

NORTH AND SOUTH DAKOTA HORTICULTURE

JULY, 1937

LIBRARY



N. D. No. 5, becomes the Red River apple, christened, very appropriately, with a flask of Red River water.
Left to right: Joe Schultz, Mantador; D. Boekle, Eldridge; M. B. Lien, Fargo; A. Burbidge, Park River; Dr. A. F. Yeager, Albert Yeager, Jr., Fargo; G. Hild, Steele; H. A. Graves, Fargo; R. Hamilton, Rugby; C. Birkeland, Cheyenne.

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THE SHRIKES



O. A. Stevens

Sometimes in strolling thru the fields one finds the bodies of grasshoppers, mice, small snakes or birds impaled upon the barbs of the wire fence; or around open woods or thickets they may be hanging from a thorn of red haw or other trees. If the animal is a bird the head is usually missing. This is the work of one of the shrikes, birds not at all related to the hawks but somewhat similar to them in habits. A friend of mine once told me that they

called these birds "mouse hawks" because of their habit of capturing the mice uncovered when the shocks of corn were hauled from the fields.

From the ornithologist's viewpoint, the birds form a family most closely related to the vireos and waxwings. One feels surprised that birds of such kinship have developed such savage habits, but we are always inclined to be impressed by exceptional characters rather than by general ones. In large part the shrikes feed upon insects and thus are not so much different from their relatives.

For our region the group includes only two general forms. The Northern Shrike, also called Butcher Bird, nests in the northern fringe of the spruce and fir forests and visits us in winter. The Loggerhead occurs over most of North America from the evergreen forests south into Mexico. This second form has been divided into several subspecies of which the White-rumped belongs to the western parts of the Dakotas and the Migrator to the eastern portion. All are much alike in general appearance. They are gray birds about the size of a blackbird, with rather long tails and short wings. The wings are mostly black but with a white patch which is conspicuous as the birds fly, for they often fly only a few feet above the ground.

The name shrike is said to date back into old Anglo-Saxon and to be closely related to our word shriek referring to the harsh calls of the birds. Often one finds them perched in a tree making sounds which resemble those made by various birds when in distress. This attracts other birds and may thus provide a meal for the shrike. Some writers say that the shrike has a real song somewhat like that of the catbird. Curiously enough when their nests are approached they do not attack a person savagely as might be expected, but sit a few feet away and utter a mild plaint.

The nests are placed in trees or bushes and built mostly of small sticks after the manner of a grackle or thrasher. Usually they are lined thickly with wool, feathers or other soft material.

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The usual number of eggs is six. They are about an inch long, greenish-gray with brown and purple spots.

For the most part the shrikes are regarded as beneficial. The Northern Shrike seems to take
(Cont. on page 83)



North Dakota State Horticultural Society News Letter



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

One of the most interesting projects now under way at the North Dakota Agricultural College is one in which we are studying the wild strawberry of this state. We need plants from a great many more localities, especially if they have more than ordinary qualities in any respect. As a special inducement for you to help us out with this, if you will send in a dozen wild strawberry plants right away, we will put you on the list to receive a choice of some extra special premiums this next winter. Or if you prefer, send some fruit. We will accept a little package of fresh fruit in a match box in lieu of plants. This may not look like anything of great importance to you, but we consider it of great value, and with the present state of our finances, it is about the only way we will be able to collect the material we should have. Will you help? Please.

Mr. Leslie writes that the apple mentioned in last month's newsletter as Morror is quite probably Manan. Considering the variations used in writing the letter "r", this may well be possible. His description of Manan is that the fruit measures $3\frac{1}{4} \times 2\frac{1}{2}$ inches, resembling Northern Spy in appearance, fine grain, smooth texture, juicy, somewhat tart, a good January apple.

Half-grown cutworms were unusually numerous this season in the garden plots. However, a good sowing of poison bran mash, applied in the evening, has pretty well eliminated them.

Mr. C. L. Jensen of Kensal sent a picture to be used on the cover of our joint magazine. He states he would like to see more North Dakota pictures. Perhaps other members of the Society have North Dakota scenes worthy of a place as a cover page. If so, send them in.

If your gooseberry and currant bushes look somewhat ragged this year because of neglect during the dry years just past, it would be a good time to practice pruning right now. Cut out the old weak canes, leaving the strong young sprouts, and keep the grass away from them. Your reward should be a rejuvenated plant within another year or two.

Early in April we received through the mail a bunch of cabbage and tomato plants with a letter asking what was the matter with them. My reply was that it was evident they had been started too early and had not been given enough space. It does not pay to start plants too soon, nor to crowd them. At the North Dakota Agricultural College, cabbage plants are now started the last

week in March and tomato plants around the tenth of April.

If you plan on cutting out some trees next year and do not wish them to sprout from the stump, girdle the trees right now. In that way the roots will be weakened so they will not have the strength to produce many sprouts next year.

Mr. Reiten of Hastings asked the question as to why cucumbers planted on the ground where refuse had been burned produced three times as many cucumbers as those grown on similar ground, but without the burned straw. Is this a case of fertility added from the ashes, the result of a sterilizing effect of the heat on the soil, or is there some other explanation?

Mr. Nyden of Hebron calls attention to the fact that his horse chestnut trees are still flourishing. I suspect our nurserymen may have been neglecting a good small ornamental tree in not selling more plants of a hardy strain here in the State. The horse chestnut is very ornamental in the spring when in bloom, and gives an exotic touch to the landscape.

Literally bushels of flies were caught during a series of experiments at the North Dakota Agricultural College by J. A. Munro and W. B. Bruce. The report of their work is given in Experiment Station Circular 60, which includes directions for making and using traps.

