

NORTH AND SOUTH DAKOTA HORTICULTURE

MARCH, 1933



ADMINISTRATION BUILDING AT THE NORTH DAKOTA AGRICULTURAL COLLEGE



HOME MADE SYRUP FROM SUGAR BEETS

Division of Chemistry,

Dom. Exp. Farm, Ottawa, Ont.

Owing to the many inquiries being received from farmers who wish to make an edible (table) syrup from sugar beets the Division of Chemistry at the Experimental Farm, Ottawa has been making further experiments to ascertain the possibilities of making a palatable, wholesome and good appearing syrup for home use.

The trouble experienced in the past has been to get a syrup that was not black in colour and did not have a disagreeable aftertaste. This black colour and disagreeable taste was no doubt due to the mineral salts and some of the many organic substances extracted from the beet during the leaching for the removal of the sugar. After many experiments it was found that a fast and incomplete extraction by steaming the sugar beet pulp would give a syrup with a light brownish colour and without the disagreeable after-taste as before experienced. There is no doubt that considerable sugar is left in the residue but as this can be used as feed for cattle it cannot be considered as being wasted. The method is quite simple and can easily be carried out in the home and is as follows:

- (1) The beets are first washed and the crowns cut off at the lowest leaf scar, or lower, and the beets peeled, crowns and peelings being rejected. The beet is then sliced longitudinally (lengthwise of the root) and put through a meat chopper. This ground pulp is put at once before oxidation takes place, into a piece of cheese cloth which has been tied over the top of a fairly large pot containing water. The pulp is then suspended in the cheese cloth over the water but not touching it. An inch or so of water in the pot should be sufficient to start with. Put on a tight lid and boil for half an hour vigorously. After half hour's boiling wash pulp with warm water allowing this wash water to run into the pot, using as little as possible. Fill the cheese cloth bag with pulp two or three times using the same solution in the pot for steaming the second and third batches. Filter this weak sugar syrup through a good cotton cloth and evaporate it to less than half its volume. Allow this to stand overnight so any solid matter that has come down during the evaporation may settle out. In the morning pour this clear syrup off the solids and boil down to consistency of maple syrup taking off any scum that comes to the top and being careful not to scorch or burn. Bottle or put in jars while still hot and seal tightly.

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Volume V March, 1933 Number III

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

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

Published monthly at Hipple Printing Co., Pierre, S. D., by the North and South Dakota State Horticultural Societies.

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The Wisconsin College of Agriculture at Madison, Wisconsin, has published a booklet entitled "Ways to Use Wisconsin Apples." If our people write for it they had best enclose five or ten cents for cost of printing and mailing. The same institution has a circular entitled "Everyday Uses for Cherries."

A bill introduced in the Washington State Legislature provides for the standardization of honey containers, and rules for the marketing of honey.

Close all dead colonies of bees and take them to the basement. Examine them and if Foul Brood is found use the heat method for purifying. This early care may save spread of disease or mouldy combs later.

NORTH DAKOTA HORTICULTURAL SOCIETY NEWS LETTER



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

A question about the possibility of raising stock beets prompts me to say that I believe there is nothing we can raise that will produce more feed per acre in North Dakota than mangels. Varieties we have found good are Sludstrup, Tarroje Barres and Giant Half Sugar. We have had yields as high as 80 tons per acre and individual beets weighing up to 30 pounds. These stock beets may be kept in a root cellar and furnish wonderful green

feed for chickens or any kind of livestock in the winter time. We plant the rows far enough apart for horse cultivation and thin the plants to a foot apart in the rows. They should be planted early in May.

"What is the best large kernel variety of popcorn?" asks a correspondent. Unless the new white variety of Mr. Bauer's replaces it, we believe Black Beauty is the best to date. Most largekerneled varieties are late.

Telling which varieties are best is always dangerous because no variety yet produced is perfect, each has its strong points and its weaknesses. However, someone always wants to know what two varieties I would plant and here goes: For sandcherry hybrids, Opata and Oka; plums, Surprise and Red Wing; apples, Anoka, Haralson; crabapples, Dolgo, Florence.

"How can I propagate my rubber plant?" asks a friend at Grenora. The method usually followed is to properly cut off the stem at a joint, then wrap the wounded place with rags or other absorbent material and keep it wet. Eventually roots will start in the wet material. The stem may then be cut off and the new plant set out independently.

Mr. Chapman, of our soils department, is doubtful about the advisability of making a blanket recommendation for the use of ammonium sulphate on lawns. He thinks ammonium phosphate would be safer.

New York No. 12 lettuce has been practically as sure a header as Stonehead during the past two years and the heads have been more marketable since it is a crisp head type. Remember, to raise head lettuce, either sow the seed inside in March and transplant to the field in May or else sow the seed in the garden in April. The earlier the better.

Hale's Best and Honeyrock muskmelons are highly recommended by some who have grown them for market purposes. While they are a bit later than Golden Champlain or Emerald

Gem, the quality is better and they ship better. Any muskmelons may be started in pots, paper bands or inverted sods about a month before the last frost.

Blackberries are not recommended as a crop in North Dakota. However if you should wish information about them, get Farmers Bulletin 1399 entitled "Blackberry Growing."

Shepard-Meyer Co., of Burnstad, N. Dak., report wonderful results with annual chrysanthemums and nicotina as house plants.

Dahlias may be started indoors and transplanted to the garden like tomato plants.

A German scientist reports that tomato plants grown on soil greatly deficient in phosphorus will show a purplish color on the under side of the leaves. If your plants look that way in the field next spring you had better try an application of superphosphate at the rate of a handful for each plant, scattered around on the ground and worked in.

