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NORTH and SOUTH DAKOTA HORTICULTURE

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NORTH AND SOUTH DAKOTA HORTICULTURE

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WINTER GARDENING

Mrs. M. W. Sheafe, Watertown

To parody Shakespeare—Now is the summer of our discontent, made, glorious winter, by the gentle rain, and fall of beautiful snow thereby quenching the long thirst of every tree, shrub and plant.

The year 1930 will go down into history as a most trying year for gardeners and all tillers of the soil. We all feel thankful that "Pandora" got the box closed before "Hope" escaped, as we still have that in full measure. We hope the coming year will be more propitious.

For the next few months we will have to garden on paper, so will spend our leisure moments (if we have any) in reviewing our magazines and making use of the ideas we have gained. So often we hear the remark made, "I am going to fill my garden with perennials, for they are not so much work." It has not been my good fortune thus far to find anything that is worthrwhile that does not require care of some kind, so it is with perennials, they must be moved occasionally, divided and reset. So now is the season to rearrange on paper the new groupings for your garden the coming year.

You may be interested to hear about a garden, only a few blocks from my home, that is unique in its originality and attractiveness. This garden has many varieties of flowers (mostly annuals) but the interesting part is the wonderful display of pansies, a sight worth traveling far to see. One bed or rather border is fifty feet long and five wide, another is twelve feet long by five wide and that is not all. Every type of face (if you but let your imagination work) may be seen here—black ones, white, yellow, blue and all the combinations of markings, dirty faces, clean ones, freckled and tanned, saucy, demure, coy and laughing faces, such happy combinations that it is truly a study that any one may enjoy in their own garden with a small amount of effort.

These dainty flowers are so thick they nearly cover the foliage and no earth whatever shows between them, just a sea of pansies.

This very successful gardener tells me she sows the seed in the spring in good rich loam. After the plants thicken, she takes out clumps (here and there) to sell, three dozen for a quarter, and fills the spaces with new rich soil. She picks them by the thousands for market and no apparent lessening in numbers is seen.

Professor Glenn Herrick at Cornell University has the following to say in an article in the American Nurseryman—"No Quarantine regulations that can be devised will have any effect whatsoever on the role of the corn-borer in the United States.'

Make plans now to attend the Annual Convention at Mitchell, January 7 and 8.

DROUTH RESISTANT SHRUBS AND PLANTS

George Will, Bismarck, N. D.

During the past two seasons the question of drouth resistance in shrubs and trees has particularly engaged the attention of horticulturists in the Northwest. It is not a new subject for consideration, of course, in the Great Plains region, and many previous dry years have supplied to the observing much data on the subject. Some consideration of these lessons from the past, insofar as rather imperfect facilities for learning them have allowed the absorption of their meaning, may be of interest at this time.

So-called drouth damage seems to be rather a composite process in which several factors seem to bear nearly equal relations toward the result. Not only does the lack or plentiful supply of moisture affect the tree or shrub, but its effect is modified by the degree of heat or cold which accompanies the lack of moisture, and also by the type and condition of the soil in which the plant may be growing. To clarify these statements it may be said that a plant will survive much longer in weather neither extremely hot nor extremely cold under drouth conditions than it will at either a very high or a very low temperature. Furthermore, a plant will survive much longer in an open, permeable soil through which its roots may penetrate rapidly and from which it may more completely exhaust the moisture than in a heavy tightly compacted soil, or in a soil with a hard pan within a foot or two of the surface.

Turning to the matter of drouth resistance in the plant itself we find that the drouth resistant adaptation divides itself into several divisions. First, of course, we consider the plant's ability to survive with a very small amount of moisture. Outstanding examples of plants having particular adaptations along this line are the various cacti and the yucca family, both of which are represented in the Dakotas. Then we have the ability to make a maximum of use from the moisture available. Examples of this type of adaptation are the native Indian varieties of corn which will produce a pound of dry matter at maturity with a considerably smaller consumption of moisture than will corn varieties of the pure dent types. And lastly, we have the ability of adapting itself to special different types or a variety of different types of soil such as the adaptation of the sand cherry to sandy soil, the sagebrush to gumbo and the buckbrush to rich black prairie soil.

No plants are likely to possess anything like a complete adaptability for drouth resistance along all these lines. Some, however, seem to show a very extensive adaptability and such species are the ones which appear to us in general as the hardiest and most drouth resistant.

Perhaps the two most drouth resistant deciduous trees planted in the Northwest are the green ash and Chinese elm. The former, however, though extremely resistant to drouth does not respond to the presence of moisture so well as some other species. The Chinese elm on the other hand is fitted both to survive drouth and to make tremendous growth under conditions at all favorable. It seems, however, to resent the presence of too much moisture with stimulated growth late in the season, and winter killing reports seem to show that losses have invariably occurred under those conditions.

The cottonwood has the faculty of seizing upon every bit of moisture available within a very considerable distance, of making the most of such supplies as it can find, but will not resist absolute drouth as will the ash and Chinese elm.

In good soil the boxelder seems to be drouth resistant to a considerable extent but it does not like poor soil and it has not the ability to reach out to a distance as has the cottonwood.

Of the poplar family the Northwest poplar does not respond so readily as the cottonwood to abundant moisture but seems to survive with a smaller supply available under soil conditions suited to it. The aspen poplar grows on steep drained hillsides and undoubtedly is drouth resist-

ant to a considerable degree, but on the other hand it lacks tolerance to heat.

The American elm, although an excellent tree in good soil with considerable supplies of moisture, is not to any extent drouth resistant.