South Dakota Experiment Station reports a kill of 98.9% of Field Bindweed by following a method of culture involving summer fallow and duckfooting followed by a winter rye crop. Detailed results are to be found in South Dakota Bulletin No. 305.

THE GARDEN CLUB EXCHANGE calls attention to the fact that if in competition a classification calls for a bouquet with "blue predominating" the bouquet must contain not a single pink or yellow flower because if either is present it will dominate any quantity of blue. Incidentally, THE GARDEN CLUB EXCHANGE, Des Moines, Iowa, publishes a garden club handbook which sells for 50 cents, and which should be in the library of every garden club.

Several years ago we nearly had to leave town because of the indignation caused by our cutting off an ash grove, a treatment recommended by our entomologist for the control of ash borer. Now, five years later, this rejuvenated grove is 15 to 20 feet in height with thick, dense foliage, while other ash nearby which were not so treated show many dead tops, and a general unthrifty condition. Quite likely, we will use the same treatment on them.

How would Grand Forks suit you as a meeting place this year, dates either August 19-20 or September 2-3?

PRESIDENT'S CORNER



F. X. Wallner
Sioux Falls, S. D.

May 29th. This afternoon we attached 3 cultivators to a new horse and by 6 o'clock we had cultivated all the rows, potatoes, tomatoes, cabbage and other vegetables that were planted 3 feet, or more apart. While it took three of us to guide the single row cultivators and one to drive the horse, we made fast work of the cultivating, and to a depth that faithful old Barney was not able to hold for more than a round or two, without a rest. We could have attachments that one man could operate, but the plots would have to be by machine, same as a cornplanter, to be able to cultivate two rows. The potatoes would have to be planted with a two row machine, as one row planters are not accurate enough, to cultivate two or three rows unless done as it was today. The Iron Horse has come to stay.

The spring seemed late, still most all tomatoes were set out by the last of May, while old experienced gardeners say to always wait until early June, to set tomatoes, eggplant and peppers. Squash and beans are also up and doing fine, peas in bloom and the dark green color must be due to the fertilizer sown at the time of seeding. All onions and other vegetables, where we used the fertilizer at the time of seeding, are coming along with a rush; in the new Golden Acre cabbage, we have noticed no "yellows", as was so common with the Copenhagen and others not yellow resistant.

The cat brought her kittens to my bed room yesterday for protection, but the boy took them back to the barn. Today the old Tom from the neighbors, killed them all. He has done this for years here and also at the neighbors, all around.

June 4th. Mr. and Mrs. Dr. Ross, florist and nursery proprietors from Milbank, stopped in for a short time to inspect the gardens and said all things in the line of horticulture were looking the best in years, in Milbank.

A full page account of "40 years orcharding in the Black Hills" by John Robertson in the St. Paul Farmer, is very interesting reading. There is also a good picture of the 35 acre orchard and a good one of the founder and proprietor.

About 270,000 acres of water melons are being planted, while in 1936, there were but 256,000 acres grown, all the melon growing states have increased their plantings to raise this 14,000 acres

over last year. Two states have even estimated the number of melons that will be produced, Florida 4,875,000, and the Imperial Valley, 4,500,000. The acreage in the leading producing states is: Imperial Valley 7,500, the rest of California 10,400, Florida and Georgia 64,000, North Carolina 11,600, South Carolina 21,000, Texas 52,000, Iowa and South Dakota must grow several thousand acres, also. On June 1st, 105 car loads of cantaloups were shipped out of the Imperial Valley.

June 15th. Today, while replanting a badly cutworm infested field to cabbage and tomatoes, I found that the cutworms feed on cabbage and cut no tomatoes. I also found that there were 3 to 12 and more worms to each cabbage plant and as it was easy to see where they burrowed in, after last night's rain, I found most of them within 5 inches of the plant, though a few were a foot away.

June 13th. Today I plowed under a weedy acre of rye about 10 inches deep and this afternoon, while setting plants, there were several spots where there were plenty of tiny grasshoppers, and these must have come out of the ground since it was plowed. There are plenty along the fence and roadways too; I still think the proper way to poison them is to dust or spray poison on the green vegetation, rather than put poison saw dust out on the bare ground.

There should be a delegation of the S. D. Horticultural Society meet with the N. D. Society at their annual meeting, probably at Grand Forks, in late August or early September, as it is a worthwhile trip and all that can, should attend this meeting.

June 20th. We have just returned from the most successful summer meeting in the history of the Society; many can get out to the summer gathering that cannot get out to the late fall meeting. The Flower Shows and Yard and Garden contests add interest to these summer meetings.

P.S.—Tom acquitted of murder, in this case, at least. Today I found 6 kittens on the sunny side of the porch, where the mother hid them away and saved her family from the murderer. But now, what will we do with this big cat crop increase? We may have to put the problem up to the tripple A.

Chinese proverb: If you wish to be happy for an hour, get intoxicated. If you wish to be happy for three days, get married. If you wish to be happy for 8 days, kill your pig and eat it. But if you wish to be happy forever, become a gardener.—The Earthworm.



RESULTS OF A TEST WINTER IN ZONE 3



Al L. Truax

Zone Three of North Dakota, as established by the State Horticultural Society, comprises the western third of the state where the annual rainfall averages about fourteen inches, as compared to sixteen to eighteen inches for the central section of the state, and eighteen to twenty inches and over for the eastern section. Zone Three is also subject to more severe and sudden fluctuations of temperature than either of the other zones, tho the average yearly temperature is about ten degrees warmer than that of the Red River Valley. The comparatively scanty rainfall together with extremes of heat and cold make for difficult plant life conditions, and it may be safely said that what will grow in Zone Three may be grown anywhere in the two Dakotas. Crosby is situated in the extreme northern part of Zone Three, six miles from the Saskatchewan line.