"Why did my strawberry plants fail to bloom last year?" is a recent question. It is possible it might have been due to unfavorable growing conditions the year previous, or to too much crowding of the plants. The blossoms for this spring's crop were formed the latter part of last summer. If the weather is extremely dry and the plants did not grow well, the blooms might be scarce this spring.

Clifford Pederson, of Dazey, reports growing a Katahdin potato in 1932 which weighed 25 ounces. He also says he does not like the White Gold potato.

In planting gooseberries put them in a cool location and be sure they can be kept cultivated.

One reason why plant lovers like to start new Begonia plants every year or two rather than keep the old ones is because the lower leaves are likely to drop off and leave a lot of old bare stems.

Agnes Brovold, of Grand Forks, has a blueberry plant which she says winters well but does not grow fast. We will be interested to see whether this plant will fruit. She also says her garden peas did much better last summer from having peat moss in the row.

Undoubtedly the oak tree should be planted more than it is. There are two difficulties with it. It is hard to transplant and grows slowly. However, when one gets a good tree he has something that is worthwhile and will last.

We have a query as to why no varieties of green sprouting broccoli were mentioned in the vegetable variety bulletin. The reason is that up to now there have been no distinct varieties. I note this year's seed catalogs indicate that some are being developed.



A killing frost is charted up by the weather bureau when a temperature of 32° is reached. Of course this does not necessarily mean that all plants will be killed. Even some tender ones may stand a little frost without damage.

Prof. Hepler, of the New Hampshire Experiment Station, says our North Dakota vegetable varieties are proving valuable there because their season is short. His objection to Golden Gem sweet corn is that the woodchucks and raccoons harvest the crop before he gets any.

One of our friends was informed by an eastern seed company that Pritchard, Earliana and Bison tomatoes were all the same variety. As we grow them here I can hardly imagine three varieties more different in their plant growth than these three. No doubt the fact that this seed company had no Bison seed for sale had something to do with their opinion of it.

There has been some interest this year in the possibility of growing a large acreage of seed peas. This crop, like other new ones, should be tried on a limited area first, then increase the acreage if it seems wise. Peas are not a big money crop but will make fairly good returns under proper conditions and their effect on the soil is good. I would not recommend trying peas on weedy ground.

The American Linden or Basswood is a native of the Red River Valley. It has never been a very popular tree for dooryard or street planting. One objection to it is the prevalence of worms on the foliage.

Can plums be grafted onto chokecherries? We have never tried it and doubt if a graft would take. There is no reason why one should use chokecherry trees when it is so easy to get wild plum which is much better.

If you want information on Ginseng, write the U. S. Department of Agriculture, Washington, D. C., for a Farmers Bulletin. This is a plant we have to discourage people from trying. If anyone in our Society family has ever tried Ginseng we would appreciate hearing from you.

It is generally considered that fall is the only time to plant peonies. However, some experiments conducted in Massachusetts the last two years have shown better growth and stronger plants from spring planting than from setting the previous fall. If you want to plant peonies you might be interested in the following recommended list suggested by a correspondent to the American Peony Society bulletin: Red—*Officinalis Rubra*, Richard Carvel, Philippe Revoire, Karl Rosefield; Pink—*Edulis Superba*, Souvenir de Louis Bigot, Therese, Sarah Bernhardt, Pierre du Chartre; White—*Festiva Maxima*, Tourangelle, Kelway's Glorious.

EXTRACTS FROM THE DIARY OF A TRAVELLING MAN

W. A. Simmons

Jan. 27th: The annual meeting, held January 25th and 26th at Ipswich, was one of the best attended as well as one of the most enjoyable in the history of our society. Weather and road conditions were fine, and members came from all corners of the state. Mr. Robertson presided with his usual charm and fund of horticultural knowledge, and several members who came from a considerable distance admitted that the trip had been undertaken mainly to make his acquaintance.

Ipswich, while not one of our largest cities, contains an unusually high proportion of the state's best boosters, and they turned out in large numbers for our meetings and the banquet. An informal and impromptu banquet was prepared for us at a restaurant Wednesday noon, when a long table was provided for the visitors and both Mr. M. P. Beebe and Mr. H. E. Beebe and Mr. J. B. Taylor sat in at the feast. The menu, prepared by Mr. M. P. Beebe, listed dishes never before appearing on any bill of fare and completely non-understandable, so that each one had to make a choice without the faintest clue as to what would result. However, every choice was a good one, so no fatalities from starvation resulted.

On the following day Mr. Taylor had most of the visitors down to his house for dinner, where Mrs. Taylor provided one of her wonderful dinners. At the banquet a delicious turkey dinner was provided and Mr. Taylor officiated as toastmaster with his usual sparkling wit. Our Vice-president, Mr. Wallner, told of the cyclone that struck in his vicinity this summer and of his prayer that apparently changed the direction of the storm so that his place was spared. A month later, however, a destructive hail storm struck and he was kept too busy dodging hail stones to even think of a prayer, so his crop was destroyed.

Mr. Robertson opened up a hitherto unpublished dark chapter in his past by relating his experience in kissing one of his school teachers on the back of the neck. He did not say whether he still adhered to the system; as a school district officer he now employs several teachers.

Mr. Dybvig spoke of the barren appearance of our State Capitol's setting, presumably from a Republican standpoint.

Several of our friends from the Aberdeen Garden Club came out and assisted with fine papers and talks. Our good friend Mr. Syverud, the bee expert of Aberdeen, brought out great numbers of individual sized combs of honey, which were greatly enjoyed at the banquet.

Mr. Taylor exhibited some of Professor



Yeager's buttercup squash and these and Professor Yeager's sweet corn and tomatoes, particularly the Bison, came in for words of warm appreciation from all who had tried them.

The Editor of the local paper attended most of our meetings and gave us a very fine talk and much publicity. Altogether, it was a splendid meeting and we could conceive of no better place to meet than Ipswich.