In general, the evergreens, if given good drainage, seems to be exceptionally resistant to drouth, and the Bad Lands cedar and Bull pine of North Dakota are equally tolerant to both heat and cold. The Black Hills spruce is nearly as satisfactory but does require more moisture and is more susceptible to extreme dry heat.

Of the shrubs, we have many natives such as the buffalo berry, sand cherry, native plums, flowering currant, hawthorne, chokecherry and silverberry which seems to be resistant to the combination of drouth, heat and cold to a satisfactory degree for almost any part of the state. Of outstanding introduced shrubs as far as drouth resistance is concerned, mention should be made of the caragana, the Russian olive and the common lilacs, all of which seem to have a wide tolerance to drouth under various soil conditions and various conditions of heat and cold.

Very many other shrubs are useful in the Northwest and some are drouth resistant, the ones mentioned being only the ones which are conspicuous for that quality.

It must always be borne in mind that such pronouncements as the above list gives are not fixed, for every plant will reveal differences in behavior in different soils and surroundings. It may, however, serve as somewhat of a guide for selection.

GARDEN NOTES

F. X. Wallner, Sioux Falls

November seems to be the favorite month for horticultural meetings throughout the United States. Most important of all is the one at Shenandoah, Iowa. Over seven thousand dollars in premiums are offered for the best in fruits, vegetables, nuts and flowers by the Eighth Mid-West Horticultural Exposition. Eight other federated societies meet at the same time; also the eighty-third annual meeting of the American Pomological Society. Our president is a state director and Professor Yeager is on the program with a paper on his new Gem sweet corn.

A roll of mulch paper eighteen inches wide and three hundred feet long costing $3.50 was out only about eighty days for bleaching celery, but it is all rotted and broken. I do not see how it could be used more than one season as mulch. Will some one please tell us the cost to cover our forty acre garden patch?

"We must have our tomato juice or we will not sleep tonight," a new song hit—try it.

November 13—We are still plowing and clearing up all old rubbish in the garden and turning it under. Furrows are opened to fill with manure; this is where we plant our vine crops in the spring. All old cabbage stumps and the two patches that did not mature have been turned under as we cannot use the milk where the cows nibble at these stumps during the fall and winter.

A new kind of mulch paper with fertilizer and insecticide in it is the latest thing out.

November 18—We are still doing field work, loosening up the soil, to have it ready for early spring planting.

Rye that got a poor start all fall is looking greener to day than at any time this fall.

Are we all boosting for our meeting at Mitchell? It is only six weeks away. Wish we could get a keg of that "wonderful blend" apple cider from the Hills.

The celery that we got into the trench just before the freeze has bleached up nicely and is about the best celery we have ever grown.

Field mice and rats are in every corn shock and they ruin a shock in a short time.

EXTRACTS FROM THE DIARY OF A TRAVELING MAN

W. A. Simmons

Apples for Health, Inc., has evolved a very clever plan for financing their advertising campaign. Each grower pays in exact proportion to the crop he expects to market. The manufacturers of containers add an extra item of one cent per bushel, three cents per barrel, to the invoice price, and this amount is sent to Apples for Health, Inc., thus making collection easy and automatic.

Considering the exorbitant price of oranges and the very reasonable price of apples, it should not be difficult to persuade people to adopt the latter, as the fruit item in their diet.

October 14—Coming out of Souris, N. D., the road east runs beside the city dump. On the dump, several pathetically broken bodies of superannuated flivvers were laid out for their last long rest. Some one had raised a large cross made out of the same material the thrifty Kaiser used to deal out to his shock troops, over the bodies of the flivvers, indicating that they had gone to their rest with a Christian hope of resurrection. Have never heard of the claim being made that flivvers have souls but were I a believer in the theory of the transmigration of souls, I should be tempted to believe several I have driven had received the soul of some very stubborn old mule.

October 16—The horticultural world suffered a staggering loss in the death of E. H. Wilson, curator of the Arnold Arboretum, in an automobile accident yesterday. Mrs. Wilson, who was with him, was also killed.

While he was best known as the discoverer of the regal lily, this was but one of some 1300 of his introductions, most of which were made as a plant explorer for Messrs. Veitch and Company of London and before he adopted this country as his home.

Fortunately he has left us many very interesting products of his pen, among the best known of which are "Aristocrats of the Garden," in two volumes, and "The Lilies of Eastern Asia." He possessed a great fund of horticultural information, garnered from a large portion of the world, and we shall miss his numerous contributions to Horticulture and other magazines.

A recent letter from Professor Yeager said, "I am working like a horse." Knowing my advanced age, he knew I would understand, but for the benefit of our younger readers, I am glad to translate this into modern language. What he meant was that he was working like a smooth running Packard. It is fine that his advanced course can be taken at Ames where our good friends, Pickett and Lantz, afford congenial company. Professor Yeager will be a student all his life and best of all, is his willingness to share with others the knowledge he garners.

A letter from our Secretary Vance states that he found many seed balls on the potatoes at John Robertson's place this fall and these he has carefully gathered and will use in endeavoring to produce more adaptable varieties for our section. Potatoes do not ordinarily produce many seed balls, but in this dry year, probably nature despaired of being able to perpetuate the plants from the production of tubers and so resorted to the old and slower method of reproduction from seed. In its far southern native habitat doubtless these seeds would germinate and grow on from year to year without being winter killed as would be the case here without man's intervention.

Our method of growing them from tubers has nearly made them forget the necessity of seed production until a dry year brings the matter again to mind.

October 19—A letter from Mrs. Sheafe tells of the extremely dry condition of the soil at Watertown. A neighbor who had occasion to move an elm tree of six inch diameter failed to find any moisture whatever in the soil as far down as it was necessary to dig in completing this operation.

