bee cellars of this pest by the proper use of traps or poison



baits. Probably a good bait is the most satisfactory for the purpose. Among the various poisons, recommended for baits might be mentioned barium carbonate, strychnin, arsenic, phosphorus, and squills. Bulletin 896 of the U. S. Department of Agriculture recommends most highly the use of barium carbonate. It is one of the cheapest and most effective poisons. Being without taste or smell it is eaten most readily by these rodents. It causes intense thirst and for this reason the mice will leave in search of water and die off the premises. This is also true of the bait as applied to rats. The following directions for use are taken from the bulletin: "Barium carbonate may be fed in the form of dough composed of four parts of meal or flour and one part of the mineral. A more convenient bait is ordinarily oatmeal with about one-eighth of its bulk of the mineral, mixed with water into a stiff dough." The bait should be applied in the runways of the rodents. The treatment may be repeated if necessary.

### GARDENING REMNISCENCES BUGS THAT CHANGE THEIR NAMES

Thomas W. Hobart, Sioux Falls

The insects that live in our gardens play as important a part in the growing of our vegetables, flowers or fruit as do any other conditions, such as cultivation, weather etc., for they hold just as much a place in the success or failure of our gardening operation as do these others. They can quickly destroy what we with painstaking hard labor and the aid of the weather and careful cultivation have been able to achieve in the way of growing crops.

What I have observed in the many years I have gardened in regard to their habits and actions, might not only be interesting and amusing but might at the same time be instructive and be of some use to you in helping you to combat their deperditions.

My article will have to do with the lowly potato bug in fact with two entirely different families of them which in the time I can remember have not only entirely changed their habits and food plants but to some extent at least have become known to us under entirely different common names from those they formerly bore.

To begin with some fifty odd years ago while staying with my grandfather who was at that time raising a great many potatoes from the seed saved from the seed balls on the potato plants (of which I shall sometime tell you more.) At this time I do not remember that his plants were bothered with any kind of bug, though as I was not more than eight years old at the time I may not have noticed them if there were any.

A few years later we were living in Illinois and there, I have the first distinct recollection of any insect called a potato bug. But these were far from being the striped Colorado potato beetle of today.

The variety of bug that was then the scourge of the potato growers of that day (in central Illinois, at least) was the grey and black blister beetle that we have today that mainly preys upon our aster plants especially destroying the half opened buds and newly opening flowers.

In those days in Illinois they would fly in great swarms almost like a cloud and light on a patch of potato plants and if unmolested would soon ruin the foliage, being much more ravenous and destroying the vines in a potato patch much faster than does the comparatively slow moving striped potato bug of today. I do not remember that at the first bug poisons were used to combat these beetles. I know that in one instance at least I was one of several youngsters that were hired to keep close watch of a long field of potatoes that the railroad section boss had planted along the right of way of one of the railroads. It was our duty to watch this field and when a swarm of the beetles appeared (they usually settled in one spot and from there if not driven off would spread over the whole field) to go after them with long light willow branches with which we would beat the vines and drive the bugs away.



As soon as we would get near to where they had alighted with our vine beating and noise the whole swarm of bugs would at once take wing and fly to some other potato patch, only to have the owner of the new field go after them with the same beating with busn that we had used and drive them to the air again, when they would likely as not return to the field that it was our duty to watch.

Woe to us if in the warm sunny weather we were (as children are likely to be) caught napping and they had a chance to eat their fill before we were aroused from sleep, more than once this would happen and our first notice that the bugs were in the field would be the sound of the hand car and an irate section boss using no polite language telling us to get busy. While he and the section men who had brush whips near at hand would all get busy with us and disperse the greedy horde.

These were the bugs that at that time were known as potato bugs and also as blister beetles because if they were by accident mashed on the bare skin a water blister would form.

They have now changed their names or had it changed for them as they are now more commonly known to us as the aster beetle. As they now do their most destructive feeding on our aster plants, seldom ever feeding now upon the potato for soon after the Colorado beetle appeared, they for some reason forsook the potato plant as food and took to others. The aster seeming to be their preference although they have done great damage at times to sweet peas and many other plants.

I have often wondered if they found something repulsive in the Colorado beetle that caused them to forego the potato their preferred food plant up to the advent of the Colorado beetle (our now common striped potato bug.)

We have always had these black and grey blister beetles in our gardens but as a usual thing they were not hard to get rid of excepting on our aster plants. On most other things on which they would at times feed, we usually found that it only necessary to walk through the attacked plants and jar them or perhaps whip them lightly in order to scare the bugs away. Often they would play possum and drop to the ground and lay a second or two as if dead, then if there is no sound they quickly come to life and at once take wing and disappear or perhaps seek some place to hide for a minute or two until they find the coast clear and then fly to new fields.

If however, they are not noticed at once they are likely to do a lot of damage in a single afternoon. I have had them nearly denude a row of sweet peas or sometimes a bed of snapdragons, though their favorite food in this age seems to be the aster plant of the annual large flowered kinds. Here it is no easy matter to combat them as they will not stay away if driven off and will persist in returning and feeding on the half open buds and flowers. When even a small place is eaten out of a fine flower it completely ruins it and it does not take one of these beetles more than a minute to eat out such a place.

Our best remedy has always been to start early in the season before any of the bugs appear to apply poisons to all plants that are likely to be attacked and when we are persistent in following this up every week or ten days so as to keep all the new growth as it appears completely covered with poison spray little damage has ever, or is likely to occur. It is when we have neglected these sprayings for too long a time that we have had the greatest damage done. In this as in many other things an ounce of prevention is worth a pound of cure, a fact which I will illustrate in a short time.

The poison used in the early days was Paris green which would not leave stains on the foliage of our flowering plants but unless carefully applied was very likely to burn both foliage and flowers and cause them to spot and blight. We found that by boiling two pounds of Paris green in one or two gallons of water for several hours, stirring frequently (this boiling should be done in the open or in a well ventilated room or the fumes are very likely to make one ill) then mix this in fifty gallons of water and let stand twenty-four hours stirring well several times will make a Paris green poison that will be fully effective without the danger of burning.



However, I have not gone to all this trouble for a long time, I have for years used the white arsenate of lead which is more effective than Paris green and does not burn or will not wash off in heavy rains as Paris green does. It does however leave white stains on the leaves, but if the mixture is kept well stirred and the spraying done in a fine mist with a compressed air sprayer there will be but little cause for complaint from the white stains on the leaves of your plants.

In my literature of gardening I have seen many queer and unbelievable things happen both in plant life in my gardens and the insects that have been part and parcel of the growing of these plants.

One of the oddest if not the very oddest occurrence in my gardens happened when we gardened on South Dakota Avenue, and had to do with these same blister beetles or potato or Aster beetles that I have just been talking about. When thousands if not hundreds of thousands of them deliberately committed suicide or if it was not deliberate suicide the results were the same as if it were.

(To be continued)

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