

NORTH AND SOUTH DAKOTA HORTICULTURE

FEBRUARY 1935



PRIZE WINNING YARD OF MRS. ROBERT PERKINS, SIOUX FALLS, S. D.

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THE MAGPIE

O. A. Stevens

When I travel westward and arrive at the banks of the Missouri River, I always expect to see a good sized black bird with a long tail, showing white wings patches as it flies across over some portion of the valley. If I fail to see a magpie, something of the natural scenery seems to be missing. One fall I saw one or two birds at Fargo, and occasionally they have been seen as far east as Michigan and Quebec. The Missouri River in this region appears to be the eastern limit of their regular range. They occur northward as far as Alaska, and southward into New Mexico, chiefly in the dry, sparsely wooded country. In general they are not migratory, though in the fall they move somewhat into areas where more food is to be had. They have occurred more often in Iowa than in Minnesota. In the seventies, Major Coues found them common at Fort Randall, not far above Yankton. Our birds are considered but a subspecies of the magpie of Europe, the one species being represented throughout Europe and Central Asia to the Pacific Coast.

The magpies are rather more closely related to the jays than to the crows. They are inquisitive, mischievous, rather sagacious and commonly considered a nuisance on account of their damage to crops, birds and other animals. I remember that when I was a small boy, a neighbor had one of these birds as a pet. It could make some sounds which were considered to sound like "Maggie" and "Virgil," and was continually carrying away thimbles or other small articles. Mrs. Florence Merriam Bailey notes that a collector setting traps for mice and similar animals in the brush, finds that the magpie soon learn the system of his trap marks, and necessitates a change in plans.

The most serious complaint against them is their injury to live stock. The birds live around the ranches, feeding upon dead animals and various other materials. Frequently they are reported as killing or injuring animals, usually such as have been slightly injured or incapacitated in some manner. Another, and unusual complaint, is that the birds interfere with trapping and poisoning campaign against coyotes. Like the crows, they plunder nests of game and other birds. Before the white man came they frequented the Indian villages, feeding upon the refuse of the camp and hunt.

The food habits of these birds show much in their favor. They feed extensively upon grasshoppers, crickets, beetles, and caterpillars, as well as upon mice and other small animals. The insect food in several hundred stomachs ex-

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amined by the Biological Survey amounted to more than one third of the total. Like a number of other species, they feed chiefly upon insects when they are abundant, but during the cold weather must turn to carrion, waste grain and whatever other material they can find.

The nests of the magpie are bulky structures two feet or more thick. The nest proper consists of roots or other fine material held together with mud. The outer part is of coarse sticks completely enclosing the inner part except for a tunnel-like opening. Some writers describe nests with two openings but these evidently are less common. Just what the bird does with her long tail seems somewhat uncertain. One author suggests that two openings allow her to go on through without turning. One states that on the nest the tail lies at an angle with the bird's body, another that the tail often may be seen protruding from the opening. Yet another person writes that he does not see what she can do with her tail unless it stands upright. The eggs are about seven in number, an inch and a quarter long, gray or greenish with brown spots.

NORTH DAKOTA STATE HORTICULTURAL SOCIETY NEWS LETTER



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

After comparing them side-by-side this year, it is evident that the Winter Sweet watermelon introduced from here is different than the Northern Sweet from Minnesota Experiment Station. Winter Sweet is more nearly round and keeps better. The color and quality are much the same.

Blue grass seed should be sown in the spring as early as possible. Grass seed is much easier to start on fall worked ground which is well settled than on fresh spaded soil.

A new bulletin has just been published on the carpenter worm, commonly known in this state as the ash borer. It is a contribution of the Entomology Department of the North Dakota Agricultural College and should be of interest to anyone who raises ash trees, particularly.

Dr. Chupp of Ithaca, New York, says that the seed of cabbage and related plants should all be treated with hot water, 122 degrees Fahrenheit for 20 to 25 minutes.

Mr. Wodarz of Wyndmere says that dust storms interfered with his success with grafting last spring.

The pear formerly distributed by Minnesota University as Minnesota No. 1 has been named Parker. We have found it not to be hardy here. Minnesota has also introduced and named a new crab apple called Flame. This is suggested as a variety worthy of testing. Quite probably it would be hardy here, but that remains to be proven.

Dean Watts in the "Market Growers' Journal" says that the banana teaches a good lesson on cooperation because every time one leaves the bunch it gets skinned.

Within the past two years the mysterious vitamin C has been identified, its chemical nature determined and it has been produced synthetically in the laboratory.

In studying the hibernating habits of insects, F. B. Keen of the U.S.D.A. found that where very low temperatures occurred in winter time, one half inch below the bark on a pine tree was eight degrees warmer than air temperature. One-inch bark made a difference of 18 to 21 degrees and two inches, a difference of 29 degrees. Hence, insects are able to live over in a tree trunk which could not do so outside.

Dutch elm disease seems to be spreading very rapidly. Bark beetles, both the European and American species are responsible for its spread-

ing. It is to be hoped that this menace to our finest American shade tree can be controlled. Unless it can be, the elm may go the way of the chestnut tree, which is practically extinct due to an imported disease.

A new and perhaps better, insecticide which can be used in controlling plant lice is called Anabasin. This material was discovered in Russia and the United States at about the same time. In America it was produced synthetically whereas in Russia it was extracted from a weed.