The winter of 1935-6 was unparalleled in the annals of the Weather Bureau for long continued severity of cold. At Crosby the lowest official temperature was 47 below, but for weeks at a time the thermometer never rose to the zero mark. To make matters worse not a drop of rain had fallen from late July of 1935 to the time when winter struck in late October, so that there was not a particle of either subsoil or surface moisture in the ground and plant life went into an unprecedented winter under the worst possible conditions. Fortunately there was quite a heavy snowfall which remained on the ground until spring, and to this and to the usual covering of 4 to 6 inches of dry straw which I gave them, I attribute the remarkably small losses among perennial herbaceous plants in my garden. Of 76 varieties only two failed to come through in excellent condition, and I am quite sure that those two failures were due to other causes than freezing to death. The 74 varieties that came safely through the test winter were as follows:

Potanical Name	Common Name
<i>Aconitum napellus</i>	Monkshood.
<i>Aconitum napellus bicolor</i> ..	Variegated Monkshood
<i>Odonis vernalis</i>	Spring Adonis
<i>Aquilegia vulgaris</i> and hybrids	Columbine
<i>Althea rosea</i>	Hollyhock
<i>Aster alpinus</i>	Alpine Aster
<i>Aster Amellus</i>	Italian Starwort; Michaelmas Daisy
<i>Aster novae belgii</i>	New York Aster
<i>Aster novae anglae</i>	New England Aster; Frost Flower

<i>Aster</i> , various native kinds ..	Prairie Aster
<i>Baptisia australis</i>	Blue Baptisia
<i>Calochortus nuttallii</i>	Mariposa Tulip; Sego Lily
<i>Campanula carpatica</i>	Carpathian Bellflower
<i>Campanula persicifolia</i>	Peach-leaved Bellflower
<i>Campanula rotundifolia</i>	Scotch Bluebell; Harebell
<i>Centaurea dealbata</i>	Mealy Centaury
<i>Clematis recta</i>	Bush Clematis
<i>Clematis virginiana</i>	Wild Clematis
<i>Convallaria majalis</i>	Lily of the Valley
<i>Delphinium chinensis</i>	Chinese Larkspur
<i>Delphinium hybridum</i>	English Larkspur
<i>Dianthus barbatus</i>	Sweet William
<i>Dianthus caesius</i>	Cliff Pink; Cheddar Pink
<i>Dianthus caryophyllus</i> , var. ..	Hardy Garden Carnation
<i>Dianthus plumarius</i>	Scotch Pink; Grass Pink; Pheasant-Eye
<i>Dicentra exima</i>	Plumy Bleeding Heart
<i>Dictamnus fraxinella</i>	Dittany; Fraxinella; Gas Plant
<i>Dodecatheon meadii</i>	Shooting Star
<i>Gypsophila paniculata</i>	Baby's Breath
<i>Helianthus orgyalis</i>	Willow-leaved Sunflower
<i>Hemerocallis kwanso</i>	Orange Lily
<i>Hemerocallis lutea</i>	Lemon Lily
<i>Hepatica acutiloba</i>	Hepatica
<i>Hepatica triloba</i>	Liverwort
<i>Hesperis matronalis</i>	Sweet Rocket; Dame's Violet.
<i>Iris</i> , various dwarf hybrids ..	Dwarf Iris
<i>Iris germanica</i> and hybrids ..	German Iris; Flagflower; Fleur-de-lis
<i>Iris Spuria</i>	
<i>Lilium croceum</i>	Lily
<i>Lilium elegans</i>	Lily
<i>Lilium hansonii</i>	Hanson's Lily
<i>Lilium henryi</i>	Yellow Speciosum Lily
<i>Lilium tenuifolium</i>	Coral Lily
<i>Lilium tigrinum</i>	Tiger Lily
<i>Lilium umbellatum</i>	Candlestick Lily
<i>Lupinus polyphyllus</i>	Lupine
<i>Lythrum roseum</i>	Rosy Loosestrife
<i>Malva moschata</i>	Musky Mallow
<i>Myosotis palustris</i> semperflorens	Forget-me-not
<i>Oenothera caespitosa</i>	Tufted Evening Primrose
<i>Papaver nudicaule</i>	Iceland Poppy
<i>Papaver orientale</i>	Oriental Poppy
<i>Pentstemon glaber</i>	Glossy Beardtongue
<i>Pentstemon grandiflorum</i> ..	Great Beardtongue
<i>Pentstemon Brandegeei</i>	Alpine Beardtongue
<i>Pentstemon Crandalli</i>	Creeping Beardtongue
<i>Paeonia officinalis</i>	Old Fashioned "Piney"
<i>Paeonia albiflora</i> & hybrids ..	Peony
<i>Phlox alyssifolia</i>	Kelsey's Phlox
<i>Phlox andicola</i>	Mountain Phlox
<i>Phlox decussata</i> & hybrids ..	Perennial Phlox
<i>Phlox subulata</i>	Creeping Phlox
<i>Platycodon grandiflorum</i> ..	Chinese Bellflower
<i>Polemonium coeruleum</i>	Jacob's Ladder

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SECRETARY'S CORNER

W. A. Simmons

At a recent meeting of the local garden club the lecture "Aphis and the Damage They Do", illustrated with 50 colored slides, was given, to the enjoyment of all present. Any garden club desiring to secure an interesting feature for one of their meetings can secure this free of cost by writing McLaughlin, Gormley King Co., Minneapolis, Minn.

