

Dr. N. E. Hansen

Volume VI.

Number VII.

NORTH AND SOUTH DAKOTA HORTICULTURE

JULY, 1934



Capital Grounds Bank Planting Made Two Years Ago by Charles McCaffree



THE CUCKOO

O. A. Stevens

This bird, like several other species, had its name naturally suggested by the call notes. Practically the same word is found in the other languages of western Europe. The name "rain crow" also is an old one. In England, the green woodpecker as well as the cuckoo, is called rain bird. Apparently no one has made a really scientific study of the relation of weather conditions to the activities of these birds, but any observer of birds knows that the cuckoo is heard frequently at the proper season, and apparently without relation to rain. Its season of activity, however, happens to be the same as that of the most frequent rains.

The cuckoo family is a large one, some 250 birds having been described. They are widely distributed but occur chiefly in tropical regions. Only two species are found commonly in the United States, one or two other members of the family extending into the southwestern states. The same is true for the old world. The European bird has long been well known and a considerable part of our popular information on the birds, relates to that form rather than to the American. Like our cowbird, the cuckoo of Europe builds no nest but deposits her eggs in the nests of other birds. Knowlton states that perhaps the majority of the species of the family have this parasitic habit. Our cuckoos build their own nests but are reported to deposit eggs occasionally in nests of other birds.

Except for its occasional loud call notes, the cuckoo is a silent bird and not likely to be seen. It usually remains hidden in the trees and bushes, and if disturbed, slips quietly away with a rapid but characteristic flight. The bird is about twelve inches long, slender in built, with a long tail and rather short wings. The upper parts are brownish gray, the lower, nearly white. The yellow-billed cuckoo has reddish wings and quite large white tips on the under side of the tail feathers. The black-billed cuckoo has darker wings, a mostly black bill and small white spots on the tail. The former occurs practically all over the United States but very little into Canada. The Pacific coast form is slightly larger. The black-billed seems a little more northern and does not occur west of the Rocky Mountains. Both migrate to South America for the winter. They are warm weather birds and do not appear in our latitude until about June 1.

The nests of the cuckoo are not much more pretentious than those of the mourning dove. The eggs are three to five in number, pale greenish blue, an inch and a quarter long. The

Volume VI.

July, 1934

Number VII.

Entered as second class matter at the Postoffice at Pierre, South Dakota, under the Act of August 24, 1912.

Membership in the South Dakota Horticultural Society is one dollar; fifty cents of this amount is for the subscription to "North and South Dakota Horticulture." The subscription rate for affiliated organizations is twenty-five cents.

Published monthly at Madison Daily Leader, Madison, S. D., by the North and South Dakota State Horticultural Societies.

SOUTH DAKOTA OFFICERS

John Robertson, President.....Hot Springs, S. D.
F. X. Wallner, Vice-President.....Sioux Falls, S. D.
R. W. Vance, Secretary and Editor.....Pierre, S. D.
H. N. Dybvig, Treasurer.....Colton, S. D.
Chas. McCaffree, Librarian.....Sioux Falls, S. D.

NORTH DAKOTA OFFICERS

Charles Eastgate, President.....Dickinson, N. D.
Mrs. J. A. Strong, Vice-President.....Walhalla, N. D.
L. O. Peterson, Vice-President.....Hankinson, N. D.
A. F. Yeager, Secretary.....Fargo, N. D.
El L. Shaw, Treasurer.....Fargo, N. D.

TABLE OF CONTENTS

	Page
The Cuckoo	74
N. D. State Horticultural Society News Letter.....	75
Ferns of South Dakota	77
Notes From a North Dakota Garden.....	80
Peace Garden	81
A Reading List for the Study of Vegetables.....	82
North Dakota Beekeepers' News Letter.....	83
Notes	84

eggs are said to be deposited over a considerable period of time in many cases, and young birds are sometimes found together with nearly fresh eggs. As to food habits, the cuckoos are distinctively beneficial. They feed largely upon caterpillars which are destructive to the trees. The birds seem not in the least hesitant about "fuzzy worms."

The cuckoos are a good subject for study by some industrious student. There seems to be only one authentic record of the yellow-billed species in North Dakota, but it may be more common than has been suspected. A recent writer from Ohio reports that the birds do not pick up nesting material from the ground, but alight upon dry twigs and break them off by swinging upon them. I do not know that this has been reported before, in fact there probably has been very little actual observation of the nest building process.

In order to keep out the Dutch elm disease, not only propagating material, but also logs and lumber with bark on are prohibited entry into the United States.



NORTH DAKOTA STATE HORTICULTURAL SOCIETY NEWS LETTER



A. F. Yeager,
Secretary,
Fargo, N. D.

As this news letter is being prepared we are not entirely sure of our summer meeting because of the very unfavorable year. There is some talk of postponing the Dickinson meeting until next year, possibly in its place holding a winter meeting here at Fargo some time before Christmas. If you have any objection to this procedure, will you please make it known at once, because if there is a demand for the Dickinson meeting and a goodly

crowd will participate, then we will go ahead with the plans for our meeting the last week in August.

The response to my call for wild strawberry plants was certainly gratifying. Plants have arrived from all parts of North Dakota and perhaps more will still come. It is interesting to have members write that they had not known there were strawberries in their neighborhood until they began to look for them and found some. In one instance, a member wrote that there were no wild strawberries in his section of the state, while in the same mail another member sent a package of plants collected there.

