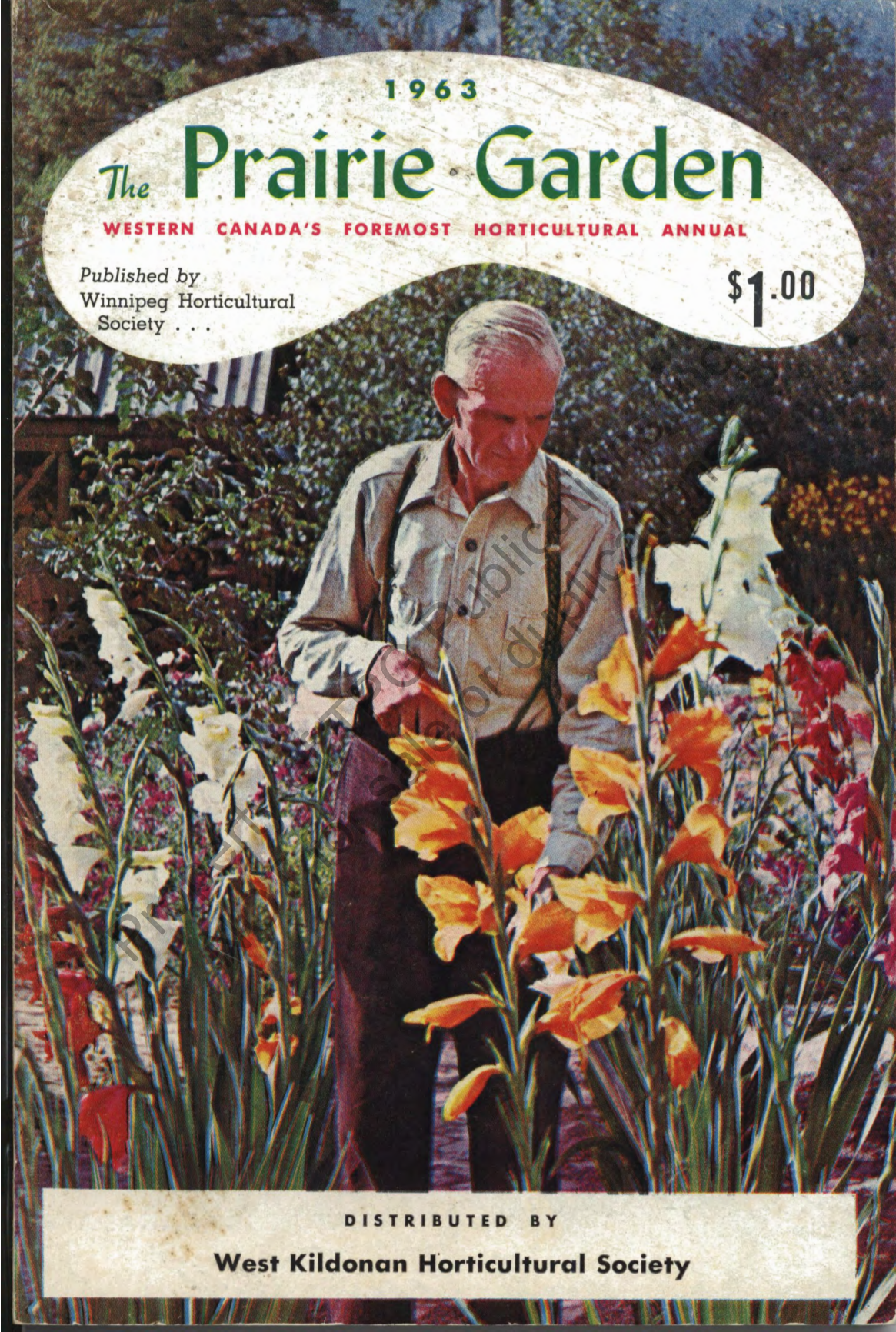
1963
The Prairie Garden
WESTERN CANADA'S FOREMOST HORTICULTURAL ANNUAL
Published by
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Society . . .
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West Kildonan Horticultural Society

The Prairie Garden Takes a Bow

Garden authorities all over the West in the press and magazines, on radio and television, have enthusiastically recommended THE PRAIRIE GARDEN to their readers, while many of our old friends have written us directly, expressing their appreciation of our efforts.

This is all most gratifying and encouraging for The Prairie Garden Committee, and for the many gardeners, both professional and amateur, who contribute to our publication, without recompense, but with the fervent desire to make readily available to our ever-increasing number of readers, practical down-to-earth gardening information related directly to our Northern Great Plains area.

WHAT DO THEY SAY!

M. V. CHESTNUT, F.R.H.S., Garden Columnist—Newspaper, Radio, TV—

A terrific book for beginners. I don't suppose a single week in the whole year goes by without at least five or six letters arriving on my desk asking me to recommend a good book on gardening. Most of these letters are from novices, looking for some simple textbook that will tell them what to do and when to do it.

Unfortunately, none of the how-to-do-it textbooks have been written with the Canadian prairies especially in mind, and it is rather annoying to read about sowing lawn seed and picking daffodils in March while a typical March blizzard howls through our gardens.

About the nearest thing we have to a garden textbook for western Canada is THE PRAIRIE GARDEN, the yearbook published by the Winnipeg Horticultural Society.

Mind you, THE PRAIRIE GARDEN isn't exactly a reference textbook, but is put together more in the manner of a magazine, filled with interesting and practical articles all written by folks who do their gardening right here in the three prairie provinces.

W. R. LESLIE, LL.D., Garden Columnist, Landscape Consultant—

There is an oft-repeated question that comes to this column and which up to now has given us a feeling of regretted inadequacy. It is "Give the name of a satisfactory book for general guidance on the subject of home gardening on the Canadian prairies." The gloomy fact is that there has not been such a volume which is specifically trained on prairie conditions while giving coverage on soils, climate, fruits, vegetables, trees, shrubs, vines, flowers, and design.

My shelves carry many scores of horticultural books. None are comprehensive while tailored for the prairie scene. Some are expensive—one book costing $42.50. Each volume carries some useful substance but most of the material written is from the viewpoint of areas marked by shorter winters and by wetter summer months. The reader must be discerning and modify the recommendations to conform with our virile weather and richly fertile soils. However, we now have THE PRAIRIE GARDEN and it is such a rich storehouse of information that every gardener should have a copy.

UNIVERSITY OF ALBERTA, Department of Plant Science—

At the recent Alberta Horticultural Advisory Committee meeting, attended by 30 representatives of horticultural industry, research and extension in Alberta, it was noted that the publication THE PRAIRIE GARDEN was filling a great need by providing horticultural information to the prairie gardening public. The members of the committee wish to express their gratitude and appreciation to you for your dedicated efforts in continuing this service through publication of THE PRAIRIE GARDEN.

Signed { Wm. E. Andrew, Chairman
E. W. Toop, Secretary

The Prairie Garden

WESTERN CANADA'S FOREMOST HORTICULTURAL ANNUAL

Published by

WINNIPEG HORTICULTURAL SOCIETY

(Established 1931)

Affiliated with the Canadian Rose Society

A non-profit publication dedicated to the advancement of Horticulture in our Northern Great Plains area.

20th Annual Edition — Winnipeg, Manitoba — February 1963

Each year February brings another issue of THE PRAIRIE GARDEN, each different, each complementary. We strive to bring to you up-to-date, factual and interesting information, having direct practical application to gardening in our Northern Great Plains area. We also try to cover as many aspects of horticulture as possible. We, however, do suggest that you treat each book as a part of a whole, and build up a Prairie Garden "library." It will then not be long before you can turn to your Prairie Gardens for much of the information you require for your gardening pursuits. We suggest also that you take full advantage of the bulletins available from federal and provincial sources as listed in "Information Please."

One of our features, this year, is farm home improvement and town beautification. We bring to our farm readers, articles of special interest on how to plan their home grounds and water their lawns and gardens. We also have a well laid out plan for a town park. We suggest that much can still be done to make our Western plains more attractive.

We wish to express our sincere thanks to the many professional horticulturists who once again have supplied us with such outstanding garden information. We also cannot stress too much the high calibre of the articles submitted to us by the gardening public. Their homey down-to-earth contributions add immeasurably to the value of our book.

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Corsage Making and Garden Flowers

by **MRS. B. PETURSON, Fort Garry, Man.**

Today a corsage is not an extra decoration, except on a very special occasion. It is rather a floral accessory that becomes a definite part of a costume. It can easily become a conversational piece especially if you made it yourself and perhaps used unusual flowers or put in extra frills which suit the person, place and occasion.

I think any gardener would be very happy to have his teenage daughter form a hobby of making her own party corsages, or for the son to have his problems solved for a Saturday night date by having his dad's blooms made up into a corsage, a hairband, or a bracelet.

Small flowers can be attached to a necklace (pearls are good) and made to look like a miniature corsage in an unusual setting.

Color proportion and balance are important in a corsage. The following colors in full strength have been given the following analyses:

Red—creates excitement, activity, stimulation; Orange—joyous activity; Yellow—cheerful impersonality; Green—restfulness and refreshing relaxation; Blue—remote calm; Violet—mysterious enchantment.

Balance and proportion are considered in relationship with color being used. Dark colors are visually heavier than lighter ones. Brilliant colors are the heaviest because they demand attention. The lighter shades and tones are less weighty. This is one reason why in corsages as in floral arrangements darker and heavier flowers are used in the centre with lighter tones on the outer edges of the forms.

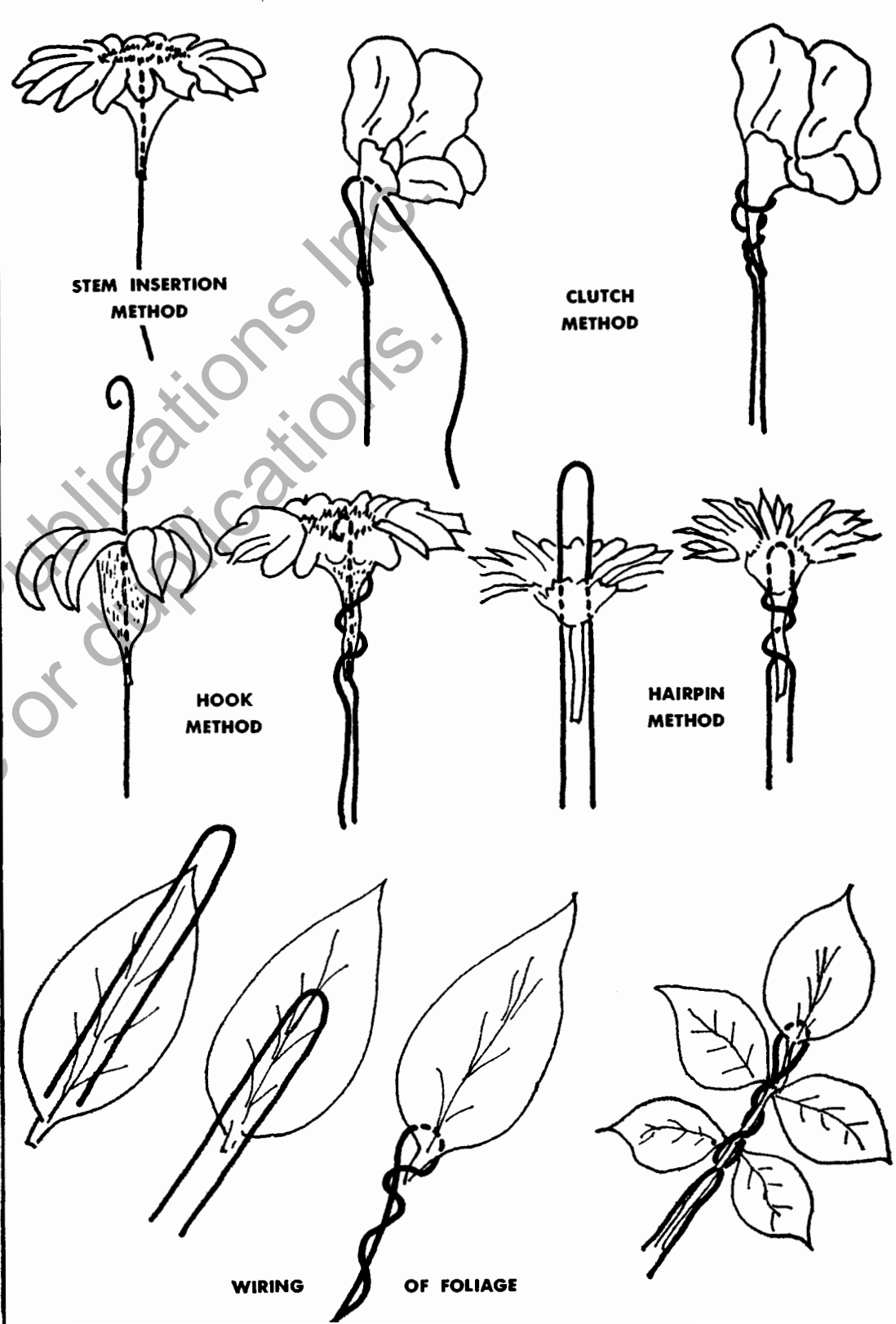
The size of the corsage in relation to the size of the wearer is most important. A very tiny corsage would look out of place on a size 40 shoulder. A big spray of large blooms would look equally out of place on a very small person. Of course the occasion affects the size of a corsage. A smart tailored one for daytime wear is smaller and more compact than a loose spray corsage meant for evening wear.

I would advise the beginner to start with simple lines, forms and color harmonies. Practice will bring confidence and lead to experiments which may give a great deal of pleasure and be quite profitable too.

I am going to list a few of our local garden flowers which have a lasting quality and are therefore suitable for corsage work. These are: Carnations, chrysanthemums, cornflowers, daisies, gladiolus, hyacinths, lily of the valley, marigolds, pinks, roses and zinnias. There are many others that can be used with good success.

Foliages considered for use in this work should be given a trial treatment, although actually most leaves stay reasonably fresh for a period of time. Some of the favorite garden leaves used for corsages are from the lily of the valley, columbine, geranium, ivy, barberry (holly), violet, rose and many others including ferns and evergreens.

For better lasting quality and freshness in blooms and foliage do the cutting the day before they are to be used and condition in water overnight.



There are exceptions and an extreme example is the gardenia bloom which drinks through its petals and has to be placed under a moist covering, preferably in an airtight container to preserve and lengthen its freshness.

Ribbons are important and are selected to suit the corsage and the occasion. They can add glamor, be an accent or simply be in harmony with the finished product. Metallic wire, cords and chenille serve the same purpose and are chosen to suit the occasion. Leaf forms, bows, initials, loops, insignia, etc., can add glamor to a simple corsage when made with wire and covered with ribbon or other suitable material.

Other essential materials are wire and stretchable floral tape. The four sizes in wire generally used for corsage work are Nos. 32, 28, 26 and 24, grading from fine to coarse. Occasionally No. 20 or 18 are used for extra sturdiness but tend to make the finished product heavier. The beauty and durability of a corsage depends on proper wiring. Substitute wire for natural flower stems wherever possible. There are several reasons for this. Wire is lighter and less bulky than natural stems, is more flexible and can be maneuvered as desired but is rigid enough to hold the completed design in position.

Perhaps the basic wiring is the most important so I am showing in the accompanying sketches some of the wiring methods used for different types of flowers.

For special purposes there are many ways of dyeing flowers and also special treatment of foliage.

Each month has a flower especially associated with it. This monthly calendar of flowers is as follows: January—Carnation or snowdrop; February—Violet or primrose; March—Jonquil or daffodil; April—Sweet pea or daisy; May—Lily of the Valley or hawthorn; June—Rose or honeysuckle; July—Larkspur or water lily; August—Poppy or gladiolus; September—Aster or morning glory; October—Calendula or cosmos; November—Chrysanthemum; December—Narcissus or holly.

Corsages at the flower show should be attractively displayed. Plenty of space and good background are important in staging corsages. The height at which they are placed is also important. Pedestals on tables could raise the height and the background made to look more nearly vertical than horizontal to give the desired effectiveness and beauty of a corsage.

Point scoring usually is not required but a competitor would do well to study the following approved judging scale of points: Design 30; Color 25; Originality and distinction 20; Suitability to occasion 10; Combination of materials 10; Technique 5.

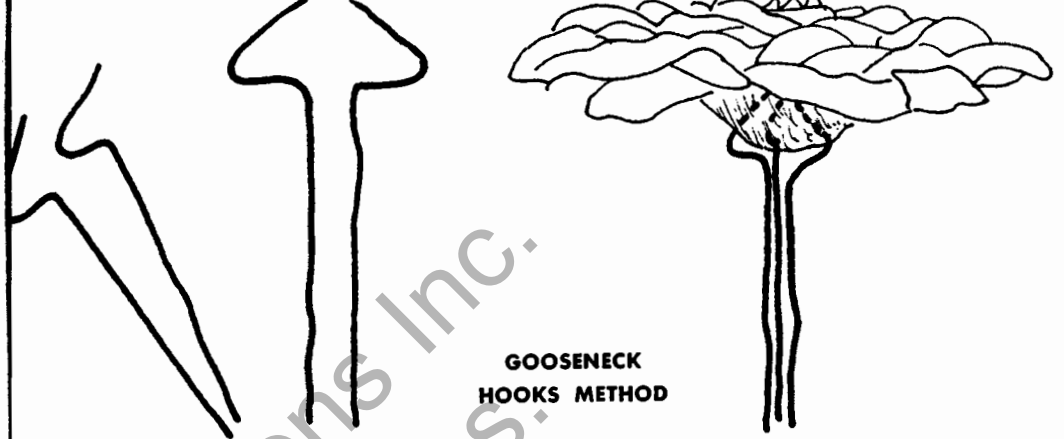
In larger shows classification of corsages should be practiced. There are two ways of achieving this, either by type of flowers specified for use, or by special classes such as tailored, evening, informal or formal corsages.

The beginner should be encouraged by having a novice class in the prize list.

Enjoy making a corsage for your local show and your compact, simple and well-formed corsage will give pleasure to the viewer.

Throughout the history of mankind there is mention of flowers and garlands. A Chinese proverb says: "Habits and customs differ, but all peoples have love of flowers in their hearts."

Let us have fun with our garden flowers and corsage-making.



GOOSENECK
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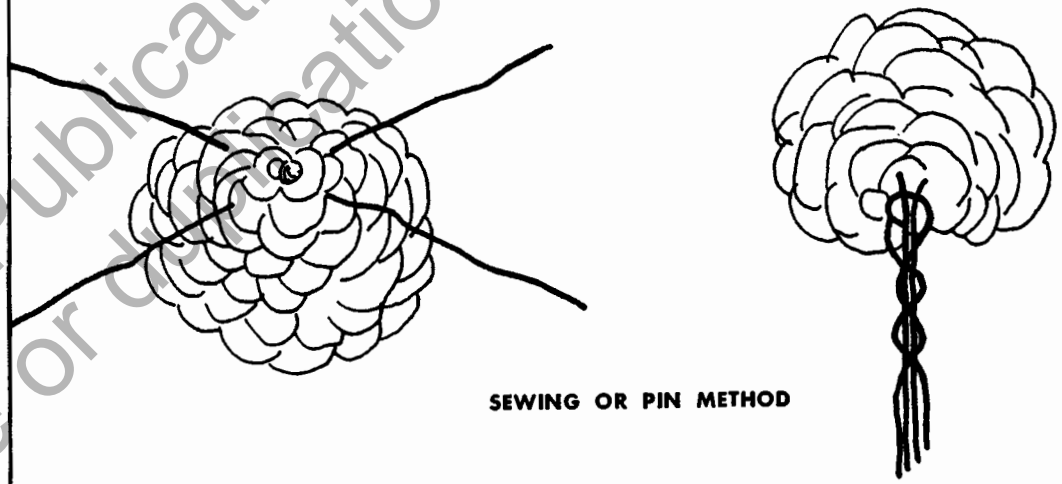
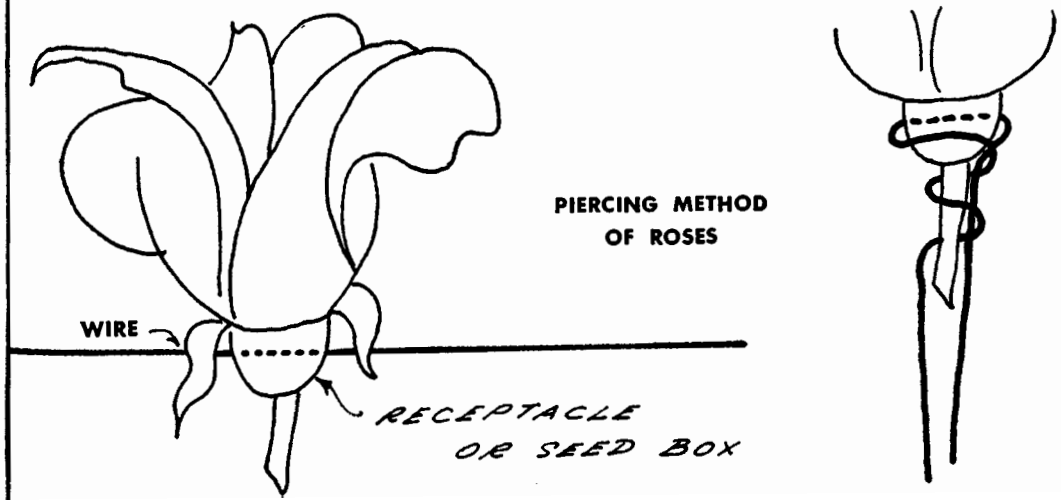


SEWING OR PIN METHOD



PIERCING METHOD
OF ROSES

Pruning Deciduous Shrubs

Pruning is defined or described in several ways, but basically, it is the removal of unwanted stems and branches for the purpose of maintaining and improving the appearance of a plant. Shrubs should not be pruned just for the sake of pruning, but there should be a definite reason for every cut. To do a good job a person must be familiar with these reasons because improper pruning can do more harm than if the shrub were not pruned at all.

Habit of growth and response to pruning. A shrub usually consists of several stems arising from the base and it renews itself by new canes that develop from the base. The stems increase in length and thickness and put out lateral branches which in turn branch. The top thickens, light and air are cut off from the base, and twigs and foliage on the lower part of the shrub and new stems that arise from below weaken and may die because of these shaded conditions. The result is a leggy shrub, i.e. one without foliage or twigs on the lower part. As the shrub becomes older there is also a tendency for new growth on the old stems to become shorter and weaker and less attractive.

When a shrub is pruned we can expect some kind of response. Pruning during the dormant season, especially severe pruning, results in vigorous new growth. This is because the top has been reduced in size but the roots have not and they take up what is an excessive amount of minerals and water for the remaining stems and branches. At the same time pruning is dwarfing because the overall size of the shrub is smaller than if no pruning were done. Summer pruning has a greater dwarfing effect than dormant pruning because it tends to check growth, and because we remove foliage which has been produced at the expense of food stored in the roots and stems. The effect of pruning will depend also on whether a heading back or thinning out type of cut is used.

Heading back and thinning out. Two kinds of cuts producing entirely different results are used in pruning. In heading back, the terminal portions only of twigs and stems are removed (Fig. 1A). Buds immediately below the cut start into growth and where there was one twig before there now are two or more, growing close together. It results usually in a shrub having a dense mass of twigs and foliage at the top and an open, leggy appearance at the base (Fig. 1B.) The natural, graceful form of the shrub is destroyed and, especially in the winter when the form is so apparent, a quite unattractive shrub

Figure 1A.

Figure 1B.

by
J. A. MENZIES
and
A. GUDZIAK
Department of Plant Science University of Manitoba

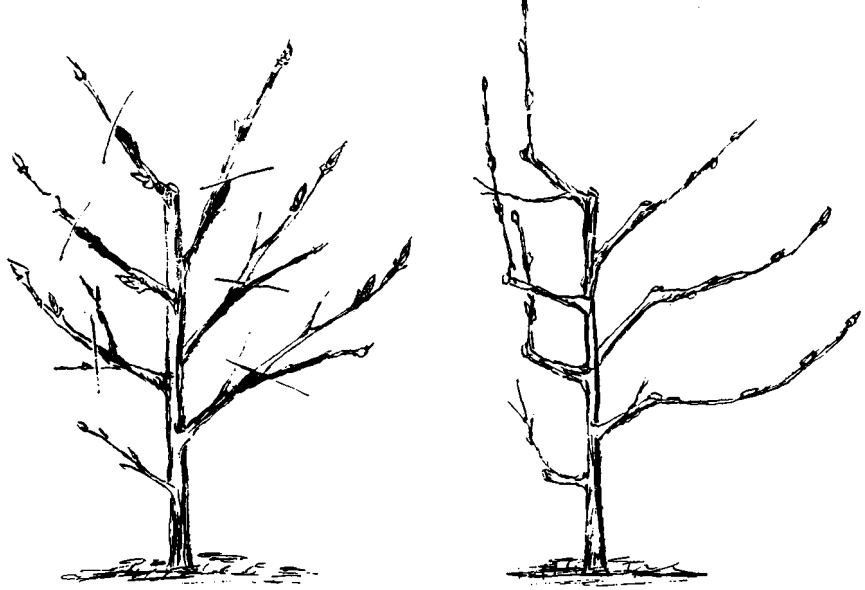


Figure 2.

results. This is the kind of pruning which is used to trim hedges, where a very dense mass of foliage around the perimeter is desired, but it should rarely be used on shrubs in the border or foundation. Unfortunately, it is an easy way to prune and a simple way of controlling the size of shrubs so it is used more than it should be.

In thinning out, twigs are cut back to the branch or stem from which they arise and stems are cut back to laterals, or to the ground. Growth is stimulated in the remaining stems, branches and twigs but there is no great increase in the number of new twigs around the outside of the shrub. The shrub can be kept within bounds by removing the longer stems and branches and at the same time a graceful, well balanced appearance can be maintained. Most shrubs should be pruned by this method with heading back being used only when it is necessary to thicken out the top and fill in weak spots and gaps.

Direction of growth can be controlled to a considerable extent by pruning. Cutting back to outward-growing twigs and buds will produce an open, spreading shrub. If a more upright type of growth is desired prune back to twigs and buds which are growing inwards or upwards. (Fig. 2.)

Amount to prune. In general, pruning should be light to moderate and should be done every year or two. This will give a more attractive shrub than will severe pruning at intervals of several years.

Time of pruning. The best time to prune is influenced somewhat by time of flowering but, in general, early spring, before growth starts, is the best time to prune most shrubs and the time to do severe pruning. There are several reasons why spring is the best time and they are based on the fact that the use and importance of shrubs in the landscape depends mainly on their habit of growth or shape and their foliage characteristics. Bloom is an important character but shrubs bloom for only a short period of time after which form and foliage remain. Spring pruning need not reduce the show of bloom if a reasonable amount of care is used.

The reasons why spring is preferred are: (1) The framework of the shrub is fully exposed and it is easy to see and remove weak, excess and poorly

located stems and branches. During the summer the mass of foliage makes it difficult to determine what wood should be removed. (2) When pruning is delayed until after flowering it usually consists of heading back stems which are growing out too far, resulting in a dense, twiggy, unattractive shrub. (3) Pruning after flowering may result in considerable damage because the soft, new shoots are brittle and easily broken.

There are exceptions, the most notable being the lilac, which will benefit from a light pruning immediately after flowering. Old flower heads should be removed and weak and excess twigs thinned out. However, if a heavier, renewal type of pruning is necessary, it should be done in the early spring, as with other shrubs. It is important to remember that the lilac blooms from terminal buds and if it is headed back in the spring a great many flower buds may be removed and the bloom will be sparse.

Reasons for pruning. The general aim of pruning was mentioned earlier and now some of the specific reasons will be discussed.

1. *Pruning at planting.* All shrubs should be pruned at planting to compensate for loss of roots and to produce a well shaped shrub. Broken and torn roots should be cut off or trimmed back. After planting the top should be reduced by one-third to one-half. Weak, broken and poorly placed stems should be removed at the ground and the remaining stems cut back to outward growings twigs and buds to produce a bushy, low-spreading shrub. After this initial pruning no pruning or only light correctional pruning will be needed for several years.

2. *Dead and diseased wood and broken branches* should be removed as soon as they are seen. This wood spoils the appearance of a shrub and if left disease may spread.

3. *To control size.* This, unfortunately, is the reason why shrubs in many home grounds must be pruned and pruned severely. The need arises because the wrong shrubs are planted in the wrong places. The spireas are excellent foundation shrubs for small bungalows but a lilac in the same location will become much too large and will require constant and severe pruning to keep it within bounds. This severe pruning will destroy or certainly decrease the attractiveness of the lilac. It would be best to remove the lilac and to plant a spirea or a shrub of similar size which will not grow beyond the desired size. This point is well worth emphasizing as it is the cause of much unnecessary work and many unsightly shrubs.

4. *Renewal pruning.* Many ornamental shrubs benefit from a regular renewal pruning every year or two. As mentioned previously, some shrubs such as the flowering currant and the Tatarian honeysuckle tend to become leggy. This is not necessarily a fault because it may be desirable to have individual stems exposed to view but often, as in the foundation planting, we wish to have the shrub cov-

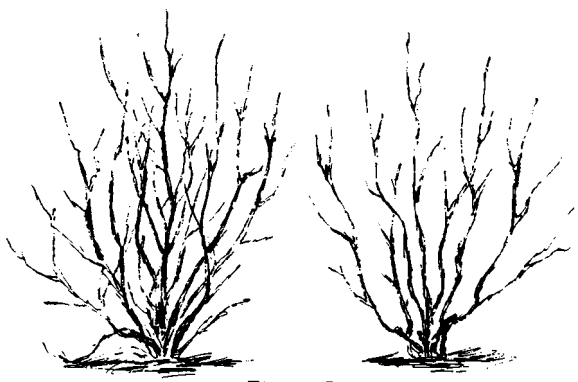


Figure 3.

ered with foliage to the ground. To reduce the legginess and maintain foliage at the base remove a few of the older stems to the ground at each pruning. Weak stems and poorly placed stems also should be removed or cut back. This will open out the shrub and young stems at the base will have sufficient space and light to grow up and replace the old stems. This renewal pruning not only keeps a shrub covered with foliage to the ground but reduces its height and spread and replaces old, often unattractive stems with vigorous, young, strong-blooming wood. (Fig. 3.)

In certain shrubs considerable crowding occurs when many shoots arise, close together, from the base, the spireas being a good example. Some of these stems die, some become weak and in time the centre of the shrub becomes an unsightly mass of stems and twigs. Removing older stems and thinning out new stems is necessary to keep these shrubs attractive.

In renewal pruning do not prune every shrub to the same size or shape but follow the natural lines of each shrub. This will add some variation to the plantings and maintain each shrub's natural, attractive form.

It should be pointed out here that there are a number of ornamental shrubs which require little if any pruning. These shrubs maintain, naturally, their distinctive and usually attractive habit of growth. Good examples of shrubs of this type are Nanking cherry, cotoneaster, sweetberry honeysuckle, alpine currant and pygmy caragana. In selecting shrubs it would be well to keep this group in mind.

5. *To maintain or improve bark color.* Shrubs like the dogwoods and many willows are admired for the attractive color of their bark. The bark is most colorful on young wood, the older wood often becoming dull and ordinary. Cutting out a few of the older stems every year or two will promote the growth of colorful young stems. If these shrubs are in a spot where their absence for a short time will not be noticed, the whole plant can be cut back to the ground each spring. The flush of new growth will reach a good height by fall, and will give a fine display of color over the winter.

6. *Removal of suckers.* Some ornamental plants, certain species of roses for example, have the objectionable habit of sending up suckers some distance from the original plant. These suckers can be removed at any time. Certain plants, belonging to the genus *Prunus*, are grafted onto plum stock which commonly sends up suckers. These should be removed as soon as they are found because if not removed they may crowd out the scion variety which was grafted onto the plum stock.

7. *Rejuvenation.* Rejuvenation of old, neglected shrubs of lilac and other species is a common problem. The simplest way of handling them is to cut them back severely, perhaps right to the crown. However, this will create shrubs which will be unattractive for a year or two and a better method is to remove about a third of the old stems in successive years for three years. New stems will arise from the stubs and from below ground starting in the first year. These should be thinned out and pruned to produce an attractive, spreading shrub. Root pruning must be done at the same time as the old stems are removed, as otherwise it will be most difficult to control growth. Root pruning is easily done by shoving a spade deeply into the soil, around the shrub, about two feet from the base. In following years a renewal type of pruning will control size and keep the shrub young and vigorous. Another

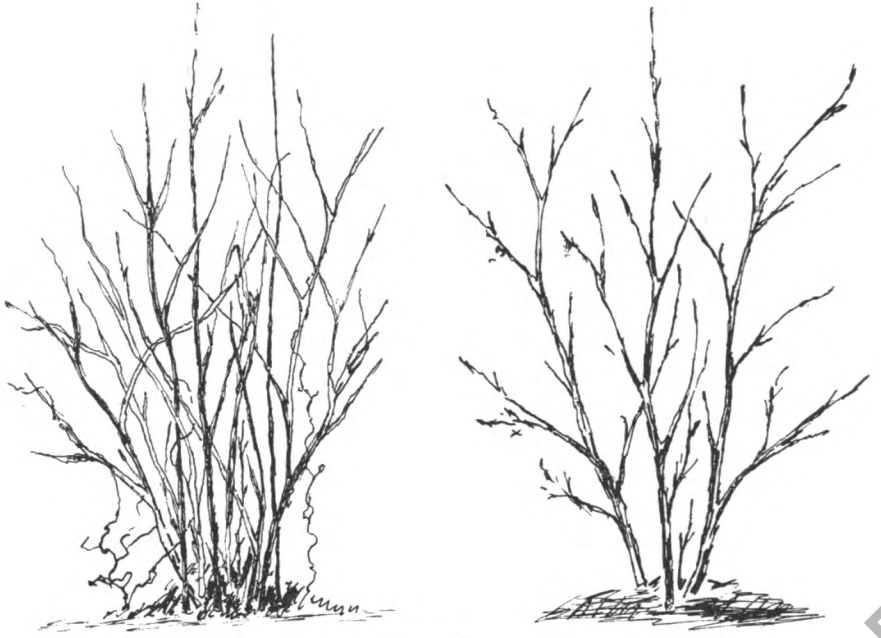


Figure 4.

and often better way of handling these old shrubs is to remove them and replant with the same or a more desirable shrub.

8. *To produce a tree-like form.* A distinctive note can be added to many landscapes by training certain of the larger shrubs to a tree-like form. The Japanese tree lilac and the Tatarian maple are excellent examples. Smaller stems should be removed at ground level leaving three or more large main stems. Side branches should be removed for some distance up these main stems. The result is a multiple stemmed, small tree with an attractive and distinctive form. (Fig. 4.)

9. *Summer-blooming shrubs.* Shrubs which bloom in the late summer and initiate flower buds on new wood in the spring include Anthony Waterer spirea, tamarisk and hydrangea. This group will benefit greatly from a severe heading back in the spring which will result in the production of many vigorous new shoots and a mass of bloom. The amount of pruning will depend on the location. The stems can be cut right back to the ground or, if such severe pruning would leave an unsightly gap, weak stems can be thinned out and the rest cut back to varying degrees.

Conclusion. The wise pruner tries to achieve his purpose without butchering his plants, without making them look unnatural. Other pruners remove everything unless there is a good reason for not doing so. Since it is impossible to glue a cut branch back into place it is obvious that the opposite principle is the better one—if in doubt, do not prune. There is no rule which says a shrub must be pruned within a certain length of time. Therefore, before pruning a shrub look it over very carefully and determine just what wood should be removed.

Pruning is a very fascinating art and one which becomes more enjoyable with time. As you become more familiar with how to prune you will obtain a great deal of enjoyment from seeing the results of your own work.

Awarded Life Membership

G. S. Reycraft

The Winnipeg Horticultural Society at their annual meeting on November 23 presented Mr. G. S. Reycraft with a life membership in the Society, in recognition of his great interest and unremitting effort in promoting horticulture, as a past president of the Society and particularly as editor of THE PRAIRIE GARDEN.

We of the Prairie Garden Committee of the Winnipeg Horticultural Society are pleased to take this opportunity of introducing our chairman to the readers of THE PRAIRIE GARDEN.

"Glad" as he is known to his friends and associates, was born in Ontario and came to Winnipeg at an early age. He graduated with a Bachelor of Arts degree from the University of Manitoba. He later followed this up with a year of special courses in horticulture at this institution. Since 1945, he has been responsible for the distribution of plant foods and agricultural chemicals for the Swift Canadian Co. Ltd. at Winnipeg. He is a member of the Agricultural Institute of Canada, and the Western Canadian Society for Horticulture.

The Reycraft family consists of Mr. and Mrs. Reycraft, daughter Heather recently married and son David. The family home is at 92 Queenston Street, Winnipeg, an address well known in gardening circles. Their front lawn is bordered by a choice selection of roses, lilies, chrysanthemums and other interesting plants. A very fine specimen of *Clematis jackmanii* clings to a wall while grapes drape a fence.

Indoors from mid-November till mid-February the Reycraft household is taken over by THE PRAIRIE GARDEN. Mrs. Reycraft jokingly remarks: "Some wives are golf or curling widows, I am a Prairie Garden widow." She cheerfully submits to the dining room table being littered with copy, and as the deadline approaches right through till the books are in circulation, pitches in, answering mail, addressing envelopes and licking stamps.