At Fargo, N. D., the precipitation for the year to date has been but 13.47 inches, a deficiency of 8.16 inches. What makes it more serious is that this is the second season there of deficiency as last year's precipitation was even less than that received this season.

At Sioux Falls we are in a little better position for though we have received but about 18 inches this year, we had several inches of excess moisture last year, so the deficiency is not cumulative in our case.

On the Custer Battlefield Highway, one-half mile west of Moccasin, Mont., I saw this summer a sign reading, "Gas from straw and weeds, one-half mile south, come and see." The plant is on the farm of C. M. Strawman and is undoubtedly a success and shows a very profitable use of straw, weeds, cornstalks, corncobs and other waste material. Mr. Strawman read of such a plant being in operation near St. Paul and visited that plant, also obtaining a government bulletin of experiments conducted at Arlington, Va., and reports of similar experiments made at Ames, Iowa, before constructing his own plant.

The straw, weeds or waste material is put in an air tight cylindrical oven in which they are baked by heat applied from a firebox underneath. After a start has been made, this heat is produced from the home made gas. The material in the oven is said to shrink very little in bulk, but loses about two-thirds in weight and is converted into charcoal which Mr. Strawman uses in poultry and livestock feeds. The charcoal resembles the original material except that it is very black and brittle. The other two-thirds passes from the oven or retort through an iron pipe in the form of moist vapor into a condenser where the condensible liquids such as tar, oil, creosote and acid are extracted and from which the purified gas goes to a storage tank or gas holder. From this an ordinary gas pipe leads to household appliances in which it performs the same as gas from coal, or as natural gas is used. Mr. Strawman enjoys gas lights in his home, the cooking is done on a modern gas kitchen range and he enjoys the even and constant heat a gas heated furnace affords.

Each ton of straw produces about 10,000 feet of gas which at 50 cents per thousand feet gives a value of $5 per ton from the straw. In addition the byproducts have many uses, he says. He is learning new uses for the gas, liquids and charcoal every day. The liquids are suitable for creosoting fence posts and other woods, for shingle stain, barn paint, metal paint, sheep dip, fly spray and as weed killer. Coal bills do not worry him and he has practically all the comforts of a city home in his farm and all made from waste material that is usually burned as a nuisance.

We hope as many as possible will attend our annual meeting which will be held at Mitchell on Wednesday and Thursday, January 7 and 8. Mitchell is very centrally located and attendance at a meeting held there should be very good. The local committee has prepared a good program for us and we hope to have the usual number of oldtimers with us with their great fund of horticultural information on tap for the common benefit. Dr. Hansen, who has been attending meetings of the world's great in scientific attainments, will preside at the meetings and will no doubt have a lot of interesting things to tell. Better make this your winter holiday and be with us.

The Virginia Experiment Station has been using calcium sulphide, a substance that contains approximately 65 per cent (CaS) for spraying for scab. It goes into suspension very easily and mixes readily with arsenate of lead. The spray adheres to the fruit well, traces of the spray were found on the fruit at picking time. When stored in tight containers it keeps for a long time. The results showed that calcium sulphide was superior to other sprays in controlling scab on apples and peaches.

Central Experimental Station, Ottawa, Canada, found Cel-O-Glass of less value in growing melons than Vita Glass or common glass. About equal results were produced by the latter two. This was a one year experiment.

COLUMBINE OR AQUILEGIA

Mrs. Catherine Talty, Watertown, S. D.

Among the children who gather wild flowers, the columbine is commonly called Honeysuckle, a shrubby plant to which it is not at all related but rather it is a fragrant honey bearing flower of the buttercup family and blooms in May and June. The flowers grow on a woodland perennial herb, two feet high. It is a staunch, fearless little plant for all its exquisite grace and may be found far up steep canyon walls where none save maidenhair dare venture or on the side of a treeless hill beside hot rocks or again by mossy brooks and shaded dells where it is called "The Elfin Flower of the Wood," or in gardens planted by man. Though it looks fragile as a thought, it is strong and hardy, finely modeled and delicately colored. This wild pixy takes kindly to all soils, even the tame earth of civilization. It is charming when grown in masses as the foliage is as delicately cut and finely formed as any fern and makes a splendid ground covering for summer growing lilies. Its long slender stems are so flexible and blossoms formed with such rare distinction that the flowers resemble large butterflies and their fairy like exquisite beauty thrills every sensitive person who discovers it feeding the humming birds.

Children pull the spurs away so they may see the little doves arranged around the bowl filled with nectar. Because its heart has the similitude of doves drinking from a basin, it received its name Columba, meaning dove. Its botanical name Aquilegia is from "aquilegus," a water bearer, and not from "aquila," an eagle, though sometimes it seems quite suitable enough since it often is found high among craggy peaks where eagles nest.

The garden columbine of Europe is the flower to which Jean Ingelow says:

"O Columbine. open your folded wrapper
Where two twin turtle doves dwell."

Aquilegia Canadensis is the common columbine of America, the one found east of the Rockies, which shows the familiar yellow sepals, tinted with red. The spurs are always straight, knobbed and bright red, the stamens protrude like a golden tassel. From this wilding a number of lovely hybrids have been derived.

There are about fifty varieties on the market, some with short, others with long spurs; some are curved in, others are long and straight and outcurving. They can all be grown from seed. The colors range through shades of lavenders, blues, purples, white, creams, yellows, pinks and reds.