M. W. Torkelson in "Wisconsin Horticulture" in speaking of roadway improvement says that highways should be wide enough so that the slopes to the ditches are gradual enough so that they will readily grass over and so that motor vehicles can be driven into them and out again without capsizing. The ditch should have a broad flat bottom. This would require a roadway from 120 to 150 feet wide. In speaking of roadside plantings he said, "Nothing is more beautiful along the road than a well tilled field worked right up to the roadway. About the only places where formal plantings in straight rows are appropriate are in approaches to cities and at the highway intersections. Ordinarily, plantings well carried out should be made to resemble nature." He remarks that a privately owned flower garden in a farmer's front yard beautifies the highway just as much as if it were in the right of way. Phelps Wyman in the same magazine says, "The kind of plants to use for roadside plantings are preferably native species, though, of course, this is not always necessary."

Many of our people do not yet appear to appreciate the great value of barnyard manure. Some farmers near Fargo have been glad to have their manure hauled away simply to get rid of it. I have noted that the men who are doing the hauling and applying manure to their own fields are ones who have been making money these years of depression. While much of the fertilizing value of manure is lost when it is hauled onto fields in the winter time, it is much better to spread it on frozen ground than it is to make no use of it at all. Manure has several very beneficial effects. First, it increases the fertility; second, it increases the water holding capacity; third, it holds sandy soil together, thus prevents blowing and loosens a clay soil making cultivation easier and penetration of water easier.

According to Roberts of the Wisconsin Experiment Station, indications of shortage of nitrogen in apple trees are yellow foliage, short growth, and reddish bark.

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DIGGING AND STORING GLADIOLUS, DAHLIA, CANNA AND OTHER TENDER PLANTS



Purley L. Keene

These plants, while perennials, have to be handled more or less as we handle annuals. Instead of storing seeds over winter and planting them in the spring, we store vegetative storage organs such as bulbs, corms, tubers, rhizomes, etc., and plant them in the spring. Perennial plants that develop specialized storage organs and which are hardy are left in the ground over winter. This includes

such plants as the iris, the peony, our hardy lilies, and several others. Plants that develop specialized storage organs which are not hardy and will not stand our winters, must be dug in the fall of the year and stored in a frost proof cellar until planting time (in the spring). They should not be planted until after freezing weather.

Let's take as an example the gladiolus. It has a storage organ which botanists call a corm but which we commonly know as a bulb. As fall weather approaches and frosts kill the top part of the plants, the bulbs cure and ripen so it is to one's advantage to permit the bulbs to remain in the ground for a week or ten days, even two weeks, after the first fall frost. More and solid bulbs will be secured than if they are dug earlier in the fall. Should it become necessary or seem desirable to dig them before they are thoroughly cured, the bulbs may be dried and cured in an open shed which will provide shade and ventilation. Should frosts occur during the time that the bulbs are being cured in the open sheds precaution should be taken to guard against their being nipped by the frost or being frozen by freezing weather. Gladiolus, as well as all other of the tender bulbous plants, are very subject to frost injury. Every precaution possible should be taken to protect the bulbs from being frozen. They are even more frost tender than the Irish potato.

Another guide to use in regard to the time of digging the gladiolus bulbs is the color of the foliage. When the foliage has turned brown from the first fall freezes, it is time to dig the gladiolus bulbs. As a precaution, do not delay the digging until severe freezing weather occurs. In digging the bulbs many home gardeners use a spading fork rather than a spade. Care should be taken not to injure the bulbs and if one has valuable varieties, an effort should be made to

preserve all of the bulblets. The tops are cut off a short distance, say half an inch, above the bulb. The bulbs with their bulblets, roots and old bulbs are then placed in shallow trays or boxes and these placed in an open shed to cure for a few days before being stored. During the curing take the necessary precautions of protecting the bulbs from being nipped by the frost.

After the bulbs have been in storage for a few weeks, they may be taken down from their storage shelves and separated from the old bulbs. The old bulbs and the old roots will be discarded. Many people separate the bulblets at this same time. During the digging, curing and storing one must be particularly careful to keep each variety properly labeled so as not to mix the various varieties. Half of the pleasure of growing gladiolus comes from being able to name and to know the various varieties by their proper names. After the new bulbs have been cleaned up and the old bulbs, roots, and dirt discarded, bulblets separated out, they are ready to be placed into storage for winter.

While some home owners store them in cloth or paper bags, the ideal container is a shallow wooden box or tray as the professional gladiolus growers call them. For very small lots cigar boxes or similar small boxes may be used. Several of these may be placed in one tray. It is well to place the label of each variety on the box as well as to have it on a label in the box. This merely gives one a double guard against the mixing of varieties. It is not wise to use boxes much over four inches in depth, for if the bulbs are piled up too deeply in the box, some are apt to spoil during the storage period. It is also not desirable to pack the bulbs in tightly but to allow them to remain loose so that air may filter through between the bulbs. The gladiolus is not stored in sand.

The storage cellar or room should be cool and moderately dry. A temperature ranging from 40 degrees to 45 degrees Fahrenheit or 50 degrees is satisfactory for the gladiolus. A temperature much above 50 degrees will cause a wilting and deterioration of the bulbs. A temperature much below 40 degrees Fahrenheit approaches freezing temperature too closely and the bulbs are apt to be injured. One author suggests that the canned fruit cellar is exactly the right place, providing it is not too damp.