If your part of the state is like the plots at Fargo, this year is likely to be a record-breaker so far as the fruit crop is concerned. Because of the peculiar weather this spring, almost all kinds of fruit bloomed at the same time including apples, plums, strawberries, gooseberries, currants and apricots. Unfortunately, this particular time was the period of the dirt storms. Dust blew along with a high wind for several days during which time no bees worked with the result that there was no cross pollination. When the wind died down and the weather warmed up, we found that no self-respecting bee would be seen visiting one of the dirt-filled flowers. As a result there was still no pollination. An inspection of the fruit trees now shows almost no crop due to this cause.

A correspondent asks which of the fruits in our variety list may be propagated from seed successfully. The answer is, none at all. While Wealthy seeds will produce apple trees, they will not be Wealthies and so on through the whole list.

A friend from Garrison says that her Christmas Cactus is not doing well and wants to know how to handle it. She mentions that the

plant is 25 years old and 5 feet across. I had to admit I have never grown a plant that long or to that size, hence I felt she was better able to give me instructions than I was to help her.

One thing C.W.A. projects demonstrated last year was the possibility of doing successful tree and shrub planting in mid-winter. While planting plants at that time of year is extremely expensive, it is undoubtedly possible if handled properly. One of the important things is to see that the roots of the plant being moved are not exposed to a temperature lower than 20 degrees above zero. Here is the method that was used with success. Holes of ample size were dug in the frozen earth. Only a few shrubs were taken from a root cellar at a time which were kept covered with burlap and shingle tow or moss until the instant they were planted to keep them away from the cold. The plant was in the hole and unfrozen earth hauled in from outside, filled in and tramped around the plant. The plant was then thoroughly watered, loose dirt put on top and finally the surface covered with a thick layer of snow. The plants are doing fine now.

We have a letter from Circle, Montana, which mentions Russian mulberry trees in that vicinity which fruit regularly.

An inquirer from Northwood asks whether it is all right to break off blooming branches from shrubs for bouquets. We usually recommend pruning shrubs after blooming time, in which process some of the older canes are taken out. If the blossoms used for bouquets are on such canes removing them would not hurt at all, but would merely be a part of the pruning process. However, cutting from all over the plant might hurt some varieties seriously, effecting the blossoms for another season.

Speaking of shrubbery, our plants of the hardy Tamarix, some plants of which are distributed as premiums a few years ago, are looking wonderfully fine this spring. They are in full bloom now and blooms will continue to show up on plants until fall. A study of its root system shows that it produces very large roots which go down deeply, hence, it would appear to be a good drought resister. We would like to hear from members who received this as premiums as to how yours is prospering.

If one raises grapes from seed, a large proportion of the plants received will be male plant—that is, the blossoms will have nothing in them except pollen, hence will never set fruit. If you have a grape vine which never bears, but



which blooms regularly, this is quite likely the reason.

By the time you get this news letter, it will be quite late in the season. Nevertheless, if there is moisture to sprout the seeds, I suggest that you plant some Golden Gem or Sunshine sweet corn now. With a reasonable season you should get roasting ears before frost.

F. Lagomarsino & Sons of Sacramento, California, claim to have a strain of snapdragons which are rust-proof, secured from the California Agricultural Experiment Station. If you have trouble with rust on your snapdragons, this should be welcome news.

V. A. Tiedjens in Plant Physiology, Volume 9, Number 1, states that in acid soils, plants are best able to use nitrogen fertilizer in the form of nitrate; in alkaline soils, plants make the best use of ammonium sulphate.

The Horticultural Society has purchased a new book entitled "Delphiniums, Their History and Cultivation". This will be loaned to members who send postage and agree to return it within two weeks.

According to Science, Professor Livingston of Johns Hopkins University has developed a simple wick-like rod which will keep plants watered. It consists of a fine-grained filter material similar to porous sandstone, one end extending up into the bottom of the pot, the other immersed in a reservoir of water. This wick carries water into the pot, replenishing it as the plants use it up.

Mr. Vance, the editor of our magazine, and secretary of the South Dakota Society says in a recent letter, "One thing discouraging is that we have people who are very well versed in horticulture and who can write articles but it seems to be simply impossible to get them to write. They are enthusiastic and enjoy reading the articles written by other people, but they neglect to give us very much help." As secretary of the North Dakota Society, I wish to heartily commend this statement. I know that there are many of our people who have much to give the rest of us, but are either too modest or too busy to pass along their experiences. Certainly, the least that many of you could do is when you see something recommended in other articles **that has not worked out for you**, write and say so.

According to the American Pomological Society 37 per cent of the apples produced in the world are grown in America and one-fifth of our crop is exported.

The National Nurseryman reports that by patient grafting, J. A. Haefle, San Francisco, has

developed a tree which bears on its different branches, Blenheim apricots, Hales early peaches, nectarines, sugar plums, Italian pruns, egg plums, purple plums, Santa Rosa plums, German prunes, Hungarian plums, Royal Anne cherries, Green Gage plums, French prunes, Crawford peaches, Early Grafton peaches, Japanese plums, Damson plums, Lambert cherries, Moorepark apricots, and a new "Mystery plum", all of which illustrates the fact that the root of the plant doesn't greatly change the kind of fruit produced by branches born upon it.

A clipping sent in recently tells of a Mississippi grower who grafted a tomato sprout on to a potato vine. He got 14 tomatoes above the ground and 7 potatoes below the ground, and is saving the tomato seed and the potatoes, expecting to get something new and strange from them. This simply illustrates the fact that few people understand that neither the tomato top nor the potato root was changed by the grafting process. When those tomato seeds are planted next year they will produce tomatoes and the potatoes grown on the bottom will produce potatoes. The relationship between the top of a grafted plant lies only in the fact that each supplies food for the other.