This, then, is a thumbnail sketch of the man who during the past 10 years has brought the circulation of "our book" from around 1,500 copies to 13,000, bringing helpful advice to gardening folks all over the Great Plains region, his energy and enthusiasm inspiring all who work with him in the publication of THE PRAIRIE GARDEN.—H. M.

Calgary Flower Show

***August 24-25, 1962*—Sponsored by the Calgary and District Horticultural Society, the Calgary Garden Club, and the Calgary Dahlia Society**

The Prairie Gardener in his CBC Radio talks referred to the 1962 show as "a flower show on a grand scale with outstanding exhibits of Gladiolus, Dahlias, and Roses, as well as all kinds of annual flowers."

He made special mention of the Dahlia displays, the high quality of the Gladiolus, the tastefully arranged table centres and the interesting old west scenes depicted in the Dish-Garden section. His sum up was "fine entries of first class exhibits staged by experienced showmen, with a lot of skill and 'know how'." We extend our congratulations!

Farm home in 1960. Landscaping started, lawn and border shrubs are planted.

Same farm summer of 1962. New picket fence and growth of border plantings improve appearance.

Farmstead Improvement Project

by **L. HARVEY JONES, Field Supervisor**
Manitoba Pool Elevators, Carman, Man.

The spring of 1960 saw the start of a Farmstead Improvement Project, the first of its kind, in the south-central part of Manitoba. The initial organization was carried out in one field supervisor's district comprising the area east to Sperling, west to Cartwright, north to No. 2 Highway and south to the United States border.

Response to the idea was very gratifying and 40 farms were entered. Other applications have been received which will be considered when the first entries have completed the 3-year program. Plans are underway now to expand the project to all districts in Manitoba.

The main purpose of the service is to assist farmers in making improvements to the farmstead. Such improvements should realize four objectives, namely:

1. Beautify the farmstead and community;
2. Raise the value of the farm;
3. Improve on efficiency of farm layout;
4. Make life in the rural community more desirable.

Other agencies in the province have recognized outstanding farmsteads by providing competitions of various kinds which offer awards to the best and most attractive entries. The Manitoba Pool Elevators Farmstead Improvement Project is not a competition and, therefore, is not a duplication of services offered by others. It provides help to the man with ordinary surroundings who needs information on the best way to plan changes in the farmyard.

The program is available to members of Manitoba Pool Elevators who are living on the farm. No fee is charged. Each farm is entered for a 3-year period during which the owner undertakes to carry out improvements to the buildings and yard. Each farm is visited by qualified personnel twice during the first year. One visit is made during the summer in each of the second and third years. The farmstead is scored at the time of the visit; advice is given where required; and a written report is mailed later to the farmer. A landscape plan is prepared and left with the owner if he requests it. Also, pictures in color are taken on slides which indicate the condition of the farm before and after participation in the project.

The score card is used to report the original condition of the farmstead and the progress made each year. Some of the factors considered are as follows:

General Appearance: (1) approach from the road; (2) gate sign; (3) tidiness; (4) freedom from weeds and rubbish; (5) condition of walks and driveways; (6) storage of machinery, lumber and grain.

Buildings: (1) general condition; (2) Maintenance and painting; (3) removal or replacement of old buildings; (4) condition of fences.

Plantings:

(1) Shelterbelts—Condition, cultivation. Provision for new shelterbelts if required.

(2) House area—Foundation plantings. Lawn. Shrub and tree border plantings (screening of barns, machinery and granaries if advisable). Shade, private living-out area. Perennial and annual flowers.

(3) Garden area—Vegetable garden. Small fruits.

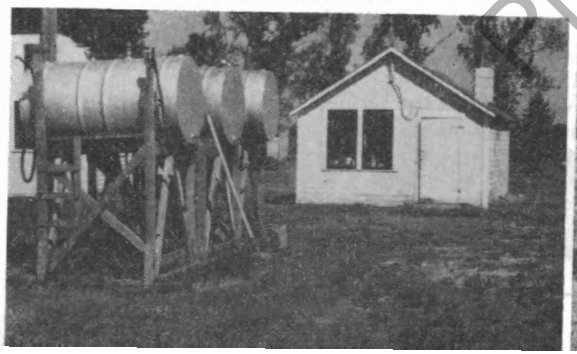
Recognition is given each year in each field supervisor's district to the farm scoring the greatest improvement since the last visit. At the end of the 3-year period a special certificate is awarded to the member who has made the most improvements during the 3 years. A banquet is held annually in the fall at a central town in each district and is attended by the farmer and his wife. At this banquet the results of the scoring are announced; the presentations are made; and the colored slides of the farms are shown. The guest speaker at the banquet is a specialist in horticulture. It is planned, in future, to include a summer tour of farms and places of horticultural interest.

During the 3 years just completed almost every situation has been encountered. One farmstead was completely new, starting as a bald spot on the prairie. In this case a recommended farmstead layout was prepared; the shelterbelt was planned and planted; and new buildings were located and constructed. The other extreme was an old farmstead that had been abandoned for years. Most of the buildings had to be replaced, others needed repairs; the old boxelder and cottonwood trees had served their usefulness and were dying. Advice was given on where to locate new buildings for greatest convenience and best appearance. Plans were made to establish a new shelterbelt and gradually remove the old trees. A few farmers built new homes and asked for landscape plans to beautify the grounds in the house area.

The majority were typical of the average farmstead. Houses and other buildings needed remodelling; some required repairs and paint. Old trees had to be replaced. Houses were tall and bare for lack of foundation plantings. Home grounds needed the beauty and screening value of border trees and shrubs. Unattractive spots in the farmyard, which marred the view from the house or front driveway, needed to be removed or screened.

Considerable landscaping was carried out. The members purchased the required material from the commercial nurseries.

Fuel tanks located at hydro pole beside main driveway. Unattractive approach to farmstead.



Fuel tanks moved to back of yard. Hydro pole improved by planting shrubs and flowers. Old shop replaced.

The first group in this project has completed 3 years and the special award has gone to Mr. and Mrs. B. D. Enns of Winkler. Nearly all the farmsteads in this group have shown marked improvement. Working together in a project of this nature has proved an incentive to the farmer members to actually carry out the plans they have made. Results have been highly significant during the 3 years completed and the acceptance of the program is indicated by the large number of applications placed on the waiting list. Most of these can be serviced in the new group to be organized in the spring of 1963.

What a desolate place would be a world without flowers?—It would be a face without a smile; a feast without a welcome. —Are not flowers the stars of the earth?—And are not our stars the flowers of heaven?

—Clara L. Balfour.

Winter Care of Evergreens

by **C. S. STEVENSON, Stevenson's Nursery, Morris, Man.**

Many Manitoba residents who plant evergreens are disappointed when they fail to bring them through the winter successfully.

In the first place, it is important to know in advance whether or not the tree being planted is sufficiently hardy to withstand our severe winters and in this regard the nurseryman is the man to consult. Many types of evergreens which look so beautiful pictured in eastern or foreign catalogues just cannot take Manitoba's brand of winter and consequently planting them is a waste of time and money.

One of the first preventives of winter injury is to make sure that an evergreen goes into winter under good moisture conditions. The most common cause of damage is the drying out of the needles through transpiration of moisture. People think that because a tree is dormant there can be no loss of moisture through the needles, but such is not the case. The worst time of the season for this is in the first few sunny, warm days of spring. Sap transpires through the needles; the ground is still frozen and the roots cannot restore the loss so the needles simply dry up and the tree is lost.

Several things may be done to reduce winter burning. Firstly, see that evergreens are thoroughly watered in October if it appears that they are going into winter in a dry condition. Watering allows them to store up a good supply of moisture in stems and needles.

Secondly, with smaller trees especially, it is easy to provide a shade of some sort. A burlap tent staked at each corner and extending a foot or so above the tip of the tree makes a good cover and it is all to the good if it can be left open at the top so that snow may fall into it naturally. Snow is one of the best insulators we have.

Wooden boxes or barrels without tops also make good covers and these too should be staked down so that the wind does not blow them over. Metal containers must not be used as covers; they retain rather than reflect heat.

These temporary shelters should be put on in mid-October and left on until the soil has thawed to a depth of at least a foot in the spring.

Thirdly, one may often avoid winter burning by planting in east or north exposures rather than on the south or west where they would receive full sun. Most cedars, junipers and also Mugho pines will grow in full or partial shade.

Dogs are mortal enemies of young evergreens and the lower branches of large specimens. Canine irrigation, even in the winter, is fatal to evergreen needles.

With proper care and the right selection, evergreens contribute materially to the beauty of our winter landscape and our grounds would look bare indeed without them.

A Park Site for Every Village

by **GUNTER A. SCHOCH, N.L.I., Landscape Assistant, Parks and Protection Division, Metropolitan Corporation of Greater Winnipeg**

Park areas are no longer a privilege of cities and larger towns. In recent years many smaller centers have created their own park sites and have realized the advantage and the value of these developments.

A village park site should offer a great variety of facilities. Since usually there is only the one site available it should provide opportunity for the recreational requirements of every citizen: for the youngsters, a playground; for the youth and young adults, sports facilities; a picnic area for families and clubs; and of course park land for quiet relaxation. Community festivities also might be held on the park sites.

The size of such a development in cities is governed usually by the space available and the "open space requirements per population" according to certain statistics. In rural areas, however, the size depends mainly on the facilities required since space does not present too much of a problem. If a sports field should be provided, an area of 4 acres would be the minimum land requirement. Adequate space is available on a 6-acre site, as shown in the drawing on the next page.

This layout includes all important facilities. The park portion of the development does not necessarily require the largest space, but is certainly an important feature. Ornamental shrubs can be planted in groups, and rest benches should be placed under shade trees. The use of evergreen trees will add considerably to the general appearance. A war memorial or similar monument can be incorporated in the park landscaping.

The picnic shelter with refreshment stand is centrally located to serve both the picnic area and the sports field. A service yard has been included to provide access for deliveries. The picnic ground should be in a well-shaded area. Picnic tables, cook-outs and garbage cans should be provided.

The toilets also are located in such a way that they are close to the picnic ground and to the sports field. A screen planting would be desirable.

The sports field is large enough for a regulation size football or soccer field, and, overlapping, a baseball field. The dressing rooms are conveniently near the sports field and playground. On the play area all popular apparatus has been indicated, as well as rest benches for the parents.

The parking lot with a convenient approach from a main road is close to the picnic area, and not too far from the sports facilities. If 90 degree parking is planned, a space of 9 x 18 feet for each car is necessary; the lane for driving and backing-out should have a width of 24 feet.

Although the landscaping is concentrated in the park and picnic area there should be some planting in other parts of the property. Screen planting around the parking lot and group planting of trees and shrubs around the play and sports area are advisable. Any existing natural growth should be carefully incorporated.

See pages 24 and 25 for Park Site Layout

For shrubbery plantings the following varieties are recommended:

Amur Maple	*Acer ginnala*
Korean Barberry	*Berberis koreana*
Pygmy Caragana	*Caragana pygmaea*
Redoosier Dogwood	*Cornus stolonifera*
Peking Cotoneaster	*Cotoneaster acutifolia*
Tatarian Honeysuckle	*Lonicera tatarica*
Common Ninebark	*Physocarpus opulifolius*
Bush Cinquefoil	*Potentilla fruticosa*
Cherry Prinsepia	*Prinsepia sinensis*
Red Elder	*Sambucus racemosa*
Korean Spirea	*Spiraea trichocarpa*
Japanese Tree Lilac	*Syringa amurensis japonica*
Late Lilacs	*Syringa villosa (hybrids)*
Red Amur Tamarisk	*Tamarix pentandra rubra*
Nannyberry	*Viburnum lentago*
American Cranberrybush	*Viburnum trilobum*

The following species are recommended as shade or ornamental trees:

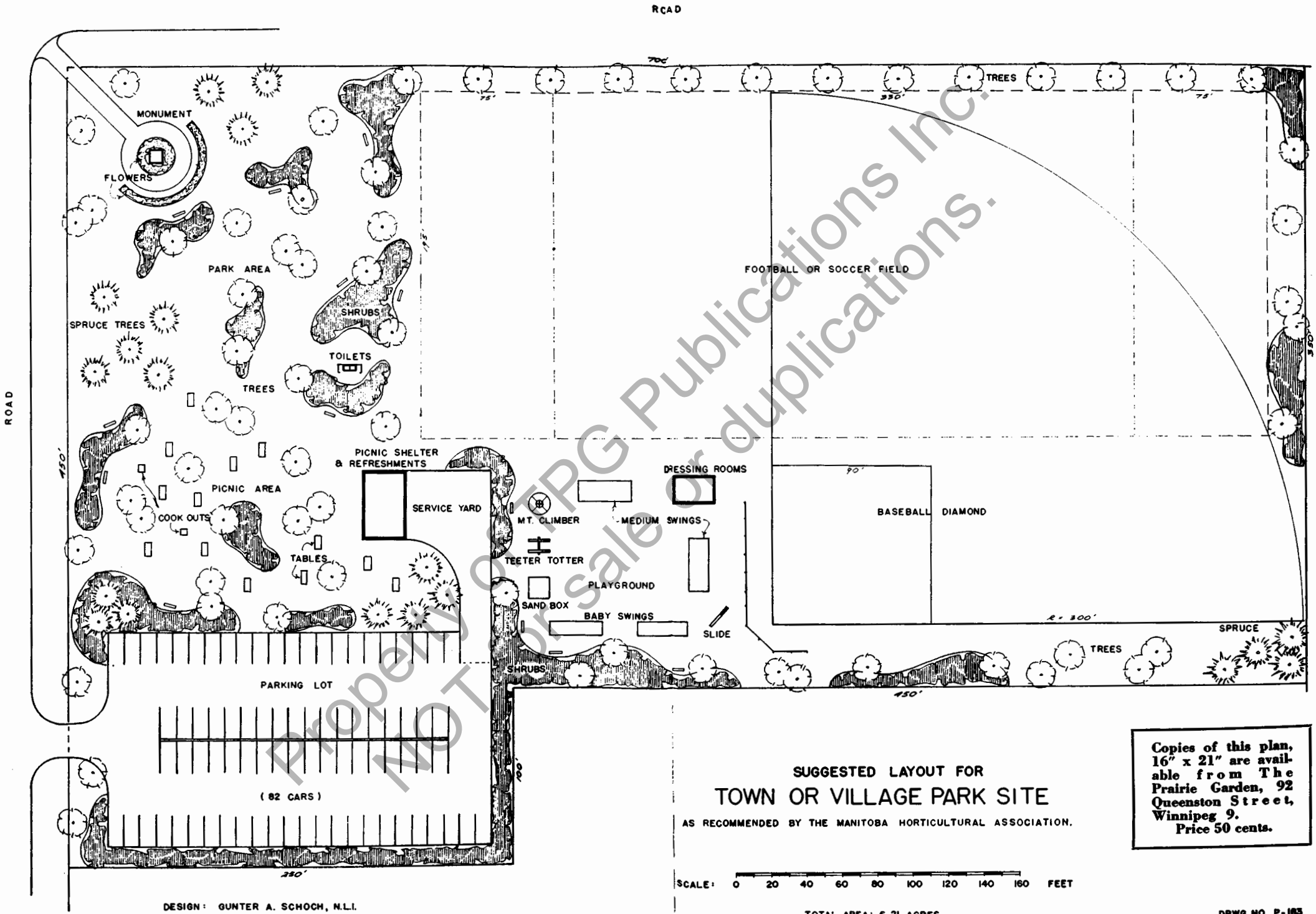
Green Ash	*Fraxinus pennsylvanica lanceolata*
Siberian Larch	*Larix sibirica*
Siberian Crabapple	*Malus baccata*
White Spruce	*Picea glauca*
Blackhills White Spruce	*Picea glauca densata*
Colorado Spruce	*Picea pungens*
Scots Pine	*Pinus sylvestris*
Ussurian Pear	*Pyrus ussuriensis*
Golden Willow	*Salix alba vitellina*
Laurel Willow	*Salix pentandra*
American Mountain Ash	*Sorbus americana*
American Linden	*Tilia americana*
Littleleaf Linden	*Tilia cordata*
American Elm	*Ulmus americana*
Siberian Elm	*Ulmus pumila (Harbin strain)*

It should be mentioned that winter sports facilities also could be included in the layout, if so desired. Hockey rinks, a speed skating track or a toboggan slide will assure year around use of the park site. In this case provision should be made for a heated shelter.

Some thought has been given to easy maintenance of the proposed park site. With the exception of shrub beds and parking lot, the entire area can be kept in grass. Cutting with a self-propelled mower would take only a few hours two or three times during the summer season. A smaller power mower will be necessary to cut around trees and equipment. The shrub beds could be cultivated once in a while with a power tiller.

The parking lot might be outlined inexpensively with logs or old hydro poles laid on the ground. The lot should be covered with 2 to 3 inches of crushed stone or gravel. One application of herbicides per season usually is sufficient to keep the parking lot free of weeds.

The proposed layout has been approved by the Manitoba Horticultural Association as a standard design. This organization not only is encouraging well-landscaped home grounds in Manitoba, but also is prepared to assist in any way possible where public parks and recreation areas are involved. There really is no reason whatever why your town or village should not have its own park site!



SUGGESTED LAYOUT FOR

TOWN OR VILLAGE PARK SITE

AS RECOMMENDED BY THE MANITOBA HORTICULTURAL ASSOCIATION.

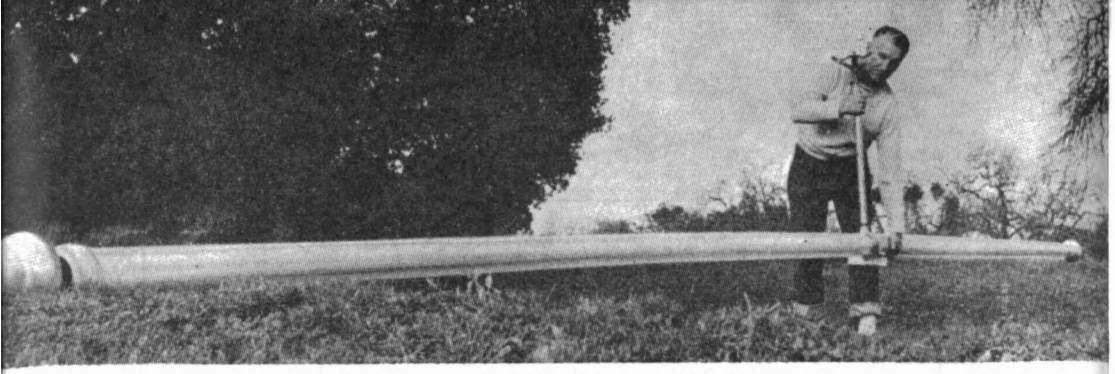
SCALE: 0 20 40 60 80 100 120 140 160 FEET

TOTAL AREA: 6.21 ACRES

DESIGN: GUNTER A. SCHOCH, N.L.I.
LANDSCAPE DESIGNER & CONSULTANT
WINNIPEG, MANITOBA

DRWG. NO. P-183

Copies of this plan, 16" x 21" are available from The Prairie Garden, 92 Queenston Street, Winnipeg 9. Price 50 cents.



One man moving aluminum sprinkler line.

Irrigating the Prairie Garden

by **H. E. GAREZ**
The Gardeners' Sales Ltd., Winnipeg, Man.

The garden probably has always been the most potentially productive land on a farm. Potentially only because vegetables and potatoes require more moisture than normally is received from rainfall, and the crop harvested from a prairie garden invariably falls far short of what should be obtained.

A sprinkler irrigation system composed of sprinklers, light weight, portable aluminum tubing, and a pump and motor can be the answer for many prairie gardeners.

The factors to be considered are: 1, water; 2, location of water source in relation to area to be irrigated; 3, type of soil; 4, design and cost; 5, economics.

In the consideration given to the question of buying an irrigation system it is most important that sufficient water is or will be available all through the growing season; and that the water to be used does not contain chemicals or impurities which would be harmful to plant or soil.

For example, one authority states that potatoes require 1 inch of water every 5 days and beets 1 inch of water every 4 days. One acre of potatoes properly irrigated through a 3-month growing season would require a dugout 100 feet by 50 feet and 13 feet deep. There is no allowance here for evaporation.

Wells, especially on the prairies, rarely, if ever, produce sufficient water for an irrigation system. Flowing streams and lakes are the best sources of water because they generally have the volume of water required to support an irrigation system. Wells may be used when the water supply is sufficient.

Having established a steady, sure source of water in the volume required, the next consideration must be whether the water contains chemicals or substances which would be injurious to plant life or the soil. Most universities will analyze water and advise whether it is suitable for irrigating. This point is as important as a sufficient supply of water.

The source of water should be adjacent to the area to be irrigated. It costs money to lift water or to transport it on the level over a distance. The most economical and efficient pumps are the centrifugal type and these have a maximum suction lift of 15 feet, and come in numerous models each creating different feet of head at a given volume. The closer to the water, the more economical the performance; therefore, the pump should never be more than 15 feet from the water and preferably as close as is possible. The elevation from the level of the pump to the highest point to be irrigated influences the feet of head which the pump must produce at a given volume.

In summary, the elevation between the level of the water and the highest point of land to be irrigated should not be so great that it is beyond the range of economically priced models of centrifugal pumps.

Soil types may be classified as light sandy, medium textured, or heavy textured. Each has its own peculiarity.

Light, sandy soils will take a heavy application of water and absorb it without compaction. This means that the application rate can be raised, (½ inch to ¾ inch water per hour).

Medium-textured soils must have water applied at a lower rate than the light, sandy soil. Too heavy application will cause waste through run-off and some compaction, (¼ inch to ½ inch water per hour).

Heavy-textured soils must receive a very low rate of application of water per hour to avoid run-off and compaction, (1/10 inch to ¼ inch water per hour).

Compaction can be a serious problem, but is easy to avoid through the proper design of a system that will apply the correct amount of water for the type of soil to be irrigated. Too heavy watering causes baking and sealing of the top layer of soil and creates a hard surface that prevents the moisture from reaching the root zone. Over-watering of the heavier-textured soils can make natural aeration impossible; this condition is often termed "souring."

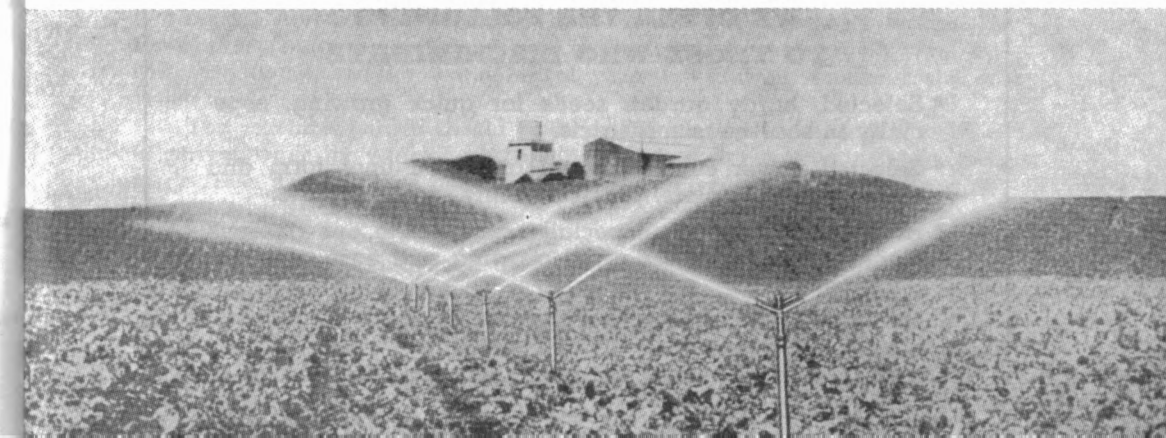
An assessment can now be made to determine whether irrigation is possible. Assuming that the water has been tested and found suitable, and that the vertical distance between the pump site and the water is not over 15 feet, the next step is to visit a reliable firm selling irrigation equipment and request their help in the design of the system. Established irrigation sales companies design systems as part of the service they offer, without charge.

The facts a designer must know are: 1, distance from pump to water; 2, size of area to be irrigated; 3, distance from pump to area; 4, type of soil; 5, crops to be grown.

Friction loss, proper pressure, and rate of application are three extremely important factors, and must be thoroughly understood in order to design an economical and satisfactory system. As an illustration let us compare two systems each irrigating 1 acre of potatoes.

The first system is designed with 1-inch pipe and it is desired to irrigate the potatoes for 3 months, applying 1 inch of water every 5 days. With a few calculations it is found that the system must run for 34 hours or 4¼ days each week. Further, the pump required in this system must be a model that

Sprinkler line in operation on vegetable plot.



will produce a high head to overcome the friction loss caused by the small-size pipe.

We see here that such a system will require the attention of one person almost every day of each week; the pump cost will be high due to the type required; and the long running hours will unnecessarily increase the operating costs of the pump motor. Briefly, this system would be considered very inefficient and costly.

In the second system we suggest that 2-inch tubing be used. Here we find that the correct application of water can be made in two 8-hour days a week, and that a standard irrigation pump may be used. The man-hours needed per week are reasonable; the pump cost is the lowest possible; and the operating costs will be at a minimum, probably less than $1.00 per day.

The actual installation and operation of a satisfactory irrigation system for farm homes is a simple matter, requiring no special tools or training, and results obtained are far excessive to initial cost and operating expenses. However, before starting to install an irrigation system, advice on the above factors involved should be obtained from a reliable firm or an experienced individual.

Aluminum tubing is light and durable, and actually has made sprinkler irrigation possible. Complete systems may be picked up and moved from one location to another with very little effort. For instance, it might be more economical to have one system which could be moved from vegetable plot to orchard, potato plot or part of pasture. Moving aluminum pipe systems is a matter only of minutes.

Irrigation means not only a good vegetable crop every year, but also may beautify the entire farm landscape.

Farm Home Grounds for Pleasure and Profit

by **F. J. WEIR, Provincial Horticulturist**
Manitoba Department of Agriculture and Conservation

Much has been said, and written about farm home grounds. It seems ironical to be encouragaing farmers to make their home grounds more attractive while statistics show that the rural population is decreasing. However, such encouragement is perhaps more necessary at the present time than in past years. There is really no reason why the home grounds on the farm should not be as attractive as its counterpart in town. The basic principles used in planning the home grounds on the farm are identical with those used for urban grounds. A well-planned, well-planted property should be simple, attractive, practical and of greatest use to the home owner, and easily maintained.

The location of the farmstead is important. It should be in an area reasonably well drained, but nearness to a supply of good water should also be a factor in selecting the site. Eight to 10 acres provides ample area for a farmstead, to include shelterbelt, small orchard, vegetable garden, lawn and sitting out area, flower borders, and farm buildings with accompanying yards and night pastures.

A home owner in town cannot do much on his own to provide protection from damaging winter winds, but a farmer has an excellent opportunity to plant a shelterbelt, and in so doing, cut down his fuel bill, afford protection for his livestock, control the movement of snow and soil, and provide a beautiful setting for his farm buildings and ornamental plantings.

Bona fide farmers in the Canadian Prairies qualify for free trees for shelterbelt planting from the Forest Nursery Stations at Indian Head and Sutherland. Assistance is also given by Provincial Governments in planning and planting.

One prime consideration in planting of shrubs and trees, and also in other phases when planning the grounds, is that maintenance can be quite costly. It is important that trees be spaced far enough apart, and cultivated areas large enough, that the bulk of the work in cultivation be done using the farm machinery. There are not many farm wives who would like to spend the bulk of their summer time hoeing around an acre or so of trees.

The orchard and the vegetable garden on farms are more important than in town. A well constituted orchard should have several apple and crabapple trees for fresh fruit and for preserving, as well as a few sandcherry plums, raspberries and strawberries and one or two currant and gooseberry bushes. If the rows of fruit trees are spaced sufficiently far apart, the area between the rows can be utilized for a number of years for growing smaller fruits or vegetables.

The vegetable garden should be large enough that one-half of it can be in garden, while the remainder is summer-fallowed to conserve moisture, and to decrease damage from insects and diseases. Perennial vegetables such as asparagus, perennial onions, rhubarb and horse radish, should be located at one end or in a corner of the garden, so that machinery can be used to the best of advantage in cultivation. Rotation of crops in the vegetable garden is as important as it is with cereals.

The area immediately surrounding the farm house should be developed to include an open lawn, foundation plantings around the house, sitting-out or recreational area, and whatever flower beds and other ornamental plantings

may be needed or desired. Trees and shrubs should be located in attractive group plantings at the edges of the lawn, and around the house to add interest, and to provide a background for lower plantings. The lawn will appear larger if the number of individual or scattered trees or shrubs is kept to a minimum.

Foundation plantings are located with particular attention given to ultimate height, suitability for the individual exposure, and the effect to be gained. It is not necessary to cover the foundation completely.

Low hedging or group plantings of suitable shrubs can be used to give privacy to an outdoor living area. Plantings of shrubs and flowers in this area should be so located that they can be seen to advantage from the kitchen window, without interfering with the view from the window of the play area for the children. The rear lawn or outdoor living area is the spot where the gardener's hobby for growing plants can be allowed full sway. A rose garden, perennial border, or rock garden where the terrain is suitable, can be located best here, where one can perform the many chores essential for proper maintenance. An ornamental crabapple can be planted 20 to 60 feet into the sun from the sitting-out area, or other points where shade is required.

The important questions the farmer and his wife should ask themselves on the horticultural development of their farmstead are:

(1) Have we provided for the utility and ornamental plantings needed for the protection, welfare, enjoyment and recreational needs of our family?

(2) Have we planned our farmstead for ease of maintenance by the maximum use of permanent material, adequate spacings, group plantings of shrubs and trees, and of plants requiring a minimum amount of care?

Home grounds on the farm as well as in town should reflect the personalities and tastes of the individuals. Because of this it is important that the farmstead plan should be worked out by all members of the family. Even though many homeowners claim that they are not familiar with many of the plants in use in modern landscaping, it is important that they do not turn over the complete job of landscaping to an outsider.

The Lily Pool

by
DAISY M. CHEESBROUGH
Furness, Sask.

So many people who were interested last year in my experience with a lily pool wrote for advice that I thought I would like to add a few further notes.

My lily was superb last summer. I left undisturbed an offset it had produced the previous year and on May 16 the box was taken from its winter quarters in the cellar and sunk in the pool. It bloomed first on June 23 and missed only one day from then until August 23. Sometimes there were as many as six blooms at once.

If you want to see goldfish at their best, put them in a lily pool. The water-bugs that come from who-knows-where, and the insects that fall in, will feed them well and the tiny, 29 cent size fish from the local store will be at least 4 inches long by freeze-up.

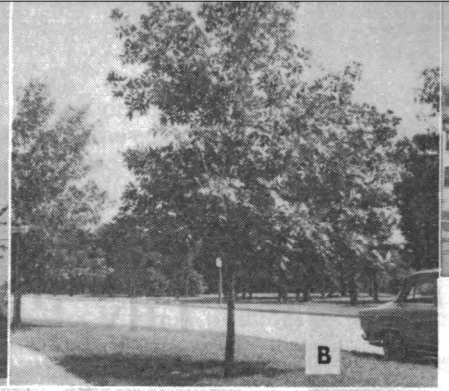
We had snails, too, some bought and some collected from near-by sloughs. These increased in numbers rather than size. One day, in the fall, I counted 85 on one side of the pool. Snails are invaluable for keeping the water clean.

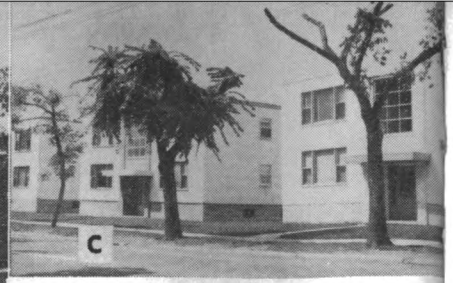
My pool was dug deeper last year. This saves constantly topping up in hot weather. The shelf, too, was deepened, and my water poppy thus was set too deep and nearly ruined before I recognized the trouble and raised the box onto a rock. This accident ran the blooming time late but I hope to try this plant again next year. Water garden firms always state correct planting depth and it would be wise to take heed. Depth is measured from the crown of plant to surface.

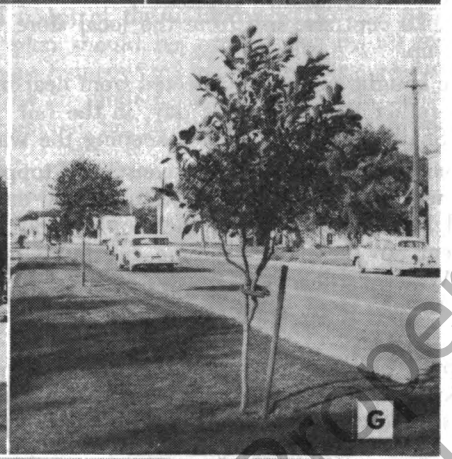
Besides the water poppy I bought an oxygenating plant and a trailing, non-blooming water plant known as parrot feather. This has bright green, attractive foliage but grows prodigiously and straggles. It is improved by severe pruning.

For the second year running I bought water hyacinth. The first year one of the plants bloomed—a pretty mauve flower—then both plants died. The second year I had three plants but though all survived until the frost none bloomed. This scourge of tropical waterways in Florida, the Sudan and other places, spreads as a noxious weed and is supposed to be ruined by only two things, brackish water and temperatures below 28 degrees. I must add a third, me.

EDITOR'S NOTE: *Notice several Kochia in accompany photograph. This is of course an oversight on Mrs. Cheesbrough's part. Please refer to page 47. "Once a Garden Plant—Now a Noxious Weed."*







A. Elm trees, planted in alternating rows on a center boulevard — with sufficient space to grow.

B. Ash trees on a wide city boulevard.

C. American Elms under a Hydro line. These trees had to be cut back severely and thus give a rather poor appearance.

D. These fast-growing Poplars have already reached the Hydro lines.

E. European White Birch on a narrow center boulevard. An excellent tree for this purpose.

F. Well-shaped American Mountain Ash on a city boulevard.

G. The Shubert Choke Cherry has proven to be an outstanding small boulevard tree.

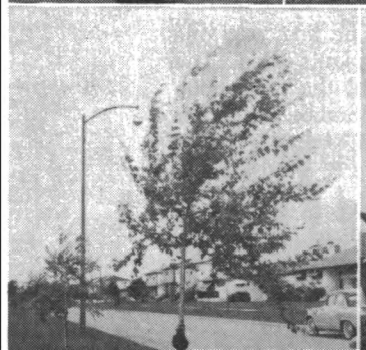
H. Paper Birch as boulevard tree.

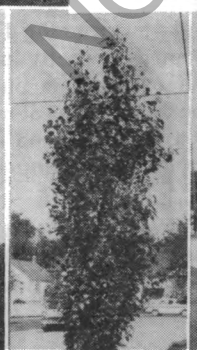
I. Pyramidal Crab Apple is suitable for narrow spaces. And is very showy when in bloom.

J. The Pyramidal Birch is very useful where space is limited.

K. An excellent specimen of Scotch Pine. Not very suitable as boulevard tree because of its bushy growth.

[G. A. Schoch photos





New Boulevard Trees for the Prairie Provinces

by **GUNTER A. SCHOCH, N.L.I., Landscape Assistant**
Parks and Protection Division
Metropolitan Corporation of Greater Winnipeg

Wisely selected trees, properly located and maintained, represent an asset and economy for the future of any community. On the boulevards of our cities and towns, however, we do not always find wisely selected trees, and hardly ever find properly maintained trees. This is especially apparent in municipalities without proper park and boulevard authorities, where the planting and maintenance is left to the discretion of the individual home owner.

In the Greater Winnipeg area at least some standardization has been established, as far as locations for trees are concerned. The Greater Winnipeg Underground Structure Committee has issued certain rules, determining the exact location for boulevard trees. All underground structures had to be considered, each of which has an appropriate space within the street allowance. The Winnipeg Parks Board developed further standards by establishing a certain distance between trees of different species used on boulevards. Also, the minimum distance between tree and intersection or utilities has been laid down.

The number of species usable as boulevard trees within the Prairie Provinces is rather limited. The American Elm and Green Ash are still the most widely planted varieties although they are often unsuitable especially where narrow streets or overhead wiring exist. The usual result is a row of trees cut back so severly that only a few feet of the main branches remain. In the following years, the new shoots appear very densely and, if not pruned every year, a proper crown can never develop. But we do not only have to look "up" for difficulties. The roots of larger trees are often responsible for considerable damage to curbs, sidewalks, and street heaving.

The logical question arises, "Why not use smaller varieties where the space is limited?" Some interesting experiments in this direction have been undertaken in Winnipeg. Boulevards on two streets were planted in 1958 with trees of the following varieties:

Aesculus glabra	Ohio Buckeye
Betula pendula	European White Birch
Betula pendula gracilis	Cutleaf Weeping Birch
Crataegus oxycantha x succulenta	Toba Hawthorn
Malus baccata	Siberian Crab Apple
Malus baccata columnaris	Pyramidal Crab
Pinus sylvestris	Scotch Pine
Prunus virg. melanocarpa var.	Shubert Choke Cherry
Pyrus ussuriensis	Ussurian Pears
Sorbus americana	American Mountain Ash
Syringa amurensis japonica	Japanese Tree Lilac
Tilia cordata	Littleleaf Linden
Ulmus pumila	Siberian Elm

At the present time—4 years later—some illuminating observations can be made. Most of the trial plantings developed excellently and have proven

to be quite adequate. Most compliments from the public have been received regarding the pyramidal crab apple. This species makes a real showing when in bloom. Their narrow, upright growth makes them very suitable where only limited space is available. The latter also applies to the Pyramidal Birch. The European White Birch shows very satisfactory growth and is preferable to the native Paper Birch. The leaves of this tree stay green until late in the fall and remain on the tree during the winter.