The Mrs. Scott Elliott's hybrids are a splendid strain and listed in all the flower catalogs. Those of mine are of this strain grown from seed given me from Mrs. Sheafe's garden. Full grown plants may be procured by division of roots; this should be done after the blooming season is over.

The seed germinates slowly and is best planted soon after it ripens. The soil must be kept moist on top and it is well to set the seed under some bush or in a protected spot where it will be shaded and easier to keep the ground damp. I have placed lawn clippings and leaves over my seedlings and a piece of gunnysack kept dampened over seedlings is very good. After the ground freezes in the fall, it is well to cover with leaves and place heavy boards that are elevated enough at the ends to keep the weight off the ground and then let the leaves and winter snows do the rest. In the spring when the plants get three or more blue green leaves, lift them to their permanent position where they may grow to good sized clumps, but as a rule will not bloom until the following spring, but once established will give you little or no trouble.

I think the columbine can be naturalized best by letting the leaves that covered it through the winter decay and thus form a leaf mold or a natural wood condition.

Columbine prefers a light soil well drained and will thrive in a heavy garden soil. But though too rich a soil increases the size, this unnatural diet tends to coarseness of texture and coloring. A little bone-meal worked into the soil, not too close to the plants, before covering with leaves in the fall, is plum pudding to this fair damsel.

It's just as well not to mass columbine in full sunlight but find a suitable place where it will get partial shade.

It's always better to find out what a flower wants and then help it to go its own chosen way than to train it sharply about and encourage it to fall on strange paths of our choosing.

WATERING LAWNS ON HOT DAYS

Mr. Hobart performed this experiment in last August. The following appeared in the Argus-Leader August 17, 1930:

"A report on the lawn watering experiment which has been conducted at McKennan Park during the past three days was made late Saturday by Thomas W. Hobart who, with the city water department and the park board, was in charge of the test. The report follows:

"On Friday, August 15, at 12:30 o'clock, the thermometers which were kept in the greenhouse workroom over night and which registered 93 degrees, were set in their positions previous to the commencement of watering for the purpose of observing if there was any difference in the temperature of the wet and dry ground.

"From the moisture remaining from the first watering which was applied Thursday. Thirty minutes later the thermometer in the wet ground stood at 92 degrees and the one in dry ground at 95. At 1:10 o'clock or 10 minutes after the first reading, the one in the wet ground stood at 90 and the one in dry at 98.

"Positions Reversed

"The positions of the thermometers was then reversed and at 1:35 o'clock the wet thermometer stood at 95 and the dry at 100. Watering was immediately started and in 10 minutes, at 1:45 o'clock, the wet stood at 81 and the dry at 102.

"Other readings for the wet thermometer during the process of watering were at 2:15, 82, and at 3:25, 83. The dry thermometer was at 104 at 2:15 and 108 at 3:25. The watering was stopped at 3:25 o'clock and 30 cubic feet of water were used. During the afternoon the readings on the thermometers were: Wet—3:30, 89; Dry—3:30, 110; 5, 100.

"On Saturday the thermometers were placed in the shade of a tree to get the readings before they were set in the ground and both stood at 85 degrees after being in the shade for 10 minutes.

"Permanently Placed

"At 1:35 they were placed in position and now are in position permanently so that anyone interested may come and read them.

"At 1:40 o'clock the sun had gone under a cloud and the thermometer in wet ground read 80, with the one in dry ground registering 88. Watering was started at 1:50 o'clock and at 2 o'clock the readings were: wet 76, dry 86. At 2:30 the readings were wet 74, dry 85 and at 3:05 when watering was stopped they were wet 73, dry 84.

"The watering on Saturday consumed an hour and 15 minutes and 30 cubic feet of water were used, with the pressure gauge registering 22 pounds. On Friday it registered 30 pounds.

"According to Mr. Hobart, the object of the test is to show that instead of being detrimental, as is commonly believed, that in reality irrigation in bright sunlight in the hottest part of the day is highly beneficial and to show that when correctly irrigated under these conditions a perfect lawn can be had through the driest and hottest seasons with a water consumption of little more than half that used by the methods of lawn watering now in general use throughout the city.

"A dried area in the eastern part of the park has been selected for the experiment which will continue this week."

HORTICULTURAL NOTES

Oliver Strand, Fargo

There was some talk this summer about farmers raising tobacco as a substitute for grain. Tobacco can be grown in North Dakota but it would be necessary to provide some sort of protection from the wind to prevent shredding of the leaves which would make them unfit for wrappers. This problem could easily be solved by the planting of hedges and windbreaks which would be of benefit in more ways than one. Instead of planting along the highway, why not plant a row or two down the middle of the field? They would not take up much space and the benefit derived would more than make up for it.

It is a very easy matter to start a hedge. Plow a straight furrow where the hedge is wanted. Use cuttings about eight inches long; plant them about full length in the loose furrow slice and plow another furrow up to it. The dirt should be packed around them well by running a wagon or tractor wheel over the top. I planted a half mile of willow hedge in this manner and it makes a very fine windbreak.

Speaking of hedges, I have wondered why some of these beekeepers do not plant honeysuckle hedges to give their bees early pasture. It is one of the easiest shrubs to start from cuttings, is perfectly hardy and blooms early. Any honeysuckle bush will furnish suitable planting stock, while with many other shrubs it is necessary to plant heavier cuttings in order to obtain a high percentage of rooted plants.

We finally got enough moisture to soak up the ground pretty well around the fruit trees here at Fargo—unless they were too soddy—but it certainly played havoc with the tree tops.

If you do not have a copy of circular No. 122 entitled, "Daffodils," I suggest that you write for one immediately. This is a recent publication of the U. S. D. A. and copies may be secured from the superintendent of documents, Washington, D. C., at a cost of 25 cents each.