Have we any flower as suitable for our climate as the Iris? They appreciate plenty of water during their blooming season, but actually seem to enjoy the heat and drought that often comes to us later in the summer. It would seem they were made to order for our conditions. They are exceedingly modest in their demands for care and fertilizer, the main requirement being protection from other bold and pushing plants that dearly love to horn in on their clumps. One should grant them the exclusive use of the small portion of garden space they occupy and treat anything else that comes up as a weed and relentlessly remove it. The new catalogs are now coming in, containing lovely colored pictures of the newest introductions that are priced from \$10 to \$25 for a single small division which one is often tempted to believe, was cut with a safety razor. These make a splendid investment for any one that has more money than sense. True they increase very fast, but by the time one has a stock of them worked up, some firm will be selling them, in large divisions for a dime. It is not necessary to pay those high prices in order to have a fine collection of beautiful Iris. Here is a list of wonderful Iris, as lovely and desirable as they were when new and scarce and priced at \$25, and they can all be bought for a dime each: Aphrodite, Buto, Dolly Madison, Euphony, Lord of June, Gold Imperial, Midgard, Morning Splendor, Omaha, Robert W. Wallace, Souv. de Madam Gaudichau, Taj Mahal, Ambassador, Asia, and the list could be extended almost indefinitely without naming a single one that is not an Iris of distinction. On the other hand, most of us have poor sorts that we could well afford to remove and replace with those of the class named above. It is interesting to add a few new sorts each year, particularly when it can be done for so small an investment.

A writer in CANADIAN HORTICULTURE and HOME, after enumerating the various things that have been recommended to lengthen the life of cut flowers, such as aspirin, soda, table salt and glucose, none of which were effective for the purpose and some of them definitely harmful, says: "The depth of water in the vase seems to have a definite influence on the longevity of cut flowers, shallow water adding two to four days to the useful period of most subjects. Just why shallow water has that advantage over deep water when

the rate of absorption seems to be the determining factor is not apparent, yet it is well to remember that experiments have shown it to be true."

An appreciated break for the gardener, locally at least, is the failure of the American Elm to set seed, this year. Next year we may have the usual number of Boxelder and Ash seedlings to weed out of our gardens and lawns, but the absence of American Elm seedlings, should greatly lighten our work.

How childish and puny our spraying operations appear, when we read of growers in Washington state applying 6 or 7 sprays and at each spraying, using from 50 to 75 gallons of spray per tree. When we get down to business and apply the amount of spray they do, no doubt we will be able to control the codling moth too. Most of us apply so little spray that but for the psychological effect, in easing our consciences, we might as well have done no spraying at all.

From the cover page picture, we can foresee that the time is fast approaching when Dr. Yeager will have to use very soothing and diplomatic language, around the home. If Albert, Jr., does not represent a promising heavy weight in the making, then this editor does not know his "cauliflower."

At our summer meeting, the fact was brought out in Dr. Hansen's talk that many years ago, he collected from the wild and brought back for careful planting, about a half teaspoonful of what has since become known as Cossack alfalfa. From this small amount of seed, carefully husbanded and multiplied, millions of acres are now grown. This winter the Soviet government sent agents to this country and bought up all the seed on the market, for use on their collective farms. This might be called a case of the stone, overlooked by the builder, becoming the keystone of the arch. Prof. Davis brought down a vase of very double, almost entirely thornless, fragrant June blooming pink roses. It is one of Dr. Hansen's new ones, as yet unnamed, but entirely hardy and deserving of a good name and rapid dissemination.

The Red Lake currant, introduced in 1933 by the University of Minnesota Fruit breeding farm, is the first worthwhile red currant variety to be offered to fruit growers since the introduction of Diploma in 1906. It has been well tested in many northern states and is well worthy of trial for market as well as home use. The large berries are borne on long, well-filled long-stemmed clusters that are easily picked. The color is a clear light red and the quality excellent. The bush is vigorous, upright, and productive. In fruit characters Red Lake is as good or better than Perfection; in plant characters Red Lake is much superior.—Farm Research.



BEEKEEPERS NEWS NOTES



J. A. Munro

Hear ye! Hear ye! The annual summer meeting of the North Dakota Beekeepers' Association will be held July 28 (Wednesday) at Memorial Park, Grafton, North Dakota. In case it rains provision will be made for holding the meeting indoors. The Grafton Civic Club has promised free coffee, cream, and sugar, and it is suggested that everyone attending bring lunch for the noonday picnic luncheon.

This should be a well attended meeting. Good roads lead to Grafton, and it is located fairly central to a large number of beekeepers. Come and meet your fellow beekeepers and hear a program that you cannot afford to miss.

Already three out-of-state speakers have been secured for the program, including Editors H. C. Dadant, of the American Bee Journal, Hamilton, Illinois, and M. J. Deyell, of Gleanings in Bee Culture, Medina, Ohio, and Professor L. T. Floyd, provincial apiarist, Winnipeg, Manitoba. They will discuss various topics on beekeeping dealing with seasonal management problems and "a search for disease-resistant bees." Other subjects suggested for discussion include "uses for honey in cookery" and "short cuts in apiary work." We will try and get speakers for these assignments. The program will be ready for mailing well in advance of the meeting, so write in for one in the event that we do not have your name on our mailing list. Address your requests to J. A. Munro, North Dakota Agricultural College, Fargo, North Dakota, and a program will be mailed to you.

A member writes in regard to the advisability of dividing strong colonies during early May and giving each new colony a queen, with the object of increasing the number of colonies. We suggested that better results might be had by making the divisions a little later in the season because then the colonies should have an abundance of brood and bees. Dividing them would tend to discourage swarming and provide for the necessary increase.