The Ussurian Pear and Siberian Crab are also quite showy when in bloom. However, for boulevard plantings, they should be developed into a high-stem tree. This might also be difficult with Scotch Pine and Toba Hawthorn. They tend to grow bushy. Plantings of this nature are not permitted in some municipalities, according to local Parks Board By-Laws.

Ohio Buckeye seems to be difficult to get started on boulevards while Japanese Tree Lilac makes an excellent small tree. Siberian Elm, of course, has proved to be very suitable and can be easily developed into a high-stem tree. In its ultimate size, it can not be called a small tree. This also applies to Littleleaf Linden. This is an excellent tree, where sufficient space is available. The American Mountain Ash might grow satisfactorily for several years but there is always the possibility that Chlorosis and Sun Scald would appear. The Shubert Choke Cherry is recommendable. This is a very colorful tree which grows successfully on some Winnipeg boulevards.

Wires, underground structures, above ground utilities and trees can live together on our highways and streets. They can do so harmoniously for many years, if consideration will be given to tree variety and planting location.

Training Young Apple Trees

by **P. J. PETERS, Manitoba Department of Agriculture and Conservation**

Young apple trees are trained to give them the desired form and to develop a strong frame work that will support the fruit in later years. Heavy pruning tends to delay fruiting. It is important, therefore, to prune only enough to develop a strong framework of scaffold branches.

The training of the young tree should start as soon as it is planted. At this time the root system of the tree is much reduced from having been dug in the nursery and pruning will make up for the loss of roots as well as help to shape the tree properly. In general, pruning should be done when the leaves are off, that is when the tree is dormant. The pruning wounds heal most rapidly when the pruning is done in late March or early April, just before growth starts in the spring.

Illustrations by
A. GUDZIAK, University of Manitoba

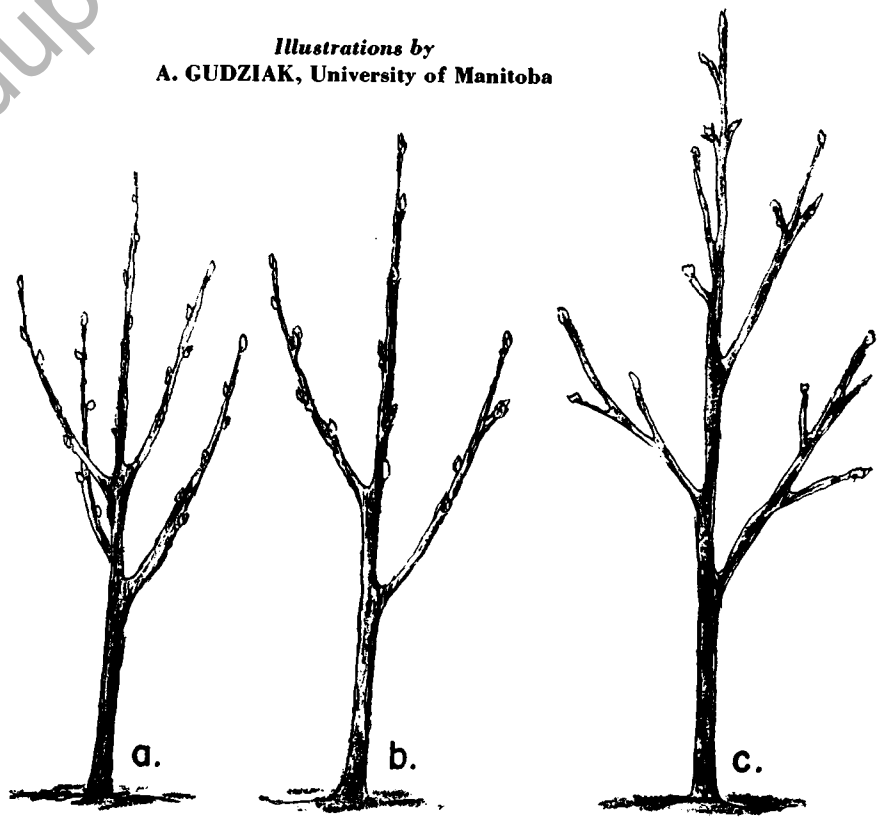


Figure 1.

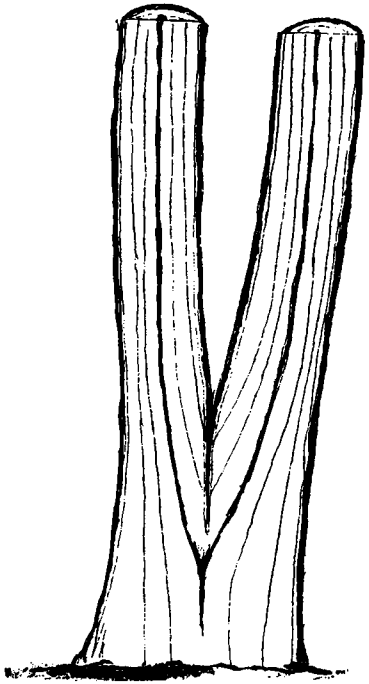


Figure 2.

There are many methods of training young apple trees but the most popular is the modified leader type. A well developed modified leader tree is one with a central trunk several feet long from which a number of main laterals or scaffold branches arise. The scaffold branches should be at least 18 inches apart and should be evenly distributed around the central trunk. The lowest scaffold branch should be 18 inches or so from the ground, though this is a matter of personal preference. One or two of the scaffold branches should be allowed to develop on the southwest side of the trunk; this could help somewhat in reducing injury from sunscald.

The first steps in training are shown in figure 1. (a) shows the nursery tree after it has been planted in the home garden. Figure 1 (b) shows that same tree pruned so as to retain only two scaffold branches. Figure 1 (c) shows the same tree the second year after planting. Notice that a third scaffold branch has been retained at this stage.

In selecting the scaffold branches it is important to retain only those that form wide angles where they join the trunk. Narrow-angled or V crotches are weak and tend to break in a storm or under a heavy crop. Figure 2 shows the grain of an undesirable V crotch; such a crotch will split open sooner or later. In figure 3 we have an illustration of two crotches. Figure 3 (a) shows the desirable wide-angled crotch and 3 (b) the narrow-angled or V crotch that is most undesirable.

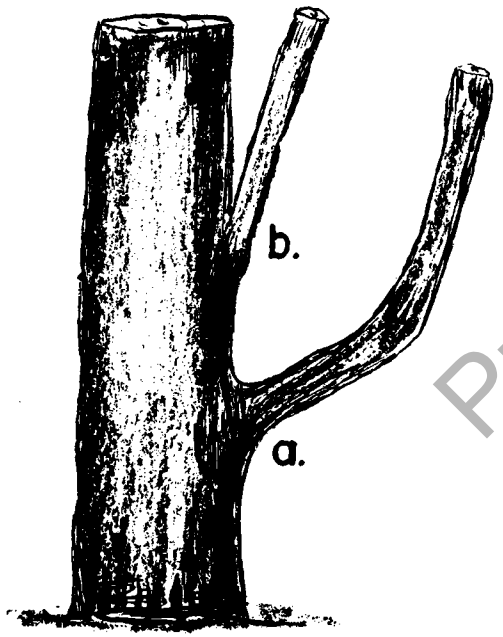


Figure 3.

Death enters by an open door. Stubs are such open doors; never leave stubs. In cutting off a branch or shoot make all cuts close to the member from which the part is cut off. Always make a smooth cut; it is the smooth wound that heals most easily. Figure 4 (a) shows the healed wound from a proper cut. Figure 4 (b) illustrates the ugliness of improper pruning. It is through these stubs that decay enters the trunk.

When heading back or cutting back a branch some training can be done by the position of the cut. In Figure 5 (a) it was desired to have the terminal or end bud develop into an upward pointing branch so the branch was cut back to an inside or upward-pointing bud. Figure 6 (a) shows the upward pointing branch that developed from the cut

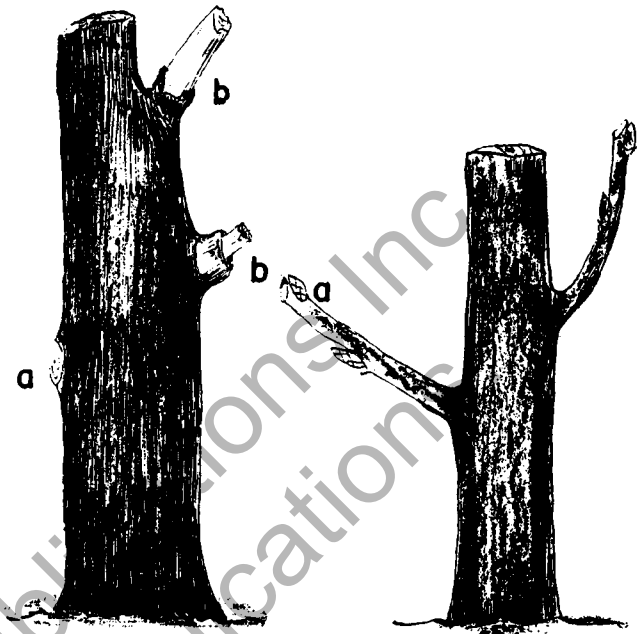


Figure 4.

Figure 5.

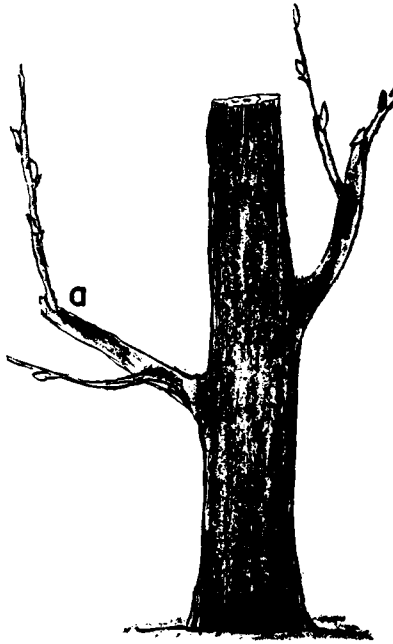


Figure 6.

made in 5 (a). The cut in 5 (b) was made in order to obtain the outward-pointing branch that is shown in 6 (b).

Good sharp tools will make the pruning job easier. The two essential tools for training young apple trees are hand sheers or secateurs and a good sharp pruning knife.

Training a young tree requires care. Knowing the principles involved and following a definite plan will help the novice. The preceding illustrations should be of help in training your young apple tree both for the sake of form and for better bearing. With a bit of luck you will find pruning a rewarding and creative art.

The Pembina Garden Club

Pibroch, Alta.

We have a letter from (Mrs.) Mable Moreland, secretary-treasurer of the above club outlining how kindred spirits in her town finally gathered together in the spring of 1961 to form the Pembina Garden Club.

In her words, "We had good material to begin with, conditioned experience, mellow nature, some mountains, plains and hills, as well as other contributions, which build good firm tap roots, for future reserve.

"The first fruits numbered 40, and though some wilted, we gathered as many more. The atmosphere is always happy and 'humidity' keeps the 'plants' well nourished.

"For 'Conditioning' tours, local fair displays, also a float for which we received first prize both summers. We were also awarded first prize in the Community Display class at the Edmonton Horticultural Show."

Mrs. Moreland also makes mention of several outstanding gardens in their area. In all, she gives us a picture of a happy energetic group of gardening friends working for the betterment of their community. We wish them well.

There Is A Corner In Your Garden Suitable for A

Rock Garden

Marsh Marigold. (Caltha Palustris)

by **CHRIS PLEJDRUP**
Horticulturist, Winnipeg Board of Parks and Recreation

A rock garden takes only a fraction of your garden area, but it can be the most interesting part of your garden, whether you have an acre or just a few square yards at your disposal.

It is interesting for several reasons. In a rock garden you can grow a great number of the most beautiful plants which will bloom from early spring until late fall. There is always something new in a rock garden.

Once you become a rock garden enthusiast then you just cannot stay away from it. There are always weeds to be pulled or something else to do. You just cannot pass by your rockery without stopping and doing something to it; and no matter how good a job you do of weeding, there is always one more to pull in that corner or under that phlox. It is just like finding excuses to fuss over your new baby. It becomes a real pleasure, not a chore which must be done.

There are literally hundreds of rock plants, bulbs, dwarf shrubs and evergreens, which are hardy enough for this garden. It is easy to select plants so as to have continual bloom, and the foliage of many of them is as beautiful as the flowers themselves.

With a few instructions and simple facts to bear in mind, it is very easy for anyone to build a rock garden if no experienced help is available. Certain fundamentals in construction must be followed in order to avoid too many failures.

Sunshine and drainage are the two essentials to success. It is useless to attempt to grow a characteristic collection of Alpine plants on a rockery in the shade. Some shade plants will bear sunshine, but sun-loving plants will not do well even in partial shade. There are a good number of plants which are adapted to shade or partial shade.

Usually a corner of your garden is the best site for a rock garden. Very often it can camouflage a garage or some other object. If this is the case, then a trellis with creepers is attached to the object to be camouflaged, and a dry wall of concrete blocks, brick or some other material must be built to retain the soil, and prevent it from coming in contact with the wall of the building, leaving a space of 12 to 18 inches between the dry wall and the building. In this space the creepers are planted. Suitable vines are: Clematis jackmanii, Clematis tangutica, Clematis paniculata, Engelman ivy, or annual creepers, Morning Glory, Cobaea scandens.

A rock garden looks best when the central area is raised above the ground level at least 2 or 3 feet, then sloping away in two or more directions in a series of steps down to ground level.

Having chosen the site, the next thing is to provide a proper foundation. If the ground is clay, it should be dug out from 12 to 14 inches deep, and good soil filled in. The subsoil dug out can usually be utilized in building up the rear portion of the rockery, but all areas must be covered with at least 1 foot of good, mixed soil. You could use one-third black soil, one-third leaf mould, one-third sand, adding some rotted manure and small chips of stone.

When your retaining wall is built and your foundation is prepared, then dump your mixed soil in two or three piles at least 12 inches higher than your finished height, on the area involved. Now try to get some picture in your mind as to what shape you want your rockery. By pushing your soil around in different directions you can make any shape you want, and it is easily changed from one contour to another. Thus you form the shape of your layout before placing any stones.

If you have a few extra nice stones with special markings or shape, then place them first, but in all cases start at the bottom and build up toward the top and center of your project. Build more or less in step fashion, but provide plenty of room for plants, and wherever possible have the stones resting one corner on the stone below to assure a firm foothold, as you will be walking a lot on the rocks when you are weeding and planting.

It is not easy to tell you how the rocks should be placed; each person must use his own judgment, and very often we find amateurs building far more artistic rock gardens than the so-called experts. The idea is to use as few stones as possible for the effect desired, and to set them so that they look like a natural formation.

Lay your first row all around your rockery in an irregular outline, receding here and jutting out there, so that you develop little promontories and bays. Fill in around each individual stone and pack it solid so that the plant roots will find soil behind the stones and not just air. The strata of limestones should, of course, lie horizontally.

Now pull the soil down from your heaps and make room for the next layer of stones. Proceed to lay your second row or layer, setting them in far enough so that they rest on the back of the first row, and slanting slightly inward so that they will direct the water toward the base of the plants. This is very important. We want the moisture retained as much as possible. Cover the greater part of your stones with soil, and in some places create little bays receding into your rockery. The size of these of course will depend on the area you have to work with. Place some flat stones in such a way that they form stepping stones through your rockery; you will appreciate them later.

Some Do-Nots

DO NOT attempt to build a steep bank in a small area. The soil will wash away from the plants in heavy rains.

DO NOT make a mound and then throw in your rocks. It will only be an eyesore.

DO NOT arrange your stones in such a way that they stand on end. It is good construction to place the stones on their broadest base. In this way they can be laid firmly. The grain of the stones should tend to run in one general direction.

DO NOT build your rock garden in the center of your lawn. It is always better against a wall in the corner or at the edge of your garden.

DO NOT use broken concrete or bricks, or your rock garden will not look natural.

Some New . . . Some Old . . .
But All Hardy and Available

A Few Rock Garden Plants

by D. B. McNEILL, B.S.A., Dropmore, Man.

There are many bright and attractive rock garden plants that can be grown in prairie gardens if a few simple rules are borne in mind.

First, plants of this type like a sunny exposure in well drained and friable soil but at the same time they should never be allowed to become dust-dry in summer.

A selection of varieties that have proved hardy and easy of cultivation at Dropmore follows, but there are of course many more equally worthy that will give a good show and whet the appetite for more.

Achillea ageratifolia—narrow, grey leaves about an inch long, and clustered heads of pure white flowers in mid-summer; grows about 8 inches tall. *A. clavennae*—this also grows about 8 inches tall but the grey leaves are spoon-shaped and about 4 inches long.

Ajuga reptans rubra—makes an excellent ground cover even in shady places; the purplish leaves have a metallic sheen. The small blue flowers come in 6-inch spikes.

Allium Moly—some of the species Onions are very ornamental and well suited for the rock garden. A. Moly, the Golden Onion, has 9-inch spikes of bright, golden yellow flowers. *A. Ostrowskyana*—grows only about 6 inches tall and its heads of flowers are rose-colored. A. *zebdanense*—is one of the choicest of the lot. Its heads of pure white flowers are borne on slender 12-inch stems during June. This beauty comes from the high mountains of Asia Minor and the Caucasus.

Alyssum idaeum—a prostrate mat of silvery leaves little larger than those of thyme. The yellow flowers are like those of *A. saxatilis* but its greatest beauty is in its mounds of small, silvery leaves.

Anemone patens ochroleuca—Though our native anemones of this type will grow, at least with me, only on a made soil of very sandy or gravelly loam, the European varieties will grow on ordinary soil and flower for much longer than their Canadian relative. The one mentioned here has pale yellow flowers but *A. montana* has dark purple flowers and *A. georgica* very large, blue flowers.

Callianthemum rutaefolius—has bluish foliage that reminds one of some of the dwarf aquilegias; the pure white, 1½-inch wide buttercups are in bloom in May and early June. This prefers a good rich soil that holds moisture throughout the summer.

Campanula carpatica—is one of the easiest of the dwarf bellflowers that continues in bloom for a long time. It grows about 8 inches tall and can be had in white as well as blue. Our own harebell *C. rotundifolia* does well under cultivation and blooms for a long time in late summer.

Erigeron leiomerus—with its pale blue daisies on 4-inch stems comes from the Medicine Bow mountains of Wyoming where I collected it over 30 years ago. This makes a neat mat of spoon-shaped leaves. *E. la Console* is a hybrid between *E. aurantiacus* and *E. alpina* both of which have been hardy at Drop-

more. It was recently at the Geneva Botanic Garden and was one of the treasures given me by Dr. Zimmerman when I visited him in 1961. The 1½-inch wide daisies start out orange and as they mature become a deep rose. They flowered freely at Dropmore from August to late September.

Iberis pygmae–a miniature, evergreen candytuft growing only about 3 inches tall. *I. jordanii* grows to about 6 inches tall and is much neater in habit than the more common *I. sempervirens.*

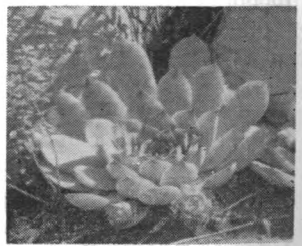
Lavandula angustifolia–I had the pleasure of seeing this lavender in bloom on the high Alps of eastern France at an elevation of 6,000 feet in an alpine garden at Lautaret from which I received seeds in 1960. It has proved quite hardy when grown on a well drained sunny location but is apt to winterkill on a cold, wet soil.

Phlox Divaracata.

Phlox boreale – has rose-red flowers much like the old *P. amoena* but its narrow, deep green leaves are very attractive, especially when they emerge from the snow in early spring. *P. divaracata* – the wild Sweet William of Minnesota, can be grown either in sun or shade and blooms in June. *P. subulata* comes in a great variety of named and color varieties from pure white to the dark red of Temiskaming.

Primula auricula–probably is one of the easiest primroses to grow if two things are borne in mind; it cannot stand water on its crown in spring, and while it likes full sun it should not be allowed to become too dry in summer. The old common yellow species is very fragrant and quite easy, and of the hybrids I have raised some are very near white to blue, purple, and reddish to dark brown. *P. cortusoides* and the almost indistinguishable *P. saxatilis* are natives of Siberia and will grow in almost any friable soil in either sun or shade; they require a bit of water in hot, dry weather. *P. longiflora* belongs to the farinosa group and is a little less tolerant of extremely hot, dry weather than the other two, so give it a cooler spot and water when necessary; grows about 6 inches and has pink flowers.

Sedum brings us to a family that like plenty of sun and for the most part very good drainage. S. *album* has round, fleshy leaves and 6-inch panicles of small white flowers spotted with red. S. *hybridum* will grow as well in shade as in sun and is a most excellent ground cover, especially for a dry stone wall. It is evergreen and if the flower heads are cut off as soon as they fade it forms a dark green carpet throughout the whole summer. S. *kamtschaticum variegatum* has leaves that are variegated with yellow and red; it flowers are yellow but its leaves are really the most showy part of the plant; splendid as an edging plant.



Sempervivum Tectorum.

Sempervivum – houseleeks, hen and chickens all like good drainage and plenty of sun; the flowers, like those of many of the sedums, are not very showy but the fleshy rosettes of leaves vary in both size and coloring. S. *tectorum* with purple-edged leaves will have rosettes up to 5 inches across. S. *globiferum* has green rosettes up to 2 inches while the cobweb houseleeks, with their leaves covered with hairs, giving them a cobweb-like look, may have rosettes not more than half an inch. All like a sunny ledge facing south.

Thymus–here again we have a family of ground covers that prefer sun but will stand a certain amount of shade, especially if growing in a warm, sandy loam. *T. serpyllum lanuginosus*, the woolly thyme, will spread into a nice carpet though it seldom flowers. *T. serpyllum albus* has very small leaves, is seldom more than an inch tall, and is studded with white flowers in mid-summer. *T. odoratissimus* is more like the common thyme growing about 6 inches tall; sometimes it is known as the Ukrainian or Russian thyme and it is very fragrant.

Trifolium repens quadrifolium atropurpurea–is the imposing name of a creeping, purple-leaved clover that usually has four or five leaflets and sometimes is called the shamrock. It will spread into a nice purple mat but is not nearly so invasive as the Dutch Clover.

Tulipa tarda–is one of the very early and very hardy dwarf tulips. Its flowers are star-shaped, open out almost flat, and are white with a yellow center. Usually it has four or five flowers on a stem and if planted in a warm, sunny spot will increase in numbers without any special attention.

Tulipa Tarda.

Veronica pectinata–is a prostrate variety with woolly leaves and its flowers may be either pink or blue. V. *prostrata* has neat mats of evergreen leaves and 4-inch spikes of brilliant blue flowers in June. V. *teucrium austraicum* grows about 8 inches tall and in mid-summer is covered with spikes of brilliant blue. Ordinary friable soil suits all the veronicas.

Vinca minor–is a most excellent evergreen ground cover for sun or light shade; it has inch-wide blue flowers for quite a long time in summer and sometimes is called myrtle. There is a deciduous vinca V. *herbaceea* that prefers a well drained, sunny bank facing south; this increases by strawberry-like runners, and in a well drained spot its runners will bind a slope firmly.

Yucca glauca–This is said to be native of the Cypress Hills of Saskatchewan but I have collected it from North and South Dakota, also from Montana and Wyoming. It is always found on well drained prairie or slopes facing south. It grows about 18 inches tall and is quite thrifty to grow in a light, well-drained soil.

Yucca Glauca.

Rock Garden Annuals

by **HECTOR MACDONALD, F.R.H.S., Supervisor, Assiniboine Park Metropolitan Board of Parks and Recreation, Winnipeg, Man.**

Most of the available perennial rock garden plants are early blooming, and so our rock gardens are not too colorful from mid-July onwards, there is a simple way to keep color and interest in our rockeries till frost; sow hardy annuals.

Checking through an English seed catalogue we prepared part of the following list of annuals that can be seeded outdoors where they are to bloom and short enough in stature to look in place in a rock garden. Most rockeries have spots where a few seeds can be tucked in, and where scillas, dwarf tulips and other early-flowering bulbs are grown, the seeds of annuals can be sown among the bulb growth and as the bulb growth ripens the annuals will take its place.

Let's start off with the Alpine poppy, *Papaver Alpinum,* a perennial but in our area can be treated as an annual, blooming the first year from seed. Six inches high, mixed colors.

Ionopsidium Acaule, Violet Cress, a tiny plant, white flowers tinged violet, will reseed itself.

Virginian Stock, *Malcolmia Vana Compacta,* mixed colors, six inches, a cheery little plant.

Silene (Catchfly) *Pendula Compacta,* offers mixed colors, and named varieties in white, pink and red.

Viscaria Nana Compacta, Blue Gem, Rosy Gem and mixed are all six inches tall.

The above are samples of the many rock garden annuals in the English catalogue we perused.

We next turned our attention to local seed lists and found *Zinnia* Thumbelina, new in '63, six-inch miniature zinnia plant, ideal for rock work.

Dianthus, Wee Willie, it has a good reputation as a colorful little character.

Sanvitalia Procumbens, Creeping Zinnia, yellow blooms with black centers.

Linaria Maroccana, can be had in several strains of mixed colors, Excelsior, Fairy Bouquet and Northern Lights are all delightful.

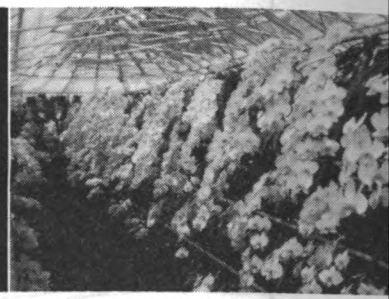
You don't need to have a rock garden to enjoy these little plants, they will make a brave show on the front of your flower border or in any sunny corner that needs brightening up.

Anyone Can Grow Orchids

by **DENNIS KURTZ, Virden, Man.**

Cattleya Orchid.

Cypripedium Orchid.



Phalaenopsis Orchids.

Orchids, the elite of the plant world, commonly are believed to be hard to grow. However, the orchid is finding its place now in our homes as many kinds enjoy the same temperature range that is found in our homes.

There are over 18,000 kinds of wild orchids, making it the largest plant family in the world. There are also hybrids that number in the thousands. Contrary to popular belief, orchids are not parasites; epithal orchids cling to trees only to rise out of the thick jungle undergrowth so that they can get more light. They receive their nourishment from the rotting leaves in the tree crotches and from the air. There are also terrestial orchids that grow much the same as other plants.

Three kinds of orchids are especially suited for house culture. They are:

1. The Cattleya, commonly seen in the florist shops. Their flowers last about 3 weeks and often are delicately fragrant. They bloom only once a year, as do most other orchids, and always at the same time each year. They range in color from mauve to purple, white and even yellow.

2. The Cypripedium, a tropical relative of our beautiful wild lady slippers. Their flowers look as if they were carved from wax, and range in color from yellow to mahogany, and even purple and green.

3. The Phalaenopsis, whose flowers often last several months. Their flowers resemble large white moths and also are available in pink. They are a remarkable plant in that when their flowers are finished, the flower stem can be cut back half way and will bloom again.

There are still other kinds of orchids that are easily grown in the home; you will be sure to want to try them after you have succeeded with the previous kinds.

Here are a few hints on orchid growing that will help you to succeed:

1. All orchids like humidity, and to grow them well they require a relative humidity of at least 30 per cent. This is easily maintained with a humidifier.

2. Before starting to grow orchids, you should buy a book on growing orchids in the home. About the best book on the subject is Orchids as House Plants by Rebecca T. Northen. It sells for about $6.

3. Do not be misled by advertisements that claim to tell you the secrets of growing orchids; these courses are expensive and a cheaper book by a well-known author will supply the same amount of information.

If you use common sense and go by the book, you too can be the envy of the neighborhood and enjoy the thrill of growing the most exotic plant in the world.

Once a Garden Plant . . .
Now a Noxious Weed

by **MRS. BLANCHE BROWN, Dauphin, Man.**

The forward step in horticulture and, yes, the thoughtlessness of some gardeners, have caused one of the loveliest pyramidal-shaped garden plants of all times to be put on the black list, by those in authority.

The lovely kochia bush is now in disgrace and branded a noxious weed, partly because of what it is, and partly because of what we as gardeners have done with it, or, I had better say, because of what we have not done with it.

This past fall's release about kochia brought back many memories of when I was a child (and that is a long time ago) when my father, J. S. Warrington of Russell, was known for his gardening ability all through the province, having been a top exhibitor and later a judge at the Winnipeg flower shows. His trophies are now in the homes of his family.

When I was a young girl, kochia was thought of as a delightfully green plant, that grew just the right height for a low hedge, or for a backing for lower-flowering plants.

Here was a most versatile plant, needing no trimming to keep it in shape, no coaxing to make it a fresh green, no special food of any kind to make it turn into the loveliest variety of fall shades to bring beauty to any garden spot, when autumn came around.

My thoughts go back to when my childhood friends and I would play it was Christmas time (as is the habit of children). We did not need to break branches off spruce trees to form a Christmas tree, we just begged a plant of kochia, which of its own accord was shaped like a perfect spruce tree (and there are those who could wish their spruce trees were so shaped).

Through the years this plant has come and gone from many gardens in Manitoba, but it seems such was not the case in some areas. It was not the forgotton plant in the true sense of the word, but it was in that it was not kept under proper control, and the seeds that ripened were "gone with the wind" when the strong fall gales whipped across gardens and fields.

This, of course, upset the proverbial applecart, as each plant produces thousands of seeds that are prolific growers, and the grower, not sensing what was happening, let the seeds ripen, and the wind take the plants and roll them across the fields. In this way the plants spread and multiplied incredibly until they had taken hold of fields and gardens to such an extent that the proper authorities had to put a ban on gardeners growing this otherwise lovely plant known by three names: Kochia, Summer Cypress or Mexican Burning Bush. Those who know the plant can readily see how it could be known by any one of these descriptive names.

Gardeners are asked in all fairness to themselves and to others to refrain from growing these plants, by whatever name they may be known, and if the weed has gained control in their area it may be killed with an application of relatively light 2,4-D, if treated early in the season.

Let's comply with the regulations set up for our protection and refrain from growing this outlawed kochia, even if it does bring moments of regret, to some and a feeling that the guilt is ours, not that of this once proudly grown plant.

Experts, Quacks and Dunderheads

by **STAN SHEARD, Horticultural Specialist**
Saskatchewan Department of Agriculture

Scattered across Canada is a vest network of research stations, universities, agricultural extension services, horticultural and agricultural societies, and goodness knows how many other agencies, all dedicated to helping home gardeners with their million and one problems.

But home gardeners in the main are an odd and unpredictable lot. They will neither seek nor accept the reliable help which is available to them—at least not until it's too late for reliable help to do them any good.

When Mrs. Jones, for instance, wants to know how and when to prune her rose bush she discusses it first with the milkman and the baker. After following their advice and the rose bush doesn't bloom that year, she then contacts the university or department of agriculture and insists that someone be sent out immediately to look at her "diseased" rose bush.

Similarly, when Mr. Brown is ready to seed his lawn he'll drop in at the corner drug store and ask the pharmacist about the right kind of grass seed to use. A few weeks later the local extension horticulturist will get a phone call or a letter from Mr. Brown enquiring how he can get rid of all the coarse grasses which have come up in his new lawn.

The horticultural field is crowded with self-styled experts, from "Old George" up in the next block (Got a green thumb 'e 'as!) right down the line to the radio announcer on the morning or afternoon coffee hour program; and the sad part of the story is not that such people exist but that home gardeners listen to them and believe that every word they say is gospel.

Last spring I stood by while a grocery store clerk tried to sell a customer here in Regina a magnolia tree. I have also been told by the manager of a local store that climbing roses and weeping willows not only are hardy here but are being grown in profusion in the city.

Every spring we pound away at the gardening public to be careful what they buy, but every spring they go out and spend hundreds of thousands of dollars on worthless plants. One businessman summed it up by saying that he couldn't stay in business if he refused to sell plants which were not reliable. "The buying public," he said, "don't want to be protected. If I refuse to sell climbing roses my customers will go somewhere else to buy them."

Then there is the fancy newspaper and magazine advertising, covering everything from climbing strawberries and ailanthus trees to "49 flowering shrubs all for $2.98." Home gardeners in Western Canada pour out thousands of dollars every year on this worthless junk. Lately, too, there has been a rash of syndicated articles in newspapers and magazines and a series of sponsored radio talks, mostly by people no more qualified to give gardening advice than they are to pull teeth. But home gardeners swallow this sort of guff and so it continues.

Yes, home gardeners really are strange people! If they want legal advice they go to a lawyer; if they want medical advice they go to a doctor; and when the car won't run usually they call on a qualified mechanic. But oh, brother! when they want information on gardening, the barber, the drug store clerk and a disc jockey at a local radio station are the final authorities.

Ah, well, you can't win 'em all!

Nuts *for* Prairie Gardens

by **W. R. LESLIE, LL.D., Landscape Consultant, Winnipeg, Man.**

Some plant adventurers have been growing crops of nuts in their gardens for a number of years. Butternuts and black walnuts bear substantial crops in sheltered orchards in Alberta, Saskatchewan and Manitoba. These tree nuts are much more impressive than the two native hazels or American filberts which are found in the wildwood. However, prairie Indians appreciated the hazels and considered them a fine source of food which could be stored dry for indefinite periods.

Beechnuts, sweet chestnuts, and Persian (or English) walnuts are too tender for our long winters and dry atmosphere. In southern Manitoba two commercial tree nuts from the Far East continue to grow but sometimes suffer top-killing during adverse seasons. They are the Siebold walnut and the Flat Siebold walnut or heartnut from Japan. Future selections from northern regions may result in our having strains that will be fruitful on the Great Plains.

There is much scope for investigation in local culture of nuts. Present knowledge indicates the following species to be deserving of planting here:

Black Walnut (*Juglans nigra*) of the hardy strain native to western Minnesota bears bountiful crops in favorable settings. The beautiful, stately trees enjoy fertile and fairly heavy soil. A whip-size transplant should come into bearing by the fifth to the seventh year. Production increases with growth of the tree. The rich, tasty meat is encased in twisting channels surrounded by hardy, bony shells. One method of gaining the flesh is to steep the whole nut in very hot water for a few minutes and, after knocking off the end of the shell, pulling it out with a pair of tweezers. It is rubbery at that time but becomes marrowy and tender upon cooling. Black walnut nutmeat is a prime favorite for candy making and for cooking.

Butternut or White Walnut (*Juglans cinerea*) is a sizeable tree but less lofty and less ornamental than the black. The leaves are covered with fine hairs. While the fruit of the black walnut is roundish, suggestive of a lemon both in shape and aroma, that of the butternut, which may be up to 4 inches long, is angular, pointed and sticky. The oily surface was a source of face dye for the Indian braves. Flavor and utility are much like those of the black walnut.

Manchu Walnut (*Juglans mandshurica*) comes from Manchuria. Although the ultimate height of the tree is less than our two American species, young trees grow more rapidly and the leaves are luxurious in appearance. A leaf made up of 9 to 17 leaflets sometimes has a length of 2 feet. The trunk bark is smooth and bluish in hue. The nuts, up to 2 inches long, are ovate to oblong in shape, and often occur in clusters of eight. Native walnuts seldom have more than three in a cluster, often only one or two at a fruiting point. Some of the nuts are rather bitter but other strains are considered acceptably edible.

Ohio Buckeye or American Horsechestnut (*Aesculus glabra*) is a dependable nut tree, being hardy and productive. The red nuts, which come in large, spined husks, are considered inedible but ornamental and are esteemed for the novel addition to our landscape plantings. The tree is slow growing. Its foliage becomes highly colored early in autumn.

All four of the above trees are best transplanted while young. They have thick, fleshy roots and suffer much shock when moved as large specimens.

American Filbert (*Corylus americana*) is a common component of undergrowth in prairie woods. Height varies from 5 to 9 feet. The nut is imprisoned tightly in the irregularly lobed husk. Clusters bear 2 to 6 fruits. The nut meat is pleasing to the taste and rich in nourishment.

Beaked Filbert or Hazelnut (*Corylus cornuta*) has a still more northerly range than its relative, the American filbert or American hazelnut. The husk, or involucre, is bristly and contracts beyond the fruit to form a long tube. The meat is esteemed.

Manchurian Filbert (*Corylus manshurica*), from northeastern Asia, is growthier than our two natives. The leaves are large and often lobed at the apex, giving a distinctive appearance. The large nuts, one to three in a cluster, have bristly, tubular husks about 2 inches long and are an ornamental feature of the sturdy bush.

Note that the European filbert (*Corylus avellana*) has so far failed to bear because of winter injury to the bushes. Moreover, some of the named introductions of our native hazel varieties are not dependably hardy. Seek guidance from your local provincial horticulturists as to varieties and source of adapted stock of nut trees and bushes.

Russian Almond (*Prunus tenella*) is hardy and showy but classed as inedible.