This year we are going to try fruiting tomatoes in eight inch pots in the greenhouse. This is the way it is being done at Ames, according to Professor A. F. Yeager, who is taking work at Iowa State College this year.

Last week we shipped some frozen corn to the horticultural show at Shenandoah, Iowa, November 11-15, and are rather curious to find out how it arrived. It looked good when taken out of the freezer. We will probably take out some of this corn for Thanksgiving to be sold for roasting ears. It ought to be good with turkey and pumpkin pie.

NORTH DAKOTA BEEKEEPERS' ASSOCIATION NOTES

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

News notes on beekeeping formerly sent out direct to the North Dakota beekeepers from the association secretary's office are now appearing in the regular issues of the North and South Dakota Horticultural bulletin, according to action taken by the North Dakota Beekeepers' Association. This magazine, put out by the South Dakota Horticultural Society, is now the official house organ for the North and South Dakota Horticultural societies and the North Dakota Beekeepers' Association. It contains articles on gardening, phases of horticulture, beekeeping, birds and general news. The magazine is published each month.

National Beekeepers Meet at Toronto

The annual meeting of the American Honey Producers' League and other beekeeping organizations to be held at Toronto February 9-12, promises to mark a forward step in the progress of the industry. At this time problems of great importance to the industry will receive attention.

According to present plans, the American Honey Institute and the Bee Industries Association will hold their meetings on Monday, February 9, and the apiary inspectors of America and the Ontario beekeepers will

meet in conjunction with the league program of February 10 to 12.

Arrangements for these meetings are being made through a committee representing the Ontario Beekeepers' Association and Ontario Honey Producers' Cooperative. William A. Weir of Toronto, who is chairman of this committee, reports that plans are shaping up nicely for the entertainment of the delegates. A honey exhibit is being planned as one of the sidelights of the program.

N. C. TANQUARY,
President of the American Honey Producers' League.

Results of a Questionnaire on Wintering

The results of a questionnaire on wintering, sent out during 1929 to beekeepers of the state, practically all of whom were members of the North Dakota Beekeepers' Association, have proven interesting. The questions related to the method of wintering as practiced by the individual. Incidentally a few of the questions touched on requeening and other phases of beekeeping. Of a total of 118 questionnaires mailed out, 68 of them were filled in, in varying degrees of completeness and returned to this office. The writer wishes to express his appreciation to those who cooperated in this survey.

The following are the questions together with a summary of the replies:

No. 1. How do you winter your bees? Fifty-six replied that they wintered their bees in cellars; seven wintered in packing cases out of doors, and one wintered his bees in a building above ground with packing around the hives. Four did not answer this question.

No. 2. (a) Approximate date of placing bees in winter quarters? (b) Other important facts relating to winter and spring care. In answer to part (a) there was wide variation in the dates given. The dates listed for placing bees into cellar quarters ranged all the way from November 1 to December 20; the great majority of dates given, however, centered around November 15. Of those who practiced wintering bees in packing cases outdoors six answers were received, most of which ranged from October 15 to 20.

In answer to part (b) other important facts relating to winter and spring care, the following comments appeared: Have the apiary in the protection of a windbreak; see that the cellar is cool before placing the bees in it; keep the cellar dry, ventilated and dark during the cellaring period; have the colonies well provided with stores previous to placing them in winter quarters; examine the cellar from time to time to check on temperatures; reduce the size of the hive entrance in fall, and clean the bottom boards and gradually enlarge the size of the entrance in the spring.

No. 3. What winter loss do you have? In answer to this question fifty-three gave figures on loss sustained; forty-seven for cellar wintering and six for outdoor wintering in packing cases. The figures given by those who practiced cellar wintering ranged all the way from 0 to 40 per cent loss and the outdoor wintering figures ranged from 0 to 50 per cent loss. The average for cellar wintering was 4.17 per cent loss and for outdoor wintering 26.16 per cent loss. It is apparent from the above that certain individuals have had complete success with either method of wintering, whereas, others have lost heavily.

No. 4. Have you checked on winter loss of hive weight. If so what results? Only twelve beekeepers answered this question and all figures were based on loss of weight for cellar wintering; that is, the actual period from the time the colonies were placed in the cellar quarters in the fall and until they were moved out the following spring. The figures ranged from eight pounds to twenty-five pounds loss; the average being fifteen and one-quarter pounds loss.

No. 5. State difficulties you have had in wintering bees. In several instances the cooperator listed more than one difficulty encountered, but in this summary only the difficulties of prime importance are considered. Sixteen stated high temperatures in their cellars during the wintering

period. Eight cited lack of stores as the most serious problem. Seven mentioned mold and moisture. Seven stated that they had no difficulties at all. Six, that disturbance of the bees, either by mice, skunks or in other ways, caused the greatest trouble. Three mentioned dysentry. Three cited lack of cellar ventilation. Two had greatest difficulty in maintaining a sufficiently high temperature in their cellars. Two who practiced outdoor wintering mentioned the danger of snow and ice blocking the hive entrances. One said queenlessness constituted his greatest problem in wintering bees. One mentioned "leaving his bees out too long." He had left his bees outdoors until November 30. Another stated "placing bees indoors too soon"; November 5 was the date he had placed his bees in the cellar. One pointed out that snow and ice blocking the air intake to his cellar was his chief problem. One said that he usually set his bees outdoors too early in the spring with the result that cold weather afterwards caused chilling or neglect of the brood. One stated that his chief difficulty was in moving his hives to summer stands after unpacking. He said that many of the bees became confused at the time of unpacking and as a result went into the wrong hives. Eight failed to answer this question.