So much for the gladiolus, now let's turn to another very popular garden flower, the dahlia. The dahlia has a fleshy root for its specialized storage organ and is much more bulky than the gladiolus bulb. Not only that, but it is somewhat more finicky in its treatment than the gladiolus, more sensitive to heat and to cold, and more sensitive to neglect. One should per-

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EXTRACTS FROM THE DIARY OF A TRAVELLING MAN

W. A. Simmons

Jan. 16th: I arose at six this morning and Mr. Wallner called for me at seven, and with Mr. Heinson we sped southward. Soon our windshield became solidly coated with ice and we realized we had run into a sleet storm. Mr. Wallner produced a razor blade and about every three miles it was necessary to shave the windshield with it. At Beresford we obtained a little help from the lady in a restaurant, who made us a small cloth bag and filled it with salt and also filled us with coffee, both of which helped.

Arriving at Vermillion we found the brethren already assembled in the hall in the Union Building at the University and the seating capacity about all utilized. This was true of about all of the sessions, and we were particularly pleased to see many of the U. students drop in as their leisure allowed and absorb some of the ideas our speakers gave us.

Mr. Toothaker of Sioux City had assembled from several nurseries a great collection of potted evergreens and showed these while giving his lecture.

Dr. Over had arranged for our program between the hours of four and five P. M. to be broadcast over the University's radio, so we naturally picked our best speakers for those hours.

Mr. A. L. Ford, State director of the Shelterbelt Project, was with us the first day, and his most interesting talk occupied most of the radio hour on Wednesday. Since Mr. Ford spoke without notes, we cannot publish his speech in full, but I will give as fully as memory permits some of the high lights of it.

This, he assured us, was the biggest tree planting project ever planned, and it would require 35,000 miles of fence to enclose and protect the trees. The planting would be done to fit the ground, not in any arbitrary cut and dried pattern. About four hundred million trees would be planted over a period of twelve to fifteen years.

The planting is to be started in 1935, about 76,800 trees to be South Dakota's portion of this year's setting, enough for twenty-five miles of trees. All but one and a half miles of this ground has already been signed up, fifty-four having signed. It is not planned to set the trees near enough to highways to make them snow traps in winter but to have them on half mile lines, well away from important roads.

The object is to protect cultivated land not highways. They acquire a strip of land ten rods wide but plant only eight of these, leaving a rod of bare ground on each side to be kept

cultivated so as to prevent the spread of fire to the trees. The Government will fence these tracts and also plant the trees but will give the farmers the cultivating work.

They plan to use both American and Chinese Elm, Green Ash, Hackberry, Choke Cherry, Caragana and Russian Olive and even some Cottonwoods on low ground, also Ponderosa Pine, Blue and Black Hills Spruce and Red Cedar among the evergreens.

The 1935 planting will be done mostly in the eastern edge of the belt, where moisture conditions are most favorable as they recognize the fact that this year's setting must be made to live or confidence would be lost in the project. Every one connected with it feels he is on the spot and must make good from the start, and if other states have directors like Mr. Ford we are sure they will do so. Of course they, like the rest of us, are at the mercy of the weather and should the drought continue or get worse, no power on earth could save the trees.

It is believed, however, that better years are in the immediate offing, and if we can get the trees well started in a wet cycle they will have established forest conditions and be able to survive through future dry periods. We certainly are heartily with them and will do all in our power to make the project a success, and it is rather significant that criticism and ridicule of the project is coming only from those least informed. Mr. Ford will have the wholehearted cooperation of every nurseryman and horticulturist of the state, and we are confident he will succeed with the project as he did with the grasshopper war and make the state a better place for our children to live in.

Fortunately we have Dr. Over's most interesting paper, so this will be published in an early issue in its entirety, and even we who enjoyed hearing it read will be glad of the opportunity of reading and preserving it.

Mr. James Dunlap of Vermillion gave a very interesting and practical talk on melon growing which we will have to paraphrase from memory for you, as it was not committed to paper. Watermelons must have warm nights to have quality, Mr. Dunlap said. Many regions in the state can raise what appear to be watermelons but most of them are extremely disappointing from the standpoint of flavor. Mr. Dunlap started raising them in 1901, having in five acres that year, but due to lice and hail the crop was a failure. However, succeeding years were kinder and now over 400 acres of melons are raised annually in Clay County, and the melons are trucked over most of the state. Most of this acreage lies along the Missouri River, south of Vermillion in alluvial soil where it is first neces-

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THE PLAINS SHELTERBELT PROJECT IN SOUTH DAKOTA

By A. L. Ford, State Director

In the development of this subject it should be understood that the entire project is still in the formative stage. Many of the policies on details have not been worked out. Because of this it is expected that some of our present plans and policies will eventually be changed by the Lincoln office or by Washington.

Magnitude of Project

The Plains Shelterbelt Project is the largest tree planting program that has ever been attempted in this or any other country. If carried through to completion approximately one and one-half million acres of trees will be planted in the six states involved. This will mean something like 1,600,000,000 trees to be grown and planted.

In South Dakota there are approximately 12 million acres of land in the Shelterbelt zone of which approximately 300,000 acres will eventually be planted to trees. Nearly 400 million trees will be needed for South Dakota alone. Approximately 18,000 miles of tree belt, each eight rods wide will be planted in this state, and about 35,000 miles of fence will have to be either built or repaired. If carried through to completion this huge project will take at least ten or twelve years.