Siberian Almond (*Prunus pedunculata*) is a pleasing ornamental shrub of fine texture. The pink flowers are attractive and are followed by fuzzy nuts, copper-hued, and about one-third of an inch in diameter. The nut meat is enjoyed by some people. This 6-foot shrub from Siberia is one of the parents of the Prairie almond and this makes it of consequence to us even though the fruits are rather too small to be rated a popular source of nut meat.

Planting seed of nuts is recommended for early autumn. Sow in a sandy loam medium and at a depth of at least twice the length of the seed. Guard against mice and squirrels. In growing the crop, combat weevils by timely and thorough spraying.

Our Garden Club Friends Across the Border

We are privileged to have each year among our regular subscribers to The Prairie Garden, quite a number of Garden Clubs from Minnesota, North Dakota and Montana. We have no national borders. The Northern Great Plains is one climatic area.

At this time, we would like to make mention of just one, our most faithful, the Foster County Horticultural Society at Carrington, North Dakota. They have been organized for over 5 years and have some 40 active members from all over the county. They have a series of well-organized monthly meetings, and a number of local tours each year, while many of their members have taken a correspondence course in Flower Arranging from Penn State University.

We are also pleased to note that they are active in the Beautification Division of their Community Betterment Program and have taken as their special project the beautification of their Fair Grounds. They also sponsor the Horticulture Division at the local 4H Fair.

We are happy to hear from you Mr. C. H. Hunstad.

Evergreens on the Prairies

by P. J. MORAN, Director of Horticultural Services
Wascana Centre Authority, Regina, Sask.

The value of evergreen plant material is never more apparent in Saskatchewan than during the long winter months. Irrespective of whether they exhibit their deep green or blue color, or whether they take on a covering of snow or frost, generally they dominate the whole landscape picture.

When one considers that deciduous trees are in leaf for a limited period of approximately 5 months, the need for evergreen material becomes even more noticeable. This reason alone is sufficient for the widespread use of them; however, other considerations merit investigation. In comparison to deciduous trees and shrubs, evergreens give us the greatest amount of accent material.

Few deciduous plants provide such a wide range of shapes and sizes for our landscape needs as do evergreens. Compared with deciduous trees and shrubs, evergreens require little if any pruning. This is particularly true if selection is made with consideration of the ultimate size at maturity.

As expected, there are some limitations associated with the use of evergreens. Because they are relatively shallow-rooted, they are not as able to cope with extremes of soil moisture as deciduous material and therefore require more preferential treatment. Furthermore, few people recognize that since evergreens retain their needles throughout the year, they are therefore subject to loss of water through their foliage at all times throughout the year.

It follows that the need for heavy watering of evergreen material just prior to the fall freeze-up is imperative to assure spring survival. If this suggestion is followed, the damage due to sunscald, which is browning of the foliage in the spring of the year, will be reduced. It should be noted likewise at this time that if water is allowed to stand in the spring of the year around evergreens in excess of the normal period of run-off, subsequent exclusion of air from these shallow-rooted plants may result in the ultimate loss of such plant material.

Considerable discretion should be used in the selection of form and numbers of evergreens in any landscape composition as usually they will dominate it. Evergreens are relatively slow-growing after planting until they are well established. Material less than three feet high generally will establish itself more rapidly than taller material, and more success can be expected with the use of still smaller material.

Like most plants, evergreens are subject to attack from various insect pests and diseases. However, due to the limited ability of evergreens to establish new growth on older wood, attacks from insects and diseases are cause for a greater degree of concern. One further disadvantage associated with evergreens, and this disadvantage could be more closely associated with the people planting them, is that lack of consideration for the eventual height of some evergreens often leads to their eventual removal or abuse.

Spruce

Let us consider some of the material available that is considered hardy for our particular area (Regina).

There are a number of evergreens that are suitable as trees, Most everyone is familiar with the two forms of spruce which we normally refer to as

White spruce and Blue spruce. The white spruce (*Picea glauca*) appears to be faster-growing than the blue spruce, but, it seems to be somewhat more subject to infestations of pine needle scale. and due to its shorter needle does not appear as dense as Blue spruce. The Blackhills spruce *(Picea glauca densata)* is a slower-growing form and a more compact tree.

The Colorado spruce (*Picea pungens*) normally embodies those spruce which are commonly referred to as Blue spruce. Seedlings of Colorado spruce will vary from light green through to a more intense blue. Only a small percentage of seedlings will have an intense blue color and for this reason are more highly valued. As a result, two selected blue forms are being propagated by grafting as reliable blue specimens. The two selections are Morden blue spruce and Koster's blue and because they are vegetatively propagated are understandably more expensive.

It is generally accepted however that seedlings of Colorado spruce have superior form to the Koster's blue selection. It is likewise recognized that the more intense the blue coloring is in spruce, the more resistant they are to pine needle scale. Recognition is being given also to the fact that Colorado spruce appear to be somewhat more drought tolerant than white spruce.

Pines

One of the pines which has made a very fine specimen tree in the Regina area is the Scots pine (*Pinus sylvestris*) of which the Finnish strain has proved most satisfactory. Whereas both white and blue spruce at maturity will reach a height of up to 40 feet, the Scots pine will often exceed this height; and whereas the spruce tends to have a spreading, pyramidal form, the Scots pine tends to be more upright pyramidal in form, and as they become quite mature they tend to be open-headed.

Two forms of Scots pine that have been doing well to date in Regina are the Plumosa Scots pine which has deep green foliage and long, plumelike needles. It likewise has a generally compact habit of growth. The other is the dwarf Scots pine (*Pinus sylvestris watereri*), and this is a low, dense, pyramidal form with light green to steel blue leaves. The Swiss stone pine (*Pinus cembra*) is a beautiful, slow-growing, narrow, pyramidal tree and ideally suited for our low-type modern homes. This tree appears to be somewhat more resistant to sunscald than many of the other pines.

Another form of evergreen tree is the Balsam fir (*Abies balsamea*), and while attractive in its early stages of growth it tends to become somewhat open-headed and ragged in later life. Likewise it appears to require a sheltered location.

Conifers

Before leaving this subject of evergreen trees, I feel some mention should be made of a conifer which is not an evergreen but rather a deciduous conifer (one which loses its needles in the fall of the year). I refer specifically to the larch tree. The Siberian larch (*Larix siberica*) is one of our best known and more desirable large trees. Suitable also as hedging material, this larch takes on a brilliant golden color in the fall of the year. A selection of the Siberian larch called the Sutherland larch, which is propagated by grafting, is conspicuous for its compact foliage and long, silky needles. It is considered to be slower-growing than other larch from seed.

Cedars

There are a few evergreens that are suitable as small trees or tall shrubs depending upon whether a multiple stem or a single stem form of plant is desired. A plant commonly referred to as the white cedar, or more correctly

referred to as arborvitae (*Thuja occidentalis*), and found to be native to Eastern Canada, will do reasonably well where adequate moisture and some protection are given. Such specimens will attain an ultimate height of 10 to 15 feet in the Regina area. The columnar arborvitae (*Thuja occidentalis var. pyramidalis*) is a narrow, columnar or pyramidal form of the species. There is a strong desire by people to grow this plant and in the past many disappointments have been experienced. Much of the material has been found to be extremely subject to sunscald and the mortality rate has run extremely high.

A selection of this pyramidal cedar known as the Brandon pyramidal cedar has exhibited a greater resistance to sunscald and therefore is to be recommended over other forms. The ultimate height of such fastigiate forms can be controlled by clipping or trimming at the appropriate time. Ware's arborvitae (*Thuja occidentalis var. robusta*) is often described as having a dense, broad, pyramidal form. I have observed a number of specimens to be more globe-shaped in appearance; however, the pyramidal form no doubt could be achieved through judicious pruning. Specimens of this type have been observed to grow to a height of 6 to 8 feet in our area, but, as in other forms of arborvitae and as already indicated, their height can be regulated through clipping. This arborvitae is the hardiest and most resistant to sunscald of any we have grown to date, and unquestionably their thicker foliage has contributed greatly to this.

Junipers

Due to the availability of the numerous forms and variations in color which contribute to the widespread application of the red cedar (*Juniperus virginiana*), there has been a strong incentive for people in the West to make use of this plant. Plants of this species have experienced a considerable amount of sunscald as well as exhibiting a lack of winter hardiness. A selection called Grey Owl of the silver juniper (*Juniperus virginiana glauca*) has proved to be one of the hardier varieties.

Somewhat similar in form to the red cedar is the Rocky Mountain juniper (*Juniperus scopulorum*) which is found to be more drought-tolerant, less subject to sunscald, and more adaptable to our prairie conditions. The height of these plants as well as their form will vary considerably when propagated from seed.

A number of selections have been made, however, and one called Hill's silver juniper has performed well here in Regina. This is a broad, pyramidal juniper with frosty blue foliage which conceivably could reach a height of between 10 and 20 feet, but which nevertheless can be made more dense and retained at a desirable height by clipping.

Evergreen material which is shrubby in nature or form has widespread application in landscape design. Pfitzer's juniper (*Juniperus chinensis var. pfitzeriana*) is a plant well known to eastern Canadians as a relatively low, spreading type plant. It is subject to considerable winter injury most years in Western Canada and for this reason is considered unsatisfactory. A form of this known as Golden Pfitzer juniper (*Juniperus chinensis var. pfitzeriana aurea*) has proved to be quite hardy in our area. It is similar in form to Pfitzer juniper and the tips provide an overall golden tinge to the foliage. The height of this plant will vary from 2 to 4 feet.

The Mugho pine (*Pinus mugho compacta*), normally sold under the name of Pinus mugho mughus, generally is 3 to 4 feet in height. The density or compactness of this dwarf pine is increased by pinching off the top half of the new growth each spring. The ultimate height desired for this shrub can be controlled by pinching out the new growth completely in the spring.

A more dwarf form of the Mugho pine, known as *Pinus mugo pumilio*, rarely exceeds 2 to 3 feet in height.

The Savin juniper (*Juniperus sabina*) is a 2 to 3 foot, vase-shaped, low evergreen which is used extensively in foundation planting. Two selections of this evergreen that have proved to be well adapted to our area are named Arcadia and Skandia. Arcadia is light green in color and the taller of the two; Skandia is flatter in growth, with pale, grayish blue foliage. Both these shrubs retain their color well into the winter months. The tamarisk-leaved Sabina juniper (*Juniperus sabina var. tamariscifolia*) is a dwarf, ground-hugging plant and quite vigorous, with duller foliage.

Various forms of the creeping juniper (*Juniperus horizontalis*) are esteemed as procumbent, spreading, ground covers. This species is a vigorously growing shrub and two varieties provide a color contrast. The Andorra creeping juniper (*Juniperus horizontalis var. plumosa*) has a silvery green appearance, and the Waukegan creeping juniper (*Juniperus horizontalis var. douglasii*) has bright steel blue foliage. A selection introduced by the Experimental Farm at Beaverlodge, Alta., has been named Wapiti; it grows somewhat taller and will reach a height of 12 inches as compared to the 6 inches of the previous two varieties. The color is an attractive medium dark green and the plant is quite vigorous.

The Canby pachistima (*Pachistima canbyi*) is a low-growing, broad-leaved evergreen which makes an excellent ground cover. It grows to about 6 inches high and should be planted in a sunny location.

In conclusion, I should point out that evergreens are best transplanted in the early stages of growth. All plants should be balled and burlapped and care in handling should be exercised to ensure that the ball of earth remains undisturbed during the planting operation.

The best recommendation respecting the pruning of evergreens would be one of caution because in many cases more harm can be done than good. If pruning is required to shape a tree, this should be done to the new growth in the late spring or early summer.

WILD FLOWER PRESERVATION

Flowers are loveliest where they grow.
Love them, enjoy them, but leave them so—
Jewels of sunshine, gems of shade.
Why do you pick them to wither and fade?
Flowers are loveliest where they grow;
Love them, enjoy them, but leave them so.

—Submitted by Lillian Esplen, Dauphin, Man.

Growing Spring Bulbs Indoors and Outside

by **WILLIAM J. EMERSON**

Gardener and Florist to the Lieutenant Governor of Manitoba

Indoor Planting

Due to our long western winters there is an extensive period when we must go without flowers unless we buy them from a florist. However, it is much more fun, and a challenge, to grow our own, and this is where spring bulbs come into their own. The following are suitable for indoor growing: Hyacinths, Tulips, Daffodils, Paperwhites and Crocus.

We will deal with them collectively first of all, and later, separately, as all of them have common requirements.

First—buy good bulbs. It does not pay to buy cheap bulbs, as these are usually undersize or otherwise inferior; a few cents more for first class top bulbs, and you will be well rewarded. Bulbs should be purchased as soon as they appear on the market, which is around the middle of September.

Heat is one of the worst enemies of spring bulbs. They should be kept dry and cool. Open the packages to allow circulation of air, and store them in the bottom of your refrigerator, or cool, dark place in the basement until you are ready to plant them.

Any good potting soil is suitable for growing bulbs. The pots can be of any size, pottery or plastic, but I prefer a 6-inch azalia pot, as it gives a nice sized plant and is easy to handle. It is best not to leave planting your bulbs too late. The first week in October is best, but not later than the first of November.

Place a piece of crock or other material over the drainage hole in the pot, cover this with a handful of coarse material such as screenings from your soil, peat moss, leaves, leaf mould, etc., then fill the pot a little more than half full of plotting soil.

For tulips, I place six or seven bulbs in a six-inch pot. These are placed around the rim of the pot with the flat side of the bulb toward the side of the pot. The reason for this is that the leaf comes out on this side and will hang down and help hide the pot. One bulb can be placed in the center. The top of the bulbs should be level with the top of the pot. Fill the pot with soil, giving the pot several sharp raps on the table to firm the soil.

Daffodils are handled the same way as tulips, only there is no flat side to a daffodil bulb. Squeeze as many bulbs as you can get into the pot, keeping the noses or tips just a little higher than the pot.

Hyacinths are planted three or four bulbs to a six-inch pot, depending on their size—the smaller the bulb, the smaller the size of flower head. They also are planted with their tips level with the top of the pot. Hyacinths can also be grown in water. There is a special glass on the market for this purpose known as a "hyacinth glass." The glass is filled with water to the narrow part of the glass and the bulb placed in the cup part on top. It must be checked frequently to keep the water to this level, although the water must not touch the bottom of the bulb as it will cause the bulb to rot. The roots will soon make their way into the water. The bulb must be kept in a cool, dark place

until the glass is full of roots and several inches of top growth have been made. They then can be brought into the light to flower.

Crocus are planted in pans (pots about two inches deep). The pots are filled the same way as for other bulbs, planting the crocus bulbs about one inch apart, filling the pot with the bulbs. Cover with soil, rapping the pot to firm.

One word of caution when planting bulbs in pots—use only one variety or color to a pot. Do not buy or plant mixed bulbs in pots, as not all flowers are developed at the same time. The result would be a pot with one plant in flower, another partly, and perhaps some just showing through the ground.

After the bulbs are planted they must be well soaked with water. This can be done either with a watering can or placing the pots of bulbs in a tub, adding water to the rim of the pots, and leaving until the water appears on the surface of the pots. This is the best method as it ensures that the soil has been wetted right through.

Now, the whole success in flowering bulbs comes in the next operation. They must have a long, cool spell in which to make good root growth, otherwise they will not flower, or, if they do, very poorly.

Several methods can be used. The method that I have found satisfactory is as follows:

I use my cold frame, or, if you have no cold frame available, a pit can be dug in the garden. The frame or pit should be about 18 inches deep at its shallowest end. Place the pots in the frame or pit, pot to pot, putting your tulips in first, then your crocus, daffodils and hyacinths. Give them a good watering, let stand for several hours, cover with one inch of dry sand, fill with dry leaves, firming them around the edges and lightly in the middle, put sash on frame with a thin wedge under the sash to allow for ventiliation. The pit can be covered with boards and more leaves.

The bulbs are left in the frame until the weather gets cold—about the last week in November. Bring the daffodils and hyacinths in, and place them in a cool, dark place in the basement. I have found that the hyacinths and daffodils do not stand freezing in the frame. The tulips should be left in the frame and brought into the basement in lots. The last of the tulips should be brought in near the middle of February. It does not hurt tulips and crocus to freeze as long as the soil in the pots is moist.

When the pots are brought in, place them on the basement floor in the coolest spot. If the bulbs are frozen when you bring them in do not worry—place them near the catch basin and cover with a foot or more of snow, and leave until thawed out. Place in a cool, dark spot and keep them moist. When four inches or more of the top growth has been made, they may be brought to light, avoiding strong sunlight until they green up.

If several varieties are used, some will make faster growth than others and so will give flowers over a long period, but remember— one variety to a pot, and do not forget, roots before tops make the flowers.

If you don't want to go to all this bother, you can pot up your bulbs as above and place them directly into a cool, dark place, keeping them moist. Do not allow to dry out. Do not bring up until a good root system has developed; root development usually takes two-and-a-half to three-and-a-half months. I find the first, planted early in October, will start to flower in the middle part of January.

Bulbs which have been used for indoor planting should be discarded after flowering as it is a waste of time and effort to try and get them to flower a second time, when all their vitality has been used up flowering the first time.

Paperwhites cannot be handled as above as they cannot stand any frost. They do best if the bulbs are kept in the bottom of the refrigerator. There again, purchase your bulbs early and place them in the refrigerator. After about a month in the refrigerator, pick six or more that have started to show sprouts, plant them in shallow dishes with pebbles and water, place in a cool, dark spot to make roots when four or five inches of top growth have been made, or buds start to show. Bring to the light to flower. If bulbs are taken from the refrigerator and planted in succession, paperwhites can be in flower from before Christmas until late spring. These bulbs should also be discarded after flowering.

Outdoor Planting

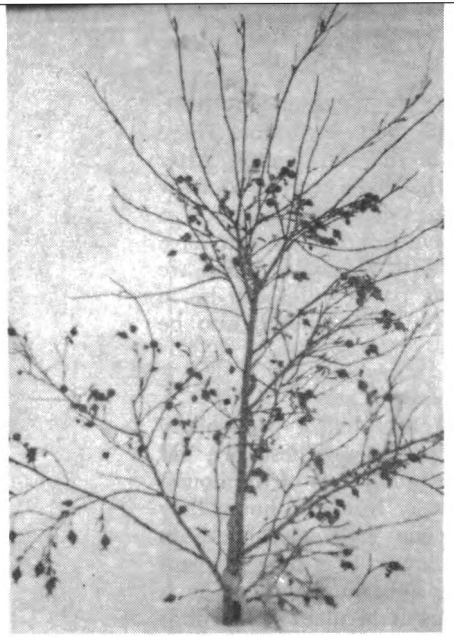
Tulips are the most reliable of the spring flowering bulbs, particularly the Darwin, Mendel, Triumph and Lily-Flowered varieties. These are tall growing with stately flowers. When planted along the foundation of the house, they flower quite early, but when planted in beds away from the house they flower much later. This late flowering is one of the main drawbacks in growing tulips, as, at the time the tulips are in full flower, it is time to plant up your annuals. If you wait until the tulips have finished flowering, it is often too late for your annuals. One way around this is to plant your tulips further apart so that you can plant the annuals amongst them, otherwise it is best to leave your beds for your annuals, and plant your tulips in groups amongst the shrubbery or perennials.

Tulips should be planted about 5 to 6 inches deep, in heavy soils. A little sand under the bulbs for drainage helps, and they should be about 5 inches apart, planted in blocks or groups for the best effect. The earlier they are planted in the fall the more successful they will be. Some light cover after freeze-up may be necessary to hold the snows of winter. Tulips which have flowered may be lifted and heeled in a spare spot in the garden to ripen. After the foliage has died down completely bulbs should be lifted and dried, graded and stored in a dry place until fall. Tulips will play out and should be renewed every other year.

Daffodils and hyacinths will flower outdoors in favorable spots. South and west exposures close to the foundation of house are where they are most likely to succeed. They should be planted outdoors 5 inches deep, and well watered up until freeze-up. Some cover will be needed such as corn stalks, leaves, etc. These bulbs will start growing early in the spring and will need some protection on frosty nights. They should be left undisturbed for a number of years; however, one should experiment with these as they have not proven reliable in the west.

There are a large number of spring bulbs that do extremely well outside, providing they are left undisturbed after planting, and many of them will increase. These bulbs are best planted on rockeries, perennial beds, amongst the shrubbery, etc. They are mainly short growing, being from 6 to 12 inches tall. Plant them 4 to 6 inches deep in well worked soil. They should be planted where they will receive a fair amount of spring sun, and should be left to ripen their foliage.

The first of these bulbs to flower is Scilla Siberica, a pretty lily-of-the-valley type of flower, 6 inches high, in blue and white *Muscari polyanthum* and *Muscari azurium* are also quite early and are blue with hyacinth-like flower heads. There are also a large number of Tulip species which are excellent. Among them are the various botanical tulips listed by our excellent nurserymen. These tulips are very colorful in red, yellow, and a combination of these colors, and they vary greatly in height from 6 inches to about 15 inches.



Rose Hips in Winter—1961 (Woodsii sel).

Prairie Roses

by **A. J. PORTER, Parkside, Sask.**

I wonder how many of us have ever noticed our wild roses — I mean really noticed them, not just admired them from a distance. I know I hadn't for many years, until a chance remark of Percy Wright's made me take a more careful look at them. I had thought we had just two sorts of wild roses, the dwarf ones that bloom through the late summer in the wheat fields, and the taller ones that grow around and through the poplar bluffs.

The first thing I learned was that there were two species of these woodland roses, *Acicularis* and *Macouni*. Later I found that another species, *Blanda*, was found farther east in Manitoba and on through the eastern provinces. Still another occurs in extreme western Alberta along the mountains, the peahip rose or *Pisocarpa*.

That gives us five species in this region. However, if one starts to look up the botanists, one will find between 40 and 50 different names ascribed to our roses. Most of these have now been classed as variants of these five. Rose species are very variable, and sometimes it is very difficult to say where one species leaves off and another begins. Undoubtedly, too, there are hybrids between some of these species which further complicate matters.

Some of these variations make very desirable shrubs for landscaping and good specimen plants for smaller gardens. Their wealth of bloom in the summer, followed by the heavy crop of red hips that hang on in many cases all through the winter, puts them in a class along with lilacs and honeysuckles, and, where winter color is wanted, ahead of them. They make excellent hedges on larger properties, though a little slower to develop than such plants as caragana and Manchu elm, which is not always a drawback.

Here are some descriptions and comments on each species as I have found them growing here in Saskatchewan.

Acicularis—the Arctic or Prickly Rose. This has the widest range of any rose species, occurring right across Canada, south to Colorado, and north to the Arctic Circle or beyond. It crosses the Bering Straits into Siberia and a closely related form has been found in Japan. This is the earliest of our roses to bloom, the flowers as a rule being borne singly. Though usually pink with a bluish tone, a white form has been found and I found a rich red one near Shellbrook a few years ago.

The hips are large, oval in shape, and hang downward when ripe. The stems, which may be anywhere from 2 feet to 6 feet or more high, are quite

stout and covered densely with fine needlelike prickles. Occasionally plants may be found that are much less heavily armed or are almost smooth on the upper parts. The leaves are composed of 5 to 7 quite large leaflets, the largest leaflets of any of our wild roses. This rose does well in the shade and is found blooming all through our poplar bluffs.

Arkansana—Suffulta, Sunshine Rose. This rose has a characteristic that is found in no other rose of its hardiness, that is, it blooms on the young wood and can be found in bloom from early July until hard frost in September. This rose is found on well-drained open prairie and persists in the fields after the land is broken up. While usually less than 1 foot high, we have found roadside plants over 3 feet.

The blooms vary more in color than any of the other species, from white through to almost red. They are borne in clusters, from 3 up to 30 or more. The pinks in this rose are very good in tone, being almost free from the bluish tone so many of our wild species have. The leaflets are comparatively small, with 9 to 11 to a leaf. Hips are quite large, globular, and held upright. Stems have needlelike prickles that resemble those of the Arctic rose. Smooth-stemmed forms also are found.

This is a very variable species and some good double forms have been found in the wild that compare well with the dwarf hybrid garden rose, plus the added advantage of being fully hardy here. Three named doubles are Wood-

Top—Woodrow Rose, 1962. Bottom—Double Suffulta (Arkansana).

Hips on select Woodsii Rose—Fall 1962.

row, Allan, and Fargo. These are pinks. It would be worthwhile to find a double white or a double in the deeper color often found in the single form.

Blanda—Smooth Rose. As its name suggests, the canes are often though not always thornless or nearly so. It is a woodland rose occurring east of the prairies proper, but is quite common in some parts of Manitoba. I found an excellent specimen on the south shore of Candle Lake, about 40 miles northeast of Prince Albert.

This rose has attractive red stems. It flowers quite early, with blooms held commonly in threes. The hips are round and do not droop much when ripe. The 7 leaflets are fairly large, but not as large as those of the Arctic rose. It is a vigorous plant, often reaching 6 feet or more, and suckers freely. I do

not know of any double forms being found in the wild but it has been used by Dr. Skinner and others in breeding work.

Woodsii—Macouni, Macoun's Rose. This rose is found locally over the whole of the prairie region of North America and is the only one of our rose species that extends into Mexico. It occurs as clumps on the open prairie and is very common around the borders of woodlands.

This is a very variable species. There is no one character that is constant for the whole species except that it blooms about 2 weeks later than *Acicularis*. It is quite possible that in the eastern part of its range it has hybridized freely with *Blanda*, while on the west it may be crossed with the mountain rose, *Pisocarpa*. It ranges in height from 18 inches to 8 feet. The stems vary from almost smooth to very prickly, almost like *Acicularis*. The type has large thorns in pairs opposite the leaf stipules, with smaller prickles or sometimes smooth bark in between. The leaves have 7 to 9 medium-sized leaflets.

The flowers range in size from little more than an inch up to 3 inches. Two distinct color phases occur, a light pink and a deep rose. The flowers are usually in clusters of from 3 to 9, though occasional plants bear them singly. A tendency to doubling is quite common and many plants produce blooms with 6 to 8 petals instead of the usual 5. Two double selections have been named: Athabasca from northern Alberta, and Mrs. Mina Lindell from South Dakota.

Most plants produce hips very freely though the doubles are nearly sterile. The hips are very variable in shape, namely, round, oblate, pear-shaped, inverted pear, many with a distinct neck. Some are pendant like those of *Acicularis;* others are held upright like those of *Blanda*. This is a good shrubbery rose and fine for hedges. The taller forms would make excellent snow trap hedges and at the same time provide food for our winter birds.

Pisocarpa—The Pea-hipped Rose. As this actually is a mountain species it hardly belongs with this group. We have a few seedlings here and find they are very similar to some forms of *Woodsii*. Probably they are a closely related species.

Mr. Porter has been doing some selecting among the prairie roses and now has a considerable planting of selected wild roses in his Parkside nursery that will be reliable. He will be happy to show them to anyone who is interested. —Editor.

Fashion Floribunda.

Queen Elizabeth Grandiflora.

Roses for the Prairies

by **MARGUERITE E. ROBINSON, Regina, Sask.**

Hybrid tea roses provide exciting satisfaction for many gardeners. A few simple rules will furnish blooms all summer and until after the first frost has destroyed less hardy plants.

Roses do well in an open, sunny place and prefer an enriched clay soil. An application of bone meal and compost each fall will help them through the growing season and commercial nutrients and fertilizers may be used when the plants are well rooted.

Select western grown varieties grafted on hardier *R. canina* root stock as advertised by some seed houses. When the plants arrive soak them for several hours and do not take them out of the water until ready to plant. Follow instructions with each plant; spread the roots well and tamp dirt around them to avoid air spaces. Water well and cover with an earth mound or carton until buds begin to break. Remove the cover gradually to avoid sun burning.

Prune deadwood in the spring and cut back old roses to 6 or 8 inches above the ground. Use half a pail of wet peat moss around each plant and soak the ground 2 or 3 times a week. Roses need plenty of moisture, good drainage, and roots protected from heat. Dust with a rose powder twice a month and keep blooms cut.

When frost comes dig around your plants and apply bone meal and compost. Trim only the tallest bushes and cover with a carton of peat moss, vermiculite or clean sawdust. Anchor the flaps of the box with bricks or clumps of earth and tie building plastic over the box to keep moisture out. Do not remove the winter cover until after freezing and thawing are over in the spring.

Peace, a giant hybrid tea rose, is one of the best. Queen Elizabeth, a grandiflora, the product of a cross between a hybrid tea and a floribunda, is a delightful clear pink. Sutter's Gold has large orange yellow buds and blooms. Fashion, a floribunda, gives a profusion of small, salmon roses, while Siren, also a floribunda, is a brilliant red, covered with 40 or more small roses all summer. Irene of Denmark produces numerous miniature white blooms.

Other reds are Independence, which is inclined to fade to orange; Texan, a deep red single; and Red Favorite, with multiple, fiery red blossoms.

The roses mentioned will live over winter and produce floristlike blooms. They will make you proud of your garden and give hours of delight as you watch the buds unfold. Try some and find out how easy it is to grow the new roses.

Classification of Roses

by **MRS. W. A. MacDONALD**
Vice-President, Winnipeg Horticultural Society

I heard a bird sing in December
A beautiful sound to remember.
We are nearer to Spring
Than we were in September.
I heard a bird sing in December.

We saw this verse the other day and it reminded us that, with a little effort, we could imagine that Spring is not too far away. Certainly, the new rose catalogues help to stimulate the imagination; and, for the benefit of all the budding rosarians who will now be studying these inviting publications, this may be a good time to discuss the different rose groups. Let us start with the oldest of the hybrids.

Hybrid Perpetuals

The first varieties were produced in France in 1837, and were the result of crossing a number of species—R. centifolia, R. gallica, R. damascena and R. chinensis. The perpetuals are really repeat bloomers. The blooms are large and usually rather coarse, but fragrant; the colors are white, pink and red. There are no yellows. The foliage is a dull green. The bushes are tall, upright and vigorous, and sometimes grow out of bounds. They may be cut back to encourage repeat bloom. Three of the best-known Perpetuals are "George Dickson," red; "Mrs. J. Laing," pink; "Paul Neyron," medium pink. The old favorite "Frau Karl Druschki"—a cross between a H.P. variety and a H.T., introduced in 1901—is white. However, because of its parentage, this rose has now been reclassified as a H.T.

Hybrid Teas

These were originally crosses between H.P. roses and the ordinary Tea roses. The first one, "La France," was introduced in 1867. H. T. buds are usually long and pointed; the flowers may be single, semi-double or double. These roses actually bloom more continuously than the H.P.s. They come in all colors and in blends, with fragrance and without. There are so many H.T.s that it is difficult to single out any one variety. However, we can mention one old and one new favorite—"Crimson Glory" (1935) is a dark velvety red, with a marvellous damask fragrance; "Peace" (1945) is a yellow blend, only slightly fragrant.

Polyanthas

These roses are hybrids of R. multiflora and R. chinensis. They are usually small plants, with clusters of small blooms. They seldom have any fragrance, but they can be counted on for a show of bloom all summer; and they are hardy. These little roses are not so popular now that we have the floribundas. Three of the best-known are "Mrs. R. M. Finch," pink; "Cecile Brunner" (the Sweetheart rose), pink/yellow; and "Margo Koster," orange-red. The last-named has some fragrance.

Floribundas

These roses are the result of a cross between H. Teas and Polyanthas. They are hardy, free-flowering, with a wide color range. The bushes go through cycles of bloom, with rest periods, like the H.T.s. From the many floribundas now flourishing on the Prairies we can select a few of the most popular:

"Orange Triumph," orange-red; "Independence," cinnabar-red; "Dagmar Spath," white; "Betty Prior," a semi-double rose, is carmine-pink.

Grandifloras

Although the name "Grandiflora," accepted in the States, has been provisionally accepted by the Canadian Rose Society, nurseries in some parts of Canada list the roses in this group as "Floribundas." This practice is also followed by British nurseries. Grandifloras are hybrids of H.T.s and Floribundas. The roses have the free-flowering habit of the floribundas, and the bloom has the form of the H.T.s but it is sometimes smaller; the bushes frequently grow taller than those in the H.T. group. The true Grandiflora may produce a single bloom of H.T. quality, and on the same bush there may also be more than one bloom to a stem. In the latter case, this cannot actually be called a "spray," as each of the several blooms may have a fairly long stem. In the Grandiflora group there are white, pink, red and yellow roses. Some of the best known are "Buccaneer," dark yellow; "Carousel," dark red; "Montezuma," red; "Queen Elizabeth," pink. "June Bride," a 1957 introduction, is white. All have some fragrance.

Shrub Roses

These are a miscellaneous group, and include many species roses and their hybrids. Most of them are hardy bushes which require little attention, and they will grow in almost any type of soil. The shrub roses bloom much earlier than other types, and some will repeat at intervals later in the season. In the fall there are bright attractive fruits to provide color for the garden. and food for the birds. To name just a few well known shrubs there are "Altaica," white; "F. J. Grootendorst," crimson; "Hansa," red; "Harison's Yellow;" and "Prairie Youth," pink.

There are the classifications. Decide on the type, or types, which best suit your garden, then check the catalogues and order early. There's a happy summer ahead of you.

A word of advice about Hybrid Perpetuals—So often, if the stems are left to grow upright, the blooms on these bushes are lost in a mass of foliage. This can be altered easily; try this. Bend down some of the canes gently to within about 10 to 12 inches of the ground; peg, or tie down in this horizontal position. This will encourage the production of lateral shoots along the stems instead of just at the top, and there will be a decided increase in the number of blooms. These blooms usually have a fair length of stem and they are not hidden by foliage.

Trees and Shrubs that our Birds Like

by **J. P. DE WET, Winnipeg, Man.**

So much land around our cities and larger towns nowadays is being built on for residences and for industrial housing that wild bird ranges are sadly encroached on, with corresponding loss to the feathered fellows and to ourselves as well.

However, many cultivated trees and shrubs fill the places formerly occupied by natural food sources, and we have it in our hands to keep the birds happy and near our homes, both for their own most pleasant company and for the tremendous good that they do in control of insect pests and many weeds.

Clearing woods, ploughing natural meadows, and draining swamps have robbed many birds of their native food and shelter, but both summer and winter needs can be met, at least in part, by the right plantings.

When planning to combine both feed and shelter for winter songbirds, and for game birds such as grouse, it is well to have a mixed collection of trees and shrubs. Some of these may be evergreens which supply dense shelter and protection during harsh, stormy weather.

A few suggestions for prairie lands are offered in the following notes, the sources of which are the Manitoba Department of Agriculture and Conservation, Extension Service, and the Manitoba Horticultural Association; Dr. W. R. Leslie (Progress Report 1938-1946, Morden Experimental Station); Mr. Hector Macdonald, further recommendations, and for the accompanying notes which bring live birds to the trees and shrubs listed; and Mr. R. Owen Merriman's Canadian Wildlife Service pamphlet, Attracting Birds with Food and Water.

Large Trees

Scots pine (*Pinus sylvestris*) — winter — songbirds.

Russian olive (*Elaeagnus angustifolia*)—September to March—grouse.

Bur oak (*Quercus macrocarpa*) — autumn — acorns by grouse.

Spruce (*Picea in var.*) — shelter, roosting sites, nesting locations.

Manchurian crabapple (*Malus baccata mandshurica*) — especially attractive to wintering birds.

Hackberry (*Celtis occidentalis*) — grouse, wintering song birds.

Scots pine, spruce, oak, ash, maple, etc., provide shelter and roosting sites as well as locations for nesting. Chickadees, nuthatches, woodpeckers, bluebirds, tree swallows, screech owls, crested flycatchers and others all nest in holes in trees. Chickadees, woodpeckers, nuthatches and screech owls sleep in holes in winter. Evening grosbeaks and Bohemian waxwings use ash and maple for food in late spring. Pines and spruce attract siskins and crossbills; the latter feed entirely or nearly so on conifer seed.

Large Shrubs and Trees

Siberian crabapple (*Malus baccata*) – winter – songbirds, (Bohemian waxwings) grouse.

American mountain ash (*Sorbus americana*) – September to March – many birds (robins).

Amur maple (*Acer ginnala*) – to March – wintering birds.

Amur honeysuckle (*Lonicera maackii*)–September to January–songbirds.

Chokecherry (*Prunus virginiana*) – summer – songbirds.

Chokecherry, Amur (*Prunus Maackii*) – summer – songbirds.

Pincherry (*Prunus pennsylvanica*) – summer – various birds.

Hawthorns (*Crataegus in var.*) – all winter – grouse, songbirds.

Saskatoon (*Amelanchier alnifolia*) – July to September – grouse, songbirds.

Silver buffaloberry (*Shepherdia argentea*) – all winter – grouse, birds.

Nannyberry (*Viburnum lentago*) – August to May – grouse.

Caragana (*Caragana arborescens*) – early summer – hummingbirds.

Rocky Mountain juniper (*Juniperus scopulorum*) – shelter and nesting sites, some food, good survival.

Medium Shrubs (5 to 10 feet high)

Red osier dogwood (*Cornus stolonifera*) – July to November – various birds.

Common elder (*Sambucus canadensis*) – September to December – songbirds.

European red elder (*Sambucus racemosa*) – July to October – songbirds.

Cherry prinsepia (*Prinsepia chinensis*) – all year – emergency food.

Cotoneaster in variety – September to March – various birds.