Not long ago one of our members made inquiry about the possibility of securing a combination offer of "Gleanings in Bee Culture" and the book "Starting Right with Bees", through membership in the North Dakota Beekeepers' Association. We made inquiry about the matter and received the following reply from the A. I. Root Company: "We will gladly make that offer of the book, Starting Right with Bees, and a six months' subscription to Gleanings in Bee Culture for only seventy-five cents, to the members of your associ-

ation.... We hope that a great many will take advantage of the offer." "Starting Right with Bees" is an excellent book, especially for the beginner. It contains more than 100 pages of practical advice on the care and management of bees. This combination offer of the book and magazine is too good to overlook. Send your order through J. A. Munro, Secretary-treasurer, North Dakota Beekeepers' Association, State College Station, Fargo, North Dakota. If you are not a member of the Association you should accompany it with the \$1 membership dues.

Recently a little booklet entitled "Coaching Service" came to us in the mail. It is an interesting discussion on bee management with special reference to the use of the modified Dadant hive with shallow supers for honey storage. It is free upon request to Dadant and Sons, Hamilton, Ill.

This season it seemed an unusually large number of package bees arrived from the southern states and the Pacific Coast. This would indicate that beekeepers are expanding their holdings. Quite a large number of packages were hauled by auto trailer. Others were transported by railway express and parcel post. In general, those that came by the latter two methods arrived in better condition.

Considerable trouble has been experienced by a few beekeepers this spring because of "drifting" occurring amongst recently-established package bee colonies. Drifting results in some hives being unduly strengthened at the expense of others. Establishing the package colonies on a cool, cloudy day, or during late afternoon, is suggested as a measure to prevent drifting. This will permit each colony to get acquainted to its hive before much flight occurs. The same advice applies to the moving out of cellar-wintered colonies. They should never be taken out early on a clear warm day because flying will occur before the bees have a chance to mark their locations, and drifting results.

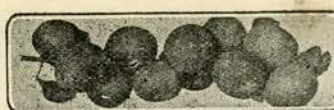
When some men discharge an obligation you can hear the report for miles around. — Mark Twain.

N. O. MONSERUD

Landscape Architect Tree Surgeon

Office—First National Bank Building
SIOUX FALLS, S. DAK.

PHONE 555



PLANT HUNTING AND PLANT BREEDING

Paper given by F. L. Skinner, Dropmore, at the Convention of the Manitoba Horticultural Association, February 10th, 1937.

This year, I believe, marks the 50th anniversary of the founding of the Canadian Experimental Farm System, and during the intervening period since its inception a great deal of plant material has been tested by its institutions and, where found suitable to our climatic conditions, has been placed in general cultivation. Now we have got to the stage where, having exhausted the materials available through the ordinary commercial channels, we will have to hunt harder geographical forms of species that have already been tested and found wanting, and produce new varieties more suited to our climate by plant breeding methods if we want to enlarge the variety of useful and ornamental plants that can be grown here.

In plant breeding it is essential that one of the parents should have the virtue of extreme hardiness, otherwise there can be little hope of the offspring being sufficiently hardy to endure our severe winters. It will therefore be necessary to glance at the map to see where climatic conditions are such that we may expect to find worthwhile hardy materials.

EUROPE: In looking over the map of Europe, it will be seen that most of Western Europe is influenced by the Gulf Stream. This affects the climate of northern Russia to a great extent also. In the Scandinavian peninsula Norway has an extremely mild and moist climate for its latitude and only northern Sweden and parts of Finland have a climate comparable with that of western Canada. It is to this part of Europe (Northern Sweden and Finland) that we owe our thanks for the hardest strain of European Scots Pine, a strain that has stood up to our past two extreme winters quite uninjured, while west European forms suffered badly.

European Russia it will be seen lies very low. With the exception of the Caucasus and Ural Mountains, practically all of Russia lies at an elevation of less than 1500 feet, some of it being even lower than sea level. This low elevation, combined with greater humidity, is I believe, the reason that much of the horticultural material so far tested, coming from Russia, has proved of comparatively little value in western Canada. Much of Europe that is not influenced by the Gulf Stream has its climatic conditions governed by the Mediterranean Sea and with the exception of some of the higher mountains of northeast France and northern Switzerland, from which we have received the European larch and Swiss stone pine, we need expect little from the countries of Europe bordering on the western Mediterranean. As

we move east towards the Balkans we come into more promising territory. Here a high range of mountains paralleling the Adriatic Sea together with other ranges running east and west cut off some of the Mediterranean influence, and some of the higher elevations to the north of these mountain barriers and the higher slopes of the Carpathian mountains a little further north have quite severe winter conditions. Until recent years very little was known of either the climate or flora of these regions. In fact, Turrill in his "Plant Life of the Balkan Peninsula" published in 1929, says of the district known as the Sanjack of Novi Pazar that little is known of its flora and travellers say its winters are very severe.

ASIA: Jujubes, Apricots, Pears, Plums and Walnuts. As we move eastward across Asia we find between Lake Baikal and the Pacific a stretch of country with a flora decidedly different to that of Central Siberia and with many plants likely to be of value to the plant breeders and others in Canada. Just recently I have heard of Chinese Jujubes having been found wild in the northern Gobi, and Mitchurin in his book called "Sixty Years of Labour" tells of varieties of apricots he grew from seed collected in Mongolia, in Nerchinsk, Blagoveschensk, and at various other points in eastern Manchuria. He also writes of the hardiness of *Prunus triflora koreana* and other fruits from northern Korea.

Nakai, a Japanese botanist, published a flora of Korea, "Flora Koreana" in 1910-1911, and in this work he lists over 100 species of trees and shrubs from the Province of Ham-gyang in northern Korea, and of this number 40 species from Korean or Manchurian sources are being tested at Dropmore and give promise of being hardy. Nakai's "Flora" was the work written in English concerning northern Asia and is already out of date, as I have growing at Dropmore Korean plants not mentioned in that work.