Project on a Sound Basis

The administration of this huge project has been placed in the hands of the U. S. Forest Service. All men in administrative positions who have been transferred from their regular Forest Service duties to the Shelterbelt Project are men who are fully familiar with agricultural conditions of the plains area. They have their feet on the ground, and are proceeding in sound, logical manner. They know the possibilities and limitations of this plains region. They realize the magnitude of the undertaking, and are fully aware of the difficulties that are certain to be encountered.

The general policy is to start the project in those portions of the Shelterbelt zone in the state best adapted for tree growing, and expand into the more difficult areas as the program develops. A fundamental research program will be carried by the Forest Service along with the project. As the work progresses more will be learned about tree planting under dry prairie conditions so that when the time arrives to plant the more difficult places, fewer mistakes will be made.

General Planting Policies

Unfortunately the first publicity that was released on the project gave the public the wrong impression on how the job was to be done and what it was intended to accomplish. This publicity lead many to believe that strips of trees were to be planted, approximately a mile apart in a north and south direction from Canada to Texas regardless of topography, soil or other existing conditions. This is absolutely untrue. The planting will be placed to fit the immediate locality involved. This means that some of the individual 8 rod tree belts will run east and west while others will run north and south. There are some areas in the Shelterbelt zone in South Dakota that will not support tree growth under normal moisture conditions. Such areas **will not be planted**. Other areas within the zone are composed of rough land used only for grazing purposes. These areas **will not be planted** as the primary purpose of the project is for the protection of cultivated land.

Where possible, the tree strips will be placed between properties. Where it is necessary to enter within the boundaries of an individual farm, no fields will be broken up even though off-sets in either direction are necessary to stay along fence lines of long established fields. This project is not intended to interfere with any well established agricultural system of a region. The general plan has been made flexible enough to avoid this by altering the location of the tree strips to fit each individual section or farm.

Present policies are that no land owner will be forced to have tree strips planted on his land against his wishes. The matter is entirely optional on the part of the land owner. Where a land owner refuses to allow tree strips to be planted on his land it will be simply left out of the picture entirely and the quota of trees for that immediate vicinity will be put on other adjacent farms where the trees are desired.

By varying the planting to fit the country the result will be no definite geometrical design. There will be, if the project is completed, approximately 16 acres of trees in each section or square mile of land in the zone that is suitable to support tree growth under normal rainfall conditions. It is believed that the final result of such planting will be of more protection to the country when the mass is considered than if all the plantings were made north and south or east and west.

The location of tree strips with reference to section lines is a matter of detail but is rather important. Where possible planting along the west and north side of main travelled highways will be avoided because of danger of snow driftage. To avoid this, half mile lines will be fol-



lowed where practical, although even this is not necessary. Off-sets will be made in tree strips to avoid buildings and yards, the unnecessary cutting up of established fields, or to avoid planting on excessively rough or poor land.

Tree Species That Will Be Used

Only hardy acclimated trees will be used in this project that are grown from seed gathered from northern trees. The species used, of course, will vary with the location in the state where they are to be planted. Also the species will vary according to topography and soil. White elm, green ash, Chinese elm and hackberry will be used extensively throughout the state. Northern cottonwood will be used to some extent on low ground. The low growing sorts which will flank all belts on both sides will be Russian olive, caragana, chokecherry, and even buffalo berry in adverse situations. The red cedar will be extensively used in the drier portions of the zone. Honey locust will be planted to some extent in the southern part of the state. Willows will not be overlooked in moist situations, and some burr oak and even black walnut will be planted in the more favorable locations. Of the evergreens, the western yellow pine, Black Hills spruce and blue spruce will be sparingly used.

Nursery Stock

When the project was first conceived it was planned to grow most of the nursery stock needed in Government nurseries. Through conferences with the commercial nurserymen it was found that they could grow the stock just as cheaply or even cheaper than the Government. The plan now is to grow most of the planting stock at commercial nurseries located in the states through which the Shelterbelt will pass.

The Forest Service will collect all seed for growing the stock. In this way an absolute check can be kept on the source of seed, which is of greatest importance in this northern country. All stock will be grown under the careful supervision and inspection of the Forest Service.

Design of Individual Belts

Strips of land 10 rods wide will be required by the Forest Service but the actual belt of trees will be eight rods wide. There will be one rod of fallow land on both sides of all belts between the outside row of trees and the fence.

The tree belts will be designed in "hip-roof" manner. The inside rows will be planted to tall growing trees. These will be flanked by the medium growing sorts. The outside rows on both sides will be planted to low, dense growing kinds. A belt of this design will give maximum pro-

tection because it will be nearer "wind tight" than if only tall growing species are used.

Fencing

The Government will fence all tree belts stock tight. This means that in the southern part of the state at least, woven wire will be used because here it is a common farm practice to hog down corn. This fence will be 26 inch woven wire with 9 gage wire at top and bottom. Two strands of barbed wire will be above this. Wooden posts will be used. The posts are now being cut in great numbers by CCC boys in our National Forests.

Gates will be placed at convenient points for those who do the subsequent cultivation. The tree strips are not to interfere with any established farm practice. Within reason breaks in both trees and fence will be left to allow passage through the belt by stock, horses or tractors, and farm tools.