No. 6. Do you practice uniting colonies at the close of the honey flow and dividing same the following spring? A study of the answers showed that thirty-seven neither unite colonies in the fall or divide same in the spring. Fourteen stated that they always unite weak colonies but did not make a practice of uniting colonies of normal strength. Four said that they made a regular practice of dividing some of their colonies in spring for the purpose of making increase. Thirteen did not answer this question.

No. 7. What is your method of requeening: requeening yearly, requeening every two years, requeening only on account of old or failing queens Twenty-six reported that they requeened only on account of old or failing queens or to improve the quality of their stock. Sixteen made a practice of requeening yearly and sixteen said that they requeened their colonies every two years. One mentioned that his was a hit or miss method; that his colonies requeened themselves when the old queen escaped with a swarm. Nine did not answer this question.

No. 8. Have you ever practiced killing bees in the fall and restocking hives in the spring? If, so, what results? Of a total number of fifty-eight answering this question only four had had experience with killing bees in the fall. From the reports received the following comments were gleaned for and against killing colonies in the fall and restocking with packages. Advantages listed: That the cost involved in killing bees in the fall and restocking the empty hives in the spring is no greater than wintering, requeening and replacing normal loss. That packages are equipped with young queens and as a result there is less swarming as compared with overwintered colonies. That the plan offers possibilities under special conditions. Disadvantages listed: That killing bees is a difficult and disagreeable task. That some of the combs contain brood and pollen and as a result the honey is darker in color. That the honey is usually difficult to extract from the combs due to cold weather prevailing at the time. That a general practice of killing bees in the fall would result in an extra amount of honey produced which would tend to depress the honey market. That there is a certain hazard in depending entirely upon package bees for restocking purposes.

The annual meeting of the North Dakota Beekeepers' Association and winter short course at the Agricultural College, Fargo, will be held during Farmers' and Homemakers' Week. The association will meet at the college on January 21 and the short course will be held on the following day. Out of state speakers already secured include representatives of the beekeeping department of the University of Minnesota and the home economics division of the Kellogg Company of Battle Creek, Mich.

The American Honey Institute has recently prepared a four page

leaflet on honey recipes. It is entitled "New Uses for Our Oldest Sweet," and contains attractive recipes for using honey with breakfast foods, salads, desserts, beverages, sandwiches and various forms of cookery. This should be a valuable leaflet to give your honey customers. They are priced at $2.50 for 500 and may be had by sending your order, together with remittance, to American Honey Institute, 410 Chamber of Commerce, Indianapolis, Ind.

THE HOUSE WREN

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

Few birds are more widely known or more popular than the wrens. They are well named because they appear to be especially attracted to man's vicinity. No other bird occupies so readily any kind of a nesting place. A box on a post in the yard, a tin can, an iron pipe, even the mail box on the porch and the pockets of clothing are used.

There are more than 200 kinds of wrens, the majority of which are found in tropical America. For the most part the others are readily recognized from the similarity of their apearance to that of our familiar house wren. In our region we have the winter wren, which is a transient and more of a forest bird; also the marsh wren. The latter is a common summer resident in the tall grasses of low meadows or in the bullrushes about the ponds and lakes. The eastern states have the Carolina wren, a larger bird of the woods. It is said to be the only bird which sings as vigorously in the winter as in the summer. The western states have a large number of varieties, including the cactus wren, rock wren and canyon wren.

The wren uses a great number of sticks from two inches to a foot long in filling the main part of its nest box. The males usually arrive on the scene first and carry sticks into various places, but the lady of the house attends to the final choosing of the location and the building. She seems to have an ambition to raise at least two large families each year and each nest contains from five to seven eggs. The rate of mortality is high for only one or two must reach maturity on the average since the total number of birds remains about the same.

The wrens are found through the northern states in summer and the southern states in winter in our longtitude. They do not get farther than southern Canada and arrive in the vicinity of Fargo about the end of the first week in May. They are warm weather birds because they feed so exclusively upon insects. April reports of wrens are likely to refer to kinglets which are small birds with a sharp alarm note similar to that of the wrens. They are only transients, however; are olive brown in color and have quite different songs.

Very large numbers of injurious insects are destroyed by a pair of wrens. In three half hour periods that I watched one female, she brought food 28 times. Last year we watched another pair with the field glasses for an hour. In 17 visits we failed four times to identify the food. At the other times they brought four spiders, four brown and two green caterpillars and one moth. The female of this pair was back this year at another box nearby and had her first brood out of the nest by July 10. She had a different mate this year.

The house wrens have been favorites because of their readiness to occupy bird houses near dwellings. As to food habits they are all that we could ask. Some people, however, are strongly prejudiced against them because they are known to break up the nests of other birds. To many people this statement is a great surprise and shock but there are too many instances recorded to allow one to ignore the facts. On the other hand it is urged that the whole wren species should not be condemned if certain individuals "go bad." Perhaps we have only set our standards too high. We can hardly expect perfection in any bird, much less a conformity to what we may consider proper for its behavior toward human affairs. Lack of close acquaintance probably has obscured numerous shortcomings. The house wren is a very highly organized, temperamental animal. It is best not to have them too close together. One pair per acre is perhaps as many as can safely get along without quarreling.

NORTH DAKOTA STATE HORTICULTURAL SOCIETY NEWS LETTER OF NOVEMBER, 1930

C. B. Waldron, Secretary

In a very considerable area in North Dakota and extending into Minnesota there has been serious damage to shade trees because of the burden of ice that was imposed upon them on November 9. Inquiries are being made as to what should be done and whether one should do necessary pruning now or wait until spring.