In the stretch of country between Harbin and Vladivostok are pears and walnuts in many forms, also *Actinidia* (a fruit bearing vine), many maples, and other trees and shrubs likely to be of ornamental or economical value to us. Seeds of most of these species can be secured through the ordinary commercial channels at the present time, but they are usually collected at points a long way from their northern limits and are not sufficiently hardy for our climate.

If, therefore, we are to undertake any worthwhile plant breeding policy in Canada, it would seem the part of wisdom to first secure as complete a collection of these hardy plant forms as possible.

So far I have said nothing regarding hardy geographical forms of some of our worthwhile American trees and shrubs, though there seems to be great possibilities for plant exploration work here also.

OUR COVER PAGE

Harry A. Graves

With a ceremony complete to christening with a flask of Red River water, North Dakota Number 5 apple tree became officially the variety "RED RIVER" when members of Hortus, students in Horticulture and Forestry, met at a special dedicatory meeting on the horticultural grounds of the North Dakota Agricultural Experiment Station, May 27, 1937.

The christening proper was performed by Albert Yeager, Jr., son of Dr. A. F. Yeager, Chairman of the Department of Horticulture and Forestry at the North Dakota Agricultural College.

Dr. Yeager raised this new seedling from the cross Dolgo x Delicious, made in 1923. Delicious pollen used in the cross was sent to Dr. Yeager by his Father, Charles Yeager, of Bazaar, Kansas.

Cooking tests made by Miss Dorothy Berrigan of the Home Economics Research Laboratory of the North Dakota Agricultural College revealed that fruit of the "RED RIVER" produces sauce and jelly of high quality.

Trees of this variety should be available in 1938.

great show places of the privileged, but such has always been the love of the English people for flowers, that everyone, to the poorest in the kingdom, cultivate a flower patch. The love for flowers as shown in the literature of that period is reflected in the simple names given to flowers, for they are names which came out of the hearts of the people. Bittersweet, Balm, Love lies bleeding, Hen and Chickens, Bleeding Heart, Thrift, Rue, etc., are all names handed down to us as our heritage. Charming parts of the book are the jacket and end papers, which show Shakespeare in a cocky garden hat, with roots and spade in hand, attending his daughter Susannah, who appears to be preparing a flower bed.

If you wish a few roses that are hardy enough to stand winters without covering, and foliage that is seldom attacked by insects or disease, try some of the hybrid rugosa roses. They are the hardiest roses in cultivation. They are valuable for their resistance to disease, blight, etc., and their ability to thrive under all sorts of adverse conditions.—Minneapolis Journal.

BOOK REVIEW: SHAKESPEARE GARDENS

Reviewed by Mrs. Frank Briley

A most charming book, Shakespeare Gardens, has just been published by Dorrance & Co. Inc., Philadelphia, Pa., price \$1.25, from the pen of Annie Burnham Carter. As the author says in the introductory, the book is written to serve two purposes; it brings together the flowers grown in England in the Elizabethan period and shows the fashion in horticulture of that period.

In the 16th and 17th centuries there was great enthusiasm for flowers and new ideas in the art of horticulture were brought to England by travellers from the Mediterranean countries. With all honor to our present art of floraculture and appreciating the next to miraculous specimens of flowers, created through hybridization, it is refreshing to read of such a garden as is described in this book. Here we find no flower heads so enlarged that the slender stems cannot support them, nor colors juggled in a hodge-podge for the sake of novelty. But we find the quality of sweet scent, the herb beds, where we remember that all plants in the past ages were esteemed for their medicinal value; the bulbs spoken of in "Winter's Tale" when Perdita sends the clown to buy saffron to color the warden's pies. The book vividly pictures a paradise to those who love the old-time plants and herbs and their associations, where poetry is illustrated with living flowers and where visitors may read Shakespeare in every flower and herb as they walk along the covert walks. In the Elizabethan period the royal estates were the

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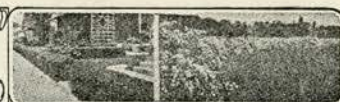
Founded at Bismarck, in Dakota Territory,
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RESULTS OF A TEST WINTER IN ZONE 3

(Cont. from page 77)

Polemonium reptans	-----	Greek Valerian
Sanguinaria canadensis	-----	Bloodroot
Sedum stoloniferum	-----	Stonecrop
Spirea aruncus	-----	Astilbe
Sprekelia formosissima	-----	Jacobean Lily
Trillium grandiflorum	-----	Wake Robin
Trollius europeus	-----	Globeflower
Tulipa var	-----	Tulip, (Darwin, single early, double).
Viola, various native varieties	-----	Wild violet
Viola tricolor	-----	Heartsease; Johnny-jump-up

Those that failed to come through were the Regal Lily (*Lilium regale*), and the Woods Phlox (*Phlox divaricata*). Upon digging down to my Regal Lily bulbs about May 1, I found them rotting. I attribute this, however, to imperfect drainage rather than to severe freezing. Even in California where I saw this Lily growing 5 to 6 feet high with as many as 20 blossoms to the stalk, they told me that it had to have perfect drainage to succeed even there. There is still some conflict of opinion as to the hardiness of this Lily under North Dakota conditions. Mrs. E. J. Taylor of Bismarck has had fine success with it planted five inches deep on a cushion of sand along the south side of her house where a projection shuts off the western sun. She gives them an occasional dose of weak vinegar water as recommended by the late Mrs. Heath, and also feeds them a little bone meal occasionally. They came through the winter of 1935-6 with no other covering than what snow drifted over them. Mr. W. H. Shure of Fargo, who grows 200 or more Regals annually with fine success says he takes up his bulbs in the fall the same as his Gladioli, and replants them in the spring. As for myself, I think that, like most other Lilies, *L. regale* likes an acid soil and does not take kindly to the heavy, rather alkaline soils of our Dakota prairies. The soil should be mixed with sand to a depth of 18 inches to produce proper drainage conditions, and treated with sulphate of aluminum to neutralize the lime or alkali. Fortunately the bulbs of this beautiful lily are now abundant and cheap, so that we in North Dakota can afford to experiment further with it.