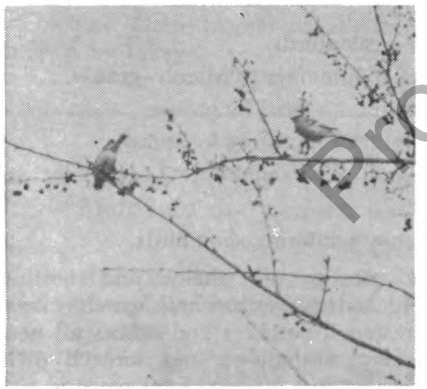
American cranberry (*Viburnum trilobum*) – all winter – various birds.

Altai rose (*Rosa altaica*) – all year – grouse.

Turkestan rose (*Rosa laxa*) – all winter – grouse.

Silverberry (*Elaeagnus argentea*) – early winter – grouse, etc.

Many birds like chokecherries; the cedar waxwing is one of the latest birds to nest and the hatching of the young of this species coincides with the ripening of chokecherries. Here is one of the many instances where natural phenomena seem to be specially timed for a certain purpose.



Pine Grosbeaks feeding on Siberian crabapples in 20 below zero weather.

Elderberry, red osier dogwood, saskatoon, wild currant (*Ribes floridum*), mountain ash and pincherry are all cleaned up as soon as ripe, usually by robins, although catbirds, thrashers, grosbeaks and others join in the feast. This group of shrubs are summer bird food.

Crabapples (Siberian) often are cleaned out before freeze-up; in 1962 the migrating robins took care of our (Assiniboine Park) crop. The larger-fruited crabs are left to be ripped open for their seeds in mid-winter by pine and evening grosbeaks.

For years I have looked for the first hummingbirds when the caragana came in bloom and never missed seeing them – another instance of nature's timing.

Waxwings and grosbeaks in winter will eat any fruit available, they are too our only vegetarian winter songbirds. The other wintering small birds eat anything that's food.

Apart from fruit, cedar waxwings eat the petals of crabapple and hawthorn blooms; this in no way reduces the prospects of fruit; in fact, in my opinion, may aid pollination. The purple finch, one of our earliest spring birds and also one of our sweetest singers, eats the buds of elm.

Low Shrubs (3 to 5 feet high)

Korean barberry (*Berberis koreana*) – to March – birds.

Wild rose (*Rosa in var.*) – August to June – grouse.

Sandcherry (*Prunus besseyi*) – all winter – emergency food.

Common juniper (*Juniperus communis*) – all year – emergency food.

Western snowberry (*Symphoricarpus occidentalis*) – all winter – grouse.

Ground cherry (*Prunus fruticosa*) – all winter – emergency food.

Hansen hedge rose (*Rosa sp.*) – all winter – very fruitful.

Vines

Riverbank grape (*Vitis riparia*) – September to April – summer birds, grouse.

Virginia creeper (*Parthenocissus, species*) – summer birds.

Climbing honeysuckle (*Lonicera in var.*) – August to January – many birds.

Dropmore scarlet trumpet honeysuckle (*Lonicera hybrid*) – summer – hummingbirds.

Both native grape and Virginia creeper fruit are eaten by summer birds, the grape in particular. Hummingbirds are attracted to the blossoms of the Scarlet Trumpet honeysuckle.

We would have few birds without trees and shrubs. Most everybody knows robins, catbirds, yellow warblers, orioles, etc., that live in the shrubberies around our home; but where there are large trees there are many birds that spend their summers and rear their young high up in the treetops. Warblers, flycatchers and vireos depend for their food and life on trees.

Nesting material, too, as well as nesting sites are provided for the birds by trees and shrubs. The yellow warbler uses honeysuckle bark fibres to weave its nest. Hummingbirds use the fluff of poplar seeds to make a cosy cradle for their babies. The oriole weaves its hanging home from bark fibres; and many species of birds favour certain species of trees or shrubs to nest in.

Winter birds that eat insects or their eggs are woodpeckers, nuthatches and chickadees. It pays to give them sheltered homes by planting spruce trees, and to attract them by fastening suet to trees.

The following notes are kindly contributed by Mr. W. L Kerr, superintendent, Canada Department of Agriculture, Forestry Nursery Station, Sutherland Sub Post Office, Sask.:

One point which is very important, I consider, is that many shrubs and trees do supply a lot of food but it is not available to the birds following a heavy snowfall. Very few trees hold onto their fruits throughout the winter, some of the exceptions being green ash, Manitoba maple, chokecherry, small-fruited crabapples, and several species of roses. One of the outstanding shrubs

to supply fruits throughout the winter is the Hansen hedge rose. It also is an exceptionally good shrub for protection for various birds such as grouse, pheasants, etc. It never fails to produce a generous crop of hips, and it suckers very freely.

Chokecherries also are very reliable and make excellent hedges and shelter, as well as hold onto their fruit throughout the winter. Practically all birds and coyotes, foxes and bears feed on rose hips and chokecherries. Some of the small-fruited crabs, especially those of the Rosybloom type, hold onto their fruits well and produce an abundant crop most years. Such shrubs as mountain ash are good but usually are stripped by migratory birds early in the fall, unless you have an exceptionally large number of trees, as we have here.

I am a strong believer that the presence of a good habitat for birds, which includes a wide variety of trees and shrubs, is instrumental in controlling a large number of our insect pests. Although we have had several grasshopper outbreaks in this district, and also when I was at Morden, it has never been necessary for us to spray or put out grasshopper bait at this Station, even though many of the farmers around us have been doing so quite frequently.

The Fish and Wildlife Service in the Dakotas now consider *Juniper scopulorum* one of the most satisfactory trees or shrubs for wildlife habitats. This is due mainly to the fact that it gives a lot of protection, some food, and its survival under neglect is one of the best. They have also been up to our Station here for several years, collecting seed for wildlife plantations. They have favored Hansen hedge rose and *Prunus fruticosa* from our plantations.

One very serious problem involving wildlife habitat plantings is the problem of mice, rabbits and deer especially. Anyone of the three may destroy a very successful planting of quite a large number of different species that are very desirable for birds. It may be necessary to fence such plantings for a few years until they become firmly established.

Bibliography: For further material on trees and shrubs, the reader is referred to the following:

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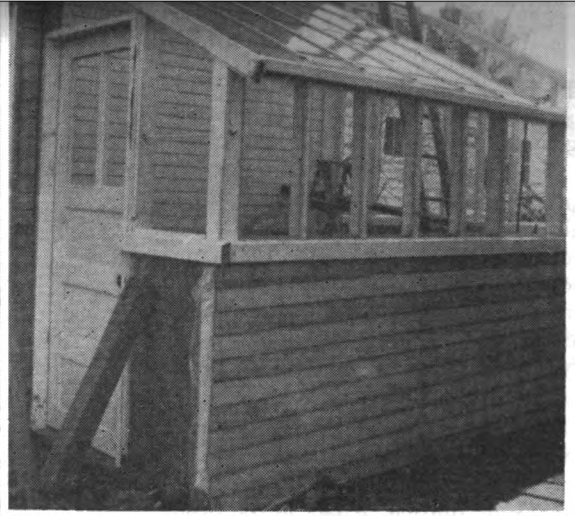


This greenhouse faces north. When being built, after each run of glass was installed, another sash bar was nailed down and continued on this basis until the roof was completed.

The Small Greenhouse

by **J. K. ALMEY**
Winnipeg

The small, backyard greenhouse will extend the growing season or gardening operations that can be enjoyed for an additional 2½ months, or 50 per cent longer, at very little cost. I wonder how many gardeners have looked out of the window on a late March day and wished for an early spring. Our growing season is limited in general to its frost-free period, usually sometime in May to sometime in September, a matter of four to five months.

To step into a warm greenhouse at either end of the season where plants are growing is one luxury many can provide for themselves. The garden jobs that can be done under such favorable conditions and with more enjoyment are numerous; to mention a few: mixing soil to pot up the Dutch bulbs that must go into a cool place down in the basement to root; the ripening off of the begonia tubers under the greenhouse bench before cleaning them for winter storage; the cleaning up of those few seeds you have saved from special plants that you would like to try next year and see if they will come true; gladiolus bulblets in pots that need two more months to increase their bulb size.

Turning to some March jobs that come to mind: of course, the main activity will be to sow some seeds of long-season plants in flats or pots. The seed and bulb catalogues have been thumbed many times from back to front. With the greenhouse you know you can venture with some kinds that lack of facilities has prevented you from trying in years previously.

As the days lengthen, though it is still cold outside, the warmth and the sunlight in the greenhouse leave little else to be desired. It is the writer's opinion that the latter alone well repays the cost and the work expended in owning a small greenhouse. The odd root of rhubarb that was boxed up last fall and left outside to freeze can be forced now under the greenhouse bench with a possible gain of two months in enjoying this tasty dish.

If the grower is interested in hybridizing, the late or long-season varieties of bulbs or plants can be started indoors so that they will bloom at the same time as the normally short-season or early blooming varieties, and crosses can then be made. In summertime, cuttings of soft and woody plants, which otherwise could not be rooted, will find a suitable spot to be started on the greenhouse bench.

The writer is assuming that the greenhouse will not be operated from November 1 to March 15. It is a costly luxury to operate in wintertime, but,

without doubt, not as big a cost as going to Florida or Mexico for a week or two.

A few sentences on construction: glass still makes the best greenhouse when properly built, though it is the most costly. Some new rigid plastics as glass substitutes are reported to be available south of the border. With the new fluorescent lights for plant growing, and a rigid plastic that will allow a reasonable passage of light, greenhouse building will become more simplified.

Glass structures are very subject to damage from heaving caused by frost in and under the foundations. It is advisable to use a posthole auger and open up several holes three or more feet deep where the walls are to be, and fill with concrete. If wood sills are then laid on these, only in an extremely cold winter without snow will heaving take place.

There are so many materials that can be used for the walls. Wood in its many forms for the small greenhouse is the most adaptable. Plywood and moisture barriers, waterproof insulation, a few bolts instead of nails—all these can be combined to stand the most rigid tests.

One cannot bend, stretch or squeeze cold glass; therefore, measurements must be accurate and all joints must be tight-fitting. The free passage of air through the glass walls or the roof must be held to a minimum or heating costs will be high. The roof glass for the small greenhouse is best when "lapped" instead of "butted" as is practised in large greenhouses. Do not lap more than ¼ inch or the freezing moisture will, on expanding, spread the glass apart and cause breaks.

Another trouble spot is where the first or lowest sheet of glass passes over the eave plate. Moisture and water collecting will freeze and, on expanding, cause pressure between the eveplate and the glass sufficient to break the glass. It is better to use a sheet of fibre glass 6 to 8 inches long as the first sheet for every run of glass.

Cedar lumber is easy to work with and resists moisture rotting better than other Canadian woods. It is best for sash bars and benches. For nailing purposes it is not as good and splits easily. The use of a few pieces of angle iron or metal brackets with bolts will easily overcome its weakness where strength at joints is needed. It is not advisable to use glass in sheets narrower than 12 inches. Greater widths make building more easy, but breakages are more costly.

In keeping with the size of greenhouse you intend to build, first decide what size of glass you plan to use. Multiples of your glass size will then be the basis for the size of your foundation. In locating your greenhouse a south exposure usually is recommended but for many home owners this is not possible. A north exposure has advantages too as it can be left unattended for longer periods than one facing south. As soon as the prairie sun plays fully on a south-facing greenhouse the temperature will jump 25 degrees or more, and unless one is present to look after ventilation plants can be quickly ruined. A north-facing greenhouse avoids this but costs more to heat and may need additional artificial light for some plants.

Methods of heating will depend upon location and the type of greenhouse. If attached to one's house an additional hot air duct can be run from the house heating system. The greenhouse in the accompanying picture faces north and is partly heated from the house furnace. The size is 12 feet by 8½ feet, and the temperature runs about 15 to 20 degrees lower than the temperature set for the house, when outside temperatures show 10 to 15 degrees of frost. An oil space heater with a flue to carry off burnt gases and thermostatically controlled makes an efficient, low-cost heating system.

Friends Without My Windowsill

by **RUBY W. ALMBERG, Czar, Alta.**

Last year I told you about my friends on my windowsill in the 1962 edition of THE PRAIRIE GARDEN.

This year I lost my windowsill. We did not have the disaster of fire; instead we had the joy and the upheaval of moving into a new home. All new homes today are rather alike—light, airy, spacious but not a decent windowsill in the lot.

My husband and I inspected a ready-to-move house when we were ready for a new home. I fell in love with the picture window . . . what a grand place for plants! I noted the nothingness of the windowsill and said to the dealer and my husband "that can be changed easily and a wide sill put in."

From their pain you would have thought that I had struck them! "Change the windowsill! Oh, no! That's the way they are in the new houses." "A wide sill would interfere with the baseboard heating." "It would be too hot for plants in front of that big window." "A lot of plants aren't fashionable anymore."

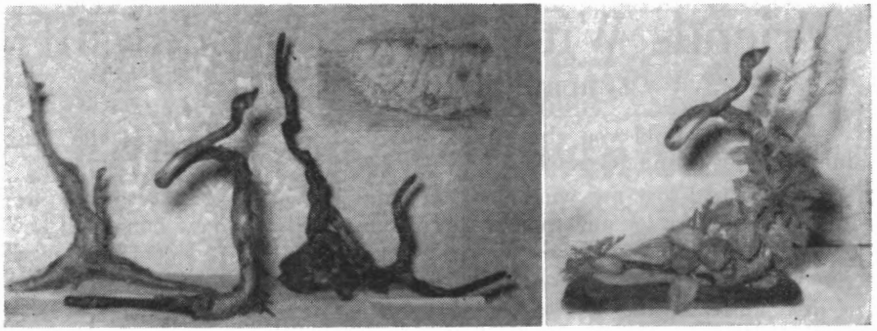
With an empty feeling I wondered if a graying woman with a green thumb wasn't fashionable anymore.

I am established in my new home now and so are my plants. Nuts to fashion! While I haven't yet achieved all these ways of displaying my plants attractively, here are some of my solutions:

My kitchen cupboards will have a couple of open shelves alongside the archway for trailing vines, African violets and shade-loving plants. Instead of kitchen curtains I'll have hanging plant pots, two or three on each side of the windows. There they will get plenty of sunshine and will be able to smile both at me and at the folks outside. I'll be sure to have pots large enough so my plants won't suffer eternal drought.

Beside the picture window will be two pole-planters. Three pots hang on each of these with a decidedly fashionable air. Right now I have an arborite-topped coffee table full of an assortment of my plant friends. My husband tolerates these in front of the big window, but I hope he decides that Santa should bring me a handsome metal planter. These stands are made of heavy wire in black or brass and will hold a dozen of my favorites.

When time and means permit we may build a planter to act as a screen between the livingroom and the front door. It would have plenty of light and sunshine, and with dowels for climbers reaching to the ceiling would be fashionable, surely.



Three of my favorite pieces, all found on Dauphin beaches are shown in the picture (left) above. The left hand piece was slightly waxed. In the center is shown a very odd piece, brushed lightly with brown shoe polish and rubbed. The right hand piece is a nicely grained gnarled root in a somewhat darker finish. The right hand picture again shows the centre piece of driftwood, with Chinese lanterns, rich green scented geranium leaves, nigellia pods and feathery grasses.

Driftwood as an Arrangement Accessory

by **RUTH H. GOODHAND, Dauphin, Man.**

Driftwood appears to be something that you either like very much, or else you class it with modern art as "a heap of junk." I belong to the former, and it is about its use as an accessory in flower arrangements that I want to tell you. Most flower shows have a class for such arrangements.

All the pieces I have are of medium size; all have been picked up on Lake Dauphin or other nearby shores, washed to remove sand and dirt, and after a thorough drying were trimmed, either waxed or given light treatment with wax-based shoe polish, and finished with a soft cloth and plenty of "elbow grease." Some fanciers like to use bleach, or to paint the piece with white or black, or gold spray paint. These are fine for a shop window to display merchandise, but I prefer the polish. The grain is part of the beauty.

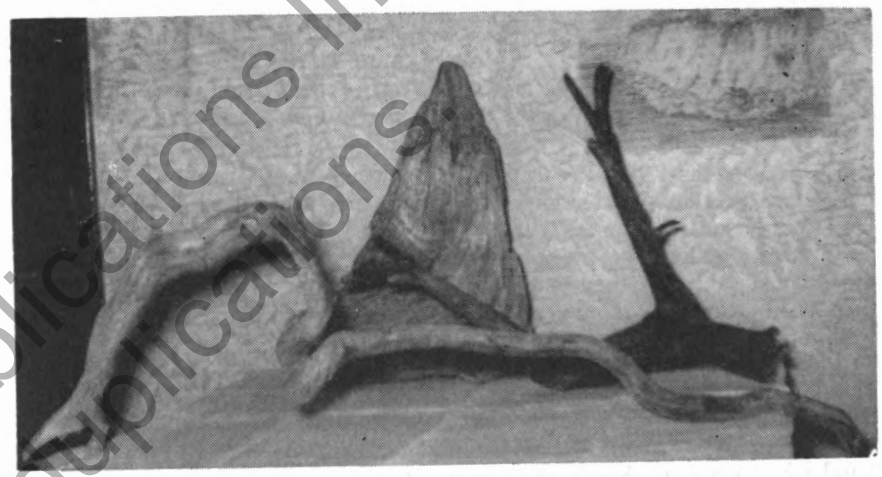
A word about trimming. A sharp knife should do, though sometimes a small saw may be needed. Edges are trimmed smooth with a good file or with steel wool. I like to remove only enough of the "branches" to make a symmetrical piece, with upturning, well balanced lines that will enable the piece to sit alone.

Use with flowers. The driftwood piece should not be obscured by the flowers; they should complement it. They should be bold in color and texture. If placed in the lower third or half of the piece they need a bud or a smaller flower at the top, and above that, grasses or a suggestion of feathery greenery

to give height. This height may extend above the piece. The finished arrangement looks best on a wooden plaque or bamboo mat.

Driftwood has been called "the poor man's sculpture," and certainly it is an inexpensive hobby. Collecting it can make a walk by the lake or a picnic by a river more enjoyable.

The photographs will illustrate the use of finished pieces in flower arrangement classes.



Three more pieces: foreground—wide piece for mantel, just as it was found on beach. sand washed. Right—large heavy piece, finished in mid-brown—has good lines. Centre—large triangular piece with horizontal grain. Faint tint of blue-green rubbed in, top left natural. Was used behind a moss-outlined mirror to represent a mountain in a song title classification in our local flower show.

House Plant Hints

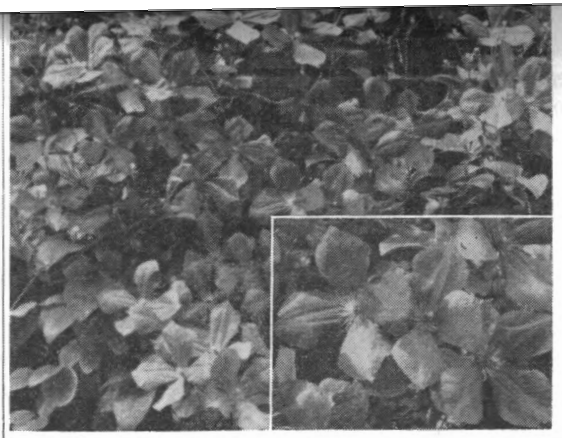
by **MRS. W. A. DAY, Bulyea, Sask.**

My hobby is house plant culture and because I am delighted to get tips from any source I should like to pass on some things I have learned in different ways.

I have learned that the flowering maple started in August or September (put slip directly in soil in a 5-inch pot and keep covered with a glass for awhile) will flower continuously from December right through the winter; and a fuchsia started in spring also will flower through the winter. These, of course, must be kept on a window sill.

Last year I was surprised to discover that a large fuchsia plant put directly in the soil outside suffered no set-back and flowered profusely until the frost, never wilting during the hottest weather, though it wilted and showed set-back when indoors during hot weather.

Carnations dug out of the ground (dig deeply to get all the roots undisturbed), and placed in a pot of prepared soil flower beautifully inside for many, many weeks, or, conditions being ideal, for months—the cheery red ones are so attractive in dull months. Twinkle phlox treated similarly when in bud also proves delightful in the house.



Beautiful Climber for A Modern Home

by **THOS. C. WATTERSON**
Carberry, Man.

During a short vacation in Duluth, Minn., a few years ago, my wife and I stayed in a residential area and noted that nearly every house had a gorgeous display of Jackman clematis (*Clematis jackmanii*). The effect was striking.

We decided to try two plants the following spring, although the local nurseryman said that they were not hardy here and would not recommend them. This was 5 years ago, and they surprised us because they have done well and flowered every year since.

They are quite hardy with us; we just cut them off and cover with straw. The Jackman clematis climbs to a height of 6 to 8 feet on a trellis, and its purple flowers, 4 to 5 inches across, make a wonderful show.

Our clematis attracts a lot of attention and comment, and I cannot understand why every prairie gardener does not try one or two plants. We would like to see one on every house and hope that these few comments will persuade more gardeners to try their hands.

I should add that they should be planted on the south or the east side of the house. And don't accept the Chinese variety because it cannot compare with the Jackman, while its fluffy seed heads just litter the garden.

EDITOR'S NOTE: *I heartily endorse Mr. Watterson's comments. For over 8 years I have had one wall a mass of purple most of the summer. This variety is, however, not entirely hardy and needs the protection and warmth of a house wall, and a good covering of leaves or straw for the winter. There is no point in covering the vines, as the new shoots from the ground are much more vigorous.*

Foundation Planting

by **AL. GOLDEN, Director, Calgary Horticultural Society**

Evergreen foundation planting softens hard lines, adds greatly to the appearance and value of almost any building, and above all brings summer greenery to the dreary winter landscape.

Most of us have seen the beauty of coniferous evergreen foundation planting in British Columbia, Ontario and other milder parts of Canada. There is a definite need for more evergreen foundation planting on the prairies and an excellent and varied choice of specimens is available. With a few sound basic principles even the inexperienced amateur may have as much success with evergreens as he does with deciduous shrubs.

There is great variation in the growth habit of evergreens so that one can be chosen for every purpose. For foundation planting slow-growing evergreens of dwarf to medium habit should be selected. The most popular present day forms are globe, pyramidal, columnar, spreading and procumbent.

The most frequent causes of failure to establish evergreens are:

1. Inadequate preparation of the soil. A mulch of peat moss will retain moisture, loosen the soil and encourage evergreen growth. The use of slow-acting commercial fertilizer aids a conifer's general health, but do not over-fertilize. A top dressing of well rotted cow manure is beneficial.
2. Inadequate maintenance. Evergreens retain their foliage and transpire moisture all winter, therefore a sufficient supply of moisture in the soil is necessary to prevent the roots and foliage from becoming dessicated. Evergreens should be thoroughly soaked at the approach of winter. They are sensitive to summer drought and wilt and once they become dry are slow to recover, so it is necessary also to give an abundance of water throughout the growing season. However, care must be taken not to overwater and cause swampiness.

Certain evergreens are susceptible to insect pests and must be adequately sprayed. Dogs may injure their lower branches and protection from this injury, especially to newly planted specimens, is necessary.

Choose the right material for the proper purpose, keeping in mind shape and habit, ultimate height, moisture conditions, color effect, whether sun or shade loving, etc. Remember, pruning and pinching out of growth buds make evergreens more compact and help to retain their natural shape. Late August or early September is the best time for pruning.

Following is a short description of the more popular and hardy coniferous evergreens suitable for foundation planting on the prairies:

PINES (*Pinus*)—Have needle-like leaves from ½-inch to 6-inch long produced in clusters of two, three, four or five needles enclosed in a sheath at the base.

Pinus Mughus Mughus—the familiar globe-like Mugo pine well known on the prairies. The above variety and the *compacta* and *pumilio* varieties are the only kinds of Mugo to be planted near foundations. Other varieties of this species develop into trees.

Other dwarf pines that are worthy of trial if available are: *P. strobus nana* —Dwarf White pine; *P. resinosa globulosa*—Dwarf Red pine; *P. sylvestris nana* —Dwarf Scots pine; *P. nigra prostrata*—Dwarf Austrian pine; *P. nigra pygmaea*—Dwarf conical Austrian pine; *P. pumilio*—Dwarf Siberian pine similar to the larger Swiss Stone pine.

SPRUCES (*Picea*)—Needle-like leaves which end in a sharp point and are prickly to the touch. Cones usually are pendulous. Twigs have a corrugated appearance where the leaves have shed.

Picea glauca—Native, white pyramidal spruce of which the following are dwarf varieties: *P. glauca nana*—Dwarf, dense form; *P. glauca densata*—Dwarf Black Hills spruce.

Dwarf spruce of other genera, probably hardy in western Canada: *P. pungens compacta*—Dwarf, flat-topped Colorado Blue spruce; *P. Engelmanni microphylla*—Dwarf globous Engelmann spruce; *P. abies ohlendorfi*—Dwarf compact Norway spruce; *P. abies nidiformis*—Nest spruce; *P. abies conica*—Dense, conical dwarf Norway spruce; *P. abies pygmaea*—Dense, small pyramidal Norway spruce.

FIRS (*Abies*)—Leaves usually flat and blunt-tipped, soft to the touch. Cones stand upright and twigs are smooth; buds are covered with resin. Firs are more shade- and moisture-loving than pines and spruces and stand shearing well.

A. balsamea hudsonia—Dwarf Balsam fir; *A. balsamea nana*—Dwarf, dense subglobous form; *A. concolor globusa*—Dwarf Colorado fir which grows at high elevations in the Colorado Rockies and should withstand prairie winters.

YEWS (*Taxus*)—Dark green, soft, dense leaves that appear almost black from a distance. Not well known on the prairies but species of Japanese yews have been observed growing well in exposed locations in Edmonton and Calgary. Can be pruned into almost any shape. Produce reddish berries.

T. cuspidata hicksi—Pyramidal Japanese yew; *T. cuspidata nana*—Globe Japanese yew.

JUNIPERS (*Juniperus*)—Evergreens with fine awl-like leaves of various colorations ranging from procumbent to pyramidal varieties. Produce blue berries.

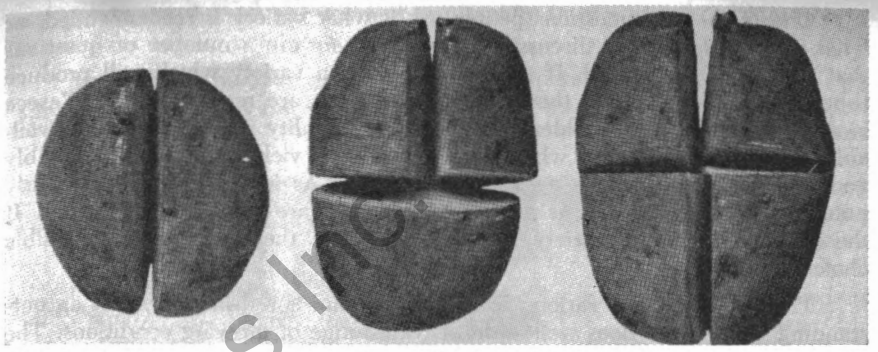
J. communis saxatilis—Mountain juniper—Spreading, light blue native of the western foothills; *J. chinensis pfitzeriana*—Spreading juniper, of which the yellow-tipped variety is more hardy; *J. horizontalis*—Creeping juniper used for ground cover; *J. sabina*—Savin juniper—vase-shaped, dark green; *J. sabina tamariscifolia*—low-spreading, feathery form; *J. virginiana canaerti*—variety of Red cedar, pyramidal with abundance of attractive blue berries; *J. scopulorum*—Rocky Mountain juniper. Spreading or pyramidal. This and the preceding variety take on attractive light purplish tints in the winter.

ARBORVITAE (*Thuja*)—Wrongly called Cedars. Flat sprays of scale-like foliage, soft texture and distinct odor when crushed. Contrary to belief, the arborvitae grows well on the prairies. A magnificent columnar specimen over 15 feet high and less than three feet across is growing in the Reader Rock Garden in Calgary. Many specimens differing in shape, texture and color are available.

T. occidentalis pyramidalis — Pyramidal American arborvitae; *T. occidentalis pumila*—Dwarf compact form; *T. wareana*—Siberian arborvitae, broad pyramidal, and many other varieties.

Although the Rocky Mountains variety of the Douglas fir (*Pseudotsuga taxifolia glauca*) forms a large tree, it is mentioned here because it can be kept dwarf by pruning. It is perfectly hardy and its bluish green, soft texture will enhance any landscape.

Similarly, although of unknown hardiness, the Canadian hemlock (*Tsuga Canadensis*) also can be dwarfed by pruning. It should be planted only in the most sheltered sites and its soft delicate leaves are extremely attractive.



This is the way to cut potatoes for seed. From left to right, the tubers weigh: 3, 4½, and 6 ounces; weight of each seed piece is 1½ ounces.

Potatoes in the Home Garden

by **G. E. STONE, Potato Specialist**
Manitoba Department of Agriculture and Conservation

Perhaps many of you are wondering why such a topic as Potatoes in the Home Garden should appear in THE PRAIRIE GARDEN. A book such as this is published to provide information for people interested in the various subjects connected with gardening. Some readers may feel that potatoes are not interesting, however, I beg to differ with them. As a matter of fact I frequently get requests about seed, varieties, insects, diseases, storage, etc. From this I feel that I am far from being alone in my potato interest.

Not too many years ago potatoes in our home garden were something I was not too keen on. It seemed as though we always had a large plot which was planted very haphazardly on May 24. This date was chosen because there was no school. As the season wore on the potatoes were hoed now and again and then last thing in the fall on a very cold and miserable day just before freeze-up we managed to get them into the basement. I think now that we would have been much better off if we had reduced the size of our potato patch, used a suitable variety, good seed, and looked after them in the proper manner. This would have provided us with potatoes for the winter and it would have been much more rewarding as a gardening practice.

Traveling around the country one wonders how many people make a similar mistake with potatoes in their home gardens. What really brought this to mind was seeing growers' fields which were well looked after and well cared for, and noting the yield of high quality potatoes produced. If the home gardener is going to grow a small patch of potatoes several steps in the production of his potato crop should be considered. These steps will be rewarding both from the appearance of his plot and from the yield. One of the biggest problems with the home gardener is the fact that he often plants the same seed year after year, resulting in gradually decreasing yields and increasing amounts of disease. On the other hand commercial growers buy new seed often. Some of them obtain new seed every year. In Manitoba this past year about 2,600 acres of potatoes were grown for seed, and it is not too difficult for a home gardener to obtain a small lot of high quality seed. If the home gardener uses good seed he will find that his yields are high and that his storage problems are much reduced.

One of the first questions people ask is what variety is recommended, or what variety is best? In discussing varieties, there are a number of questions that should be considered. If the grower wants a variety which will produce tubers early in the season then Warba or Waseca are recommended. Waseca is a red potato, a good yielder and its cooking quality is fair. Warba is available with either a red or a white skin. It is a good yielder and also reasonably good cooker; however, the eyes are fairly deep. As indicated these are early potatoes and they are not as good for storage as are some other varieties. If the gardener wants a variety for winter storage there are several possible choices.

The Pontiac, a late variety, has deep eyes and is red in color. It is an outstanding yielder and does well under a wide range of growing conditions. The Netted Gem on the other hand is a russet skinned variety and is long, rather than round in shape. In most areas it is only a fair yielder and it requires a relatively light soil with a very uniform moisture supply. If these conditions do not prevail many rough, knobby tubers will be produced. This variety has some resistance to common scab. The Netted Gem is considered a high quality cooking potato especially suited for baking and is an excellent keeper. If the gardener is interested in a white variety then Kennebec is a possible choice. Kennebec will give excellent yields of tubers with fair cooking quality. It is resistant to late blight but the tubers are susceptible to greening if exposed at any time to light. Kennebec is also a very late variety. Irish Cobbler is a white variety and an old favorite. It will give good yields of high quality potatoes which are somewhat rough with fairly deep eyes. Irish Cobbler is susceptible to hollow heart. Norland is a newer variety that is very popular with Manitoba growers. It has a red skin and the tubers uniform with shallow eyes. The yield is good and the cooking quality is fair to good. However, some complaints have been voiced because of darkening after cooking. There are several other varieties which are grown in limited amounts in Manitoba but the ones mentioned are most easily available.

Potatoes can be grown on a very wide range of soils, however, if the gardener has a choice a loam to sandy-loam would be the best. The seed bed should be well prepared to a depth of at least six inches before planting. If the soil is of a heavy texture then ploughing or spading in the fall will help condition the soil and will make a good seed bed in the spring. If manure is to be used as a source of fertilizer it should not be applied in the spring of the planting season but rather during the previous summer or fall. This will allow some time for the manure to break down and help to prevent the development of potato scab. Commercial fertilizers can also be used and will give a significant increase in yield. For heavy soils 16-20-0 may be used or on light soils 16-16-8, 14-14-7 or 10-30-10, should give satisfactory yield increases. However, when using commercial fertilizers care must be taken not to put the fertilizer and the seed piece together. The easiest way to avoid this is to place the fertilizer in the bottom of the hole, kick a little dirt over the top of the fertilizer and then put the seed piece on top of the dirt. Approximately one level tablespoon per hill is sufficient. If at all possible potatoes should not be planted more than once in three or four years in the same place. This will help avoid a build up of potato diseases which are soil borne.

Some care must be used in the preparation of seed. The tuber can be cut in several pieces but each piece must have at least one good eye and should weigh approximately 1½ ounces. It is also desirable to have the pieces blocky in shape rather than long and narrow. Small potatoes may be cut in half and larger ones in quarters. Potatoes require a warm seed bed and will

not grow until the soil has warmed up. Usually by the middle of May the soil is warm enough for potatoes to be planted.

For those who like to have very early potatoes a few can be "green sprouted." To do this the seed potato is placed in open boxes in a warm, well lighted room. Heavy green sprouts will develop and these will give a good start to the plant. However, these sprouts should not be removed or damaged when the potato is planted, or the advantage of green sprouting will be lost. Two to three weeks is ample time for the sprouts to develop. The practice of green sprouting is much better than planting potatoes in cold soil very early in the spring.

Green sprouted potatoes.

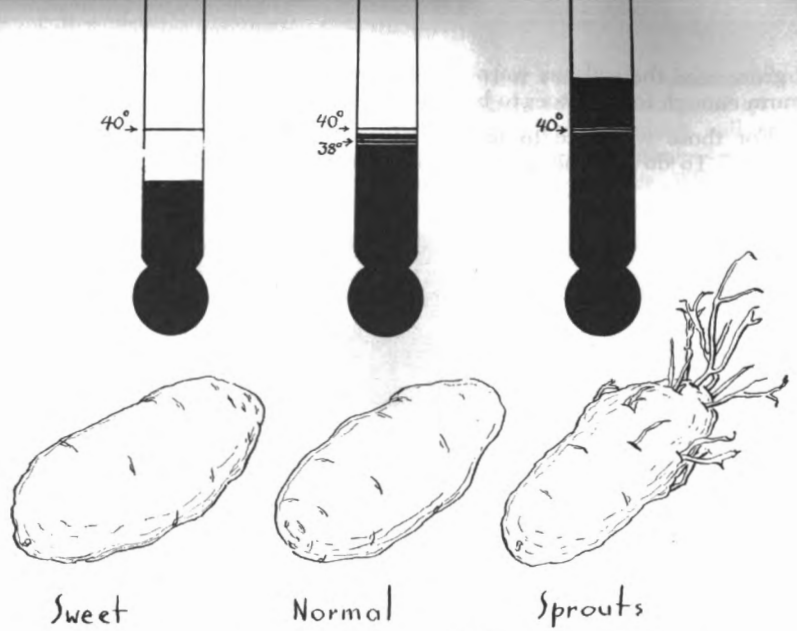
Many gardeners try to bury their potatoes rather than plant them. In heavy soils it is sufficient to place the tubers two inches under the surface of soil. In lighter soils potatoes may be planted to a depth of three inches. However, it is important that potatoes are planted in moist soil.

During the summer care must be taken to keep the weeds out of the potato patch and to keep the insect populations at a minimum. If power tools are used to weed the potato area, cultivating too deeply or too close to the plants can damage the roots. Damage to the root system will result in reduced yields and also increase the possibility of disease.

Gardeners find that potato plants have insect visitors soon after the plants emerge from the ground. Some people say that the Colorado Potato Beetle waits at the end of the row for the potato to come up. These hard-backed, striped beetles lay orange egg masses on the underside of the potato leaf. Soon tiny brick red larvae emerge and begin to devour the foliage. Other damaging pests are Potato Flea Beetles which are small, black, hard-backed insects attacking the foliage of the plant. They chew small holes in the leaves and do a considerable amount of damage. Because these insects are small they are difficult to see but in spite of their minute size they can cause a great deal of damage. Leaf-hoppers and aphids are sap-sucking insects which attack potatoes. These tiny insects carry disease from one plant to another and their numbers should be kept at a minimum. All of these insects can be controlled by using proper chemicals which are available in most garden centres. Directions on the containers should be followed carefully.

Diseases are also responsible for much damage. The most important factors in good disease control are the use of good seed, the use of a complete potato dust or spray during the growing season at regular intervals and the rotation of the potato plot from one portion of the garden to another. The use of good seed will help to control bacterial ring rot, blackleg and many other diseases. The use of a complete dust or spray program during the growing season will control early and late blight and reduce the amount of infection by insects, and proper rotation will help to control scab and other soil borne diseases.

After the potatoes have sized up in the fall it is desirable to remove or kill the potato vines. This should be done at least 10 days to 2 weeks before



The proper temperature is essential in storing potatoes.

they are to be dug. This will allow the potato time to set a heavy skin which will help to minimize injury during harvesting.