Science states that odors are now being designated by a numerical formula consisting of four numbers. Each digit expresses one of four components in odor senses which are fragrant, acid, burnt and caprylic. The highest degree of intensity for each is eight.

"Poisonous Plants and Plant Products" is the title of Bulletin 265 of the North Dakota Agricultural College, written by O. A. Stevens.

"The Gardener's Bed-Book", price \$2.50, is a new publication of G. E. Stechert & Company, New York. It is one of the series of books that must be designed for a lazy man, the idea being that it is to be read in bed. If you are that kind of a gardener, you may be interested.

We sometimes take much of the work being done for our benefit too much for granted. For instance, this discovery has been made: That lead poisoning may be produced by use of fruits with lead on them which have come from sprays containing this material. Even after you know that is the case, how is the pure food inspector to determine whether lead is present. The United States Department of Agriculture has spent much time in devising means so that it could be done quickly. According to Science, Dithi-zone has been found to be a good indicator. This substance has sold for \$4.00 per pound. The next job, therefore, is to provide it more cheaply so that it may be used.



FERNS OF SOUTH DAKOTA

Dr. George Lynn Cross, Vermillion, S. D.

The fern group is perhaps utilized more for decorative purposes than any other single group of plants. Since they produce no flowers, it is the beauty of their leaves which has given them their popularity in the home, the garden, and the greenhouse. In most ferns, and in all of our native South Dakota species the stem is entirely or nearly underground, so that we see only the crown of beautiful, gracefully drooping leaves. In such cases the stem is called a "root stock".

Ferns reach their greatest size and luxuriance in the tropics. In Mexico and Central America for instance, the stems of many ferns are above ground. Here they grow to a height of 30 or 40 feet, and are known as "tree ferns". The leaves of such forms are not infrequently as long as 20 feet, with a leaf stock as thick as a man's arm, or even thicker.

While South Dakota is in no sense a tropical country, still we have a fair share of ferns growing within our boundaries. Exactly two dozen different kinds of true ferns have been found in this state, specimens of which have been prepared and added to the collection of plants in the state herbarium at Vermillion. In addition to the 24 different kinds of true ferns, we have 14 different species which are commonly regarded as belonging to the fern group, but which on account of certain structural differences, are not to be regarded as true ferns. In this latter group are found the hairy pepperwort (*Marsilea vestita*), various horsetails and scouring rushes of the genus *Equisetum*, quillworts (*Isoetes melanopoda*), ground pines (*Lycopodium obscurum*), and little club mosses (*Selaginella rupestris* and *S. densa*). This makes a total of 38 fern or fern-like plants native to South Dakota. Since there are approximately 250 different plants in the state, about 1½ per cent are ferns.

Of the 24 true ferns, 6 of them, or 25 per cent are found generally distributed over the state in moist places. Eighteen, of them, or 75 per cent are more or less restricted to the Black Hills. Of the fern-like forms, most, such as the horsetail and scouring rushes occur abundantly over the state. The very rare quillwort, however, has been found but once in South Dakota, and then in a water hole in the southern, west river country. The almost equally rare ground pine is found only in certain wet places in the Black Hills. The ground pine, sometimes called club moss or swamp moss was much used for Christmas decorations in Vermillion this

year, but the supply was obtained from the northern swamps of Minnesota and Wisconsin rather than from South Dakota. Except for the two rare species that I have just mentioned, the fern-like forms are rather generally distributed.

Perhaps the most common of the true ferns to be found are the Ostrich fern (*Pteris nodulosa*), the word fern (*Woodsia scopulina*) and in the Black Hills the bracken fern (*Pteridium aquilinum*). The bracken fern is more or less common in temperate climates all over the world, but it attains its greatest display in tropical countries. In New Zealand it is regarded by the farmers as a pernicious weed, the eradication of which presents as grave a problem as that of the quack grass and creeping jenny in South Dakota. In South Dakota this fern may grow to the height of a man's waist or chest. In New Zealand it grows under favorable conditions to a height of 18 or 20 feet.

The most unusual and perhaps rarest native South Dakota fern is the maidenhair (*Adiantum modestum*). Its occurrence at Cascade Springs in the southern Black Hills was thought by the late Dr. Bessey, formerly of the University of Nebraska to be of sufficient scientific interest to warrant the publication of a magazine article.

Ferns are distinguished from other plants by the fact that they do not produce seeds. Their method of reproduction is interesting and exceedingly complex. Many a housewife has been annoyed by what she thought were little brown scales caused by plant lice on the under surface of the leaves of her ferns. I have been asked several times how these little scales could be eliminated. As a matter of fact, these scales cover the reproductive organs of the fern, and have nothing to do with plant lice. Beneath the scales are very tiny, grape-like clusters of little brown balls, known as spores. These consist of but one cell, and therefore in no sense of the word seeds. When they become mature, they fall off of the leaf on to the damp ground beneath the plant, or they may be blown by the wind several miles to an entirely new area. If they come to rest in a moist place they begin to grow. They do not, however, grow into a new fern plant like the parent from which they came, but they do grow into a little heart-shaped plant about the size of one's little finger nail. This plant is called a prothallium. Each spore produces one little green, heart-shaped prothallium which lays on the ground and absorbs water.