The Wisconsin Horticulture for January publishes the report of the committee, which included their able Secretary, Mr. H. J. Rahmlow, appointed to select the varieties of new apples to be used this year by their fruit testing club. This committee met at the home of one of its members and spent an entire afternoon in tasting and discussing samples of many varieties secured from several different states, so most careful consideration was given to each variety. Those recommended were: (1) Secor, an Iowa origination, cross of Jonathan and Salome, (2) Newfane, (3) Orleans, and (4) Macoun, a New York cross of McIntosh and a longer keeper than its parent. Nos. 2 and 3 are Delicious seedlings, developed at the New York Station and are said to possess most of the quality of the Delicious and to be considerably more hardy and to produce a larger apple in the rather short growing season that we have in this northern section.

The committee also recommended three early varieties for use in roadside markets or home use, as follows: (1) Melba, (2) Early McIntosh, (3) Milton. These are all McIntosh seedlings, the first being a Canadian cross and the second and third developed at the New York station.

To this list I would add the Lobo, which does not seem to have received the consideration to which its quality, early bearing habit, good size, and color and hardiness entitle it. Lobo is also a Canadian cross of the McIntosh.

All of the above apples are of high quality and should do well in the southern half of South Dakota and, if topworked, anywhere in the state. We have about reached the stage in our orcharding where we are not satisfied with growing just any apple that may prove to be hardy and are demanding quality, and quality is present in all of the varieties listed above.

Mr. E. L. Crabb of Shoshoni, Wyoming, a valued friend and life member, recently loaned me a most interesting book, **Malcolm Campbell, Sheriff**, describing early conditions in his state and giving a detailed account of the Johnson County cattlemen and rustler war of 1892. In one place Mr. Campbell tells of a winter in the early eighties, during which no onions were obtainable and people missed them terribly. In the spring when onions were at last brought in,

people bought them and ate them from the hand like apples.

Probably there are many things besides the lowly onion that gain proper appreciation for the first time when we no longer possess them. Marital mates may be mentioned as one of them. Even divorcees seem to miss the long-suffering companion of life's joys and sorrows and to make haste to secure another as soon as possible to replace the one discarded.

In the case of onions, our helpful National Department of Agriculture has discovered that many bitter tears can be avoided by peeling them under running water. Another method is to secure the windshield effect by wearing glasses. In the perfect socialized state visioned by Edward Bellamy and others, perhaps we shall have deep sea divers to perform their four hours of daily labor by retiring to the bottom of some of our fast-running streams and there peeling our onions in comfort.

It seems we are not through with our need of the selected varieties of the *Prunus America*, or common wild plum, with its matchless flavor. In **Minnesota Horticulture** Dr. W. H. Alderman in discussing this subject says, "All of the new hybrid plums require cross pollination with other varieties. In the last few years it has become evident that many of these hybrid varieties are not only self-sterile but are also cross sterile to a considerable degree."

"The first test made of the hybrid seedlings sent out by the State Horticulture Society gave no indication of this lack of fertility since they were also grown in proximity to the old native plum variety, at least this was true in most cases. It was only when commercial plantings of the new hybrid varieties came into existence that realization came of the need of suitable pollinators. We have been doing some experimental work on this point but have as yet no very definite information. Where wild native plums are available, or where cultivated forms of the wild plums are grown, the indications are that pollination problems are largely overcome. We are hopeful that we will discover among the hybrid varieties some good pollinators and therefore remove the necessity of growing native plums. That has not yet been determined and the best suggestion I can make is that you might graft into the Mendota tree some wild native plum or some of the cultivated varieties such as Wyant, Wolf, DeSoto, Terry, etc."

"A good sized bouquet of wild plum blossoms placed along side your plum tree at blossoming time would very likely produce the desired effect provided bees are available for working the blossoms. Do not think you need to plant anything particularly to attract bees. The plum blossoms themselves will do that."



WEATHERPROOF PLANTS FOR DAKOTA ROCK GARDENS

Claude A. Barr, Smithwick, S. D.

Of the many advantages in the employment of native plants in rock gardens in the Dakotas not the least is that upon the high prairies and in the Badlands of the western parts, and in the Black Hills, grow many kinds that are listed among the World's choicest alpine. While many others of but little less grace of leafage and charm of flower are at call to enhance with variety of form and color the pageants of beauty we may stage about our homes.

Not to say that some most desirable species do not range into the eastern parts. Rather that the increasing altitudes to the west, the lighter rainfall, the environment of gravelly ridges and stony buttes and mountains favor greater numbers of the types that rock gardens require; indeed have forcefully brought about that low growth and brilliancy of coloring that are distinguishing marks of true alpine everywhere.

Rock plants, then, must be low? Oh, surely. The rule is that only an occasional plant of a reach above twelve inches, in every case a plant of especial charm of form or adaptability of habit, may be admitted to the rockery for accent or contrast. With few exceptions the larger things belong in the hardy border, or perhaps at the border of the rock garden as it nears a boundary line, or in front of shrubbery that serves as a background. It is not an arbitrary rule except that nature in the alpine wilds provides existence chiefly for the low things.

Of the choice things of six inches stature or less perhaps deserving of first mention are the Phloxes. *P. kelseyi* from the Black Hills forms dense mats no more than three inches high that are smothered in May with large flowers of lavender-pink to bright pink. Lovely not alone for its flowers, its delicious fragrance scents the garden with a perfume but subtly distinct from that of the tall Woods Phlox of the Big Sioux Valley and further east. Its native soil is sandy and stony, yet in my garden it is quite happy in gumbo with a few limestone chips and a little fertilizer. It spreads slowly. A plant set fifteen years ago and given no restrictions has gained an extent of thirty by thirty-six inches.