Quite often gardeners take exceptionally good care through the season in that they purchase good seed, control insects and diseases but they do not treat the potatoes with sufficient care when harvesting. As a result the potatoes become bruised, skinned and cut. In many cases a summer's work has been wasted. Storage in our modern homes presents a problem. In most homes where oil and gas furnaces are used, and temperatures in basement rooms are very high, potatoes will keep for only a short time before sprouting. If the home gardener is interested in keeping his potatoes throughout the winter he should provide a small vegetable storage bin. For potatoes this bin should be completely dark, have good ventilation and should be kept at a temperature of 38-40 degrees. If this is done the potatoes will keep for a long period of time with a minimum amount of loss.

If home gardeners want to grow their own potatoes, these steps, if followed, will make potatoes a worthwhile crop in the garden.

Variety—Calwonder (Green Sweet type)

Peppers and Egg Plants in the Home Garden

by **BERT SANDERCOCK**
Vegetable Specialist
Manitoba Department of Agriculture and Conservation

The phrase "Variety is the spice of life," is certainly appropriate when applied to vegetables in the home garden. Two vegetables that fit into this category and add greater interest and pleasure to one's time spent in the garden are peppers and egg plants. Both are warm-season crops and quite similar in their requirements.

Of the two, the egg plant has the longest history. It dates back at least 1,500 years and was thought to originate in tropical India and in China. It is now a staple vegetable in many Oriental countries and is gaining in popularity on the North American continent.

Egg plant, though grown in areas of the prairie provinces, has not been one of our most popular dishes. We might take a hint from the Italians and make it a favorite. Egg plant is a tasteful accompaniment to such dishes as spaghetti or macaroni with meat sauce. Sliced and fried it can tempt the palate of most food-loving individuals. Egg plant can be served in many ways but to taste it in its most delicious form prepare it according to the following recipe suggested by Fran Wersler, Information Branch, Manitoba Department of Agriculture and Conservation.

EGG PLANT PARMESAN

1 medium egg plant (1 to 1½ pounds)
Cold water
1 cup bread crumbs
2 teaspoons salt
¼ teaspoon black pepper
½ cup grated parmesan cheese if desired

The parmesan cheese adds an extra flavor note, though it may be omitted.

Peel and slice egg plant into ¼-inch round slices. Soak egg plant slices in cold water to prevent browning. Combine bread crumbs, 2 teaspoons salt, ¼ teaspoon black pepper, ½ cup parmesan cheese. Coat egg plant slices with bread crumb mixture and fry on greased griddle or skillet until golden brown, but not soft.

The pepper plant originated in tropical America and was a highly developed and important food plant in early times. It was first taken to Europe by Columbus on his return from his maiden voyage to America. Here it was received with enthusiasm by European gardeners and in a short period of time it was grown and used throughout the world where climatic conditions allowed it to thrive.

The pepper plant has undergone many changes in the hands of the plant breeder. On looking through the various seed catalogs it is possible to select varieties that are long and slim, short and blocky (bell shaped), red, yellow or green in color. They may be very pungent in flavor or quite mild. There is a variety to suit everyone's fancy.

As an item on the menu peppers may take many forms. Stuffed with a variety of dressings and baked in the oven it has a flavor all of its own. Fried in butter along with onions and ripe tomatoes it adds a sparkle to what otherwise might have been just an ordinary meal.

Peppers and egg plants will grow well in areas where tomatoes can be produced successfully. The techniques of production are very similar to those of tomatoes and seedlings must be started indoors well in advance of the growing season.

Both crops require growing temperatures above 60°F. thus will benefit from being planted in a location with a southern exposure well protected from the cool spring winds. Because the seedlings are sensitive to lower temperatures transplanting should be delayed until the danger of late spring frosts is over.

Covering both the egg plant seedlings and the pepper plants with plant protectors after transplanting has aided greatly in providing protection in the event of persistent late spring frosts and strong winds. Care should be taken to provide adequate ventilation as the outside temperatures rise. Once temperatures have reached 75°F. a small hole about 2 inches in diameter should be made in the side of the paper wall. Ultimately, as growing conditions improve the hole can be enlarged and finally the plant protector completely removed once the plants are well established.

Regular care which combines all the techniques of good gardening is all that is necessary to ensure a bountiful crop of these two vegetables. I am sure that efforts put forth in the growing of peppers and egg plants will be well rewarded by the extra interest and excitement that they will add to your gardening experiences.

Autumn Flowering Annuals

by **D. R. ROBINSON, Extension Horticulturist, University of Saskatchewan**

Many of the old-fashioned annuals and a few of the newer kinds are well adapted to the "autumn flower border."

For the most part the annuals mentioned below have considerable frost resistance. Usually their flowers will survive six to eight degrees of frost with little sign of damage and most gardeners will agree that this is important. Our summer season is all too short and those flowers that brighten up the border in September and October are valuable.

Three outstanding flowers in this group are sweet alyssum (*Lobularia*), snapdragon (*Antirrhinum*) and pot marigold (*Calendula*). All three are dependable and available in from two to several colors. Sweet alyssum and snapdragon commonly are started from seed sown indoors in March. If some of the seed is started a bit later than usual, in April, this will encourage autumn flowering.

By pruning off the old flowering stems in the case of snaps, and cutting back the plants of alyssum in mid-August, late flowering can be promoted. Pot marigold sometimes is called Scotch marigold in the seed lists; normally it is seeded outdoors in early May. A succession of seedings, in the case of pot marigold and other outdoor annuals, definitely will prolong the season of bloom.

Speaking of fall flowers, we must not forget the pansies. The giant strains are very popular but the smaller-flowered pansies often will winter over and bloom early in the spring. Here again the large-flowered pansies usually are started indoors; the smaller kinds may be seeded directly in the garden any time during May and even in June. We note some new strains of violas listed in the catalogues. These should be worth trying.

Cape marigold (*Dimorphotheca*) has daisy-like flowers in various shades of cream, lemon and orange. The seed may be sown directly in the garden and the plants will grow to 12 to 14 inches high. Cape marigold has been observed making a brave display of color in late October, after eight degrees of frost.

What has been said about the Cape marigold can be repeated with respect to the California poppy (*Eschscholzia*). Everyone is familiar with the brilliant orange flowers of this poppy. Recently introduced strains with flowers of cream, salmon and pink undoubtedly will add to the popularity of the California poppy.

The straw flowers or everlastings are not as well known as some of the other kinds but they do merit attention. Two kinds of straw flowers are listed and both can be grown from seed sown in the garden about May 15. *Helichrysum bracteatum* usually is sold as a mixture and contains a variety of colors, including maroon, pink and orange. Acrolinium (*Helipterum*) has rather large, pink, daisy-like flowers and usually grows to 1½ feet high. Both these flowers will withstand some frost and both are useful when dried for winter bouquets.

A number of the pinks (*Dianthus*) should, perhaps, be described as perennials. However, some of the hybrids and varieties commonly are grown as bedding-out plants. In this group the seed firms offer Sweet Wivelsfield, Heddewiggi and others. In general these flowers are low-growing and have a long season of bloom. Their colors range from white through pink to red.

If we wish to add a bit of variety to the autumn border the Bells of Ireland (*Molucella*) can be grown from seed sown out-of-doors in May. This annual is something of a novelty with spikes of cup-shaped "bells." (The individual "bell" is the flower calyx.)

Certain other annuals may not be quite as suitable for the production of fall flowers as those mentioned above. However, the following kinds (commonly grown from seed sown indoors) are worthy of consideration: Ten-weeks stocks (*Mathiola*), Velvet Trumpet (*Salpiglossis*), annual phlox (*Phlox*) and African daisy (*Arctotis*).

Although the home gardener has a wide variety of flowers to enjoy in midsummer the later-flowering kinds should not be overlooked. With selection and care the autumn flower border can be a source of pleasure long after most of the summer beauties have faded.

Hardy Chrysanthemums

by **H. H. MARSHALL, Head Gardener**
Canada Experimental Farm, Brandon, Man.

Hardy chrysanthemums developed recently are a source of pleasure to prairie gardeners. Older varieties of outdoor chrysanthemums bloomed in late September and October but blooming at this date was seldom successfully concluded on the prairies. Also, since all had been developed in a milder climate few could survive a winter outside.

A number of varieties are available now that will bloom from August until hard frosts occur. They appear to winter well in locations that are not subject to flooding, and particularly when tops are left on the plants to provide protection. In some ways they are temperamental flowers but are capable of producing a very worthwhile display of bloom in late August and September.

Probably the most troublesome feature is that plants propagated at high temperatures in a greenhouse in spring may not grow or may not bloom well the first year. This physiological difficulty can be avoided by keeping young plants cool. Where winter killing is common, vigorous plants may be grown from divisions made in the garden in spring. Cuttings grown under cool conditions also perform well.

Varieties frequently seem to have strong local adaptation. A considerable number of varieties have been introduced and tested at Brandon but few have performed as well as varieties selected locally. Similarly, varieties selected at other stations often are better adapted to the climate of that locale. Varieties introduced to the prairies from other areas seldom are satisfactory. When possible a gardener should obtain varieties that have been developed or proved in his immediate area.

The following notes on varieties are based on observations at Brandon and may not be applicable elsewhere. A good average border chrysanthemum will produce a plant approximately two feet in height and width, which should bloom freely from August 20 until hard frosts occur. Flowers average about 2½ inches in diameter.

The first three varieties were released by the Experimental Farm at Brandon, Man.

Susan Brandon produces quantities of deep purplish pink, semi-double flowers after August 20.

Jocelyn Brandon is outstanding because its flowers are produced early and in great numbers, and it is one of the most winter-hardy varieties. The semi-double, bronze, yellow-tipped flowers are a little smaller than average.

Julie Brandon makes dwarf plants, 10 inches high by 18 inches wide, which are hidden by large numbers of small, bronze flowers after August 15.

The next two varieties were developed at the Experimental Farm, Morden.

Morden Gold also produces a rather small plant which bears large numbers of golden flowers after August 15.

Skyline plants are approximately 2 feet in height and width and bear numerous three-quarter double, pink flowers after August 20.

Sutherland No. 1 from the Forest Nursery Station at Sutherland, Sask., is outstanding because of its frost-tolerant flowers and winter hardiness. The semi-double, purple flowers are produced from August 20 until after other varieties have been killed by frost.

Asters Defy the Frost . . . Bring Joy to Gardens

Autumn is the time to choose varieties of perennial asters for spring planting. These colorful flowers that brave the first frosts should brighten more Canadian gardens than they do at present, is the advice of Mr. A. R. Buckley of the Canada Department of Agriculture's Plant Research Institute at Ottawa.

In England perennial asters are known as Michaelmas daisies and have long been recognized for their beauty. Over 700 varieties have been developed, ranging in color from pure white through pinks, deep red rose, purples and violet to blue-violet. The plants vary in height from one to five feet.

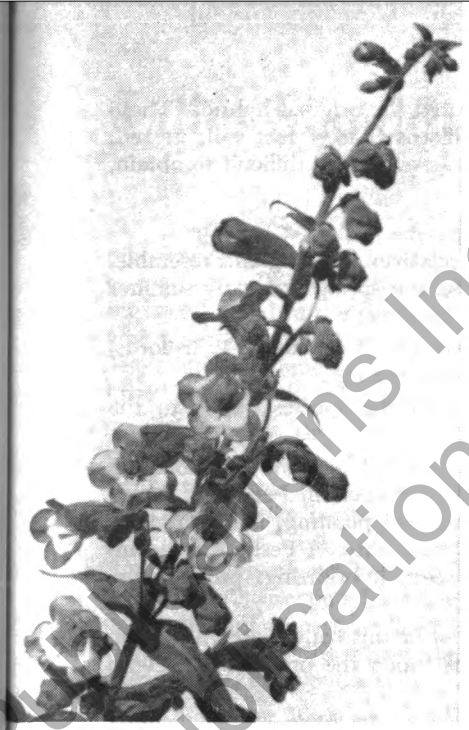
Perennial asters are easily grown in Canada, most of them, in fact, being derived from native species. Sometimes in late summer a mildew develops on them but this is easily controlled by applying a spray containing karathane. In any event the modern, mound-type perennial asters are so loaded with flowers that mildewed leaves are scarcely seen. The plants are very resistant to frost and in some of the old botanical books they are called frost flowers. A severe frost at the Central Experimental Farm, Ottawa, on October 13, 1961, blackened dahlias and browned chrysanthemums but the asters bloomed merrily on.

The best time to plant perennial asters is the spring. They are dug and divided when the shoots are coming through the ground and selections for spring delivery from nurseries may be made now or later.

Asters grow well in many soils though they thrive best when the soil has been enriched with humus. They need more room than the tiny shoots might suggest when planting them. Each plant should have at least a square yard and be permitted to develop for two or three years; it can be divided evenly at the end of each period.

Gardeners in the prairie provinces should enquire at their commercial nurseries about the new hybrid asters that were developed at the Experimental Farm, Morden, Man. These are: Sunup, Morden Fay, Morden Crimson, Perry's Variety, Pacific Amaranth, Arctic, Plenty and Snowsprite. Also a Skinner introduction Prairie Eventide (Pink.)

EDITOR'S NOTE: *Mr. H. F. Harp, Head Gardener, Morden, states: "I do not know about their availability from prairie nurserymen. However, some are and if there is enough demand by the public, the others will soon be procurable through the regular channels."*



Discover Our Penstemons

by **JOHN H. HUDSON**
and **ALAN D. SCHARF**
Saskatchewan Research Council
Saskatoon

The genus Penstemon of the Scrophulariaceae or Snapdragon Family is almost wholly confined to North America. Of its 225-300 species (varying estimates) one occurs in Central America, one in Kamchatka and Japan, and the rest on this continent, most of them in the western mountains. This Cordilleran centre of distribution may be responsible for the fact that domestication of the numerous lovely flowers found in the genus has only recently begun.

This article is intended to introduce this genus to the reader.

Three main hybrid groups suitable for the Prairie garden are as follows:

A. **The "Flathead Lake" complex**

The original hybrid was found near Flathead Lake, Montana, and is now known as Penstemon johnsoniae in honor of Mrs. Anna Johnson who first introduced it. P. johnsoniae has the rare ability to accept pollen from many different species. Mostly through the efforts of Professor Glenn Viehmeyer of the University of Nebraska a wide range of hybrid material is now available, varying from tall 4 foot plants to others only half a foot high and in shades of red, pink, blue and purple.

An excellent strain of seedlings is sold under the name "Indian Jewels," and two cultivars introduced by Viehmeyer are outstanding examples of this hybrid group. "Prairie Dusk" has violet flowers and grows up to 2 feet tall with straight stems and a long period of bloom, which is recurrent. "Prairie Fire" has evergreen foliage, strong stems and bright red flowers. It grows up to 2½ feet tall.

Canadian gardeners will have difficulty obtaining these, a situation we hope will improve.

B. **Grandiflorus hybrids**

Most of these hybrids between P. grandiflorus and certain other species are known as Seeba, or Fate, hybrids, in reference to Mrs. Lena Seeba and Mr.

Fred Fate who respectively discovered and created the original hybrids. These plants resemble a greatly improved P. grandiflorus 3 to 4 feet tall, in red, pink, purple, or white. An excellent white cultivar, again still difficult to obtain, is "Lena Seeba" (Viehmeyer).

C. **Digitalis hybrids**

These hybrids between varieties and close relatives of P. digitalis resemble, in a very general way, white Phlox, but bloom in late spring and early summer as do most Penstemons.

Some American nurserymen list "Henry" hybrids, (P. cobaea x P. triflorus) but these are not generally hardy on the Canadian prairies.

Beginners should stick to plants or seeds of the species native to the prairies and to the above-mentioned hybrids.

In general Penstemons prefer dry sandy soil and a sunny location and many will bloom the first year from seed if started indoors in February. Stratification (storing at 35 to 40 degrees for 4 weeks, after planting) is required for most kinds, and a sterile seeding medium (½ Vermiculite, ½ Perlite) is recommended. Complete details on growing from seed, hybridizing, propagation, pests, and diseases are available in booklet form.[1]

Great strides in knowledge and development of this truly North American plant have been made, and shortly it may burst upon the prairie scene, with more than the usual amount of attention.

[1] "Penstemons in Your Garden" by Glenn Viehmeyer. Available from University of Nebraska, Agricultural Experiment Station, North Platte, Nebraska. No charge.

Horticultural Color Charts

by **ALAN D. SCHARF, Saskatoon, Sask.**

Observant gardeners know that the apparent color of a flower can vary markedly with the time of day, the amount of overcast, and the color of other flowers and objects within the field of view. Gardeners with the best eye for color realize that without a color chart accurate color identification is impossible. The use of a color chart is primarily one of matching the object in question with a *standard or reproducible* color chip.

The Nickerson Color Fan does this with flying colors, and is recommended for amateur and professional use alike. It is available from the American Horticultural Society, 1600 Bladensburg Road, N.E., Washington 2, D.C. Price $6.00.

Lilies Should Have a Larger Place

by **PERCY H. WRIGHT, Saskatoon, Sask.**

Anyone is perfectly safe in making the statement that, of all the perennial flowers it is possible to grow in the prairie provinces, the lilies are most seriously overlooked in proportion to their value. Gardeners whose lily plantings are limited to the common Tiger lily probably outnumber those who have any other lily by 10 to 1, and those whose plantations are limited to the Tiger lily plus some form of Dauricum or other upright-flowered lily of similar breeding probably outnumber those who have any further lily by 50 to 1.

The reason the Tiger lily happens to be so widespread is undoubtedly its ability to produce bulbils in the axils of the leaves, and the fact that these are so numerous that people give them to their neighbors freely. The reason the Dauricum lily happens to be next on the list of popularity is undoubtedly that it divides easily, and makes numerous bulblets on the portion of the stem which is found between the top of the bulb and the surface of the ground. Both are popular because they do not die out often by the disease or complex of diseases called "Basal Rot," which is usually to blame when a clump of lilies of the susceptible types suddenly disappears and the gardener does nothing but wonder why.

The newer lilies are so abundant today that it would be impossible to do more than list them in a single article, and some of them are so recent that it would be impossible to evaluate them fairly at the present date. The "break-through" in lily breeding occurred only about 25 years ago, and the flood of the new varieties may be expected to continue indefinitely. This means that it may never be possible to do justice to new varieties in evaluating them alongside the old, or to put out a list of recommended varieties that will not quickly become out-of-date.

All this article can do, therefore, is to suggest a few lilies which should be considered as convenient for extending the number of varieties in your garden from the two already named to a greater number. But first it should be noted, perhaps, that some lily specialists contend that the Tiger lily is a "Typhoid Mary," carrying a disease of virus origin to which it is itself immune, but which is capable of wrecking the "career" of many other lilies. It is undoubtedly true that some strains of the Tiger lily are heavily infected by the virus, even though it is difficult or impossible to demonstrate it by inspection, but it is the personal opinion of this writer that other strains are free of disease. Nevertheless, to be on the safe side, anyone who invests in lilies of superior floral beauty should plant them at a distance from Tiger lilies, and perhaps from Dauricum-type lilies too. I, for one, have discarded the common Tiger lily entirely.

The usual Dauricum-type lily blooms early, in June, and the common Tiger lily blooms late, between early August and mid-September, and so it seems best to suggest, as a "third step," some variety which comes in between, in season of bloom, and is old enough to be relatively inexpensive today. A good start in this class could be made by ordering the Maxwill lily, a selection of Lilium Willmottiae made by Dr. F. L. Skinner, but in every way a finer plant and flower. It blooms in mid-July to mid-August, or about a month earlier than the Tiger lily. Its flowers are somewhat smaller than those of the Tiger lily, but much brighter, a clear orange. A mature bulb will produce up to 40 or 50 flowers, or at least four times as many as the Tiger lily. It makes

no bulbils, but does produce bulblets on the portion of the stem below ground. It is vigorous and hardy, and quite dependable.

Another lily of the same general season is Brenda Watts, the best of the "Stenographer" series of lilies originated by Miss Isabella Preston while she was ornamentals specialist at the Central Experimental Farm, Ottawa. It also is a bright orange, but has large flowers. It is of hybrid origin, and sufficiently distinct to be prized alongside Maxwill..

One of the best of the earliest introduced originations by the late Prof. C. F. Patterson, of the University of Saskatchewan, is White Gold, the first really hardy and dependable white lily ever. Perhaps this statement needs a little modification, for its color is really a buff white, which can be a fairly deep golden-orange if the flowers open in shade. White Princess, a later origination, is superior, but in a very different price range. Another Patterson lily of distinction is Edith Cecilia, of which there exists in my opinion, no more charming and beautiful lily anywhere, even among the tender lilies. It is of an attractive mauve-pink.

Twelve Good Lilies *(Percy Wright, The Gardeners Bulletin, August 1962)*

The following list of a dozen favored lilies excludes the old standbys that everybody should know about already, and the very new, expensive novelties. They are easily available in quantity, and yet are sufficiently new, and vary enough among themselves in form and color, to lend distinction to any garden.

White Princess, Edith Cecilia (mauve tones), and Rosalind (deeper mauve tones), by Dr. C. F. Patterson.

Earlibird and Golden Jubilee by A. J. Porter of Parkside, Sask., both "quality" flowers.

Dr. Frank Palmer's Redbird, remarkably strong growing, and Wright's Red Knight series; also Byam's Ruby (red lilies).

In yellow-toned varieties, Ottawa's Sovereign, Patterson's Lemon Queen, Dr. F. L. Skinner's dwarf elegans-type Helen Carrol are all good.

Last but not least, the Aurelian bybrid race of lilies, not quite hardy, and a little late in flowering, but worthy of the reputation they have gained all over the world. The earliest of the Aurelians are undoubtedly worth trying out in our climate.

Lily Bulbs

Bulbs of the University lily introductions, developed and named by the late Dr. C. F. Patterson, are available for sale. Varietal descriptions and price lists can be obtained by contacting the Department of Horticulture, University of Saskatchewan, Saskatoon.

Late-Flowering Lilacs for the Prairies

by **W. A. CUMMING, Head, Ornamentals Section**
Canada Department of Agriculture Experimental Farm
Morden, Man.

Lilacs are rated highly as ornamental shrubs for use on the prairies. Their blooming season can be extended by several weeks through the use of late-flowering varieties. The lilac collection at Morden of over 300 varieties contains many of these.

Canadian plant breeders have pioneered in the production of late-flowering lilac varieties. Miss Isabella Preston, after whom the main group of these lilacs is named, was a well known Canadian plant breeder with the Central Experimental Farm at Ottawa. None of the original Ottawa varieties has gained a place in prairie gardens, but some of those named more recently may prove suitable. Second generation seedlings of some of Miss Preston's original varieties grown at the Morden Experimental Farm resulted in the naming and introduction of eight varieties, among which Royalty, Coral and Nocturne are recommended for prairie gardeners.

Dr. F. L. Skinner of Dropmore, Man., who has an international reputation as a private plant breeder, commenced his work with this group of lilacs about the same time as Miss Preston, and among his introductions the varieties Donald Wyman, Helen and Hiawatha are outstanding in their performance under prairie conditions. Breeding and selection are being continued at Morden and a number of promising selections are under test.

These late-flowering varieties are non-suckering and range in color from almost white, through pink and magenta to royal purple. The individual flowers are small but are borne profusely in large showy spikes. Because of their size, ten feet in height, and rather large leaves they are best suited to planting on larger properties or as background shrubs in the border. Preston lilac seedlings have been tested also as single row field shelters and appear well adapted for this purpose.

The lilac season ends with a flourish in late June or early July when the Amur and Japanese tree lilacs are literally covered with huge spikes of creamy white flowers. These hardy aristocrats among lilacs, 15 to 20 feet high, with good foliage and cherry-like bark, can almost be classified as small trees. They can be used either for framing or as specimen plants.

Dahlia Culture

by **BJORN PETURSON, Ph.D.**
Division of Plant Science, University of Manitoba

Dahlias are one of our most adaptable and useful garden flowers. They come in heights ranging from dwarfs little more than a foot high, useful for the front of the flower border, to giants over 6 feet tall suitable for background specimens. The flowers come in a great variety of colors and range in size from flowers more than a foot in diameter to ones less than 2 inches across and the variation in shape of flower is as great as the variation in color and size. Among the many hundreds of dahlias there are many different varieties which one could use for landscape effects, flower arrangements, show specimens at flower exhibitions and a variety of other purposes.

Some hints on growing dahlias under Red River Valley conditions are given in the following paragraphs.

Soil Preparation

Dahlias grow well in a wide variety of soils. They will thrive and produce a good crop of flowers and roots in any soil which will produce a good crop of vegetables. However, they do best and are most easily handled in well drained sandy loam.

In the Red River Valley where soils are generally heavy and sticky the soils can be greatly improved for dahlia culture by a liberal addition of acid peat or well rotted barnyard manure, or by a composition of both these components. These amendments need not be added to the entire garden although such additions to our soils would in most, if not all cases, improve the soil for culture of all vegetables and flowers. If the dahlias are grown in rows like vegetables, it would be sufficient to dig a trench 16 to 20 inches wide and add the soil amendments to this trench. If the dahlias are grown as single plants in spots here and there it is sufficient, so far as they are concerned, to dig holes 2 by 2 feet, about 8 inches deep, and add the required soil amendments to them together with some bonemeal and a small amount of fertilizer high in phosphorus.

The treatment suggested above not only improves the growth and health of the dahlias but will also render the lifting of the dahlia clumps in the fall quite easy and will largely prevent injury to the roots. If the amendments suggested are not readily available sharp sand, that is, sand from a gravel pit, could be substituted. It might profitably be mentioned here that sand from the shores of Lake Winnipeg or from our other lakes is absolutely unsuitable as a soil amendment for Red River soils. Lake shore sand is so fine and worn so smooth by water action that it tends to bind our heavy clays together very tightly much as cement would and thus aggravate the condition which it is supposed to remedy.

Where to Plant Dahlias

Dahlias, generally, produce the best plants and flowers when grown in a location exposed to full sunlight all day. However, they will thrive well and produce a good crop of flowers if they get daily from 6 to 8 hours of sunlight. In fact, some varieties produce better flowers when grown in partial sun than when grown in full sunlight all day. For example, the scarlet flowers of Coltness Gem will fade badly and look insipid when exposed to the full sun all day but will retain their exquisite natural color for many days if grown in partial shade. However, the flowers of many dahlia varieties have fast colors and are unaffected by exposure to strong sunlight.

When to Plant Dahlias

In a short season area such as we have in Manitoba the date of planting of dahlias is most important. It is hardly worth while planting these plants unless one is assured of at least a flowering period of a month. This can be achieved by planting short season varieties early. All dahlias, early, mid-season and late varieties should be planted about May 7 in the Winnipeg area. One should be prepared to protect these early planted dahlias from spring frosts. This can be done by covering the plants with Hotkaps or boxes. In some years no frost protection will be needed and in other years protection will be needed only on a few nights. In the Winnipeg area frosts usually do not occur after June 7. Therefore, in this area, those who do not wish to go to the trouble of protecting their plants from late spring frosts should adjust their plantings so that their plants emerge shortly after June 7.

How to Plant Dahlias

Dahlia roots should be planted from 2 to 3 feet apart at a depth of about 6 to 8 inches. Holes about 18 inches in diameter and about 8 inches deep should be prepared with the proper soil amendments added. The roots should be planted horizontally with the eye end about 2 inches higher than the tail end and covered to a depth of about 2 inches. As the soil warms up and the sprouts emerge the holes should be gradually filled in. At planting time a stout stake, 3½ to 5 feet high, should be driven in at the eye end of the root. Staking the dahlias and tying them to the stake as they develop is most essential. Unstaked dahlias, more often than not, are at least a partial loss.

Watering Dahlias

Dahlias are water loving plants and should be well watered at all times. However, good drainage is essential for they do not respond well to perpetually wet feet. In fact, in Mexico, the country of their origination, their name is Acocotti (Water Pipe), which refers to their love of water. When dahlias are watered they should receive sufficient to moisten the soil to a depth of 4 to 6 inches. A light surface sprinkling is not usually very effective.

Disbudding and Pruning

Here in our area plants grown to one stem seem to give good results. The leaves and side branches of the stem should be removed to a height of from 8 to 12 inches depending on the height of the variety. No further pruning is ordinarily necessary except for removing the two side buds of the terminal branches in order to give the main bud a better opportunity to develop.

Cultivation

The area around each dahlia should be free of weeds. However, cultivation should be shallow in order not to damage roots which grow near the soil surface. A 2-inch mulch of peat would help to conserve moisture and to keep down weeds.

Harvesting Dahlias

In southern Manitoba dahlias are usually cut down by frost during the second half of September. In some mild seasons, with a little protection, dahlias may survive into October.

Dahlias should be dug about 10 days after the first killing frost. The 10 days between the death of the top and lifting of the roots allows the roots to mature somewhat and to develop a covering more impervious to water loss.

If liberal amounts of peat and barnyard manure have been added to the soil the plants will lift quite easily without appreciable root injury.

After the clumps of roots have been cleaned of soil and dried for about 3 or 4 hours they are ready for winter storage.

Storing Dahlias

The dahlias can be stored as undivided clumps and the clumps then divided into individual roots in the spring or the clumps can be divided in the fall and the roots then stored much as one would store carrots.

If they are to be stored as clumps some of the soil should be removed from the clumps and these placed in boxes which have been lined with waterproof paper and packed in sawdust, sand, dry soil or peat soil. The boxes should be stored at a temperature of 40 to 50 degrees in a well ventilated room.

The writer has had good results with the following storage method:

(1) The soil is cleaned from the clumps immediately after digging and the clumps are then divided into individual roots, making sure that each root has a bud. The small side roots and the tail end are cut off each root with a sharp knife and all cut surfaces covered with dusting sulphur. The roots are then numbered with an indelible pencil with the number which has been assigned previously to the variety from which they came. These numbers will remain legible throughout the winter and following summer and will usually be readable when the dahlias are lifted.

(2) The root divisions are dried for a few hours and then placed in a ventilated plastic bag. Each bag is only about half filled and the unused portion rolled around the roots. The roots are then placed in wooden boxes and covered with sawdust. The roots are examined periodically during the winter, taken out and dried if too moist and if too dry a little moisture is added to the sawdust. The storage temperature is of course the same as for dahlias stored as clumps.

Dahlia Troubles

Mosaic

Dahlias are affected by a number of virus diseases. The symptoms of these diseases are somewhat variable but the most common ones are mottling of the leaves with dark green and yellow areas and with some crinkling of the leaves. Often there is a varying amount of stunting ranging from a slight reduction in size to a severe stunting reducing plant height from a half to a quarter of normal. If a dahlia becomes virus infected all parts of the plant, including the roots, are affected and all roots produced by virus-infected plants carry the virus.

Some varieties seem to be but little affected in growth and flower production by virus infection. We speak of these as virus tolerant. Other varieties are severely affected in performance by a virus infection.

Control

Since dahlia viruses are spread by aphids these insects should be kept in check by spraying the dahlias and surrounding areas with a good insecticide during the season.

If the affected plants are not appreciably reduced in size and produce normal flowers, they may be considered as virus tolerant and need not be discarded. However, any virus-infected plants which are stunted or show flower abnormalities should be discarded.

Growers should use varieties which have been found by experience to be virus tolerant or which are listed as virus tolerant.

It is probable that most, if not all, of the extant dahlia varieties are virus infected. Some of these probably are symptomless virus carriers and others

are obvious carriers of virus infection but are not appreciably affected by the virus infection and still others are severely affected by viruses and should be avoided.

Methods have been developed by which virus-free cuttings can be obtained from infected plants. However, the methods of obtaining these virus-free cuttings require special techniques and cannot be used by the ordinary grower.

Root Rots

Both fungi and bacteria attack the roots and crowns of dahlias. The organisms may destroy the roots or plug the water-conducting vessels of the plants thus causing them to wilt and die.

Control

Remove and destroy affected plants. Plant only roots from healthy plants in new or sterilized soil.

Powdery Mildew

Dahlias are often attacked by powdery mildew. A white powdery substance, the body (mycelium) of the fungus, grows on the surface of the leaves.

Control

Powdery mildews of most plants are quite easily controlled because the fungus grows on the outside of the leaves where it can be reached by fungicides.

This disease can be completely controlled by timely applications of dusting sulphur or karathane.

Insects

Practically all the insects which attack dahlias, including aphids which spread virus diseases, can be controlled by timely application of malathion during the growing season.

Mites

The red spider mite is the worst enemy of the dahlia in our area, particularly in dry seasons.

These mites attack the under side of the leaves. They are so small that they cannot be seen with the naked eye. The first sign of red spider damage usually is a whitish spotting of the leaves owing to loss of chlorophyll (leaf green).

Control

For good results control measures must be started before leaf damage has occurred for after the mites have extracted the juices from the leaves they will not recover even though the mites are killed.

Red spiders can be controlled by applications of kelthane.

Varieties

No dahlia test gardens have been established thus far in our area and, therefore, any information on the performance of varieties must be based on the experience of local growers.

Growing Dahlias in Calgary

Contributed by the **CALGARY DAHLIA SOCIETY**
An affiliate of the Calgary Horticultural Society

This article is especially for dahlia growers who do not have a greenhouse and who wish to plant their dahlia tubers directly into the ground.

Much has been written on the proper time for planting and many advocate the 24th of May as being ideal, but in the opinion of the writer this is far too late. In Calgary, frost may be expected during the first week in September, and if it does not come at this date we are on borrowed time. Dahlias planted on May 24 will be producing their first flowers when frost arrives, and therefore it is necessary to go to a little extra trouble to insure a longer flowering period.

Bring the dahlia tubers out of storage from the 20th to the 25th of April. After dividing the clumps, place them in damp peat moss and keep at room temperature until the first of May. At this time roots will have started and eyes will appear. Try to have sprouts on the tuber about one inch long by the first of May and at this time plant them in the garden.

Dahlias require staking and before the tuber is placed in the ground always put in a stake or a marker. Dig a hole about 7 inches deep at the base of the stake. Place the tuber on its side with the eye toward the stake and at a slightly upward angle. Cover the tuber with 2 or 3 inches of earth. In about two weeks the first sprouts will appear above the ground and as the plant grows, the remainder of the hole may be filled. Remember frost may be expected until after the first week in June and it will be necessary to cover the young plants when there is a likelihood of damage. A heavy burlap sack is best, but for those who like to do it the easy way, keep the sprout, as it grows, covered with earth. This may be done until about May 24. After this time, in order to give the plant a fair chance, it will be necessary to let it grow above the ground and cover when frost is expected. A sack will be found much more effective for covering than boxes or cartons.

Hotkaps or preferably the large Hottents are very good for dahlias. They gather warmth from the sun and protect the tender young plant from the cold spring winds. They will also keep out a few degrees of frost, but don't depend upon it. If it looks like frost, place the covering over the Hottents. The large coffee sacks are ideal and will keep out many degrees of frost, but they will crush the Hottents, so, as soon as the tents are put out, drive four stakes teepee fashion around them.

Ventilation is necessary, so with a razor blade, cut a three-sided trap door about 1½ inches square toward the top of the tent. This will also provide an opening to check the growth of the plant. If the plant becomes too large before the danger of frost is over, make an opening in the top of the tent.

Incarvillea Delavayi

by **DON MacPHEDRAN, Prince Albert, Sask.**

One of the less commonly grown plants which deserves greater popularity is Incarvillea Delavayi or, as it is sometimes called, hardy gloxinia, although in no way related to gloxinias. This plant is a native of China. It has graceful pinnate leaves sometimes reaching a length of 1 foot and having as many as 15 to 21 segments. The flowers are a rosy purple with golden throats. The flower stalks sometimes rise to a height of 2 feet and have as many as 12 large trumpet shaped flowers on them. They have a long period of bloom. Older plants will carry several stalks of bloom.

While this perennial is not reliably hardy if left outside over winter, it does possess a certain amount of hardiness and frequently will come through our milder winters. As this is such a beautiful plant and is one of the easiest plants to winter over, one should not take the risk of losing the tubers by leaving them out over winter. The tubers should be dug after the hard frosts have killed the tops but before there has been much freezing of the ground. They are very brittle and should be left in the sun for an hour or two which will make them easier to handle. They are then packed in dry sand or soil and stored in a cool cellar where the temperature is around 40 degrees. I have found them much easier to winter over than dahlia tubers as we have never lost an incarvillea tuber in storage.

Incarvillea are grown from seed. The tubers do not divide too readily. The plants do produce an abundant supply of seed most years and may be increased quite readily by this method. There are other varieties of incarvillea. The above remarks apply only to Incarvillea Delavayi.

Silvery Woods

by **W. R. LESLIE, LL.D., Landscape Consultant, Winnipeg, Man.**

Landscape adornment is getting more attention each succeeding year and this is fitting because our moods are so much influenced by our surroundings.

A silvery plant or mass of plants brightens up a spot, gives accent effect, and at night enhances the moonlight as it plays down on the landscape. There are many plants to choose from which are adapted to our soils and climate. They range from the lofty willows to the creeping Mother-of-Thyme and the trailing juniper.

Some of the woody subjects which impart silvery tones to prairie plantations are described briefly in the following paragraphs:

Silky White willow (*Salix alba sericea*), probably best known as Siberian Silver willow, the name given to it by Dr. N. E. Hansen, renowned plant explorer. Grows to over 50 feet; is relatively upstanding; twig bark is yellowish; leaves are densely silky beneath, less so above. It tends to form a tall, attractive tree in a short time; is a clean tree and less brittle and brashy than the Golden willow.