The loss of *Phlox divaricata* I attribute to the extreme drouth last fall. Like other woodland plants such as *Hepaticas*, *Trilliums* and *Bloodroots*, it naturally likes native conditions, such as partial shade, moist soil, and the acidity produced by decaying vegetation. Failing these conditions none of these woodland plants will stay with us long on our North Dakota prairies.

The splendid booklet "Perennial Plants for North Dakota Homes" prepared by Professor

Yeager and the late Mrs. Heath, lists 377 varieties and species of perennials, and they have selected 61 varieties as the most hardy, useful and easy of culture. Here are not only 61, but 74 varieties surviving a test winter in the most northerly part of Zone 3. Surely this should be an encouragement toward further experimentation with the 377 varieties of perennials listed in the booklet.

With flowering shrubs the report is not so encouraging. Even the old fashioned Lilacs froze back to the snow line and presented a sorry appearance in the spring. They will come back of course if the dead wood is cut out, but there is the loss of one, maybe two, years of bloom. On the other hand every one of my French Hybrid Lilacs came through without a particle of injury, thus indicating their superiority over the old fashioned kinds, not only in variety and beauty of blooms, and the absence of the suckering which makes the older kinds such a nuisance, but in hardiness as well. More of these beautiful French Hybrid Lilacs should be planted in North Dakota.

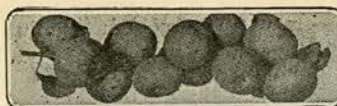
Both the Tartarian Honeysuckle and the Missouri Flowering Currant, though 10 or 12 feet of their growth was above the snow line, came through the 47 below without a particle of injury, thus proving the ironclad hardiness of these two flowering shrubs with their fragrant blossoms. Another ironclad was the beautiful Double Flowering Plum (*Prunus triloba*), which was not only uninjured but blossomed with unusual beauty this spring. This one tree has stood on my grounds for eighteen years, and I heartily recommend it.

Spireas *Van Houttei* and *Arguta* both froze back to the snow line but blossomed well with a little cutting out of dead wood. The same was true of the Mock Oranges, or *Philadelphus*, of which I have three varieties.

The Roses I have fared rather poorly. Even the Scotch Rose (*Rosa spinosissima*), and the old Hanso *Rugosa*, both of which have seemed ironclads heretofore, froze back to the snow line. Neither failed to blossom however after the dead wood was removed. The white *Rugosa* Sir Thomas Lipton, froze back to the ground, but is now (July 8) in full bloom after the removal of the dead canes in spring. An old fashioned June Rose, which I take to be the Damask Rose (*Rosa damascena*), also bloomed well, and another old one, which I take to be the Cinnamon Rose, survived the test winter. The indications are that the Hybrid *Rugosas* have the greatest value under North Dakota conditions, as they will bloom on the new wood even if frozen back to the ground, if the dead wood is removed.

My Buckthorn hedge was quite badly injured where crowded by near by shrubs and trees. This I attribute to its having to fight for moisture during last fall's drouth, rather than to the severe

(Cont. on page 83)



RESULTS OF A TEST WINTER IN ZONE 3

(Cont. from page 82)

freezing. Caragana hedges in the same situations did not suffer, indicating that here is a true ironclad. Nevertheless I still favor Buckthorn as a hedging plant. Even when injured it comes on again, and its glossy foliage and trim appearance persists throughout the summer whereas Caragana grows unsightly and shabby after a few weeks in spring. Russian Olive was uninjured, but I think of it as better for a small tree or windbreak than for a hedging plant.

The severe winter following the fall drouth finished most of the Box Elders, Cottonwoods, Northwest Poplars, Canadian Poplars, and Willows except where they were able to get their roots down to moisture, as in a draw or over a water vein. The White Elm and Green Ash, where they were properly planted in the first place and kept free from weeds and grass, are for the most part, still surviving, and apparently are the deciduous trees that are most to be depended upon in this region.

Amongst Evergreens the White Spruce, Red Spruce, Norway Pine and Scotch Pine are about all gone. The Ponderosa or Bull Pine came thru with a lot of dead needles but is coming out green again and will recover. Blue or Colorado Spruce, where well established, came through with no injury, and it appears that this and the Bull Pine are the only reliable evergreens for this region.

If I were planting a grove again I would put a couple of rows of Chokecherries on the extreme west. This seems to be an ironclad that will grow anywhere. Then inside of this I would put a couple of rows of Caragana, then a couple of rows of Russian Olive, thus completing the windbreak and snow trap. Then inside of this the main planting of Green Ash and White Elm, and, inside of all, Ponderosa Pine and Colorado Spruce for evergreens. The soil should be worked up for at least two years before planting, and then after planting the grove must be kept cultivated and clean. Trees will not grow in this region if they have to fight with weeds and grass for moisture.