On the back of each little heart-shaped pro-



thallium are produced sex organs, male and female. The male sex organ produces sperms and the female produces one egg. The sperms can swim, but the egg is stationary. After both become mature, some time when the plant is covered with dew, the sperms swim over and one of them fertilizes the egg. This fertilized egg grows into a fern of the original type, with which you are familiar.

There are thus two distinct plants produced in the reproductive process of every fern, the common leafy plant, and the inconspicuous heart-shaped prothallium. Both are equally entitled to the name "fern", although when we say fern, we usually mean the leafy plant. The life cycle is as follows: The leafy plant produces spores. The spores produce the heart-shaped prothallium. The heart-shaped prothallium produces eggs and sperms, and the fertilized egg produces the leafy plant again.

One of the most fascinating, yet most difficult phases of fern culture is the raising of young fern plants from the spores. Since the spores are usually borne on the under surface of the fern leaf they may be readily shaken off when ripe, on to a piece of paper. Or pieces of a leaf may be cut off and placed in a sac in a dry protected place until the spores are shed. They should be sown on moist soil which has been sterilized by baking it in an oven for two or three hours. Only pots or pans with holes in the bottom for drainage should be used. After the spores are sown, a piece of glass should be laid over the pot to exclude as much air as possible. A temperature of about 65 degrees Fahrenheit is best, but most spores will grow well at ordinary room temperature. The soil should be kept moist by occasional addition of boiled water. The young prothallia begin to appear in about three weeks, and the glass should then be occasionally removed for a few seconds at a time to admit more air. Young leafy plants soon appear, growing off the backs of the prothallia. These should be transplanted as soon as they can be handled without tearing. Ordinarily about nine months are required to produce young plants by this method, which is known as the sexual or spore method. Many people, around Vermillion at least, have become interested in those glass enclosed cases known as terraria, in which delicate plants are grown, protected from the dry atmosphere of the home. Ferns may be propagated by the spore method very successfully in these.

Any fern, native of South Dakota, can be transplanted to and successfully grown any place in the state, providing the conditions of soil and moisture found in the old home can be success-

fully imitated in the new. They are particularly attractive in mixed borders, in rockgardens, indoors and out, in terraria and in green houses. They are not dependent on the spore method for reproduction, inasmuch as practically all of them possess perennial root stocks which are easily divided. Some ferns form little plants at the tips of their leaves. These may be removed when they attain sufficient size, and planted in shallow, well-drained pans. Two or three weeks are usually sufficient for roots to form, after which they may be transplanted to the ordinary pots.

South Dakota has a native fern for nearly every purpose, and since native plants are always the ones most easily grown in any area, it follows that selections for fern gardens should be made from the native forms. For the mixed border, the graceful and dignified ostrich fern (*Pteritis nodulosa*) has no peer. Under favorable conditions it will produce a vase-like circle of foliage as high as a man's waist or chest. In swampy lowlands it often grows higher than a man's head. In South Dakota it is to be found common in the Black Hills and in the coulees of the western parts of Roberts county. The vivid oak fern (*Phegopteris Dryopteris*) and the little male fern (*Dryopteris Filix-mas*) may be grown in borders with the ostrich fern for variety.

Since the beauty of fern foliage is brought out only by luxuriance of growth, it follows that careful planning is necessary in order that one's efforts in planting be not wasted. Fern leaves are delicate and easily damaged by strong winds, hence at least a moderately sheltered home should be selected for them. Most of them require at least partial protection from the sun's rays, particularly during the heat of the day. Exceptions to this rule are the bracken fern (*Pteris aquilina*), sensitive fern (*Onoclea sensibilis*), and certain species of the male fern (*Dryopteris novaboracensis*). The asparagus fern of greenhouse popularity is extremely sensitive to light. It is not, however, a fern at all, but is a member of the lily family.

Since ferns require some protection from the sun, the east side of the house makes an ideal location for a fern border. The shadow of the house will protect them during the heat of the afternoon. The north side of the house may be utilized with slightly less success, and even the west side may be pressed into service in an emergency, but ferns are practically never successfully grown in a southern exposure, unless they are shaded by large shrubs or bushes such as lilacs.

In addition ferns require positions where the



soil moisture may be kept fairly constant. This can be accomplished by keeping the space between the plants well mulched, or by providing a ground cover of mosses or other small plants which tend to insulate the soil against changes of moisture content and temperature in the air above. Such a ground cover will enable the fern roots to grow near the surface where they may obtain an abundance of air, a matter of vital importance. The ground cover or mulch fulfills an additional function. When the ground is bare beneath the plants, rains are bound to dash mud on the under sides of the leaves, and no fern can tolerate this and thrive. A study of environmental conditions in the original habitat is of course a necessary prelude to fern culture of any kind.

Soil conditions are extremely important. In general the soil should be rich in humus and minerals. It should be sufficiently friable to allow unrestricted root development. Clay soil is objectionable, but if a little sand and well rotted leaves and manure be thoroughly spaded into it, the objection is removed. Pure leaf mold is not satisfactory unless minerals in the form of commercial fertilizers are added. The ideal soil is a sandy loam, with just a little clay, and enough rotted vegetable matter to make it crumbly. Standing water or water logged soils are to be avoided.

Ferns should not be sprayed with water from a nozzle as nothing will so quickly destroy the beauty of the foliage. When it is desired to water them, then nozzle should be removed from the hose and the latter allowed to lie on the ground beneath the foliage until the soil is soaked.