White poplar or Abele (*Populus alba*), a quick growing, broad tree which in favorable areas may reach 90 feet in height. It is irregular in form and the young branchlets are white tomentose (with dense woolly, soft, short hairs). The lobed leaves, resembling the shape of a currant, cranberry bush and maple, are glossy dark green above but felted with white tomentose beneath. The tree tends to sucker somewhat. Silver poplar (*P. a. nivea*) has leaves with thick, silvery, felty tomentose beneath. Bolleana poplar (*P. a. pyramidalis*) is a columnar tree introduced from Turkestan; is a rapid grower but usually short-lived here, being subject to disease as well as winter injury.

Silver maple (*Acer saccharinum*) grows to be a tall tree. Bark is light in color; esteemed for its attractive leaves which are 5-lobed, deeply serrated, bright green above and silvery white beneath.

Manchurian linden (*Tilia mandshurica*), a growthy, upstanding tree with large, roundish leaves matted with whitish fine hairs beneath; is clean, healthy, and free of most insects. Whitebeam mountain ash (*Sorbus aria*), a tree with simple leaves which are leathery and white woolly beneath. This is a handsome tree but has suffered frequently from fireblight disease in Manitoba.

Russian olive or Oleaster (*Elaeagnus angustifolia*), grows to a small tree of about 18 to 22 feet; irregular in habit; somewhat thorny; and notable for the silvery foliage and silvery fruit which are made so by covering of fine scales. Foliage is retained late in the season and fruits cling into winter, providing birds with useful food. The strains from the eastern Steppes of Russia are superior to those formerly used on the prairies. Flowers are perfect, allowing an individual tree to produce fruit.

Silverberry (*Elaeagnus commutata*), a local shrub growing to 12 feet high, closely related to Russian olive. It is unarmed. Silvery scales on both sides of the leaves and on the mealy, oval fruits make this shrub showy. It is popular with European nurserymen and landscapers. Flowers are sweetly fragrant; fruits are relished by grouse.

Buffaloberry (*Shepherdia argentea*), a thorny shrub growing to 18 feet, native to sandy regions across the prairies; silvery scales shingle the leaves on both sides. The berries, small in dense clusters, mostly are red but sometimes golden, and are edible. They cling well into winter and were used freely by Indians and pioneers. Bushes are dioecious (meaning two houses, or that a bush is either male or female but has flowers of only one sex).

Sea buckthorn or Russian sandthorn (*Hippophae rhamnoides*), closely related to Russian olive, silverberry, and buffaloberry, all belonging to the Oleaster family. Like the last named, is dioecious and requires bushes of both sexes to get fruit. It is an import from West China where it may reach a height of about 30 feet, but seldom is over ten feet as grown here. The gray, spiny branches bear narrow leaves, coated on both sides with silvery-white scales. The fruits about the size of a bean are orange-yellow, tipped with red on the ends, and retain their attraction and coloring until spring.

Purple Siberian salttree (*Halimodendron halodendron purpureum*), a relative of Caragana but bears rosy-violet flowers of large size in late June and early July. The seeds are borne in bladderlike pods; leaves are grayish on some strains. This handsome shrub tends to put forth many suckers and for that reason usually is worked onto roots of *Caragana arborescens*. The spiny stems reach to about six feet.

Shagspine peashrub (*Caragana jubata*), from eastern Siberia, grows to about four feet on dry, sandy soils but often fails on rich and moist soil. It has thick, upright stems densely covered with crowded spines, stipules and shaggy, fine hairs; this makes it an unusual and curious shrub. The leaflets are grayish from fine, hairy covering.

Coyote willow (*Salix exigua*), a native shrub; sometimes grows as high as 12 feet; is native to Alberta and Montana. It is much like our Sanbar willow, with long, narrow leaves, fine, pliant stems, and ability to throw out sucker growths. However, it is distinguished by brightly silvered leaves which give the bush a radiant effect. It is best grafted onto non-suckering roots to provide carefree nursery stock.

Albert thorn honeysuckle (*Lonicera spinosa alberti*), about two feet tall; dense, with dull gray-green foliage and fragrant pink flowers; suited to dry locations.

Manchurian bush cinquefoil (*Potentilla mandshurica*), a low bush with a covering of silky hairs on both surfaces. Flowers are white and long in season.

Russian sage, Perovskia (*Perovskia atriplicifolia*), a sub-shrub (upper portion of the stems being herbaceous and dying each winter) about four feet high from Tibet; a member of the Mint family. Stems are hoary with fine hairs; blue flowers come late in the season.

Buckwheat bush (*Atraphaxis buxifolia*), a 2-foot bush from Turkestan which gives a grayish effect with its pinkish flowers and pink-tinted fruits which are retained late.

Leadplant (*Amorpha canescens*), native to the Pembina Hills; grows to three feet; is densely grayish, pubescent; and the leaves are covered with grayish, fine hairs on both sides, making the plant look hoary. Flowers come in late summer, blue, dense on spikes. This is another sub-shrub, the tips killing back each season.

True lavender (*Lavandula officinalis*), a sub-shrub to three feet; member of the Mint family; leaves made gray with fine hairy covering. Fragrant.

Southernwood (*Artemisia abrotanum*), sub-shrub to four feet carrying some gray bloom.

Common wormwood (*A. absinthium*), a sub-shrub from Europe; grows to four feet high; now escaped and found along our highways and woods. Leaves carry some gray bloom and are strongly aromatic.

Fringed wormwood or Fringed sagebrush (*A. frigida*), a native sub-shrub; grows to about 20 inches high with finely divided leaves made hoary by fine hairs and silvery coating. Fragrant.

Beach wormwood, or Dusty Miller (*A. stelleriana*), a native sub-shrub to 20 inches, made to appear mealy white by its coverings.

Silver sagebrush (*A. cana*), a shrub about two feet tall; native to Saskatchewan and suggestive of a hardier and smaller big sagebrush (*A. tridentata*). It is silvery canescent and woody.

Mother-of-Thyme (*Thymus serpyllum*), a prostrate sub-shrub that is supplied with fine hairs. Some forms are very silvery. Woollystem thyme (*T. lanicaulis*) makes a downy mound about six inches high. These are esteemed as ground covers.

Silver conifers are on hand in various forms, junipers, cedars (*Thuja*), spruce and pines. Mr. R. H. Patmore has discussed these in earlier numbers of THE PRAIRIE GARDEN.

The list of silvery, woody subjects could be extended but the above collection offers wide scope. One happy virtue of many of the plants with silvery foliage is that they can tolerate hot, dry conditions. Another valuable trait is that many grow comfortably on high-lime soils. Examples are recognized in Russian olive, buffaloberry, silverberry, seabuckthorn and wormwood. A mass of units of several of these in association can present a striking picture.

Some Woody Ornamentals

by **D. R. ROBINSON, Extension Horticulturist, University of Saskatchewan**

Woody plants of various kinds, and of good quality, are available in considerable variety today and a review of recent western publications indicates that at least 46 genera of woody ornamentals are represented by one or more suitable species or varieties. This number includes only those commonly described as shrubs or woody climbers.

At this time it may be of interest to discuss certain representatives of one group, namely the genus *Prunus*, and see what there is here of importance. At least four species are native to western Canada and are well known. Two of these, the chokecherry and the pincherry, have a wide range. The other two, the Western sandcherry and the Canada plum, have a rather restricted range but have been widely grown in prairie gardens. These shrubs are not particularly well suited to the smaller urban property but definitely have a place in farmstead plantings, parks and other large areas.

The Shubert chokecherry, a selection from North Dakota, is quite outstanding and its purplish-green leaves contrast rather markedly with the foliage of other shrubs. At least two selections of chokecherry with golden-yellow fruit have been reported. These selections are very attractive in autumn when the fruit is ripe. One of these yellow-fruited forms was introduced some years ago by Mr. W. J. Boughen of Valley River, Man.

The pincherry is found quite commonly throughout the parkbelt and the forest regions to the north. It should be used more extensively than it has been in the past. There is a need for small trees for urban plantings and the pincherry can be grown as a small tree to 25 feet in height. In September, 1962, the writer had the opportunity of motoring from Prince Albert to Ile a la Crosse. Along the margins of the highway, for a distance of about 140 miles, a new growth of shrubbery had developed. The pincherry occupied a prominent place in this shrubbery and was indeed beautiful in its autumn colors of deep red. It is possible that the forest soils are a factor in the development of intense foliage colors. However, the pincherry is at home in the parkbelt and its ornamental value should be recognized.

On checking through certain publications we note that the Stockton cherry, a double-flowered pincherry, was introduced by the Experimental Farm, Morden, Man., in 1929. Also, the Jumping Pound pincherry, a dwarf form, was introduced by the Horticultural Station, Brooks, Alta., in 1940. One wonders why these varieties are not more commonly listed by western nurseries. Quite recently, weeping forms of the pincherry have been observed at some of the stations. Large-fruited pincherries also have been developed. It is to be hoped that representatives of both of these types will be introduced in the near future.

The European bird cherry or May Day tree is quite an outstanding ornamental. A recent trend in landscaping is the use of small trees with multiple stems and the May Day tree should gain in popularity as it falls in this class of woody plants. With its large racemes of fragrant, white blossoms and its general hardiness, this cousin of the chokecherry is worthy of a place in both urban and rural plantings. Another hardy ornamental in this group is the Amur cherry; it grows to about 20 feet high and has dense racemes of white blossoms and black fruits. A further interesting feature of this cherry is the color of the bark, a brownish-yellow or orange-yellow during the autumn and winter months.

Along with the taller-growing members of this genus are several low-growing kinds that are worthy of mention. One of the most useful of this group is the Prairie almond, an inter-species hybrid developed at the Morden Experimental Farm. This shrub has gracefully arching branches covered with semi-double pink flowers in late May or early June. Our choice of hardy, pink-flowering shrubs is rather limited and for this reason the Prairie almond and its descendants are particularly valuable. A relative of the Prairie almond also is used to a considerable extent in prairie plantings. This is the flowering plum—available in both the single and the double forms; both have pink or rose-colored flowers. The single form is the hardier.

Other low-growing shrubs that should be mentioned are: Mongolian cherry, Ussurian cherry, Nanking cherry, Chinese bush cherry and Russian almond. Some of these produce high-quality fruit and will be grown more widely when they are better known. Brief reference has been made to the sandcherry. It has considerable value as a pollinizer for certain hybrid cherries. A recent introduction, by Mr. A. J. Porter of Parkside, Sask., the Honeywood sandcherry, may have value both as fruit and as an ornamental. The foliage of this named variety turns to a coppery bronze in autumn.

Much space would be required to review the different plums in this genus. Three or more species are being grown and many named varieties have been introduced. Broadly speaking, the plums belong in the orchard but there is no reason why they should not be included in the shrubbery border. Their white blossoms in springtime are very attractive and the foliage is often quite colorful in the fall. A few plants of the species will prove valuable as pollinizers for the hybrid varieties.

Almost everyone is aware of the importance of the "plums and cherries" from the standpoint of fruit production. We should not overlook the value of these plants for ornamental purposes and their role in wildlife conservation.

Almey Crabapple . . .
and its Historical Background

by **W. A. CUMMING, Head, Ornamental Section**
Canada Department of Agriculture Experimental Farm
Morden, Man.

Almey was named and introduced by the Morden Experimental Farm in 1945 and since then has become one of the most popular of the ornamental crabapple varieties on this continent. It has been favorably accepted in Europe also.

It was selected from among 306 second-generation hybrid seedlings of a cross between Redvein and Siberian crabapples (*Malus pumila Niedzwetzkyana* x *M. baccata*), by Dr. W. R. Leslie, then Superintendent of the Morden Experimental Farm. The name honors Mr. J. R. Almey, well known Canadian horticulturist of Winnipeg, who considered this seedling the most striking of approximately 1,700 Rosybloom crabapple seedlings blooming at Morden at that time.

Almey is a vigorously growing tree which commences to bloom at an early age. If given sufficient room to develop properly, it will form a rounded tree to 20 feet high, with strong, spreading branches. The leaves are purplish-red when they first unfold and later turn green with a bronzy caste.

The flowers are borne profusely on long stems, each cluster containing from five to seven blooms. The deep carmine buds open to large, slightly concave blossoms of a good red color which does not fade easily. A white marking at the base of each petal gives the effect of a five-sided star.

The ¾-inch oval fruits, which are noticeably ribbed, ripen in late September. Their orange-yellow skin is nearly always covered with carmine or crimson. The fruit is very persistent and will remain on the trees all winter, or until eaten by birds. This habit adds seasonal interest to this highly rated ornamental crabapple variety.

The red coloration in wood, bark, leaves, fruits and flowers of many modern varieties of ornamental crabapples, can be traced back to the Redvein crabapple. Redvein was discovered in the Tian Shan Mountains, which divide Russian Turkestan from Western China, by a Mr. Niedzwetzky, who sent it to the nurseryman George D. Dieck of Zoeschen, Germany. In 1891, Mr. Dieck described it as a new species and accorded it the scientific name *Malus Niedwetzwetzkyana*. Later taxonomical studies have shown that it is a botanical variety of the common apple *Malus pumila* so its scientific name became *Malus pumila Niedzwetzkyana*.

In 1897 Dr. Nils E. Hansen of Brookings, South Dakota, while on one of his plant exploration trips to Asia met Mr. Niedzwetzky in Turkestan and saw similar varieties of red-fleshed apples in the course of his travels in Turkestan and Western China, especially north of Kashgar. In his bulletin Ornamentals for South Dakota published in 1901, Professor Hansen has the following: "Its habitat does not give promise of perfect hardiness, but it is interesting as a curiosity. Our first importation from Germany was lost by root-killing of the stock; later plantings are more promising." Apparently, at that time, he did not realize the parental possibilities of the Redvein crabapple in the production of new ornamental crabapples.

In a few years, however, Dr. Hansen was growing open-pollinated seedlings of Redvein and using its pollen on other species and varieties including

the native prairie crabapple *Malus ioensis*, which was found growing at Elk River, Minnesota. In 1920 the well known variety Hopa was named from the open-pollinated Redvein seedlings and Dr. Hansen concluded that the Siberian crabapple *Malus baccata* was the pollen parent. This conclusion has certainly been borne out in the many Hopa seedlings which have been grown on the Canadian prairies and from which such varieties as Strathmore, Jubilee and Alred have been derived.

Although early records are not explicit on the exact derivation of the seedlings from which Almey was selected, it is almost certain that the original Redvein x Siberian cross was made at the Central Experimental Farm, Ottawa. In 1925 first-generation seed of several combinations using Redvein crabapple, including the above cross, was received from Ottawa. It seems likely that the seed which produced Almey was gathered from among the 67 seedlings produced at Morden from the Ottawa seed of this cross.

Plant breeders at Ottawa first used Redvein in various combinations with Siberian and other crabapples in 1920 and in the 1928 Report of the Dominion Horticulturist, twenty new varieties of Rosybloom crabapples resulting from the crosses made in 1920 are described. Dr. W. T. Macoun, who was Dominion Horticulturist at that time, coined the word Rosybloom to designate the red-flowered hybrids as a group. Since then the varieties derived from the combination of *Malus pumila Niedzwetzkyana* with *Malus baccata* have become popularly known as Rosybloom crabapples.

The potential value of the Redvein crabapple was recognized also by the well known French nurserymen, Barbier & Fils of Orleans, who sometime prior to 1900 described the hybrid species *Malus purpurea*. The hybrid origin of this species is *Malus pumila Niedzwetzkyana* x *Malus atrosanguinea*.

There are also other minor hybrids with Redvein crabapple in their parentage. Many modern varieties of ornamental crabapples owe their very existence to Mr. Niedzwetzky and his discovery.

The role which the Siberian crabapple *Malus baccata* has played in the production of hardy crabapples and apples is a better known story. Dr. Wm. Saunders, first Director of Experimental Farms in Canada, imported seed of this species from Leningrad in 1887, and he subsequently distributed the species throughout Canada through the medium of the Branch Experimental Farms. Dr. Saunders began his crossing program using the Siberian crabapple in combination with hardy apple varieties in 1894 and most hardy crabapple and apple-crab varieties grown on the Canadian prairies are either a direct or an indirect result of his work. Although hardy ornamental crabapples of the Rosybloom group are a later development, the origin of nearly all of the present hardy varieties can be traced either to the work done by plant breeders at the Central Experimental Farm, Ottawa, or to Dr. Hansen's work in South Dakota.

The most recent Canadian Rosybloom crabapple variety is Carmine Queen, named and introduced by the University of Saskatchewan in 1959. In it are combined Dr. Hansen's Rosybloom variety Hopa and Dr. Saunders' crabapple variety Columbia.

Winnipeg African Violet Society

Novice or expert, you are cordially invited to attend the meetings of the above Society. Meetings usually are held the first Wednesday of each month, in the auditorium of the Norquay Building, 401 York Avenue, Winnipeg, Man.

For confirmation of time and place, phone: Mrs. N. Calder—GL 2-6794, or Mrs. R. E. Scammell—WH 2-1274.

African Violets in the Flower Shows

by **A. W. SELLERS, Winnipeg African Violet Society**

It is not unusual when attending flower shows to hear a voice saying "Why, mine are better than those," or "I should have entered mine – they would have beaten anything I've seen here."

How thoughtless of people to express their thoughts in that manner! Obviously they are flower lovers or they wouldn't have been at the show. If they had something as good as they said they had, why didn't they let the public share with them by entering it in the show?

Shows are put on for the benefit of the public and evidently are appreciated or the attendance wouldn't have kept up as it has. Many unselfish people give a great deal of their time and do a lot of hard work. The show chairman and the committee put in many long hours to arrange the display. The exhibiters bring exhibits at great inconvenience; many haven't cars but come laden with cartons on the buses and then at break-up the exhibiter does it all in reverse to get the plants back home again.

I have now in mind the African violets I showed. There were many, many long hours of thought and care that went into growing the "show plants" that were entered, with the thought in mind of making a "good show" for the public and yes, perhaps fostering my hobby also. When one gets a ribbon there is satisfaction in knowing the effort put into growing the plant has been acknowledged.

There are casualties too in transporting plants back and forth. Many lovely plants suffer by so much handling; leaves are broken; the perfect symmetry is lost; and then your prize winner is just another plant. For a moment there is regret at losing, but then the thought comes: Oh! well, I have dozens of young plants that room has to be found for, having in mind next year's shows.

Many African violets entered in a show cannot be "Queen of the Show" or be in the prize-winning class; the exhibiters do not expect that. Usually an exhibiter knows the faults and why his plant was or was not in the ribbon class, but do the public appreciate the judges' decisions? Standards are established by parent governing bodies. Wouldn't it be a good idea if the show committee educated the public with a display card for the champion and the runner-up at least, showing the maximum points obtainable and what the winners scored? It should add interest.

Now I am working up my stock for next year's shows. There are show types in African violets. Some varieties never will make it. Reasons: tendencies to rough leaf pattern, lack of good form and not free blooming are sufficient. It takes 18 months to get a good depth of leaf pattern on a show plant, so disbud; forget the bloom until you have the basis for the flowers; then with proper feeding and light the flowers can be encouraged. Don't be disappointed if you have a near-perfect plant a week too soon or if the show were "only a little earlier." The remedy? Have a lot of plants to select from! In any event, you still have a thriller at home for your friends to see.

Just another thought, if you have any difficulties growing a show plant join the Winnipeg African Violet Society; it is a section of the Winnipeg Horticultural Society. You will be most welcome. The society's monthly meetings are planned to cover the full phase of growing African violets in our homes. Their ultimate hope would be to make you also an exhibiter.

House Plants – 1963

by **W. H. GRAY, Florist**
Parks and Protection Division, Metropolitan Corporation of Greater Winnipeg

During the last 10 to 15 years, the styles and construction of our new homes have changed immensely; thus as our living standards have improved, our need for house plants has also changed immensely.

Many of the older varieties of house plants are still useful and add much beauty to our surroundings, but more and more of the newer varieties are being used to a greater degree of attractiveness. Whereas, in the past, the flowering plants were commonest, the trend today is toward the "foliage plants," for the beautiful, intricate shapes and color schemes of their leaves rather than their flowers.

When buying or selecting plants for the home, one should always look to the future, and remember that with the proper care their choice will grow and in some cases within a short time will be many times the original size. Many plants grow very well under the unnatural condition of being indoors; others are really very difficult. One must remember always that plants are living things, and like all living things require a particular amount of food, water and heat to survive. As with humans, certain plants take different degrees of food, water and heat to thrive. More plants are killed with human kindness than with all other means combined.

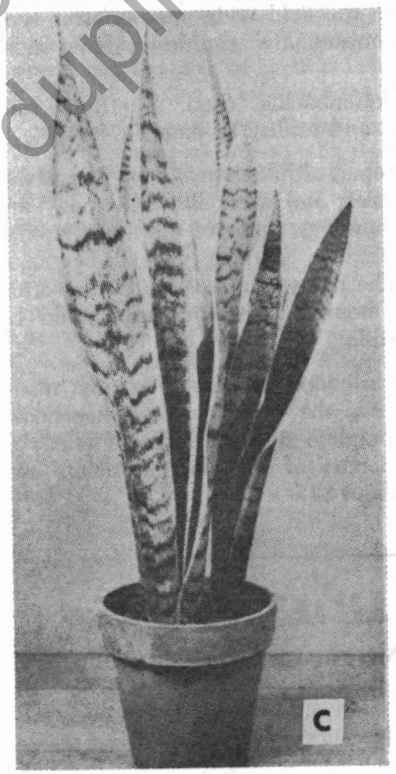
The biggest fault is over-watering. It is much safer to under-water, for the simple reason that one can always re-water if need be, but can't take away the excess water. Nearly all house plants require very good drainage, whether in pots, tubs or planters. It is always wise if in doubt as to the growing habits of your choice to contact one of your local florists for assistance and advice.

The placement and arrangement of plants in the house is a matter of personal preference, having regard also to space available and surroundings. Some of the ways in which plants can be placed in a house are on window sills, planters, shelves, in brackets, in stands, on tiered stands and on tables, etc. Window sills were, and possibly still are, the most popular place for plants. These plants must be of a low-growing variety, and should be rotated every few days so that they will not be drawn out of shape toward the light.

Some plants when exposed to too strong light will lose their green coloring with a noticeable yellowing of the foliage and, often, a browning of the parts of the leaves most exposed. Removal of affected specimens to a more shaded location usually brings an improvement in their clor.

Plants set in planters are better in their original pots and just left in place; a covering of moss or vermiculite will conceal the pots. The big advantage is that the watering can be more carefully controlled for each plant, and also any plant that needs renovating can be removed and replaced without disturbing the other plants. If the plants are in soil, the soil should be light and porous with very good drainage. All the plants used should be uniform in the amount of food, water, etc., that they require to grow healthily. The planter should never be too large for the root system of the plants; this often is the cause of the roots rotting.

Most of the flowering plants are grown in pots and mostly are placed on tables, shelves, etc. These plants are usually seasonal and may be moved outside during the summer months. Nearly all plants, with the exception of African violets, geraniums and some begonias, like to be sprayed regularly



A—Cast-Iron Plant (Aspidestra)
B—Narcissus (Paperwhite)
C—Sansevieria laurenti (probably the most durable house plant available)
D—Collinea Elegans (Dwarf Palm)

with water, this not only keeps the plant clean and fresh looking, but also free from dust where disease and insects can get started. Dead leaves and blooms should be removed promptly for the same reasons.

Several of the more popular varieties of plants are grown in wooden tubs or very large pots. These require a very light, porous soil and good, quick drainage. Because some, like the rubber plants and large philodendrons, grow fairly quickly care should be taken in watering, and given very little if any fertilizer. Other plants which grow better in tubs or large pots are palms, oleander, monstera, aucuba japonica and dieffenbachia.

Nearly all plants of a climbing, creeping or trailing nature do well in brackets, on shelves or in windows. Some of the better varieties are the English, German and Grape ivy, Kenilworth ivy, philodendrons, pothos, campanula isophylla, cissus discolor, cissus capensis and tradescantia (Wandering Jew).

Many varieties may be grown in windows, but great care should be taken as all plants cannot stand a south or west window exposure to the direct sunlight. Flowering plants such as geraniums, fuchsias, etc., will do well in windows but should be pruned regularly to retain an attractive plant. Some very good varieties for windows are haworthias, aloe, echeveria and caladium. African violets and begonias do well in an east exposure.

Many plants do well in stands and the type of stand, arrangement in a room, as well as personal preference, leave the field wide open. Boston-type ferns, asparagus sprengeri, asparagus plumosus and aspidestra look more attractive in stands.

Plants doing well in planters are dieffenbachia, cacti, schefflera, sansevieria, pothos, peperomia, philodendrons and aralia, to name a few.

Flowering plants do very well in a home, although many of our newer homes are much too warm for some varieties, and even although many are seasonal they add much beauty to our surroundings. Some of the most popular varieties are geraniums, fuchsias, lilies, azaleas, African violets, begonias, myrtle, hibiscus, hydrangea and primula. The many kinds of Dutch flowering bulbs and cyclamen produce some lovely home plants but care should be taken to keep them in as cool a place as possible.

These are some of the more popular varieties but there are many, many more varieties for use as house plants. One of the very best reference books for all growers of house plants is, "The Complete Book of House Plants" by Andree Vilas Grabe. It has a picture dictionary of 275 popular plants and should be available at most newsstands for about $1.00.

A. J. Porter

Proprietor of Honeywood Nurseries
Parkside, Sask.

AWARDED STEVENSON MEMORIAL GOLD MEDAL

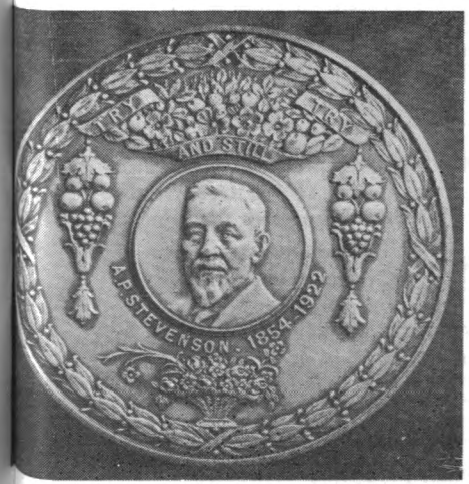
at
Manitoba Horticultural Society Convention
Winnipeg — February 14, 1963

Mr. Porter is the eleventh recipient of the Stevenson Memorial Gold Medal, awarded for "conspicuous horticulture," and like all previous recipients has contributed greatly to the list of varieties of vegetables, fruit and ornamentals now in use.

Mr. Porter commenced his horticultural work at Parkside (35 miles west of Prince Albert) Sask., in 1933 with extensive collections of crabapple and other fruit varieties. Fireblight destroyed many of the former in the 1940s. His introductions in tree fruits have been: Red Heart crabapple (seedling of Dolgo) is hardy and resistant to fireblight and produces fruits of high quality for jelly and canning; Honeywood sand cherry (seedling of Sapa) is mildew resistant, is a suitable understock for plums and may be planted as an ornamental or for fruit.

For many years Mr. Porter specialized in testing and improving small fruits. Viking red raspberry crossed with the wild raspberry yielded Honey King in 1933 and Redman later. Honeywood black raspberry was introduced in 1934. Ninety varieties of strawberry were tested and thousands of seedlings from open- and controlled-pollinations were raised. Important new varieties produced were: Sparta 1942; Pixie (EB) 1947; Sweetheart 1947; Prince Albert 1953; Northerner 1954; Parkland (EB) 1954; Jubilee (EB) 1955.

In more recent years Mr. Porter has devoted time and attention to the improvement of Lilies and Roses. The most outstanding hybrid lily introductions have been: Delicious, up-facing blooms of orange-yellow tone and fragrant; Earlibird, out-facing flowers of vivid apricot with dark spots at base of flower segments; Golden Jubilee, up-facing blooms of golden yellow; Wildfire, out-facing flowers of vivid currant red, does not fade in hot sunshine. Other outstanding selections are no doubt forthcoming.



Mr. Porter has been an active supporter of the Saskatchewan and Prairie Nurserymen's Associations and The Western Canadian Society for Horticulture. In 1955 Honorary Life Membership in the Saskatchewan Horticultural Societies Association was conferred on him in recognition of his contributions to prairie horticulture.

The Stevenson Memorial Gold Medal was instituted in 1932 as a memorial to the late A. P. Stevenson, of Pine Grove Nursery, Morden, Man. This stalwart Scot arrived in Morden in 1874 from his native Perthshire, and during his lifetime made an outstanding contribution to prairie horticulture, pioneering the development of hardy fruits and ornamental planting suitable for our vigorous prairie climate.

Hardy Apples for the Prairies

by **R. M. WILSON, Gladstone, Man.**

The production and introduction of satisfactory apple varieties for the prairies is making slow but steady progress.

The list of apple varieties is in a state of continual flux, and will persist thus for many years to come. The first planting of trees on the Morden Experimental Farm was done in 1916 and only now are some varieties from the first planting being propagated and listed by our prairie nurserymen.

Testing new varieties is interesting work but beset with many trials and tribulations. It is little wonder that our nurserymen do not rush in and propagate new varieties until they are sure that those varieties will be satisfactory and acceptable.

After checking a number of nursery catalogues, one reaches the conclusion that nurserymen are agreed that:

Heyer 12 is the variety that they are safe in listing, because it is hardy and an early and heavy producer. That about wraps up its virtues. It is too tart to enjoy eating out of hand, and has a very short season for processing.

Battleford is another preferred variety and in the Gladstone area appears to have satisfactory hardiness. It is not a heavy producer but the fruit is medium size and acceptable as dessert and has a moderately long season under fair storage conditions. The above two varieties are the most commonly listed; there should be more.

In my own test orchard, I have been encouraged by the results from some of the Morden Experimental Farm introductions and from varieties from other places. Of the Morden varieties:

Mount appears to have sufficient hardiness, at least enough for the past 12 years. It produces satisfactory crops of large apples that are more suitable for cooking and baking, and will keep into the new year under favorable storage. One weakness of Mount is the acute angle which the branches make, resulting in injury in high winds when loaded with fruit.

Manan in 8 years has shown very little winter injury and fruited, in 4 years, with medium-sized apples that are acceptable for eating raw or for processing. It will store very well until the end of December.

Breakey is a vigorously growing tree and produces, moderately well, fruits that are good to look upon and pleasing to the taste. It is a seemingly satisfactory variety.

Goodland has been under test for only 5 years; has not shown undue winter killing; and last year produced a few fruits that are desirable. It appears promising.

Other varieties worth mentioning are:

Haralson, an early fruiter with a tendency to over-produce. The fruit should be thinned to promote size and prevent weakening of the tree. Slight injury is apparent after some winters. The fruit will store throughout the winter.

Braebest, originated locally, is a hardy tree and an annual producer of medium size, early, fair quality, well colored fruits which cook and freeze well. It is worthy of trial.

It is difficult to assess the value of these apple varieties in respect to susceptibility to and tolerance of fireblight as I have yet to experience an attack of this highly contagious plant disease.

DECIDUOUS TREES FOR THE PRAIRIES

by **DICK PATMORE, Patmore Nurseries Ltd., Brandon, Man.**

Common Name (*Botanical Name*)	Foliage	Shape	Growth rate	Adaptation	Maximum spread in feet	Maximum height in feet	Hardiness	Comments
Amur Maple (*Acer ginnala*)	Medium size, deeply lobed	Globe form	Slow	Prefers full sun	8 - 12	15 - 25	Hardy in all prairie provinces.	Can be grown as a single stem tree; when grown as a shrub it is wider and not so high. Leaves and seeds color brightly in season although variation is considerable in trees grown from seed.
Manitoba Maple (*Acer negundo*)	Medium large, moderately lobed	Open globe form	Moderate	Does better in full sun	20 - 25	30 - 45	Hardy in all prairie provinces.	Useful as a windbreak tree, but of little value as an ornamental because of its susceptibility to aphid infestation.
Silver or Soft Maple (*Acer saccharinum*)	Large, deeply lobed, silvery beneath, green above	Broadly upright	Moderately fast	Prefers full sun	20	35 - 50	Strains from the Lakehead area appear hardy in all parts of prairies.	Some winter injury occurs on soft, young growth when trees are small, but does not persist as tree grows. Limbs are subject to breakage if exposed to high winds. Cut-leafed, grafted forms appear not to be hardy in the west.
Sugar or Hard Maple (*Acer saccharum*)	Medium large, moderately lobed	Broad upright	Moderate	Prefers full sun	15 - 20	30 - 40	Strains from northern Minnesota and Lakehead appear hardy in southern Manitoba; adaptability further west and north uncertain.	This is the Canadian maple, the leaf of which forms our national emblem. A very attractive tree; colors well in autumn in the east but not so well in the west.
Red or Swamp Maple (*Acer rubrum*)	Medium large, moderately lobed	Broad upright	Moderate	Prefers full sun	15 - 20	25 - 35	Strains from Lakehead appear hardy but not adapted to prairie soils.	This is the most attractive in fall coloring of all the maples. Strains from the Lakehead stand our sub-zero winters, but their preference for an acid soil inhibits them on prairie soils. This may be overcome by grafting on roots of *Acer saccharinum*.
Tatarian Maple (*Acer tataricum*)	Medium, slightly lobed	Broad upright	Moderate	Prefers full sun	8 - 12	15 - 35	Hardy in prairie provinces.	
Ohio Buckeye (*Aesculus glabra*)	Large, pinnated leaves	Globe form	Moderate	Prefers full sun	12 - 25	20 - 30	Seems hardy in all parts of the prairies.	Seems better adapted than its close relative the horse chestnut. Greenish-yellow flowers.

Common Name (*Botanical Name*)	Foliage	Shape	Growth rate	Adaptation	Maximum spread in feet	Maximum height in feet	Hardiness	Comments
Bog Birch (*Betula glandulosa*)	Small elliptic leaves	Globe	Slow	Does well in shade	8 - 10	10 - 12	Hardy on the prairies.	Grows along stream beds in nature but will do well in cultivated plantings. Forms an attractive dark green, thickly foliaged, shrublike tree. Bark is dark reddish-brown.
Paper Birch (*Betula papyrifera*)	Leaves medium size, pointed elliptic	Irregular upright	Moderate	Does well in sun or light shade	10 - 12	25 - 40	Hardy in all parts of prairies.	A very ornamental species with white bark, often grown with three or more trunks. Twigs are reddish-brown contrasting with the white bark of larger stems. This species appears to have more resistance to birch borers than the European white or silver birch (*Betula pendula*) often planted.
Cut-Leaf Weeping Birch (*Betula pendula gracilis*)	Medium small, finely cut lacelike	Moderate conical, pendulous	Very fast	Moderate shade to full sun	15 - 20	40 - 60	Fully hardy on prairies.	One of the most attractive ornamental trees for prairie use, with white bark and pendulous, lace-like foliage. Unthrifty specimens are subject to birch borer infestation in areas where this pest exists; keeping tree healthy with adequate water and plant food enables it to resist infestation. Grafted.
Poplar Leaf Birch (*Betula populifolia*)	Small	Moderate cone	Slow	Partial shade to full sun	8 - 10	20 - 25	Hardy on prairies; may be damaged by drought conditions unless well watered.	An attractive small birch, especially so when grown with three or more stems as it does not get too large for small lawns. White bark contrasts well with dark brown twigs. Smaller-growing birches such as this, and Young's and Pyramidal, seem more resistant to birch borers.
Young's Weeping Birch (*Betula youngii*)	Small	Mound-shaped	Very slow	Partial shade to full sun	10 - 12	8 - 10	Fully hardy but should be watered during excessively dry periods.	This tree weeps so persistently that a leader must be staked up to obtain height. It will rarely grow beyond the height to which it is staked but is self-supporting as the new growth matures. Useful on large lawns or at accent points in a shrubbery. Grafted.

DECIDUOUS TREES FOR THE PRAIRIES

Common Name (*Botanical Name*)	Foliage	Shape	Growth rate	Adaptation	Maximum spread in feet	Maximum height in feet	Hardiness	Comments
Pyramidal Birch (*Betula pendula fastigiate*)	Medium small	Small pyramid	Slow	Full sun	5 - 8	20 - 25	Hardy in Manitoba; under test elsewhere.	A very attractive, small, columnar tree with white bark and brown twigs. Branching at the top develops a waved appearance. Holds its leaves until late October. So far tried only in Manitoba where it has proved hardy. Grafted. There appear to be several strains of this tree, most of which are not hardy.
Green Ash (*Fraxinus pennsylvanica lanceolata*)	Compound opposite pinnate	Broad pyramid	Moderate	Full sun	15 - 20	40 - 60	Fully hardy	A native tree of considerable value as an ornamental and for street and windbreak plantings. Drought-resistant and long-lived; also of good form. Leaves appear late and drop early, but selected grafted forms hold leaves better in the fall. These selected forms are also non-seed bearing, thus eliminating the unsightly masses of seed which often persist over winter.
Black Ash (*Fraxinus nigra*)	Same as Green Ash	Narrow pyramid	Slow	Semi-shade to full sun	8 - 12	30 - 50	Hardy	A native of forested areas of eastern Manitoba; does best in shady, moist areas and may not be well adapted to the prairies.
Butternut (*Juglans cinerea*)	Compound	Broad oval	Slow	Prefers sun	10 - 15	20 - 30	Has proved hardy at Portage la Prairie and in southern Alberta.	An attractive tree but apparently not adapted to most prairie areas. Produces edible, tasty nuts.
Crabapple (*Malus*)	Medium	Broad, open head with some columnar selections	Moderate	Full sun	8 - 12	15 - 20	Most varieties fully hardy.	The ornamental varieties of this species include selections and hybrids of *Malus baccata*, the Siberian crab, and of *Malus niedzwetskyana*, the Redvein crab (Rosybloom). They include Dolgo, Arctic Snow, Arctic Dawn, Almey, Sutherland selections and others. They give us our most attractive flowering trees especially Almey and the Sutherland Rosybloom varieties. Some varieties are susceptible to fireblight; others are quite resistant.