TINY BEGINNINGS OF GIANT TREES

The world's mightiest, most majestic trees, the giant sequoias of the California hills, have never had their story fully told. A new chapter was read before the meeting of the National Academy of Sciences at the University of Chicago, by Prof. John T. Buchholz, of the University of Illinois. Prof. Buchholz told the story of the big tree cones. Sequoia cones, though shapely and sightly enough, are not proportionate in size to their huge parents. Many smaller evergreens bear much larger fruits. But they do emulate the trees that bear them to a certain extent at least,

in their longevity. Sequoia cones cling to their trees for many years. It takes 3 years for them to come to ripeness, Prof. Buchholz said. In their first season, they form at the tips of branches. They pass the first winter within a bud, and in April receive the pollen, but actual fertilization does not take place then. During the summer of the second year, the cones become much larger, becoming full grown, hard and woody in August. Actual fertilization occurs during August, but the embryo plants within the seeds are still far from development when another winter comes. They reach complete growth only in the following season, the third from the tiny beginning of the cone on the branch tip. From the tiny embryo plant within the sequoia seed to its final development as the giant of the vegetable kingdom, there is an almost incalculable amount of growth. Prof. Buchholz has measured the minute bulk of the smallest sequoia embryo he could find, and compared it with the estimated cubical contents of the General Sherman, commonly considered to be the biggest of the Big Trees. The difference is of the order of 82 times 10 to the 15th power, or 82,000,000,000,000,000. Prof. Buchholz put it graphically: "The mature specimen of sequoia gigantea is as much larger than its embryo as the earth is larger than the dome of the Adler Planetarium."

—Science News Letter.

THE SHRIKES

(Cont. from page 74)

more birds but examination of a number of stomachs of this species showed 25 percent mice, 25 percent grasshoppers, and 12.5 percent beetles and caterpillars. There are records of their killing birds as large as a hairy woodpecker and mourning dove.

Dr. A. H. Miller of California, who recently made a special study of the shrikes, concluded that they would take about any kind of animals which were easily obtained and of reasonably suitable size. The habit of impaling their prey upon thorns is explained by the fact that the birds have weak feet, not stout ones like the hawks. The bird banders have trouble with them because the shrikes will enter the traps and kill birds which have been caught. I have had this experience several times. Some individuals return to the traps but others do not after having been caught. I have had a pair nesting near the traps and apparently not disturbing them. On one occasion I banded a white throated sparrow which was immediately siezed by a shrike. It may be realized that the flight of the sparrow as released would suggest an injured bird. Such make up a very considerable part of the food of predaceous animals and many biologists consider that removal of these subnormal individuals is desirable.



BIG TREES FIND AGE RIVAL

IN SIERRA MOUNTAIN JUNIPER

California's famous Big Trees, commonly rated as the oldest and largest living things, now have a rival, for age at least, in another California tree, a gnarled old juniper that grows near Hillsborough, Calif., in the high Sierras of Tuolumne County.

This veteran tree has been studied by Dr. Waldo S. Glock of the Carnegie institution of Washington, who was guided to it by Clarence K. Bennett of Hillsborough. Dr. Glock took several samples of its wood with a core-cutting borer, and carefully counted the annual rings. He figures a conservative age for the tree at 3000 years. This compares closely with the greatest age known for a big tree, 3250 years.

The Bennett juniper grows in a wind-swept place at an elevation of about 8500 feet. The combination of exposure and the natural slow rate of growth of junipers has kept it from attaining anything near the size of the big trees. It is only about 80 feet high, but its trunk measurements are impressive: 21 feet 6 inches at the ground, with an average diameter of 14 feet 2 inches five feet from the ground.

The slowness of its growth shows up strikingly in Dr. Glock's borer cores. During the past 700 years the tree has added only two feet to its diameter.

—Science News Letter.

EGG PLANT FRITTERS

Margaret Mary Wallner

Pare and cut egg plant in small pieces.

Soak in cold salt water one hour, then drain. Cover with boiling water and boil 20 minutes, then drain water. Mash egg plant coarse and let it stand to cool. To one pint of egg plant pulp add one egg, a half pint of flour, with one teaspoon of baking powder and one teaspoon of salt and beat well. Drop by tablespoonful into hot lard.

When brown, turn over; when brown on other side take out of lard and serve at once.

Escaloped Egg Plant

Line baking dish with bacon, put the same mixture as above, in baking dish. Cover with bacon, put in hot oven for 30 minutes. Serve at once.

Two government plant explorers have brot back from the Tigris and Euphrates Valley about 3500 samples of seed and bulbs to be tested for American use. —Science News Letter.

BIRD HABITS

F. W. George

In the short time allotted to this subject I shall be obliged to omit from the discussion of bird habits practically everything except as applying to the economic value of birds as they, so to speak, touch elbows with agricultural and horticultural activities.

First speaking in a general way—we are authoratively told that there are approximately 13,000 recognized species of birds in the world, only about 800 of which are to be found in the United States. Somewhat less than half of this number, probably about 350, visit the Dakotas, either as transient or permanent residents or as migrating birds which simply pass through the State each spring and autumn on their annual migrations between their winter homes in the South and their nesting grounds in the North, stopping with us generally for from one to only a few days at most to feed, unless sudden changes in weather conditions interfere with the prompt continuance of their jounies, in which case they may remain with us for longer periods.

It is to be understood that by this number (about 350) is meant the number visiting the state taken as a whole, rather than any particular locality in the state. Probably about 150 species are permanent and summer residents here in the northern part of the state and probably this would apply also to at least the southern portion of North Dakota.

The topography of our state being of such diversified features, with the eastern outcrop of the Rocky Mountains, our beautiful Black Hills, on the west, the state crossed by one of our largest rivers, and with its plains sections, tree bordered lakes and stream, renders it very alluring to bird life. There is probably no state in the union more prolific of bird life than South Dakota.

At our Aberdeen Banding Station we have captured 108 species and sub-species, and during the past three years somewhat over 10,000 birds have been banded. This number has been greatly exceeded by the banding work of a neighbor a few miles "down the road," so to speak, Dr. Brenckle of Northville, who, during the past six years, has captured and banded nearly 25,000.

Stated by another, —The economic value of birds lies in the service they render in preventing the undue increase of isects, harmful to vegetation, in devouring the smaller rodents, in destroying the seeds of harmful plants, and acting as scavengers.—

(Continued next month.)