Many South Dakota ferns are to be found growing in crevices on rocks in the Black Hills, particularly near Lead, and in the Harney region. Examples are the cliff brake (*Pellaea glabella*), the purple cliff brake (*Pellaea atropurpurea*), the polypody (*Polypodium virginianum*) and various spleenworts of the genus *Asplenium*. Needless to say these all do well in rock gardens, either outdoors or in the house in a terrarium. The purple cliff brake is particularly valuable on account of its resistance to heat and drouth. It does very well as a potted fern, even within a few feet of a radiator.

Fortunately not many insects attack ferns. Most troubles of this type are due to mealy bugs, red spiders, thrips and scale, and these are usually present in an atmosphere that is too dry. Thrips, red spiders, and mealy bugs are easily controlled by adjusting the humidity of the atmosphere, or by spraying the ferns with

tobacco water or Black Leaf Forty. Scale is difficult or impossible to eradicate. The maidenhair ferns are particularly susceptible to scale.

In suggesting that South Dakota ferns be utilized in South Dakota gardens, it is not my purpose to recommend that people go into the woods or to the Black Hills and indiscriminately dig up ferns for transplanting to their homes. Nothing would sooner result in the complete extinction of these beautiful plants. Ferns are among the most delicate of all plants. Leaves picked to add to bouquets of wild flowers usually wilt within 15 minutes or less. No thoughtful or responsible person will molest a fern during its growing season. It should be moved during its period of rest, and then, preferable from a nursery, rather than from its wild home.

The point that I would like to make is this: The most successful cultivated plants in any region are always those which have been selected from the native vegetation. Since this is true, and since many people love ferns, it follows that our nurseries do, and should to an even greater extent, select and propagate for sale those species of South Dakota ferns that seem most suitable for that purpose.

The Botany Department of the University of South Dakota will be glad to help answer any questions that may come up concerning any phase of fern culture.

We have a very interesting part of the state near Fruitdale, South Dakota. This little valley warms up early in the spring and one finds plant growth farther advanced than it is at the lower altitude in the eastern part of the state. There are a large number of curlew in this vicinity. Your editor threatened to send Mr. Over some of these eggs for his collection but they had hatched. While looking for these eggs we found a young sage hen slightly smaller than a meadow lark. The mother appeared to have both wings and her back broken but when we turned the little sage hen loose she recovered more rapidly than some of the people who have used patent medicines tell about in their testimonials. One can find shark teeth and whale teeth imbedded in the limestone and lying loose among the limestone rocks on the shore of the Orman Dam lake a few miles from Fruitdale. The partridge introduced by the Fish and Game department are rapidly increasing in number in this valley. They whirl out of the brushy patches in the gulches. They seem to be a fine little game bird and apparently are not of the troublesome type.

NOTES FROM A NORTH DAKOTA GARDEN

A. L. Truax, Crosby, N. D.

July 2—

Nemophila in bloom. This dainty and beautiful little annual will bloom all summer from spring sown seed, and makes a nice edging for flower beds in shady places. It gets its name of "Love Grove" from the Greek *Nemos*, a grove, and *phileo*, to love, so that we know that it likes shade. There are several colors, such as white dotted with a brownish purple that is almost black, blue with white center; and many other dainty patterns, borne on spreading stems from four to six inches high. I love this little flower, not only for its graceful beauty, but because it was the first garden flower that I grew as a boy.

July 3—

Matthiola bicornis, or Night Scented Stock, is sending out its powerful and penetrating fragrance every evening. This annual is very easily grown and will seed itself year after year. It droops in the daytime, but is a glory in the night.

July 4—

Lychnis Chalcedonicum is lighting up the dark corner next to the pine trees with its glowing scarlet heads of bloom. Known by many common names, such as London Pride, Scarlet Lighting, Jerusalem Cross, and Maltese Cross, it is an easily grown and showy perennial needing only ordinary care.

July 5—

Spirea varieties *Aruncus*, *Vesta*, and *Victoria* are sending up their feathery heads of bloom. If one has a rather moist and shady place, these herbaceous *Spireas* will give a good account of themselves.

July 6—

Lilium Hansonii in bloom. This is a worthwhile addition to the short list of Lilies that are sufficiently hardy or sufficiently tolerant of limy soil to flourish in North Dakota. Its thick, leathery, recurved petals are yellow dotted with purple.

My Regal Lilies have failed me this year. Planted a year ago last spring six inches deep, they bloomed finely last season, but evidently they were not deep enough in the ground to stand the penetrating cold of last winter. Next year I shall plant them a foot deep and cover them with straw besides.

July 7—

Hemerocallis kwanso in bloom. This plant, also called the Tawny Day Lily, is hardy and persistent, especially if given a moist place. It

will also flourish in the shade. There are many choice varieties of *Hemerocallis* that are worth trying.

July 8—

Myosotis palustris semperflorens in bloom. Do not get alarmed at the name, for it is simply the old fashioned Everblooming Forget-me-not of song and story. With its dainty blue flowers it makes a pretty edging in a shady spot, and is perennial and hardy.

July 9—

My *Delphinium*, or English Larkspur, are sending up their spires of blue. I give them plenty of water, and an occasional dose of nitrate of soda, and with this treatment they grow to six feet in height. They are among the "iron clads" in this region, for I never cover them in winter.

July 13—

What to plant on the south side of my house foundation that will cover the ground and give me some summer flowers has long been a problem with me. I have planted many trailing or creeping things there, such as *Arenaria montana*, *Phlox amoena*, various *Sedums*, and many others, but our fierce July and August heat, intensified by reflection from the house walls, has always finished them in spite of all I could do. The Chinese *Delphinium*, *Centaurea Americana*, *Petunia* for tall, and *Phlox subulata* and *Portulacas* for dwarf, will, however, stand the heat and give summer bloom.