Phlox planitiarum, a needle-leaved kind with large white flowers has a wide range in both states. Equally adaptable it should be planted in groups of ten or more, for it does not spread and an individual plant may cover a space four by six inches and often but half that. Its blossoms come the middle of April in this southwest corner of South Dakota, and continue with favoring moisture to the end of June. *P. hoodii* is similar, with much smaller flowers, and short, bright green needles set so closely on the stem

as to suggest its common name, Moss Phlox.

P. kelseyi and *P. planitiarum* seem to have no common names. The latter, once called Douglas' Phlox, is now segregated, the true *P. douglasii* belonging further west. Why not learn the botanical names? Kelseyi is simple enough; pronounce it as you would if you met the botanist for whom it was named, and add the syllable "ye." The "ii" of hoodii is also pronounced "ye." Planitiarum, after a bit of practice comes with no more trouble than Nasturtium, which has no "common" name either.

As a welcome announcer of Spring nothing could be more glorious than *Anemone patens nuttalliana*, or *Pulsatilla hirsutissima*, the Pasque. Too well known to need description, its garden requirements are not well known. A sandy, gravelly loam with leafmold is no doubt best, but in my garden gumbo serves. I have moved small plants in May, just as the leaves were started. The dormant time in midsummer is recommended, and when established it should not be disturbed. It will not bear an equal amount of drought in its growing time with most of the plants here mentioned.

Townsendia exscapa, Spring Daisy, is another of the very early things, and most winning as it opens its wide eyes on sunny slopes in April or May. Large golden centers and pink-tinted or white rays all but hide the neat, slender, evergreen leaves, the whole display no more than two inches high.

Leucocrinum montanum, Sand Lily, or Bethlehem Star, is a dainty Crocus-like thing of April and May that one might expect to come from a bulb. Instead it has spraddling, fleshy roots, with a crown uniformly just two inches under the surface. The sweet smelling flowers, waxy white with stamens gold, may total fifty in a season from one plant. The foliage is like blades of grass in a loose rosette, and disappears by midsummer. It is easily grown in any loamy soil and should be moved in late summer or fall.

Oenothera caespitosa, (*Pachylophus*), Gumbo Lily, Stemless Primrose, is a striking flower with a long blooming season. Its great white saucers, as much as four inches across, turn pink as they fade. Its maximum height is four or five inches. Often it chooses the stickiest sort of clay on buttes where almost nothing else can grow. Experts say it is permanent on dry limestone soil, and in my garden where potash is plentiful it is quite happy.

Verbena bracteosa is a perennial with pleasing light purple flowers. Its clusters are smaller than those of the well-known garden annual and sit close to the ground. A plant may have two feet or more of spread and it is usually a mass of bloom from May till fall. It thrives in the hottest of locations and in shade as well, and if



dried almost to a crisp it soon comes into gay color after a good rain.

Eriogonum flavum, as I have seen it in the wild grows only among lime rocks on buttes, and in that setting it impresses one as being exclusively alpine. Massed rosettes of velvety, long-oval leaves, low and flat, send numerous erect scapes to four or five inches carrying closely packed umbels of tiny, soft yellow blossoms that are lacy with stamens twice as long as the petals and of the same color tone. *Eriogonum*—accent on the third syllable—with *flavum* which describes the color, is a fittingly soft-sounding name and it seems to have no other.

But what a name has *Tetraneuris simplex*, and how could one who advocates learning the botanical names expect it to become popular? Not owning a botanical dictionary I can only guess at its meaning, and I suspect it is something about a poor orphan and four nery crooks and if we all take an intelligent interest *Simplex* will be rescued in time. And *T. simplex* though just a little thing, is worthy of our attention, possessing as she does the most exquisite rosettes of any flower I know. The linear-lanceolate leaves are grayish green, edged narrowly but distinctly with silver, and very symmetrical in arrangement. A young plant may have a solitary rosette while an older one may have half a dozen, jostling and striving to lie close to the ground. Five or six inches above, on slender scapes, shine bright golden daisies an inch to an inch and a half across. They keep coming for several weeks in June and July. *T. simplex* is at home alongside *E. flavum* at Cedar Butte, and in similar ground in the Black Hills.

Sideranthus spinulosus is a low bushy plant six to ten inches wide that is covered with countless small single, golden asters, August to October, one of the most charming species of its season. It will be much prized when it becomes known. A firm loam, often gravelly, suits it.

Dodecatheon pauciflorum that may reach above six inches but seldom does; is one of the dwarfest of Shooting Stars and perhaps the reddest-toned one. In the foothills of the Black Hills where it is abundant it has no pale colors and it varies from dull rose to near crimson. It is a gladsome flower of May, and if it has fewer blossoms to the shower than other Shooting Stars it sends up plenty of showers. Though it endures the same long droughts as the kinds that go out onto the prairie it chooses north slopes and some shade for more constant moisture and a lesser intensity of dryness. It has been difficult to hold in my prairie garden with only natural rainfall.

By way of contrast, *Campanula petiolata*, the Western Harebell, will stand any climatic buffet-

ing the Dakotas can give. Stronger and of more floriferous habit than *C. rotundifolia*, from which it is now considered distinct, it is a habitant of the Pine-clad heights of the southern state and of many localities of the northern one. Seemingly fragile stems support its graceful bells of lavender to violet and dark purple, through a long season, and it is capable of coming back with more blossoms after a withering drought. There are finer *Campanulas* but hardly one will give more of satisfaction. In rich soil some of its airy stems may go above twelve inches, while some will sprawl and blossom from the ground up, to no disadvantage in effect.