For all rapidly growing trees like the boxelder, poplars and willows, better results will be attained in the end by cutting the whole top back to within two to four feet of the trunk, thus providing for the growth of a new top. This will give rise to a more thrifty and symmetrical tree than could ever be obtained by trying to leave some of the uninjured branches.

Elms should be treated differently, cutting back only enough of the unbroken limbs to give the tree some degree of balance. In time, the open spaces will fill up, making a tree about as symmetrical as elms are supposed to be.

There is no reason why this work should not be done now, particularly if it enables us to help out the unemployment situation as was the case with the writer. Large wounds may be covered with equal parts of waterglass and water, applied hot.

Our dehorned trees will have that old world look for a few years as pollards are almost unknown here, but they will assume their natural form in time and will live longer for the heroic treatment that they receive.

We do not pose as long range weather prophets and it may snow before this is printed, but what we do know is that bare ground is not good for fruit trees and whether it snows or not that winter mulch can do no harm. We havent had much serious root killing for some time. It may be due this winter.

WINTER GARDENS

The "empty" prairie landscape is most so when the season turns around to deep winter. The native broad-leaf or hardwood trees, are then but gaunt skeletons. Conifers are scare except in sand hill areas. Other than the light cherry bark of white birch "The Lady of the Woods," the gray of the trembling aspen, or white poplar, with its characteristic green strip up the north side which provides the wanderer with a sure safe natural compass, the gray branches and bright red buds and clusters of scarlet berries of the pembina, or high bush cranberry, and the rich dark red twigs of wild rose and the osier dogwood, colours are painfully lacking.

Most of the native trees,—and it is taken for granted that all homes have tree growth of some sort about them, even though scant,—are innocent of winter colour. The few above-mentioned are to be classed as aristocracy because they impart some brightness and contrast during that period that is the major part of the northern year,—the dormant season. They are, therefore, deserving of wide and general employment.

There is no warranted excuse for the abject poverty of colour being tolerated around any home for more than one year. A fine array of adapted colourful material is readily available. Planted in spring of 1930, its inspiring effects will begin that self-same autumn.

The grounds of the Dominion Experimental Station, Morden, Manitoba were mostly hay meadow land until spring of 1924. Plantings have been made annually since and the resulting driveways, shrubberies and tree islands stimulate visitors to utter numerous kindly remarks. Approval is at no time so enthusiastic as during the winter season. There are many vistas, each with some particular distinguishing features. Not a one is guilty of lacking lively lines from November until May, and of

course, summer involves no problem, as foliage, bloom and fruitage then furnish the tree frames.

Supplying the landscape with warm touches of winter colour is a simple task. A wealth of material has been accumulated and is available from commercial nurseries. Mirthful goldens and yellows are imparted by some of the willows, dogwoods, birches, cherries, and the fruit of Russian Sandthorn. The last is a treasure. The pistillate bushes carry their generous loads of golden berries until eaten by birds in April or until they dry upon the bushes in May. The American Euonymus or strawberry bush, known as Wahoo, carries berries that range from deep red to red-yellow well into the winter. The Bittersweet vine, which is a cousin of the Wahoo, brightens its corner with red berries in orange husks throughout the period of snowfalls. Red fruits are many. Roses, **Cotoneaster integerrima,** and sumach, clasp their fruits to them later than most shrubs. Silver Buffalo-berry retains its vivid red clusters into the New Year and red elder retains colour in fruit well into the winter. Purple and black fruits are dull but give variety. Native grapes, sand-cherry, **Cotoneaster acutifolia** and rust-free buckthorns hold their dusky fruits well. Airy, fluffy features are supplied by **Clematis tangutica** and native hop vines.

The winter garden being unusual is relished. Greenery is supplied in varying shades by spruces, pines, firs, junipers and thuyas. Willows are first assets in supplying warm colours. In this family the most cherished possession at Morden is **Salix Britzensis.** Unfortunately poor substitutes are sometimes offered in its name. The correct subject is the most cheerful red. Towards spring the redness ascends and is succeeded by golden shades which occupy most of the bark by the time the green chlorophyll returns in April and May. Willows and dogwoods are most effective as colour depots when grown in-coppice on capes and in bays of plantations, being cut back to stubs each May. It is the young growth that is most vigorous and such has most intensity of colouring matter.

Human environment is acknowledged to be vitally important and it is a happy fact that gay and smiling winter gardens are easily developed on the prairies.

W. R. LESLIE, Superintendent,
Dominion Experimental Station,
Morden, Man.

TOMATOES FOR CENTRAL QUEBEC

Gus Langelier, Experimental Station, Cap Rouge, Que.

The tomato is one of the most important vegetables, and there are a great many inquiries about it at the Cap Rouge Experiment Station. The main point, in Central Quebec, is to have a variety or strain giving a comparatively large proportion of ripe fruit in the first part of the season when prices are high.

When everything is taken into consideration, it is seen that most of the strains which have given best satisfaction during eighteen years at Cap Rouge are from Earliana. One of its greatest defects is that it is subject to cracking around the stem, but this may be improved by breeding. Where absolute earliness is important, it is the "Queen of Tomatoes" for Central Quebec.

Over eighty varieties and strains have been tested since 1911 and the greatest number were not early enough. Some yielded well but produced such a large proportion of ripe fruit late in the season that they did not bring enough money per acre. Others gave a few ripe tomatoes very early but did not yield sufficiently to be commercially profitable.