July 14—

Perennial *Phlox*, var. *Pyramidalis* in bloom. This is the best and hardiest white Perennial *Phlox* for me. The individual florets are not as large as those of other white varieties, but are borne in pyramidal clusters that show well, and the plants persist from year to year while the other whites die out. The only fault I have to find with it is that it blooms earlier than any of the colored varieties which need white for contrast.

July 15—

My one plant of Rosy Loosestrife, (*Lythrum roseum superbum*), is now blooming. This solitary plant has persisted in my garden for years. I give it plenty of water, and its great need for a moist place is the only reason why I do not have more of it.

July 16—

My garden *Heliotrope*, (*Valeriana officinalis*), is blooming for the second time this season after a copious watering. Its dull white blossoms are not showy, but are delightfully fragrant. Its cousin the Rosy Valerian, (*Valeriana rub-*

rum), did not come through the winter for me, so I have concluded that it is not hardy enough for this climate.

July 17—

Today I took my garden shears and trimmed all the seed pods off from a long row of Scotch Pinks. This is the only way I can keep these bewitching fellows within proper bounds.

July 22—

Hollyhocks in bloom, with, as usual, the robust and hardy singles crowding out the doubles. The only way to get the choicer doubles seems to be to keep buying double plants and remorselessly chopping out the singles as they appear.

July 23—

My one bush of the Shepperd Black Raspberry has been in bearing since July 10th and has given me several quarts of delicious berries. It is planted where it gets the runoff from the garage roof. If I only had an adequate water supply I could not get enough of these plants.

Have had Red Raspberries since July 10th. This is a small red early variety, but I do not know the name, for years ago I planted some King, some Sunbeam, and some St. Regis, and these are the survivors. Then there is one bush of a greyish purple variety that I never bought. I think a bird must have brought the seed of it to me. It is a much smaller berry than the Columbian, but is a wonderful bearer and the fruit has a flavor all its own. The Latham Red Raspberry is fine here in the wet years, but in the dry years the red spider gets it.

July 28—

Aconitum napellus bicolor in bloom. This is a choice Monkshood with blue flowers beautifully edged with blue. It comes before the other Monkshoods, which are mostly fall bloomers.

The grasshopper invasion has struck my garden.

July 29—

I took up and spread out my Cloth of Silver Crocus, (*Crocus speciosus*), as they are getting too thick. Did the same thing for *Scilla sibirica* and found the ground full of little bulbs that must have come from seed. We are having terrific heat these days and everything is wilting and dying that is not copiously watered.

July 30—

The Perennial Autumn Asters are beginning to bloom. I wonder if the lice that infest the roots of these harms them. Ants burrow down near the plants, and I suspect that they plant these aphid colonies. I take a teaspoon of Black Leaf Forty to a quart of water and pour the mixture down the ant holes. It kills the lice and the ants soon leave, but only to plant their colonies elsewhere.

PEACE GARDEN

C. B. Waldron

The most ambitious horticultural project ever undertaken in the entire northwest, outside of the National Parks, is the Peace Garden in the Turtle Mountains, being developed at the present time. At the meeting of the board of directors, held at Dunseith on April 22, the plans prepared by Landscape Architect Feehan were adopted, subject to such changes as would be necessary after further survey of the tract.

Immediately after this meeting, work was begun by the C.C.C. organization which is to be continued for an indefinite time or until the work is completed. Some 150 or 200 men were engaged to do the preliminary work over the 2,500 acres of the area which lies this side of the national border.

The plan as prepared by Mr. Feehan, provides for several imposing features such as are appropriate for an undertaking of this size and importance. From the entrance on the east side of the garden and on the border line a triple driveway extends west to a pool of 250 feet in diameter with a fountain in the center. Beyond the pool, the driveway extends to a peace tower which will be erected at a cost of from \$25,000 to \$50,000. At each side of the pool wide avenues will extend north and south and along these special features will be developed. Outside of this rather formal central portion, which will be set with spruce and other evergreen trees planted regularly, the garden will be developed along naturalistic lines preserving the native timber and improving and enhancing any natural feature that may exist. It is also planned to create bodies of water wherever possible to add to the interest and attractiveness of the area.

In order to accommodate the large numbers of people that are expected to visit the garden in the future, hotels and tourist camps will be provided.

Further plans of the directors are to plant additional trees and plants throughout the years so as to increase the educational and artistic value of the entire area. Plans have been laid that would seem to provide adequate financing even though the total cost will reach what seems a pretty large figure. It is expected that about five years will be required to bring the garden into a finished condition, but, of course, improvements will be made throughout the years that will make the place of increasing interest and importance.



A READING LIST FOR THE STUDY OF VEGETABLES

Prepared by A. F. Yaeger

The following publications may be had free from the Publications Department at the North Dakota Agricultural College, Fargo, North Dakota, unless more than six are requested at one time.

Extension Circulars

- 58. North Dakota Farm Vegetable Garden—Revised, 1932.
- 102. Treatments for Seed Potatoes—1931.
- 110. Growing Potatoes in North Dakota—1932.
- 116. Weed Seed Facts—1933.

Experiment Station Circulars

- 42. Insect Pests of Trees and Gardens—Revised, 1933.