In their height range the *Pentstemons* are most numerous as a family and destined to be much used in rock gardens, and those of the Dakotas with their closely packed spires of blossoms and their variety of brilliant colors are among the finest of one hundred and fifty or more species.

P. eriantherus, (the *P. cristatus*, I think, of Bergman's Flora of North Dakota), is my favorite, a warm lavender illuminated by an enormous yellow, crested tongue, very much at home in the gumbo. The buds are pinkish, the corolla often lightly lined with purple. Its fine lavender is warmest or nearest to pink when drought holds it to a solitary stem of four or five inches, but you miss nothing of beauty when it lifts five or six large-flowered stems to a height of twelve.

P. angustifolius is of the most intense sky blue, a wonderful flower, beautiful against the yellow, coarse sand it prefers. Its leaves are very slender, smooth, and very silvery. I have had it only a short time and have not dared to test it without its accustomed sand. If it is like the well-known *P. grandiflorus* sand is not at all essential.

P. albidus is white with long, black-purple stamens. In hard soils among the grasses it is a little thing and its basal leaves disappear when drought forces dormancy. In cultivation it forms crowns that send up several stalks to twelve inches and the basal rosettes of leaves are evergreen like most others.

P. alpinus, of this same class, inhabits the Black Hills. It is described as very dark blue, six to eight inches high, and fine. *P. gracilis*, a plant of wide range in both states, is of different type, very slender, with its amethyst blossoms less closely set on the stem, but graceful and beautiful. It has spent several dry months with me, quite in the open without ripening its basal leaves, though accustomed to more or less shade in the wild.

Aster kumleinii is a bushy dwarf, that may be entitled to the name of Upland Aster, I am
(Continued on Page 35)

THE MALLARD

O. A. Stevens

These birds are among the most popular game species, and as such, are among the best known of our native forms. Along with the turkeys, they have the distinction of being well known both in the wild and domestic state. Several of our breeds of domestic ducks are considered to have originated from the mallard; though as is the case of most of our animals and plants, the exact history is little known. That they are readily tamed was well shown, when stopping last summer at a lake-side tourist park for lunch, we were besieged for food by a group of the birds. As deftly as a dog, they caught pieces of bread which we tossed to them.

The mallards inhabit the northern regions throughout the world. In America they nest chiefly from Hudson Bay to northwestern Alaska, southward into northern United States, but as far as southern Illinois and Indiana, and in the west even to southern Texas and Lower California. For winter they move southward, more or less, according to the severity of that season in their summer range, and are found chiefly in the southern states, but as far north as central Alaska on the west coast. Occasionally one is found in Cuba, southern Mexico and Panama. In central Europe they are more or less resident, but nest from the Arctic Circle to the Mediterranean Sea and in Asia to Turkestan and Central China, migrating birds reaching the Nile Valley, India and southern China.

The northern mallards are hardy birds, moving thence as soon as the ice has melted, and retreating only when the water freezes again. Average dates of the earliest ones in the spring are: Keokuk, Iowa, February 24; Spirit Lake, Iowa, March 10; central South Dakota, March 16; Larimore, North Dakota, March 28; Aweme, Manitoba, April 3; Qu' Appelle, Saskatchewan, April 10. Another month is required for them to reach their most northern limits.

The nests are most commonly placed among grasses or rushes well back from the water, frequently in fields, sometimes in brush or timber. Occasionally in thick timber they are built on accumulations of material in the forks of trees. They have been known to use old nests of crows and hawks. Two nests found near Fargo last year were on the edge of a bank of a drainage ditch, one in low bushes, the other in tall grass. Dr. J. F. Brenckle of Northville, South Dakota, told me of nests found there in fields and moved out on the freshly plowed ground, the ducks continuing to brood and attend them.

Mr. A. C. Bent states that ordinarily only one set of eggs is laid, usually 8 to 12 in number. He gives the average size as about 2.3 by 1.6 inches, the color light greenish buff to grayish

buff or nearly white. In 1909 he spent some time in the Stump Lake region of North Dakota where he found laying to begin early in May and to continue all through the month. The loud quacks are made by the female. The drakes are said to make very little sound and to take no part in brooding or in caring for the young as a rule. They begin to molt soon after the eggs are laid and pass slowly into the "eclipse plumage," which closely resembles that of the female. At this time the flight feathers are all shed at once and the birds are for a time unable to fly. They molt again into the normal plumage in the fall.

The mallards feed in shallow water or on land and eat a great variety of materials. In the fall they visit the grain fields and occasionally are reported to do considerable damage to grain which remains in the shock. An extensive study of stomach contents reported by the Biological Survey, U. S. Department of Agriculture, showed 90 per cent of their food to be of vegetable matter, seeds of grain, grasses, sedges, smartweeds and pondweeds, being the largest items. Fruits of many other plants were represented, including oak, hackberry, buttonbush, cypress, poison ivy, holly and dogwood. Tubers and buds of wild celery, coontail, arrowhead and other plants also are eaten extensively. The animal food included especially snails and water insects.

During the last ten years, banding as a method of bird study has come rapidly to the front and in this the mallards are playing a prominent part. In suitable places it has been found possible to trap them in large numbers, and their popularity as a game bird has brought hundreds of return records. For the year ending July 1, 1932, a total of 6418 were banded. A recent tabulation of ducks banded in Alberta, shows 176 return records of which 156 were mallards. Excepting those recovered in Alberta, the largest number for any state, were from Texas, including 18 mallards. Recoveries of those banded in British Columbia included one bird in Missouri but the rest were all in British Columbia and Washington. Recoveries of mallards banded in Connecticut have been few and gave no records of special interest. More than 3000 ducks, mostly mallards, were banded in Illinois in the last ten years by Mr. F. C. Lincoln, who has charge of the banding work for the U. S. Biological Survey. There the best time for trapping was during the hunting season and more than half of the 875 recoveries have been in the same state. The next largest numbers in order, are: Arkansas, Louisiana, Saskatchewan, Minnesota, Tennessee, North Dakota, Iowa, South Dakota. In Kansas Mr. Frank W. Robl of Ellinwood, banded 1046 mallards out of a total of 6798 ducks and

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WINDBREAKS IN SOUTHEAST SO. DAKOTA

What They Are, and What They Can Be

L. D. Martelle, Beresford, S. D.

Never before, in the history of our state, have man-planted trees been utilized as they are being utilized this winter. This may seem a broad statement—it is; but let us look further.