A Cap Rouge selection of Earliana, named Capiana, has given the most satisfactory results. Danish Export comes a few days ahead but does not yield enough. Prosperity produces more but the bulk of the ripe crop come rather late when prices have declined. As mentioned before, a good strain of Earliana is the best to use in Central Quebec.

SOUTH DAKOTA NOTES

Records show that about 8000 people are drowned annually. We should see that each child is taught to swim. With improved beaches on our lakes and some of the members of our civic organizations as teachers we would soon have an enviable record.

The benefits from garden and flower contests do not stop with the improvements of the contestants' homes. Unimproved grounds of their neighbors appear more and more shabby and others are more and more impressed with the beauty of the improved homes. The desire to have like homes which is in turn followed by beautiful planting is the result. Plan to have a garden and flower club or both next year.

Protect your trees from mice and rabbits. Remove all weeds, grass and such things from near the trunk at the base. The trees may be wrapped with some coarse material, then burlap or cornstalks to protect from rabbits. Screen wire makes a good protector for both mice and rabbits. Poison bait will rid the orchard of many mice.

Professor H. Hartman at the Oregon Experimental Station tells us in the Wisconsin Horticulture that approximately 85 per cent of the tonnage of the fruit in the Pacific Northwest was washed the past season. The cost of washing apples ranging from one to two cents per bushel.

A solution containing five to seven quarts of commercial hydrochloric acid to one hundred gallons of water was used in the earlier part of the season. Later in the season a solution containing ten to twelve quarts per one hundred was used. He says, "When tanks of 150 to 250 gallons capacity are used the bath should be changed after 800 to 1000 bushels have been washed. Many operators follow the practice of changing the acid bath at the end of each day's run."

The most successful methods used in washing the apples is a diffused spray or flood wash or the fruit is floated through the machine on the surface of the solution. A treatment of 30 to 50 seconds for the diffused spray or flood wash was usually sufficient. Where the apples were floated on the surface with little agitation four to five minutes were sometimes necessary.

Rinsing is one important step in the washing process. Enough hydrated lime to make a milky bath for rinsing neutralizes the hydrochloric and arsenic acids also seems to prevent molds and decay organisms from acting on the fruit.

The drying need not be thorough. Blowers, towel drapers, which are rung dry, are used or the apples are stacked in boxes and let dry naturally.

Wax forms rapidly on the surface of the apple immediately after picking—when washed at picking time the apples receive less mechanical injury and present a more attractive appearance.

Minnesota has a new plum (No. 194) which will be given to the people for trial. If it is as good as it promises, and we hope that it is, 't will have a name. It may be that Dr. Wilcox will give a prize to the person suggesting a name that will do justice to this plum.

If you have not as yet mulched the strawberries, it is better to do it now than not at all.

The nurserymen of South Dakota have what they believe to be a good supply of Chinese elms but it is my opinion that they will be sold out early next spring. Trees set the past few years have proven their hardiness and drouth resistant qualities.

According to Mr. Critchfield, county agent, 50,000 boxes of apples moved out of the orchards in Spearfish Valley. Some of the old orchards have many varieties. Any one contemplating setting a new orchard can well afford to spend a few days in the valley studying varieties.

The annual meeting of the South Dakota State Horticultural Society will be held in Mitchell January 7 and 8, 1931. The banquet will be held the second night of the meeting.

(Continued on page 16)

WINTER PROTECTION FOR ROSES

G. D. Matthews, Dominion Experimental Station, Scott, Sask.

Many persons are accustomed to hardy garden roses which live through the winter without protection. During the past few years many of the tenderer roses have been sold in the prairie provinces. Usually there is a good display of bloom the season of planting. Surprises followed the next season when the plants were dead because, in most cases, adequate winter protection was not given.

When the frost becomes enough to form a crust on the soil, it is time to give winter protection to tender roses. This time usually occurs in the last two weeks of October.

First the individual rose plants are tied loosely together. Usually two to three bands of string are required. Plants are then banked with soil to within two to three inches of the tops. This presents a cone shaped mass of soil with twigs emerging at the top.

After freezeup this soil covering is covered with six to eight inches of dry strawy litter. This loose covering allows the plants to transpire during the winter, but a similar covering of soil would smother them. This practice has been used with good success at the Dominion Experimental Station, Scott.

The whole objective may be lost by uncovering too early in the spring. When work starts on the land next spring the litter only may be removed, but the soil should not be taken away until the danger of spring frosts has disappeared.

SOUTH DAKOTA NOTES

(Continued from Page 15)

A Sioux Falls member of the society inquires whether more than one sand cherry bush is necessary to produce fruit. One bush is all that is necessary.

Dr. N. E. Hansen, president of the South Dakota State Horticultural Society, now holds two of the highest honors in the horticultural world, having recently received the Marshall Pinckney Wilder silver medal from the American Pomological Society.

The George Robert White gold medal for eminent service in horticulture was conferred upon Dr. Hansen in 1917. Each year only one of these awards is made. Dr. Hansen was among the first men to receive this honor.

The Wilder medal is of heavy silver, inscribed to N. E. Hansen, explorer and breeder of hardy fruits and flowers." It was conferred upon Dr. Hansen in 1929.

As the "supreme court of horticulture," the American Pomological Society has bestowed upon Dr. Hansen a distinct honor given only to those who have rendered distinguished service to horticulture.

One sees many Mountain Ash trees killed from sunscald and many broken by storms. It seems that the native crataegus or Hawthorn as it is more often spoken of, could take the place of this tree. The blossoms are beautiful in the spring and the fruit compares favorably with that of the Mountain Ash in color and showiness.