Experiment Station Bulletins

- 173. Onion Growing in North Dakota—Revised, 1933.
- 187. Vegetable Varieties for North Dakota—Revised, 1930.
- 205. Sunshine Sweet Corn—1927.
- 243. North Dakota Weeds—1930.
- 258. Buttercup Squash, Its Origin and Use—1932.
- 270. Some Edible and Poisonous Mushrooms—1933.
- 266. Leafy Spurge—1933.

The following publications may be had free from the United States Department of Agriculture, Washington, D. C., or from your senator or representative.

Farmers' Bulletins

- 131. Pruning.
- 232. Okra.
- 354. Onion Culture.
- 434. Onion Seeds and Sets.
- 660. Weed Control.
- 739. Cutworm Control.
- 847. Potato Storage Houses.
- 879. Home Storage of Vegetables.
- 1060. Onion Disease Control.
- 1064. Main-crop Potatoes.
- 1184. Ginseng Culture.
- 1232. Seed-marketing Hints.
- 1233. Tomatoes for Canning.
- 1253. Seed Peas for the Canner.
- 1255. Peas for Canning.
- 1291. Marketing Fresh Tomatoes.
- 1307. Quack Grass.
- 1332. Seed Potatoes.
- 1338. Tomatoes as a Truck Crop.
- 1367. Potato Tuber Diseases.
- 1371. Vegetables, Diseases and Insects.

- 1390. Seeds for the Home and Market Garden.
- 1394. Watermelons.
- 1423. Preparing Cabbage for Market.
- 1436. Why Potatoes Run Out.
- 1468. Muskmelons.
- 1499. The Melon Aphid.
- 1555. Peppermint and Spearmint.
- 1563. Cucumber Growing.
- 1579. Containers Used in Shipping Fruits and Vegetables.
- 1587. Mushroom Culture.
- 1609. Lettuce Growing.
- 1620. Cucumbers for Pickles.
- 1634. Sweet Corn for the Cannery.
- 1646. Asparagus.
- 1656. Peanut Growing.
- 1673. Farm Gardens.
- 1679. Popcorn.
- 1692. Bean Diseases.

Leaflets

- 2. Cutworms.
- 68. Roadside Markets.

Suggested Books

Vegetable Crops—Thompson, published by McGraw Hill Book Company, New York. Price, \$5.
Seed Production and Marketing—Cox & Starr, published by John Wiley & Sons, Inc. Price \$4.
Root Development of Vegetable Crops—Weaver & Bruner, published by McGraw Hill Book Company, New York. Price, \$4.

Vegetable Growers' Papers

Market Growers' Journal, published by the Market Growers' Journal Company, Inc., Louisville, Kentucky. Subscription, \$1.00 per year.

Several years ago when our Librarian, Chas. McCaffree, had charge of the Capitol Grounds, he started to beautify the steep banks near the Power House and along part of the lake front. He had very little money, so he removed cedars, dogwood, native currant, and aromatic sumac from the Missouri river bottoms and breaks and cactus from the prairie and a few spruce trees from the Black Hills. This was three years ago and today these steep banks that were weeds and alfalfa are the most beautiful part of the grounds and they are only beginning to show their beauty. The native aromatic sumac is a high quality plant and it is surely hardy. The currant is a close competitor and the dogwood makes a better showing than many high priced plants. The hedge of buckthorn and a row of lilacs at the top of the bank was the only plants bought and what a showing for the small amount of money expended. When cactus are planted closely on a steep bank they do make a fine appearance and are something different.



NORTH DAKOTA BEEKEEPERS' NEWS LETTER

J. A. Munro, Secy-Treas.

The value of a watering place for bees, where they can drink at all times, cannot be overly emphasized. Without question, the bees and brood suffer greatly, especially during dry weather, when a regular water supply is not available. An ordinary wooden barrel with a spigot at the bottom which will allow the water to drip down on a tray or board is most satisfactory. The bees can get water from a device such as this without danger of drowning. A regular water supply close to your apiary will also keep your bees from visiting your neighbors' lily pools and watering troughs, and becoming a nuisance.

Gather up all pieces of burr comb, scraps of beeswax, broken combs, etc. It is remarkable how much wax can accumulate around an apiary in a season. At the end of the season the scraps that have accumulated can be rendered into beeswax, along with the cappings removed at extracting time.

One of the greatest drawbacks to broodrearing at Fargo, this spring, was lack of pollen. Colonies that were adequately supplied with it made double the progress of colonies that were lacking in this important food for the brood. Combs containing pollen can be stored over from fall until spring, provided honey is stored in the cells on top of the pollen. The honey tends to keep the stored pollen moist and fresh. When stored pollen becomes dry and hard it appears to lose its value to the bees.

During the severe dust storms of the past spring the apiaries protected by shelterbelts of trees were doubtless off to a better start than the unprotected ones. Much of the dusty weather occurred during fruit bloom time, with the result that bees were hindered in their flight and cross pollinating activities were less efficient than if the weather had been normal.

Grass and weeds in front of a hive entrance are more of an obstruction to the bees than we commonly realize. If such a condition exists in the fronts of your hives, don't lose any time to remedy the matter.

Beginning on June 16 at Fargo the colony on scales began making daily gains in weight. To date—June 18—it has gained 4½ pounds. Sweet clover bloom is the chief source of nectar at this time.

Out of 13 colonies of bees wintered at the North Dakota Experiment Station in Celotex-

covered hives, further protected by a wrapping of tarpaper, 10 of the colonies survived the winter. The Celotex was one inch in thickness. With the exception of one colony, which occupied a single hive, all others were wintered in two-story hives. This method of wintering bees has not as yet proven to be as satisfactory as wintering colonies in a good cellar. It is intended to continue the trials in the hope of improving the method.