Tentative Location of Shelterbelt Zone in South Dakota

The location of the Shelterbelt in South Dakota is still tentative and subject to change later. In general, the tentative location of this zone is approximately 100 miles in width from east to west and extends entirely across the state from North Dakota to the Nebraska line. The eastern boundary enters from North Dakota about twelve miles west of the east Brown County line. From here it runs in a southeastwardly direction passing near Groton, Crandall, DeSmet to Salem. From Salem it turns southwestward to a point a few miles west of Delmont. From there it turns south passing through Wagner to the Nebraska line.

The tentative west boundary of the zone enters from North Dakota just west of Pollock and runs south-westwardly through Gettysburg, Harrold to Chamberlain. It crosses the river south of Chamberlain and proceeds south-westwardly through Winner and St. Francis and crosses the Nebraska line south of Martin in Bennett County.

Where Project Will Be Started in 1935

Planting will be started in the spring of 1935 in all of the six states involved in this project. Because of lack of suitable acclimated planting stock only a relatively small amount of planting can be done this spring. South Dakota's allotment of planting for 1935 has been set at 25 miles of completed single belt. The same allotment holds for the other five states. This will amount to a total of 765,000 trees that will be planted in South Dakota this spring.



Unfortunately present soil moisture conditions in the state are such that great care must be exercised in selecting the location of this spring's planting. All 1935 planting will be located in those portions of the Shelterbelt zone where soil moisture conditions are most adequate to give the trees a good start. A careful study of moisture conditions in the zone has been made. Soil moisture conditions within the zone in South Dakota are best in the southeast portion. This area includes southern Miner, southeastern Sanborn, northwestern McCook, Hanson, eastern Davison, northwestern Hutchinson, central Douglas, central Charles Mix and eastern Gregory counties. All 1935 planting will be confined to this area. Practically all land for the 1935 planting has already been secured and agreements signed with the owners. (As of Jan. 23, 1935.) As soil moisture conditions improve in other portions of the zone the planting will be started in other counties. It is hoped that moisture conditions will be such that we can have planting work in progress in all counties in the central and eastern part of the zone by the spring of 1936.

Reaction of the Public Toward the Project

When the project was first announced, the opposition to it even here in the states where the work will be done was rather alarming. This was due primarily to the first publicity which gave the public entirely the wrong conception of the plan. As the public becomes informed through meetings and publicity that the project is to be conducted on a sound practical basis much of the opposition that was in evidence at the start is disappearing. As evidence of this, farm organization units, chambers of commerce, and other organizations in the state have passed resolutions favoring the project. Many petitions have been received in favor of it. The State Legislature has endorsed the project and memorialized Congress to support it. The State Planning Board is solidly behind the work. In short, the reaction shown by the public has exceeded our expectations.

What People Think

A careful analysis has been made of all correspondence received by both the Lincoln and St. Paul office from people living in the Shelterbelt zone. This involves many hundreds of letters. This analysis shows that about 30% of the people are solidly in favor of the project, about 30% skeptical but open minded and about 20% unalterably opposed to it. Practically all those opposing the plan are against it for one of these three reasons. (1.) Can trees be successfully made to grow in these dry western

lands? (2.) If trees can be made to grow will they do any good? (3.) Will it be worth the large amount of money necessary to complete the project? At this point comment on these three main criticisms is desirable.

Will Trees Grow Here?

There are at present in the neighborhood of one and one-half million acres of man planted trees within the tentatively located Shelterbelt zone in the six states involved. This in itself is ample proof that trees will grow here if the soil is properly prepared, the proper species used, the planting correctly done, the plantings fenced against livestock and the necessary subsequent cultivation practiced until the plantations become established.

It is obvious that the success of this project is largely dependent on moisture conditions during the next 5 or 10 years. If the present drought continues for another 6 or 8 years nothing but failure can be expected, but if such should occur everything else in this western country will fail and the population had better move out and seek more favorable locations. There is nothing, however, to prove that this drought will continue. On the other hand there is much to indicate that the present drought is but a temporary condition. Drought has occurred in the plains region of this country before, and has always been followed by greatly improved moisture conditions. What has happened in the past, we believe will happen again. We believe this huge tree planting program is being started at the proper time. It certainly is better to start such a program at the end of a dry period than at the end of a wet one.

Scientific experiments and practical experience of the past clearly show that trees can be grown with proper planting and care, in those portions of the plains states where the average annual precipitation does not fall consistently below 18 inches per year. The western border of the Shelterbelt zone has been located within the limits of such average annual moisture requirements. It is admitted that some areas within the Shelterbelt zone will not support tree growth even under normal moisture conditions, but it should be remembered that these areas will not be planted.

Will the Trees Do Any Good if They Are Grown?

The United States Forest Service does not claim that the wholesale planting of trees will increase moisture. It probably would not, and if it did it could not be proven. They do claim that enough trees properly located will **conserve** moisture. This is not a passing theory, but a fact that has been proven many times, not only

experimentally but in actual farm practice. One may wonder how trees can conserve moisture when they actually use soil moisture for their own growth. This moisture conservation is accomplished by belts of trees in several ways.

1. Much of our snow is blown into gullies and draws where the moisture is lost through run-off during the spring thaws. Numerous tree belts will hold much of this snow on the higher agricultural land where it will enrich soil moisture when spring thaws occur.