Our pioneer forefathers came west and settled first along the rivers and streams. The reasons for this were many. First, for protection from wintry blasts and snows, and from the summer sun's blistering heat. Second, fuel. Our hardy forefathers had need for fire-wood for cooking and heating. This was one of the main reasons for staying near the timber, especially as most of these early pioneers came from the wooded lands "back east." Third, for building material. Log cabins and barns were numerous not many years ago, where timber grew native.

You will say—How about the sod shanties, where they burned Buffalo Chips, hay and willows? Very true—sometime later, but the first settlers kept to the streams and trees. After this land was all taken up the newcomers were forced to the prairie. These prairie-dwellers made long trips to the streams for cottonwood, ash, box elder, and willow seeds, seedlings, and cuttings. Many of our remaining "tree claims" were thus begun.

I have listened enraptured for hours to tales of these hardy pioneers, when they tell of the vicissitudes of the early day tree planter. To such trail blazers, as the John M. Downers, of Freeman, and the thousands of others of like caliber goes all the credit and honor we "young sprouts" can give them. Trees, to them, meant all I have stated before, and more; they meant a home.

Up until six or seven years ago, almost every farm home boasted, at least, a partial windbreak and orchard. The work, in nine cases out of ten, was that of early settlers. In many cases, these trees were appreciated, but too often, they were taken for granted.

We come now to the "dry years"—the first many of us ever saw in our quarter of the state, and for severity and duration as bad as any the pioneers experienced. Coming in succession as they did, the trees had no chance to recuperate from one season to the next, until today it is a common sight to see entire windbreaks of the older plantings, in which all the trees are dead on top, and a large proportion of them entirely dead. This drought, coupled with the so-called "depression" (our husky fore-bears called them panics) has had the effect of "de-forest" rating our part of the state forty per cent. This is a conservative estimate—some put it as high as eighty per cent.

Not only are man-planted forests suffering;

the hills and ravines along our streams are being laid low by the axe and saw whether they are dead or alive. (I dare Mr. Simmons to make a pun on that).

Over south of Canton, along the Sioux river, is a stretch of most beautiful wooded country—very hilly and completely covered with hackberry, basswood, ash, elm, oak, and many other native trees, (and incidentally—several varieties that come no farther west). A similar piece of country on the Iowa side covering several square miles was made into a state park some years ago. This should have been done on our side of the river also, as it is a rendezvous for picnickers and hikers for miles around.

This place, for want of a better name, is called "Newton Hills." Imagine the feeling of a tree-lover on a recent trip there to see entire hills denuded and bare except for ugly stumps! Sacrificed on the altar of "depression."

Looking over the state, one sees the trees planted by our early pioneers and much of our native timber dying and being used for firewood. The seriousness of the situation is taken for granted, but it is not my intention to paint a picture of a bleak, dismal, and barren country without trying, in my humble way to outline a remedy—or shall we say antidote?—so if Old Mother Nature does get the "dry farming" habit again, she will find us much better prepared to withstand her blasts than we were this time.

First, I urge every person who is in a position to do so, to cooperate with the Horticultural Society, Isaac Walton League, The American Legion, and other organizations behind the movement in their state-wide plan to preserve our lakes and ponds, and to create, where possible, more of them.

Second, plant trees of a variety that will grow, but use discretion. We will divide this heading into sub-heads:

City dwellers:—plant your lot. Don't over-plant it, but put in street trees, a few in the correct places for shade around the home and more in the rear for back-ground. Good trees for this use are American Elm, Chinese Elm, Hackberry, Basswood, Ash, Silver Maple, Black Walnut and Locusts.

Farm-owners:—plant a woodlot. Every farm has odd-shaped strips, gulleys, or some rocky pieces of land. Plant these mostly to the faster maturing varieties, such as soft maple, poplar, box elder, etc. It will take about twenty-five years or less for them to develop into usable wood.

Plant, or replant your windbreak. If your ground is high, use Russian Olive or Caragana on the outside, then American Elm, Chinese Elm, Ash, or Locust for the bulk of your grove. Then a row of hardwoods such as oak or walnuts.



For the two inside rows, use Black Hills spruce or ponderosa pine. For real low ground, omit the evergreen, and used golden or laurel leaf willow on outside, instead of the caragana or olive. Wild plum, chokecherry and other wild fruits can be used.

Some will say, selfishly, "What good will that ever do me?" Well—I used to be too disgusted to answer this question, but will say this: Did your father and grandfather ask you to go thirty or forty miles to get the seedlings they planted because they figured that you would be the one to enjoy the shade They did not.

During the present economic stress, it looks like a hopeless task to replant an entire wind-break. Have you asked your nurseryman for his advice or prices? You'll be surprised. He will cooperate with you. If he is a real patriotic citizen, (and our S. D. Nurserymen are that 100%) he wants you to have those trees. If you have the same desire, you will get them.

By systematic planting—perhaps by planting a certain piece each year, your place will be better planted than it ever was before. This is especially true as to varieties of trees, which are now available in any quantities. South Dakota grown trees that are hardy and acclimated are best.