Reports which we have received on the condition of nectar plants, especially sweet clover, are more encouraging than were anticipated earlier. Fields of sweet clover which we have seen of late show the plants to be looking fine. Early sources, including elm and maple, were of slight importance locally because of the bad weather which prevented gathering by the bees. At the present time of writing (May 15) bees are working vigorously on dandelion and fruit bloom. Colonies, for the most part, are building rapidly up to strength.

Although prices of package bees have been higher this season, we believe that beekeepers have purchased more packages than a year ago. Members who availed themselves of the opportunity of buying their packages through the Association have realized a substantial saving over what they would otherwise have had to pay.

According to a government report, the United States exported 6,158,427 pounds of honey during 1933—about one-third the amount exported several years ago. The four countries receiving the largest amounts were: Netherlands, 1,017,540; United Kingdom, 1,224,029; Italy, 1,604,284; and Germany, 1,970,616 pounds.

The unseasonably warm weather in May caused many of the wild flowers to blossom two to three weeks earlier than they usually blossom. One flower in particular, the native so-called tiger lily, that usually is in blossom the 4th of July at 5,000 feet altitude was in blossom June 18th at 6,000 feet altitude.

The catoneaster is standing up well during our dry years. It can be classed with the old lilac in this regard.

The care of the trees after planting seems to be more important in growing trees than the planting of trees.

One orchard near Pierre did not blossom this spring. The grasshoppers ate the blossom buds last summer.



NOTES

The summer meeting at Milbank was a very pleasant event. Dr. and Mrs. Ross made every one feel at home. The visit with them was worth the trip alone. The Commercial Club gave us a dinner the first day and told us of the very interesting things in the Milbank vicinity.

Mr. Hunter took us to his granite quarry a few miles east of Milbank and showed us where they removed the "Hunter's Royal Purple" granite, this being his trademark. The mast timber used in hoisting the granite from the quarry was sixteen inches square and ninety feet long. He mentioned that one block weighing 400 tons was to be removed, also that the granite weighed 180 pounds per cubic foot. The shot saws were something new to most of us. They can saw three or four inches an hour into these blocks of granite. When we asked how far down he could take out granite he informed us he did not know but that some quarries were 400 feet deep. This granite is shipped to all parts of the United States. One 12-ton block was shipped to Duluth, Minnesota, and carved into a statue which cost them \$10,000.

After looking over the quarry Mr. Hunter took us to the plant in Milbank where the granite is finished. This polishing process was very interesting.

The morning of the second day we visited Mr. Block's orchard at Ortonville. He had many of the new varieties of pears and apples. There was top grafts from one end of the orchard to the other and Mr. Block could tell you off-hand just what they were and all their characteristics. The top worked yellow delicious were fine but Mr. Block told us the red delicious never produced well and Mr. Robertson had had the same experience. In fact, Mr. Robertson and Mr. Block agreed pretty well on most things in fruit growing. The set of fruit was not as heavy as last year. They had dirt storms during blossoming time that whipped the blossoms and prevented the bees from flying.

It was agreed that the winter meeting will be held in Vermillion this winter. Some of the members believed it would be better to hold the meeting some time during the late fall instead of in January. We would like to hear from the members in regard to this matter.

Vermillion will afford us an exceptionally fine meeting place and we will want to take advantage of this opportunity.

The society is greatly in favor of county parks and a few places where we can preserve some of our wild flowers that are in danger of becoming extinct. We notice that the Izaak Wal-

ton League were interested in county parks and erosion control at their meeting in Huron. More power to them.

The yellow sweet clover was in blossom May 17. The yellow, white and annual, furnish good bee pasture for most of the time during the summer. According to Dr. A. N. Hume, Agronomy Dept., South Dakota State College, Brookings, no case of poisoning from feeding the sorghums (cane, Feterita, Grohoma, Kaoliang, Sudan grass) after they have been made into silage. The changes that take place in the silo destroy the poison.

Horses and hogs may be pastured on the sorghums with safety. Young calves seldom, or one might say, never become poisoned from these feeds.

Sudan grass is usually the least poisonous of the sorghums and there is less danger when the other sorghums are allowed to head before harvesting.

Thoroughly drying after harvesting removes much of the poison so that it is usually safe to feed. A long time is required for drying the sorghums.

C. J. Nusbaum in an article in the June Wisconsin Horticulture has the following to say about junipers being susceptible to apple rust:

Susceptible Varieties

"The common red cedar *Juniperus virginiana*, and its grafted varieties *elegantissima*, *Schottii canaertii*, *hillii* and *glauca*, were found to be susceptible. The varieties *globosa*, *keteleeri*, and *burkii* were free from infection. The species *J. scopularum* was susceptible."

Resistant Species

"The dwarf juniper, *J. Communis* and its varieties *suecica*, *hibernica*, *depressa*, and *ashfordi*, were resistant. Others on the resistant list were the Chinese juniper, *J. chinensis* and its varieties, *pfitzeriana*, *pyramidalis*, *sargentii*, *stricta* and *columnaris*; *J. excelsa* var. *stricta*; *J. horizontalis*; *J. sabina* and its varieties *tamariscifolia* and *horizontalis*, *J. meyeri* (probably *J. squamata*, var. *meyeri*)".

There may be some varieties in susceptibility especially when grown in different localities. However, the above will serve as a valuable guide.

An American Amaryllis Society was organized May 21, 1933. Annual dues are \$2.00. The secretary is Theodore L. Mead, Oviedo, Florida.