2. Forest soil will absorb many times as much water as ordinary soil. Such tree belts will prevent much run-off during heavy rains, thus allowing a higher percentage of moisture to enter the soil instead of being permanently lost through run-off.

3. Soil surface evaporation is in direct proportion to soil surface wind velocity. Any reduction of wind velocity is accompanied by a corresponding reduction in evaporation. This is nothing more than an established principal of physics. It is a simple matter to prove conclusively that a belt of trees will materially reduce surface wind velocity to the leeward up to at least 20 times the height of the trees. Not only this, but a lesser reduction of wind velocity occurs in an area equal to about ten times the height of the trees to the windward. This reduction of wind velocity reduces soil evaporation. What the effect would be when a series of many tree belts are involved about a mile apart is, of course, theory, but it is believed that there will be an accumulative effect on the reduction of surface wind velocity. Evaporation means wasted soil moisture, and therefore any reduction of this waste means more moisture for crop production.

Trees have a marked effect on temperature. This is especially true when hot winds are blowing from the south or southwest, a condition which has become common during recent years. Many South Dakota crops have been destroyed during recent years not due to actual lack of moisture in the soil, but because of the burning hot winds which come when the grain is heading or the corn coming into tassel. Everyone has witnessed this during recent years. When such winds have occurred the effect on the yields of both small grains and corn has been noticeable in fields, or those portions of fields that have been protected from these searing winds by belts of trees to the south or west. The effect that wholesale planting of trees will have in reducing crop damage from these hot winds is unquestionable.

South Dakotans during recent years have developed a real hatred for the "black blizzards" or dust storms which have become so common in this state. It is not claimed that the wholesale

planting of trees will entirely stop such dirt storms. It is an established fact, however, that trees have a marked effect on surface wind velocity, and therefore we believe that they will have at least a retarding effect on dirt storms.

The benefits of trees to this region I have mentioned are only those that at present are most important because of the unprecedented drought situation. There are many other benefits among which might be mentioned: 1. Protection of man and beast. 2. Protection and coverage for insectivorous birds and upland game. 3. Beautification of the landscape. 4. Making rural homes more pleasant places in which to live. 5. The furnishing of much fuel, and 6. The furnishing of recreational places in a country where such are so badly needed.

There is little question but that more trees in east central South Dakota would be of great benefit to the country.

Will It Be Worth the Money?

It is obvious that it will take a large amount of money to complete this gigantic program. Will it be worth the money? I would not attempt to answer this question. One cannot measure the value of education in dollars and cents. Yet most thinking people are agreed that education is worth the price paid. One cannot measure in dollars and cents such things as improvement in rural living conditions, increase in the contentment and happiness of a people, the development of a more permanent agriculture, and the improvement in the general appearance of a country. You are as good a judge as anyone else on this point.

Labor

Careful estimates show that approximately 65% of the funds necessary to put this project into effect will go for local labor. A definite policy has been established to obtain this labor from the people living in the immediate vicinity of the area that is being planted. This large amount of local labor will be used for land preparation, fencing, planting and the subsequent cultivation of the trees. The fencing and planting will probably be done by crews composed of local people under the supervision of competent and trained supervisors. The trees will have to be cultivated for from three to five years after they are planted. In most cases at least, this cultivation will be done by the farmer who is living on the land. He will be paid going wages, going rates for his power (horse or tractor) and a nominal rental on the tools he uses.

Under existing conditions we believe the labor that this project will furnish to our local people

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NORTH DAKOTA NEWS LETTER

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We are informed by a representative of the Federal Shelterbelt Project recently, that they would like to locate seed of our native cedar and yellow pine. If you have seed or can collect it, I suggest you write the Shelterbelt Headquarters at Lincoln, Nebraska.

R. C. Wright of the Bureau of Plant Industry in Department Circular 415 reports that a bushel crate of onions stored at a temperature of 22 degrees Fahrenheit or 10 degrees below freezing for 24 hours showed no injury. Even after five days of such exposure only 23 percent were injured. Whereas onions spread out at the same temperature for 24 hours showed 30 percent injury. He states that onions should not be moved or handled roughly when cooled to temperatures below their freezing point, namely, 30 degrees Fahrenheit. If they are, immediate freezing may result. Cooling below the freezing point without actually freezing a product is called under-cooling.

The University of Kentucky has found that it is possible to make a hotbed using chopped cornstalks and cottonseed meal in place of fresh horse manure. The method is to chop up the cornstalks into one-inch length pieces, soak them thoroughly in water, then prepare the hotbed by tramping these pieces into a two-inch layer, then spreading $\frac{1}{2}$ pound of cottonseed meal per sash, then apply another layer of cornstalks. Continue alternate layers of cornstalks and cottonseed meal until a proper depth is reached. They claim such a hotbed produces uniform heat and not too intense.

An inquirer asks whether little poplar trees which have come up along the river bank are suitable for planting on higher ground. They are just as good as the same kind of trees grown elsewhere.

If you do not have a wire or glass holder for your cut flowers it is possible to use a potato which is cut so as to hold the flowers in position.

A. H. Teske of Virginia says it requires 24 to 36 pounds of food to keep a mouse a year, which means that one mouse working around your apple trees may do a great deal of damage before spring. Take a look.

H. P. Dorner of the Illinois University reports that tests showed large flowered chrysanthemums kept longer where the stems are broken rather than cut.