Everyone today feels the urge to plant trees. Let's indulge in it, so that when a new generation has taken over our labors, and the weather again goes on a rampage, trees will be drought resistant and able to withstand the conditions. South Dakota will not be known as the "Prairie State," but as the "land of ten thousand lakes, and ten billion trees"; a home for crop saving bird life, and as a direct result of so many trees, heavier rainfall, and more comfort the year around for posterity.

THE COMPLETE VEGETABLE GARDEN Gordon C. Warren,

Dom. Exp. Sta., Charlottetown, P.E.I.

A complete vegetable garden is one in which all the staple vegetables are grown in sufficient quantity not only to supply the home table during the growing season, but also for canning and for winter storage as well.

Vegetables are very necessary in the diet of all members of the family supplying, as they do, mineral elements and vitamins which are so essential to health. It is particularly important that children have vegetables at least once a day throughout the year.

The size of the garden and what to grow, depends largely on the size of the family and the preferences of its individual members. The staple vegetables grown should include the following:—Beans, beets, cabbage, carrots, cauliflower, swiss chard, sweet corn, lettuce, onions,

parsnips, peas, rhubarb, spinach, squash and tomatoes. Others that might be included are:—Asparagus, cucumbers, citron, egg plants, horseradish, kale, muskmelons, parsley, peppers, pumpkins, radish and salsify. All these mentioned vegetables can be grown successfully in the maritimes as has been demonstrated at the Dominion Experimental Station at Charlottetown, P. E. I.

Though varieties of vegetables have been improved during recent years, many people still grow old sorts which are often inferior. Because of soil and climatic differences it is not always easy to select new varieties from descriptions alone. Seedsmen naturally emphasize their novelties, which in many cases are no better than the proven sorts.

The Experimental Farms have carried on extensive work in testing, canning and storing varieties and in cultural practices. This information is available, on application, at your nearest Experimental Station.

HORTICULTURAL NOTES

Spinach leaves shipped from Japan arrive at our eastern ports in good fresh condition. The improved cold storage facilities make this possible.

The practicability of the chlorine treatment for American Foul Brood is still being discussed. The principle thing to remember is that the chlorine must come in contact with the A.F.B.

W. A. Rushton, President of the Indiana Beekeepers Association tells us that a small amount of chloroform poured on cotton, then placed in the bee smoker and puffed in the entrance of the hive will kill the bees. The entrance is closed immediately after administering the chloroform. He did not mention not having any fire in the smoke, but that was supposedly taken for granted. If the hive was tipped slightly back and the chloroform poured in the entrance or placed on cardboard or a cloth and pushed under the frames, the same results would probably be secured.

THE MALLARD

(Continued from Page 32)

geese. Of a total of 590 returns (all species), the leading states are: Kansas 81, Nebraska 64, Saskatchewan 33, North Dakota 28, South Dakota 27, Louisiana 26 (quoted from Bird Banding for January, 1933).

The most interesting story to date is that of a bird which nested in 1927 in a box on a shed on the ranch of F. J. Keller of Antioch, Nebraska. Here she has nested every summer since, taking off fourteen young in her sixth brood on May 12, 1932.



PLANT PREMIUMS FOR 1933

Annual members or life members who pay dues for this year may select premiums from Section A, B, or C. You may select one premium from either Section A or C, or two premiums from Section B. If you live in North Dakota send your dues to Prof. A. F. Yeager, Fargo, N. D.; those living in South Dakota send their dues to R. W. Vance, Pierre, S. D.

Premiums are donated by person or firm appearing after the premium.

SECTION A—PLANTS

- 1.—**Minnehaha Apple Tree.** One of the most promising new varieties from Minnesota Experiment Station. Donated by the Northwest Nursery Company, Valley City, North Dakota.
- 2.—**Opata Sand Cherry-Plum Hybrid.** Donated by O. H. Will & Co., Bismarck, N. D.
- 3.—**Hardy Tamrix.** A large shrub with feathery leaves and pink blossoms produced all summer. N. D. A. C.
- 4.—**Betty Bland Rose.** A new variety originated by Mr. Skinner, Dropmore, Manitoba, offered by N. D. A. C.
- 5.—**Peony (to be shipped in fall).** Your choice of white, pink or red. Offered by Riverside Gardens, Enderlin, N. Dak.
- 6.—**Senateur Volland Lilac.** A late-blooming, French hybrid on its own roots. Offered by Alex Alin, Fullerton, N. Dak.
- 7.—**Boston Fern.** Shotwell Floral Company, Fargo, North Dakota.
- 8.—**Louise Geranium.** A new superior double red variety offered by the Fargo Floral Company, Fargo, North Dakota.

SECTION B—SEEDS

- 9.—**Extra Choice Hollyhock, mixed colors.** O. H. Will & Co., Bismarck, N. Dak.
- 10.—**Golden Bison Tomato.** New for trial, similar to Bison except in color. N. D. A. C.
- 11.—**Pink Oval Tomato.** A large, early, egg-shaped tomato on a short vine; new for trial by N. D. A. C.
- 12.—**A. C. Yellow Pear Tomato.** Short vined, early, heavy bearer, yellow; new for trial by N. D. A. C.
- 13.—**A. C. Red Pear Tomato.** Short vine, red, new. N. D. A. C.
- 14.—**A. C. Earliest.** Very small red tomato but the earliest yet for trial. N. D. A. C.
- 15.—**Early White Popcorn.** New for trial by Wm. Bauer, Thunder Hawk, S. Dak.
- 16.—**Idaho No. 6 Great Northern Field Bean.** Early, white, mosaic resistant. N. D. A. C.
- 17.—**Noodle Plant.** A much advertised novelty; resembles vining type of summer squash. N. D. A. C.
- 18.—**Kabak Squash.** Similar to Noodle plant but

of bush type. Brought from Turkey by Prof. Smith of N. D. A. C.