"How to Arrange Flowers" is the title of a 96 page book published by Doubleday, Doran Co., Garden City, New York. The price is \$1.15 postpaid.

Violet G. Jeffrey in "Gardening Illustrated" reports that potassium permanganate used at

the rate of one teaspoon to $1\frac{1}{2}$ gallons of water used in watering plants will kill slugs.

Iowa State College has developed a rapid method of propagating black raspberries. The method involves the use of a cutting consisting of a leaf with the axillary bud, the leaf being removed from the cane with a small heel of bark with wood attached and set one inch deep. The best rooting media was one composed of a mixture of peat and sand. Only two to three weeks were required for rooting.

F. E. Cobb, Bottineau, North Dakota, one of our Society's former presidents, is state director of the huge Federal Shelterbelt Project. He says there will probably be civil service examinations in the spring to fill positions which may be open. Any jobs of any importance open at present have already been filled. Applicants for jobs should write Mr. Cobb.

The following quick treatment for potatoes is recommended by the University of Minnesota. Add six ounces of mercuric chlorid to one quart of hydrochloric acid. Pour this mixture into 25 gallons of water, in a wooden barrel or concrete tank. Dip the potatoes in the solution five minutes. Use a wooden crate or wire basket thoroughly painted with asphaltum paint for the process. This is enough to treat 40 to 50 bushels of potatoes. Do not store the treated potatoes while they are wet.

The Washington Experiment Station reports that 7 percent of the food value of potatoes is lost when they are boiled after peeling.

W. O. Ball of the California Department of Agriculture is reported in "Science" to have been able to kill plants by bending over the tops into a jar containing a weak solution of arsenic. The poison is absorbed into the plant and carried into the root system, killing not only the plant treated, but others which grow from the same root system. The solution used is one percent sodium arsenate.

E. H. Jones of Washington State College says that Newburg and Chief red raspberries are resistant to Mosiac, while the Ohio black raspberry is the most resistant in its group.

New York Experiment Station, Geneva, says the amount of red copper oxide used in dusting most seeds for diseases should be 2.5 percent by weight or one level teaspoonful per pound for most seeds. With large seeds the amount should be reduced to as little as .25 percent to .5 percent or $\frac{1}{10}$ th teaspoon per pound. While most seeds are benefited, onions and corn are injured.

Technical Bulletin No. 415 of the U.S.D.A. is entitled, "Shortening the Rest Period of Potatoes". It reviews the many attempts made to cause potatoes to sprout sooner by the use of

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THE PLAINS SHELTERBELT PROJECT IN SOUTH DAKOTA

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is important. Any worthwhile means of increasing the income of our rural people at this time certainly is desirable.

Land Acquisition

Strips of land 10 rods wide (20 acres to the section) will be acquired by the Government on which tree belts will be planted. The lease under which the land will be acquired is still in the process of formulation. The lease will probably be a short time agreement carrying an option to buy by the Government. The annual lease or rental will be based on the appraised valuation of the land in question. All appraisals will be based strictly on the productivity. The annual rental will approximate 10% of the appraised valuation.

DIGGING AND STORING GLADIOLUS, DAHLIA, CANNA AND OTHER TENDER PLANTS

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haps dig the dahlia a little earlier in the fall of the year and delay the planting a little later in the spring than he would for the gladiolus. The first frost usually kills the entire dahlia plant unless it is very well protected with blankets. Any time after the tops have been killed and they begin to wilt, the dahlia clumps of fleshy tubers may be dug. While they may be left in the ground a few days after the tops have been killed by the frost, not as much advantage is gained by leaving them in the ground as one would gain from leaving the gladiolus in the ground a few weeks after the tops have been killed by the frost. Hence dahlias may be dug any time after the tops have been killed by the frost. In digging the dahlia the entire clump should be dug as a unit. Part of the soil should be shaken off but not all of it. A certain amount of soil should be left adhering to the tubers in between the individual tubers, as this helps to preserve the tubers over winter. The tops are cut off at the surface of the ground at the time they are dug. The clumps are then placed on their side or upside down in boxes or baskets which are placed in an open shed. The tubers are left here for a few days to cure before being placed in storage.

The object of placing the dahlia clumps upside down is to prevent moisture from the decaying stems or any other source from causing rots to start from the base of the old stems. After these clumps have cured for a few days they may be placed in their permanent storage baskets or boxes, preferably upon their side or upside down and sand placed into the box so that

it will filter through between the clumps. These boxes are then placed in their permanent storage cellar or room where the temperature and moisture conditions should be similar to those described for the storage of the gladiolus.

Cannas are another plant whose fleshy storage organs must be taken up in the fall of the year and stored over winter. In this case we have a storage organ similar to that of the iris. Botanists call it a rhizome. It is a modified stem with many roots coming from it. The canna is very frost-tender and usually killed by the first fall frost. It may be taken up any time after the tops have been killed, leaving a good supply of dirt adhering to the roots. The tops are cut off at the surface of the ground at the time of digging. The roots are set away in an open shed for a few days to dry and cure, taking the necessary precautions to protect them from freezing. After they have been cured they are packed in boxes and covered with sand. These boxes are placed in the storage cellar where the conditions are similar to that for the storage of the gladiolus.

In the spring of the year the canna clumps are taken up and separated from the soil. The rhizomes may be divided and the divisions potted and started into growth three or four weeks in advance of the time when you can plant them out of doors. The canna, being very frost tender, is usually planted out doors about the first of June, which is considerably later than either the gladiolus or the dahlia.