- 19.—**Sercomb Pumpkin.** Large crook-neck, six inches thick, solid orange flesh. Seed taken from specimen shipped from Michigan.

SECTION C—PLANTS

- 20.—**6 Latham Raspberry.** Gates Nursery, Rapid City, S. D.
- 21.—**2 named hardy Phlox.** Gates Nursery, Rapid City, S. D.
- 22.—**12 Gladiolus bulbs.** Gates Nursery, Rapid City, S. D.
- 23.—**1 Black Hills Spruce, 6-12 in.** Gates Nursery, Rapid City, S. D.
- 24.—**4 Baby's Breath.** Dybvig Nurseries, Inc., Colton, S. D.
- 25.—**3 Lillium Elegans.** Dybvig Nurseries, Inc., Colton, S. D.
- 26.—**4 Tiger Lilies.** Dybvig Nurseries, Inc., Colton, S. D.
- 27.—**4 Rock Garden Plants.** Dybvig Nurseries, Inc., Colton, S. D.
- 28.—**1 Spirea Thumbergi, 18-24 in.** House of Gurney, Yankton, S. D.
- 29.—**1 Pauls Scarlet Climber Rose.** House of Gurney, Yankton, S. D.
- 30.—**4 Cannas.** House of Gurney, Yankton, S. D.
- 31.—**1 Dolgo Crab apple.** Nor. Seed & Nursery Co., Ipswich, S. D.
- 32.—**2 Spirea V. H.** Nor. Seed & Nursery Co., Ipswich, S. D.
- 33.—**12 Caragana, 12 in.** Nor. Seed & Nursery Co., Ipswich, S. D.

WEATHERPROOF PLANTS FOR DAKOTA ROCK GARDENS

(Continued from page 31)

not sure. The myriads of blue, yellow centered blossoms are a delight in September and October. Spreading slowly it forms trim, compact mounds in the garden in contrast to its loose colonies in prairie sod. There is much variation in the plants and in seasonal growth, and it is no trick at all for some of them with cultivation and light shade to go too high. With more shade the slender stems droop with the weight of flowers and it is then fine. The low, compact specimens are to be sought.

Liatris punctata, Blazing Star, or Gay Feather, is another late season beauty. A rich clear purple, it should have a place well removed from the blue of *Aster kumleinii*. The *Liatris* does not spread but after years forms a very large crown with as many as a hundred slender plumes, seldom more than ten inches high.

Mertensia lanceolata, the Prairie Bluebell, makes a prompt appearance after a few warm days in April, as a brave youngster two or three inches high, with a tight cluster of pinkish buds



and a prophecy of June skies, the first flower of its color to be out. Two or three weeks later it is five inches tall, still with the pinkish buds and with fine clusters of deep azure bells. From then on it grows and branches into loose, drooping panicles of lighter blue to the end of June. Height ten inches.

Plant the bulbs of *Toxicoscordion gramineus*, the cream and yellow Poison Camas, among the Bluebell roots for a delightful harmony. The Camas, for that matter, is good with any colors that come in its season, late May and June, its erect spikes from grass-like basal leaves standing beside or coming up through the foliage of the others. This bulb and the *Mertensia* are dormant and show no green from midsummer on.

Rock garden soils and drainage provide agreeable environment likewise for the bulbs, *Calochortus nuttallii*, and *C. gunnisonii*, the showy native Mariposa Tulips. They like steady moisture through the spring months up to their seeding time and if drainage is right it can hardly be too wet for them. After flowering dryness is in order and the roots of other growing plants are an aid in taking up surplus moisture. Among the other plants the odd, dry, open seed capsules of the bulbs are ornamental.

A distinct variation from the usual Spiderwort is *Tradescantia bracteata*, more dwarf than others and contributing to the Spiderwort blues and purples many lovely tones of bluish mauve, royal purple, heliotrope, and rose. The flowers are comparatively large and with favoring moisture continuous from May until frost. On the prairie it rarely exceeds six inches, though a foot or more is reported from the different climate of the Atlantic coast where it is much admired.

One aromatic plant must be mentioned, *Artemisia frigida*, the Pasture Sage. Its finely dissected silky leaves in low mats are ideal in the rockery. Only the flower stalks of the latter part of summer rise above four inches, and gray like the rest of the plant they carry their ascending spikes of tiny pendant blossoms, touched with yellow, a trifle above twelve. The leaves may be prepared and used for seasoning in place of the common garden sage. Only about one-fourth as much is needed for an agreeable and different sagey flavor.

This is only a very incomplete list. It does not account for our several good Cactus species and many other desirable plants that dwell upon the prairie and in the outer ranges of the Black Hills, while the new Gabrielson book, *Western American Alpines*, gives high praise to a score that occur in the higher ranges of the Hills that I have not even seen, and still others are among the somewhat different prairie flora of North Dakota. Plants of the region that are but little

in cultivation are constantly being mentioned in the Garden magazines.

Making use of the choice native plants relieves the gardener from the risk of uncertain hardiness and thus simplifies success in our garden efforts. Each year finds more of them catalogued by well-known nurseries, and perhaps all of the plants here described can be had from rock plant specialists and "collectors."

At the outset it may be well to reproduce as nearly as may be a natural environment—for the sake of keeping some of your plants safe, while you experiment with the others, as I do. The one seemingly invariable factor is good drainage which is provided in the rock garden by slopes and porous soil and by under layers of coarse gravel where required. With good drainage assured, moisture is not so much of a question for these acclimated things are inured to drought and are fitted to thrive in seasons of more than average rainfall. Fortunately most gardens enjoy artificial moisture. With water supplied judiciously the native species will doubtless perform as if prosperity had returned.

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