Some of the other frost-tender plants which must be treated similar to the three more commonly grown ones, gladiolus, dahlia and canna, are the tuberous rooted begonias, the caladiums, elephant's ear, tuberose, shell, lily, tiger flower, and others. These are usually dug and cured as one would cure the dahlia, for instance, and are stored similar to the storage of the dahlia and under similar temperature and moisture conditions. It is to one's advantage to cover these bulbs with sand. The Mount Bretia and axalis bulbs are handled more like the gladiolus bulb. It is not necessary to store these in sand.

EXTRACTS FROM THE DIARY OF A TRAVELLING MAN

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sary to displace a thick growth of willows before fall plowing. In the spring the land is disked and dragged and the melons are planted eight feet apart.

Mr. Dunlap said there had been many changes in the varieties planted, the Kleckley sweets once so largely grown and many other varieties once largely planted giving way to Stone Mountain or Dixie Belle. Most of the cultivating is done with the hoe after vine growth renders horse drawn cultivators impracticable, as they

do not favor letting the field grow up to weeds. However, he does recognize the benefit of having something for the vines to tie to and so avoid wind blowing and for this purpose they often broadcast peas over the field and believe this to be good practice.

Mr. Dunlap considers that if irrigation could be practiced, there could be established a regular Rockyford cantaloup district in the White River Valley, as this region has all other qualifications such as soil and climate to produce quality melons. He explained that female blossoms do not grow on the main vines of cantaloups but only on the laterals. In watermelons, however, it is different, both male and female blossoms being found on main runners, the earliest female blossoms seldom becoming fertilized and setting fruit. Later on, probably because of more bees and other insects working on the blossoms, a large proportion of female blossoms set fruit. Those set between August 18th and September 10th are usually of the highest quality, though lack of cultivation and lice will ruin the flavor of those set at any time.

Wednesday noon the Nurserymen's Association gave a dinner at which many of us were appreciative guests, and Wednesday evening the Vermillion Chamber of Commerce gave the annual banquet, free to all visiting horticulturists, a good idea that we hope will spread. Mr. Over was toastmaster and managed to find a lot of nice things to say about all of us that he called on to speak.

At Thursday's broadcast Mr. J. M. Parmley spoke on the Peace Garden, another paper that we shall want to publish soon. Also Carl Hansen read a paper prepared by his revered sire, telling of conditions in present day Russia. Following the regular meeting the executive board met and decided to hold a summer tour and meeting at Hot Springs on July 18th and 19th and to hold the next, or 52nd, annual meeting at Aberdeen on January 15th and 16th, 1936.

This was the first time the Society had met in Vermillion since 1894, but after this fine meeting we certainly will not allow such a long lapse of time before meeting there again. To people wishing to become acquainted with the B.P.O.E. (best people on earth) we recommend a trip to Vermillion.

NORTH DAKOTA NEWS LETTER

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chemicals. This shortening of the rest period is, of course, not necessary where northern grown seed is to be grown in the north, but where our seed is shipped south to southern planters it may become commercially important and where potatoes are tested in a greenhouse during the

winter to find out whether they are disease free, such as is done with Triumph potatoes where they are to be certified, some such treatment may be necessary if the tests are to be completed early enough in the winter to be of value. Summarizing the results of the experiments the statement is made that, "on the whole, the results covering four years indicated a prompter germination response from ethylene chlorhydrin treatments." Katahdin potatoes treated one month after harvesting germinated in most cases in less than 21 days. Treatment consisted of the use of $\frac{1}{4}$ to $\frac{1}{2}$ cubic centimeters of ethylene chlorhydrin, in one liter of air space, exposing the tubers from 24 to 48 hours. The stronger concentration required only 24 hours treatment for germination whereas the weaker concentration required a 48-hour exposure. Untreated potatoes had only about $\frac{2}{3}$ of them germinated while the treated ones had given perfect germination.

In speaking of winter bouquets, Marie Wells in "Wisconsin Horticulture" recommends the following as good combinations of material:

1. Red rose apples and silver Honesty in a dull turquoise blue bowl.
2. Artemesia Silver King with red Barberry.
3. Chinese Lantern pods and the olive-green leaves of Job's Tears in an olive-green pottery container.
4. Red Alder berries, grey Bay berries and Honesty in transparent glass.
5. Honesty alone in a silver vase.
6. Bittersweet and Artemesia Silver Beauty.
7. Winged everlasting in a cream-colored vase.
8. Hydrangeas and stalks of Bullrush.
9. An old-fashioned jar filled with Cockscomb in soft shades of rose, yellow, dull red and dull green.
10. Branches of long-needed pine with Chinese Lanterns.
11. Chinese Lanterns in Indian basketry.
12. Evergreen branches with cones.
13. Silver Bay berries in frosty green Mexican glass.
14. Rose apples and Juniper branches.

An experiment at the Illinois Experiment Station showed that asparagus cut for two weeks during its second year was not damaged by the cutting, whereas if the cutting was continued four weeks damage was done.

Starring in Montana Bulletin 292 says that the running to seed of celery appears to be mainly due to long exposure of transplants, to temperatures below 60 degrees Fahrenheit. Translated into practice, it is much better to start celery plants a bit later and keep them growing rapidly than to start them too soon and then try to hold them back by keeping them cool.