DECIDUOUS TREES FOR THE PRAIRIES

Common Name (*Botanical Name*)	Foliage	Shape	Growth rate	Adaptation	Maximum spread in feet	Maximum height in feet	Hardiness	Comments
Northwest Poplar (*Populus*)	Large	Broad globe	Fast	Full sun	20 - 25	50 - 70	Fully hardy.	A hybrid poplar apparently a cross between the balsam poplar and possibly the white poplar. Does not sucker to any extent, and seems resistant to stem canker. Does not shed cotton.
Cottonwood (*Populus sargentii*)	Large	Broad vase-shape	Fast	Full sun	25 or more	50 - 80	Fully hardy.	A handsome tree at maturity with a broad, spreading head, resembling the elm. It does not sucker readily and is an excellent ornamental for large spaces. Only male selections grown vegetatively are suitable, as trees grown from seed shed objectionable cotton. Male trees do not shed cotton. Since they are difficult to grow from cuttings such male trees are relatively scarce.
Silver Leaf Poplar (*Populus alba nivea*)	Medium and lobed	Broad pyramid	Moderate	Full sun	10 - 15	30 - 50	Fully hardy	Sometimes called Silver-Leafed Maple. Foliage is silvery on one side and dark green on the other. Since this tree suckers aggressively, it is not usually grown by nurserymen. A columnar selection, Bolleana poplar, is grown to the south and east but is not fully hardy on the prairies.
Lombardy Poplar (*Populus nigra*)	Medium large	Very columnar	Fast	Full sun	8 - 10	30 - 50	Not fully hardy.	This very popular tree is said to be hardy in some parts of the prairies, but apart from very favored areas is not recommended. A close relative, Theve's Poplar (*Nigra thevestina*), the Algerian Black Poplar, has the same growth habits, is columnar in form, and may prove hardier.
Griffin Poplar	Medium	Broad columnar	Fast	Full sun	12 - 15	40 - 60	Fully hardy.	An excellent poplar hybrid developed at Brooks, Alberta. Non-suckering and free from cotton.
Himalayan Poplar (*Populus tristis*)	Medium large	Broad globe	Moderately fast	Full sun	15 - 20	30 - 50	Apparently fully hardy.	A species that has done well at Dropmore, Manitoba, and other points on the prairies.

DECIDUOUS TREES FOR THE PRAIRIES

Common Name (*Botanical Name*)	Foliage	Shape	Growth rate	Adaptation	Maximum spread in feet	Maximum height in feet	Hardiness	Comments
Columnar Aspen (*Populus tremuloides erecta*)	Medium small	Very pyramidal	Slow	Full sun	2 - 4	?	Fully hardy.	A very attractive small tree introduced by Dr. F. L. Skinner, from Sweden. Formal, very columnar form of growth; very narrow width and uncertain height, but presumably not more than 20 feet. Foliage is an attractive shade of green with some white edging. Unfortunately no satisfactory method of propagation has been developed yet but this may be achieved in the near future.
Amur Cherry (*Prunus maackii*)	Medium	Upright	Moderate slow	Full sun	12 - 15	20	Full hardy.	An attractive small tree covered with white blossom racemes in spring. Bark is an attractive brownish-yellow.
May Day Tree (*Prunus padus commutata*)	Medium	Globe	Moderate slow	Full sun	15	25 - 30	Fully hardy.	Blooms in long, white, fragrant racemes. Usually grown in clump form, but can be grown single stem and in this form develops a dense pyramid.
Pear (*Pyrus ussuriensis*)	Medium	Globe	Moderate	Full sun	15	25	Fully hardy.	A hardy ornamental tree covered with white bloom in spring before leaves appear; healthy and vigorous, with clay-colored bark. Fruit is round, bitter and gritty. When grown as a bush it forms an impenetrable barrier.
Bur Oak (*Quercus macrocarpa*)	Medium	Broad globe	Slow	Full sun	15	20 - 25	Fully hardy.	The native Manitoba oak; an attractive, small tree with dark glossy leaves and deeply furrowed bark.
Mongolian Oak (*Quercus mongolica*)	Medium large	Broad pyramid	Moderate	Full sun	15 - 20	25 - 35	Fully hardy.	A taller-growing oak which has done well at Morden, Manitoba, and other prairie points. Limited seed supply has made this species scarce. Some success has been had grafting it on the Bur Oak, and it may become available in limited quantities.

DECIDUOUS TREES FOR THE PRAIRIES

Common Name (*Botanical Name*)	Foliage	Shape	Growth rate	Adaptation	Maximum spread in feet	Maximum height in feet	Hardiness	Comments
Sharp Leaf Willow (*Salix acutifolia*)	Long and narrow	Broad globe	Moderate fast	Full sun	15	30 - 35	Fully hardy.	The most dependable willow for the prairies, tolerating both wet and dry conditions and resisting temperature extremes. A healthy tree which retains its foliage well into late fall. Useful grown single stem as an ornamental, and also one of the best windbreak trees.
Golden Willow (*Salix alba vitellina*)	Long and narrow	Broad spreading	Moderate	Full sun	15 - 20	20 - 25	Fully hardy.	Dull yellow bark is showy, particularly in winter; bark sometimes is subject to sunscald. An ornamental tree either in clump form or single stem. Leaves are light greenish-yellow.
Laurel-Leaved Willow (*Salix pentandra*)	Narrow oval	Broad upright	Moderately slow	Full sun, prefers moist location	12 - 15	20 - 40	Hardy in most prairie areas.	The dark, leathery green foliage makes this a very attractive ornamental tree. Does not do well in very dry locations.
Siberian White Willow (*Salix alba sericea*)	Long and narrow	Open spreading	Moderate	Full sun	15 - 20	25 - 30	Slightly tender.	The silvery shades in its foliage make this an attractive ornamental tree, particularly when planted so as to contrast with green-foliaged willows or other trees.
Redstem Willow (*Salix alba chermisina*)	Long and narrow	Upright spreading	Moderate	Full sun	12 - 15	20 - 25	Hardy.	Outstanding features of this tree are its warm red bark on the younger growth, and the large catkins or pussy willows. The latter are used extensively in floral decorations. Often grown as a bush cut back to ground every spring for winter color effect of its young bark.
American Mountain Ash (*Sorbus americana*)	Alternate compound	Narrow globe	Slow	Full sun or partial shade	10 - 15	15 - 25	Hardy.	This species includes several sub-species of which the Showy Mountain ash (*Sorbus decora*) and Greene's Mountain ash (*Sorbus scopulina*) or (*nana*) are well adapted to prairie use.

DECIDUOUS TREES FOR THE PRAIRIES

Common Name (*Botanical Name*)	Foliage	Shape	Growth rate	Adaptation	Maximum spread in feet	Maximum height in feet	Hardiness	Comments
American Mountain Ash (continued) (*Sorbus americana*)	Alternate compound	Narrow globe	Slow	Full sun or partial shade	10 - 15	15 - 25	Hardy.	These species all have thick, stiff twigs with bold, imposing foliage. They have large, flat, white flowers in spring with orange berry clusters in the fall. They resist both sunscald and fireblight.
European Mountain Ash (*Sorbus aucuparia*)	Alternate compound	Vary from upright columnar to broad and pendulous	Moderately slow	Full sun	10 - 15	15 - 30	Usually quite hardy.	Branching is thinner and more pendulous than the American species. Foliage is finer, and some specimens carry a heavier mass of flowers and berries. Sometimes subject to sunscald and fireblight. There is considerable variation in form and in flower and berry production in the European Mountain Ash, the best being very outstanding and the worst almost worthless. There is much scope for vegetative propagation with this species so make sure that only the best are propagated for ornamental planting. This presents no problems since they graft readily.
American Basswood (*Tilia americana*)	Large round	Broad columnar	Moderately fast	Full sun	15 - 20	35 - 60	Fully hardy.	When grown from the native Manitoba strains this species is fully hardy, and strains found native in upland areas, not from river beds, also seem drought-resistant. A handsome, long-lived tree and excellent as a shade tree. Upright-growing forms propagated vegetatively are most desirable. Produces yellowish, fragrant flowers in midsummer.
Little-Leaved Basswood (*Tilia cordata*)	Small	Globe	Slow	Full sun	10 - 12	25	Certain strains are hardy.	This tree is considered a good ornamental for small plantings; yellowish-white flowers in midsummer.

DECIDUOUS TREES FOR THE PRAIRIES

Common Name (*Botanical Name*)	Foliage	Shape	Growth rate	Adaptation	Maximum spread in feet	Maximum height in feet	Hardiness	Comments
American Elm (*Ulmus americana*)	Medium	Umbrella-shape top	Moderately fast	Full sun	25 - 30	50 - 60	Fully hardy.	This hardy, well adapted native tree is the most beautiful and popular of any, especially for street planting. As it matures, most strains develop a wide, graceful, umbrella-shaped top. Grafted selections have a more upright form, and one is quite columnar, resembling the Lombardy poplar. These grafted selections are uniform in appearance and usually are considered more desirable for boulevard use. This tree is relatively free of insect pests; the cockscomb gall aphid sometimes disfigures some of the leaves but rarely is very troublesome. The American elm has been threatened by Dutch Elm disease in eastern Canada and the United States. However, there are reasons for believing that this will not be a factor on the prairies, such reasons being relative freedom from the insect vector responsible for its spread, and comparative isolation of most prairie plantings. The American elm is still planted widely even in the east and south.
Siberian Elm (*Ulmus pumila*) Also called Manchurian elm and Chinese elm	Small	Freely branching, open top	Fast	Full sun	12 - 15	30 - 40	Harbin strain is fully hardy.	A very attractive species, usually considered a small tree. The Dropmore strain, from the Harbin, Manchuria, region, is fully hardy and the most satisfactory; eastern and southern strains are not hardy on the prairies. It makes an excellent windbreak tree as well as an ornamental, although its heavy scattering of seed creates something of a clean-up problem on lawns. Larger trees are difficult to transplant unless consistently root-pruned for several seasons before moving, but one- and two-year old trees move quite easily. This species appears fully resistant to Dutch Elm disease.

Textural Plants

by **R. H. KNOWLES**

Associate Professor of Horticulture, University of Alberta, Edmonton

One of the things in which man-made prairie landscapes appear to be lacking is textural quality. Why this should be the case is somewhat difficult to ascertain. Perhaps it is because we westerners are so intent on color and form that we tend to let the "textural chips" fall where they may, but then again it may be because too few of us have experienced the richness that textural contrasts can provide. Whatever the reason, certainly we are seldom aware of any conscious effort to plan or organize texture in the landscape.

Two or three weeks ago a brochure announcing an International Horticultural Exhibition crossed my desk. It was a colorful well got-out publication, but the thing that really caught my attention and said "here is something worth going to" was a photograph showing a group of people relaxing in a sylvan setting, apparently on the grounds of the exhibition. It was not the picture of the people in a pleasant environment which impressed me, but rather the startling and skillful handling of plant textures that could be seen in the background. In front of the finer texture of the woodland was a plant or group of plants with leaves as big as wash-tubs. The impact was tremendous.

I sometimes experience this same sort of feeling when I see such herbaceous subjects as Ligularia—the Golden Ray, Hosta—the Plantain Lily, Saxifraga crassifolia—the large-leaved Saxifrage or even common, garden Rhubarb employed in similar settings. But these pleasant textural arrangements are not created solely by featuring a few well chosen coarse textured materials against fine textured backgrounds, the opposite sort of thing can be just as pleasing. The basic consideration is merely to relate one type, with another of completely different habit. The common Sea Buckthorn for instance, will never achieve its maximum impact if it is associated with large quantities of fine textured materials, yet, when used with small amounts of coarse or dense foliage of some color other than grey-green, the effect is outstanding. By the same token, the Smooth Sumac with its long graceful foliage looks best against large masses of fine texture. Coarse textured rhubarb set off by surfaces of fine textured pea-gravel can lose its utilitarian qualities completely by the contrast, and become a valuable ornamental.

While textural effects are achieved by contrast it should be pointed out that these tensions gain in intensity from the play of light and shadow. The mass effect of coarse heavy textured foliage becomes more predominant in strong light, if it is of the dark green variety. At the same time, strong light tends to move the effect of finer textured things in the opposite direction thus broadening or intensifying the contrasts that have been achieved initially through opposing light foliage values with dark, and coarse textures with fine.

While these two kinds of contrasts are basic or fundamental considerations in the organization of plantings from a textural point of view; in practice the variations are infinite. These can be best determined by getting to know what each material has to offer and how its appearance responds to light.

Among the following are some of the better plants for textural purposes. All of them are not new but many of them are not too well known in Western Canada, nevertheless they are hardy at Edmonton and are deserving of much wider use.

Botanic Name	Common Name	Plant Type	Colour	Best Location	Texture
Artemisia	Silver mound	4" Ground Cover	Silver	Sun	Fine
Aegopodium	Goat's foot	12" Ground Cover	Variegated (White and Green)	Semi-shade	Medium
Anemone	Wind flower	4" Evergreen Ground Cover	Deep Green	Semi-shade	Medium
Cotoneaster horizontalis	Rock spray cotoneaster	12" spreading shrub	Deep Green	Semi-shade	Medium
Hippophae	Sea Buckthorn	10' shrub	Silver Green	Full sun	Fine
Hosta	Plantain Lily	18-24" Herbaceous	Green	Deep shade	Coarse
Ligularia	Golden Ray	3' Herbaceous	Green	Sun	Coarse
Mahonia	Oregon Holly Grape	3' Shrub	Deep Green	Full Sun	Medium
Pachysandra	Japanese Spurge	12" Evergreen Ground Cover	Light Green	Deep Shade	Medium
Pachystima	Mountain Lover	12" Evergreen Shrub	Dark Green	Full sun	Fine
Polygonum reynowtria	Polygonum	12" Creeping Shrub	Dark Green	Full sun	Fine
Phlox borealis	Arctic phlox	3" Ground Cover	Dark Green	Full sun	Coarse
Rheum	Rhubarb	3' Herbaceous	Dark Green	Full sun or shade	Medium
Rhus	Smooth Sumac	8' Shrub	Dark Green	Full sun	Medium
Vinca	Perry Winkle	4" Evergreen Ground Cover	Dark Green	Deep shade	Medium

EDITOR'S NOTE: *We are pleased to offer this article from Prof. Knowles. It is indeed timely. This subject is somewhat neglected by many gardeners when planning and planting their flower borders. Texture of foliage, bloom, and plant form are very important in adding interest to ornamental plantings. This is well exemplified in the English garden in Winnipeg's Assiniboine Park where texture is carefully studied in their planting plans.*

Philodendron. *Philodendron Hastatum.* *Chinese Evergreen.*

Foliage Plants for the Home

***From the CBC Program* "THE PRAIRIE GARDENER"**

The large family of *Philodendrons* provide some of the best foliage plants and most of them seem able to tolerate the home atmosphere very well They're mostly tropical climbers; in fact, the name Philodendron means "Tree Climber." Some species make attractive plants when trained on sticks bound around with sphagnum moss.

Philodendrons vary quite a bit in leaf-shape: some have tiny, heart-shaped leaves, while the leaves of others have wide disections and they can be quite large. One species has hastate leaves, which means they are shaped like an arrow-head: this one is particularly handsome.

Another fairly common foliage plant is the *Chinese Evergreen*: it does well as a house plant and seems to stand a lot of abuse without sulking. It seems to thrive in rooms where the light intensity is low and the temperature is high.

The Chinese Evergreen seems to be able to get along in the novelty containers we see perched on a bracket or clinging to the kitchen wall. Some people grow them in water keeping the water sweet by adding a few pieces of charcoal to it and a pinch of fertilizer once in a while. Some species of Chinese Evergreen produce clusters of bright-red berries which give the plant a Christmasy look.

The Dumb-cane or Tuft-root as it is sometimes called is a handsome plant growing tall and erect with leaves speckled creamy-yellow making it a strikingly beautiful plant when seen against a brown wall.

The Dumb-cane needs very careful watering especially through the dark days. Too much or too little water, or sudden changes in temperature will cause the leaves to drop and you'll have a plant that looks like a palm tree. The Dumb-cane is one of the most tender plants as regards exposure to sunlight so while it needs plenty of light in the winter it should never be exposed to direct sunlight.

The old-fashioned Rubber Plant seems to be taking a new lease of life. Some people confuse the Jade Plant with the rubber plant but they're really

Peperomia Obtusfolia. *Dumb Cane.* *Rubber Plant.*

quite different. The Jade plant has thick, fleshy leaves on a plant that looks like a miniature tree while the true rubber plant has leathery leaves with a high gloss and a dark green color. It makes a fine plant for the corner of a living room where it will remain handsome and attractive for a long time if it gets proper care and enough light.

Two other species of foliage plants are popular and easy to manage under home conditions: they are Peperomia and Pothos or, as it's more correctly called, Scindapsus.

The Peperomias are rather neat plants that can be used effectively in small novelty containers and planters.

The Scindapsus (Sin-Dap-sus) or Devil's Ivy as some people call it, is very similar to the Philodendron but may be distinguished by its ridged stems. There are several choice varieties obtainable from florist shops and two of the best are Silver Moon and Marble Queen.

They are both heavily marked with silver or gold flecking so they must be kept out of bright sunshine or the leaves will be damaged. Sudden dips in temperatures will go hard with these natives of the South Sea islands so try and maintain a steady seventy degrees to keep them comfortable.

There are many more tropical foliage plants, all needing the same general care: Warm, humid air, even temperature free from draughts and filtered light.

Raising Bedding Plants

by **S. H. NELSON, Ph.D., Head, Department of Horticulture**
University of Saskatchewan, Saskatoon.

The role of annual plants in producing a colorful show during the summer cannot be ignored. Admittedly, they can be purchased in many locations but the cost is considerable and much of the satisfaction of raising them is lost. Raising annuals from seeds can be very rewarding to the enthusiastic home gardener.

In order to get started on the "right foot," we must have good seed. New seed from a good source should be used. I know it is rather difficult to throw away those little bits of seed saved over from previous years but they do not involve any great financial investment and better results will be obtained. These seeds will likely have lost much of their germination ability and the results can be disappointing. Such disappointments usually come too late to order a new supply and still produce suitable plants for that particular season. If you have large amounts of old seed, be sure to test the germination by sowing a small portion well in advance of your contemplated date of sowing for your main production.

The selection of annual plants is also a very important consideration. Admittedly, you select from personal preference, but this has to be tempered by the use you are making of the plants. We say that annuals supply color, but jamming them into every bare piece of soil indiscriminately around shrubs is not the main use of annuals. No, a well-planned approach to annuals must be taken just as the well-planned overall landscape that has likely been discussed.

In planning an area for annuals, many features play an important role. Height and color are the obvious features that we consider. The height is important so that they can be planted in the proper sequence. Naturally the tallest go at the back of a border or in the centre of the bed. In both borders and beds, it is very important that the step down in height is evenly proportioned between the plant materials. We are interested in the bloom and accordingly, want the bloom of each height level conspicuous but most of the foliage covered by the row in front. In beds, it is also very important that the proportions of tall plants in the centre are kept in limits or a top-heavy floral arrangement may ruin the desired effect.

Keep your annual flower beds and borders simple and symmetrical with a few complementary colors. Actually, unless the border is particularly long, three plant materials are sufficient. In fact, I have seen beds of top quality where only two plant materials have been used.

Draw a plan! After the plan has been drawn and you know where it is going to fit into the property, check for shade patterns from adjacent trees, shrubs, fences and buildings. Some plants are more tolerant to shade than others and these should be selected for shady locations. Other plants like the sun only part of the day and others do best in full sun. Where possible, select your bright colors for shady areas and your less brilliant colors for locations in full sunlight.

Having made all these plans and calculated the amount of plants needed, we cannot overemphasize that the seed be ordered in plenty of time. Some of the plants that you may have chosen will have to be started indoors as early as February, while others may vary up to actual sowing outdoors late in May. This information is normally available on the package.

Since we are primarily interested in starting bedding plants, we will assume that we are starting the seeds indoors. There is not enough space to

consider all of the factors that one must consider before sowing the seeds. However, they should be mentioned briefly. It is hoped that sand was brought indoors last fall and that you have a supply of it available for sowing the seeds. A mixture of equal parts sand and peat is recommended since it gives a loose friable mixture and damping-off is not such a problem. If there may be delay in transplanting the young seedlings, then a mixture of equal parts of sand, soil and peat can be used but one has to be more careful about losses due to damping-off. Of course, the seed can be treated with surface sterilants to protect them against damping-off in the germinating stage. However, these organisms can still attach the plants as they emerge and it is suggested that if this occurs one of the materials used to control damping-off be applied as a drench over the plants and soil. It will not save the affected plants but will help to control the spread of the organism. One must also have suitable containers for the seeds and pans (flat pots) are normally recommended. Only one type of plant should be sown to a pan. When more than one thing is sown in the same pan, they normally do not develop at the same rate and there is a good possibility of one of the types being mishandled. Of course, other types of containers can be used but one should make sure that adequate drainage is supplied to tin cans, wooden boxes, etc., that might be used.

The first step in preparing a seed pan is to thoroughly soak it in water prior to use. This will saturate the pot and it will not be pulling moisture from the germination medium at the start. Broken crockery should be placed over the drainage hole, being careful to put the curved surface upward. If the crockery is placed curve side down, then it will act as a stopper to hold water in the pot which is very undesirable. In the bottom of the pot place about 1 inch of coarse aggregate to further facilitate drainage and on top of this, your germinating medium. The pan should be filled to one-half inch from the rim and the mixture firmed with a tamper. The surface of the medium should be perfectly level so that small seeds broadcast on the surface will not be washed to one spot in the watering process. The pans are then allowed to sit in water until the medium has absorbed enough moisture to dampen it. The treated seeds are then broadcast over the surface fairly thickly. At least 200 seedlings can be raised in a pan. Small seeds like petunia and snapdragons are not covered. Larger seeds are usually covered by approximately twice

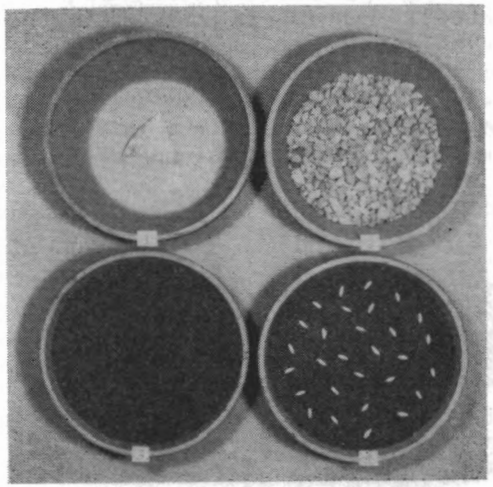


Fig. 1—Sowing Seeds
1. *Pan with broken crockery*
2. *Coarse drainage material*
3. *Germinating medium in pan*
4. *Seeds broadcast on surface*

their diameter with a sand-peat moss mixture that is sifted through a fine screen. A light watering to settle the covering can be applied but the watering-can must have a very fine rose on it. Some people practice sub-irrigation, i.e., watering from the bottom all the time but surface applications can be made if one is careful to use a fine rose and not disturb the surface of the germinating medium.

The seeded pans are covered, normally with a pane of glass to create a small micro-atmosphere over the seed. Such a practice will reduce evaporation and slow down the drying-out processes. These pans should be also set in a shaded area as a further precaution against drying-out and if this is not possible, layers of newspaper, etc., can be placed over the glass.

Once the seeds start to germinate, the glass will have to be wedged up on one side to give ventilation. Furthermore, the seed pans will have to be moved to good light conditions or elongated plants will result. As soon as the plants show any green the glass is removed completely. The seed pans are kept moist, but not overwatered since too much moisture encourages disease. If disease is noticed, one should treat immediately to control its spread.

When the seedlings are in the first true leaf stage, they can be pricked off and transplanted into flats of well-prepared soil mixture. The soil should be a fine texture and we would suggest a 2 soil, 1 sand and 1 peat moss mixture. Admittedly, commercial people cannot take time to screen this mixture but for the small amount you will be using, it is much easier to transplant the fragile young seedlings and they establish better. We have always felt that the seedlings benefited from our practice of leaving them in a shaded location (headerhouse) for one day before they were moved into the greenhouse. They were well watered and this period out of direct light allowed the seedlings to regain their turgidity and overcome the shock suffered in the transplant operation. The transplanted seedlings are then grown under good light conditions to avoid long spindly plants.

Plants that have to be started early and grown for a long time before they are planted out will benefit from light applications of a soluble fertilizer. Rinse the foliage after fertilizer application to avoid any chance of foliar burn by the fertilizer solution. Plants started very early will have to be started in the house or a greenhouse, but plants started later in the spring can be started outdoors in hotbeds.

Cold frames are needed to harden the plants off before they are placed in their locations in the annual border. This hardening off process slows down growth so that the plants are not too succulent but should not throw the plants into a resting stage or they may be slow to resume growth when planted out. The plants placed in cold frames can be protected by the glass in cool weather but during the day, some air or ventilation can be given to reduce the inside temperature of the frame. As the weather gets warmer, more air is

Fig. 2 — Transplanting or pricking-off seedlings into plant baskets.

given until a stage is reached where the glass is completely removed during the day and the glass only used at night to protect against temperature drop.

Many plants should be pinched to promote lateral shoots or bushiness. This is done in the flats. Practically all plants should be pinched when they are transplanted to the garden. Admittedly, a small amount of early bloom is lost by this practice but the better establishment of the plants and the greater mass of bloom produced by the greater number of laterals more than compensates for this earlier loss.

We have followed through on this series considering flats as our transplant container. At planting time, squares of soil are cut out with the plant and the entire unit transplanted. The soil should be mediumly moist at this time, so that it will not crumble.

Of course, other containers can be used. If individual clay pots are used, the earth is merely knocked out of the pots at transplanting time. Peat pots can also be used where pot and plant are planted. With peat pots, certain caution should be exercised in the planting procedures. The rim of the peat pot should not protrude above ground level or it may act as a wick and pull moisture from the ground. Under certain conditions, trouble has been experienced with the failure of the roots to penetrate through the peat pot into the outside soil. To safeguard against this, I would suggest that the peat pot be slightly ruptured along the sides without disturbing the root and soil mass.

Don't grow too small a population. After all you start out expecting some casualties and even at planting time you should have a population of such a size that a good selection of plants can be made. Then, of course, you should think of your neighbor as he is likely expecting a hand-out and certainly horticultural plants and produce are second only to free advice as a barter commodity in our society.

Calgary Garden Club

Mrs. Chas. Young, Historian, Calgary Garden Club, mailed us a copy of their annual report for 1962. It was a year of achievement. We would be remiss if we didn't make some mention of their activities.

We particularly wish to compliment them on setting up a scholarship fund to assist worthy students in horticulture. At a special meeting on March 20, 1962, 19-year-old Gerald Martyn was made the first recipient of this scholarship. He will continue his studies for a three-year period at the Horticultural College in Niagara Falls, Ont.

We note with interest the variety of excellent subjects and the outstanding calibre of speakers at their monthly meetings as well as their special projects such as the Valentine Party at the Calgary Old Folks Home and their field tour, attended by over 80 members, to the Lethbridge Experimental Station.

We are further impressed with their extensive participation in the Calgary Flower Show and their valuable contribution to Alberta horticulture through their garden column. This excellent column under the able supervision of Mr. Chas. Young, presented to the gardening public 31 articles, prepared by 18 of the most outstanding gardeners in the area on a wide variety of pertinent horticultural subjects over a period from March to October.

A Few Suggestions for Gladiolus Growing

by **S. F. CHADWICK, Winnipeg Gladiolus Society**

Gladiolus can be grown where most other garden flowers and vegetables can be grown, and like these crops they will respond to intelligent cultural practices.

In general, they like a sunny location away from shrubs and trees. They do not like a wet, soggy soil, so a well drained location should be provided. In this well drained location they can take up to an inch of water a week during the growing season, in the form either of rain or artificial irrigation. If artificial irrigation is not available, it is advisable to experiment with a mulch of straw, hay, peat or other suitable material to try to conserve the existing moisture.

Planting in the Red River Valley can be started about the first week of May and continued until the second week of June. Only clean, healthy corms should be used. Any corm showing signs of rot, soft spots or disease should be destroyed, (not thrown on the compost pile). Large size corms should be planted 4 to 6 inches deep, depending on the soil, not quite as deep in the heavy soils as in the sandy or lighter soils.

Providing the soil is reasonably moist at planting time, no watering should be done until the leaves emerge from the ground.

As with most other garden plants, gladiolus respond to cultivation, but as the season progresses this should not be too deep as it will disturb the feeder roots.

About the time the third or the fourth leaf appears, an intensive program of spraying or dusting should be started and continued throughout the summer. Tiny insects called thrips are the major enemy of gladiolus but leafhoppers and aphids should be controlled as well. The latter two insects are responsible for the spread of disease among most garden plants, and the thrips leave the florets discolored and sometimes misshapen. Any good insecticide in the form of a dust or spray will prove satisfactory in controlling these insects, providing the manufacturer's directions are followed.

If you are growing for exhibition you will want a good sample of the particular variety or varieties which you are growing, so some consideration should be given to fertilizers. Here in the Winnipeg area, most growers use a fertilizer low in nitrogen. A good time to apply the fertilizer of your choice is toward the end of June or early July. Some growers say "when the spike can be felt in the sheath" is the time. Most fertilizers should be watered into the soil after application.

Any time that you are in your glad patch, pay particular attention to the health of the plants. Any that show signs of distinct spotting, yellowing, browning, etc., should be removed from the garden, corm and all, and burned.

When visiting a gladiolus show, you probably will have noticed that the prize winning spikes were reasonably straight, if not perfectly so. Usually this condition is not an accident. A stake should be set close to the plant as the spike emerges from the sheath and twist-ems can be used to tie it and keep it straight. The twist-ems nearer the top should be loosened in the evening, otherwise the spike will grow during the night and will crook between the ties as it cannot move upwards. Sometimes a spike will snap off completely

and thus be a complete loss. As the spike grows, care should be taken to have all the buds facing the same direction; these can be turned during the heat of the day without damage to them.

An important step in growing for exhibition is the manner in which a gladiolus spike has been cut from the plant. Usually a gladiolus judge likes to see a 20-inch "handle" on a spike, that is 20 inches of stem below the bottom floret.

Do not measure down 20 inches and cut off the whole plant at this point. A couple of leaves should remain on the stem and 4 or 5 on the plant. To obtain these results, insert a thin knife blade into the stem and try to cut the stem without damaging the outer leaves. With a little practice this can be done and then enough leaves will remain to supply food to make a good corm.

Do not discard your crooked spikes. These provide a little "life" to a basket or vase of glads if properly used, whether it be for home decoration or for exhibition. The ladies will find them very useful when making arrangements.

A spike should be removed from the plant when it has finished blooming as it will start producing seed and nourishment will be used for this instead of going toward making a good corm. Continue to spray or dust well into September and there will be less likelihood of thrips getting down to the corms.

Sometime after the third week of September or about a month after a gladiolus has bloomed, the corms can be lifted from the ground. The tops should be removed quite close to the corms and destroyed, not thrown on a compost pile or allowed to lie around the garden.

The corms should be dipped in a wettable DDT solution or dusted with DDT and dried as rapidly as possible. In 10 days or 2 weeks some of the smaller corms can be cleaned; that is the new corm should be removed from the old one. As the smaller ones are cleaned the larger ones will soon be dry enough. After cleaning, the corms can be dried for another day or two and then placed in a cool spot in the basement for the winter. If they were not dusted when dug they should be dusted with an insecticide before putting in storage.

A great deal more can be written regarding the culture of gladiolus, but these few pointers should help a gardener to grow good blooms.

Information Please

The "Prairie Gardener" mentioned a number of these publications in his CBC Radio program of Sunday, December 30, 1962. Here is a complete listing both Federal and Provincial. Use them.

It is fine to have knowledge. Next best, and often almost as good, is to know where to find quickly the information we need. Reference books form a broad base but many soon become outdated in this steadily changing world of plants and their culture. Fortunately, there is a continuing flow of up-to-the-minute bulletins being written and distributed by the various departments of agriculture. Most of those available at present are:

INFORMATION DIVISION, Canada Department of Agriculture, Ottawa, Ont.

Pub. No.
795 Planning Your Garden; 30 pages.
796 Annual Flowers for Canadian Gardens; 32.
868 Manures and Composts; 22.
899 Hedges for Canadian Gardens; 23.
901 The Prairie Home Orchard; 67 pages, secured from Queen's Printer, Ottawa, Ont., for 25 cents.
908 Garden Rose Growing; 23.
918 Potato Growing in Canada.
958 Planning Farm Home Grounds; 12.
968 Herbaceous Perennials for Canadian Gardens, Descriptive Notes; 37.
970 Growing Herbaceous Perennials; 24.
994 Ornamental Trees for Canadian Gardens; 30.
995 Trees for Ornamental Planting; 32.
996 Flowering Bulbs for Canadian Gardens; 32.
1011 Ornamental Shrubs for Canadian Gardens; 32.
1016 Living with House Plants; 88 pages. Sold for $1.00 by Queen's Printer, Ottawa, Ont.
1017 Woody Climbers and Ground Covers for Canadian Gardens; 18.
1033 Growing Vegetables in the Prairie Garden; 23.
1059 Home Vegetable Gardening; 16.
1065 The Construction and Care of Lawns; 22.
1070 Vegetable Gardening Practices for the Prairie Provinces; 18.
1081 Handbook for Northern Gardens; 27.
1153 Hedges for the Prairies; 30.

EXTENSION SERVICE, Alberta Department of Agriculture, Edmonton, Alta.

Pub. No.
2 Lawn Building and Maintenance.
9 Farmstead Planning and Beautification.
19 Judging Standards for Horticultural Shows.
29 The Propagation of Plants.
30 Soils and Fertilizers for Alberta Gardens and Lawns.
54 Small-Fruit Growing in Alberta; 45 pages.
58 Woody Ornamentals for the Prairie Provinces; 92 pages.
92 Horticulture Guide; 32 pages.
104 Growing Mushrooms.
111 Tree Planting, Guide to Successful.
128 Peonies.

129 Forcing Vegetables.
134 Potatoes in Alberta.
147 Growing Chrysanthemums in Alberta.

EXTENSION DEPARTMENT, University of Saskatchewan, Saskatoon, Sask.

Bul. 95 Vegetable Gardening in Saskatchewan; 22 pages.
Bul. 121 The Preparation and Judging of Horticultural Exhibits; 8.
Bul. 127 A list of Flowers, Shrubs, Vines and Trees Recommended for Saskatchewan Gardens; 16.
Perennial Vegetables; 8.
A Gardener's Guide for Manuring and Fertilizing; 5.
Horticulture in Saskatchewan; 16.

PUBLICATIONS BRANCH, Manitoba Department of Agriculture, Norquay Building, Winnipeg 1, Man.

Pub. No.
233 Lawns, Their Preparation and Care; 8 pages.
244 Preparation of Vegetables, Fruit and Flowers for Exhibition; 8.
264 Vegetable Disease Protection Calendar for Manitoba.
292 Landscaping Farm Home Grounds; 9.
319 Strawberry Culture; 7.
329 Roses for Manitoba; 8.
333 Bulb Culture; 7.
334 Culture of Gladiolus; 7.
339 Recommended list of Ornamental Shrubs and Trees.
340 Recommended list of Fruit Varieties and Zonation Map.
341 Recommended list of Vegetables for Manitoba.
342 Recommended list of Annual and Perennial Flowers for Manitoba.

Prairie Garden Index covering all articles published from 1946 to 1962. A helpful reference for those who have back numbers of the PRAIRIE GARDEN.

Editor's Note: All back issues of The Prairie Garden are out of print with the exception of the 1962 issue. We offer these books at fifty cents each postpaid. Address: 92 Queenston Street, Winnipeg 9.

In addition to the horticultural publications listed, the agencies distribute literature dealing with garden troubles, insects, diseases and other pests. In most instances these practical helps are available upon request, free of charge. The bulletins, circulars, folders and pamphlets have been written by plant specialists, printed at public expense, and prepared to assist gardeners in the culture of their plants.

It will be noted that two of the publications of the Canada Department of Agriculture are obtainable only by writing to the Queen's Printer and enclosing the small payment mentioned. Publications 901 and 1016 are extensive and costly to print.

The GARDENERS' BULLETIN is welcomed as a very important addition to our prairie horticultural literature. It is published quarterly by the horticulturists of Saskatchewan and is very ably edited by Mr. D. R. Robertson, Extension Horticulturist, University of Saskatchewan, Saskatoon. It is highly recommended to every gardener on the prairies. Subscription rate is 50 cents per year, or two years for one dollar. The GARDENERS' BULLETIN and THE PRAIRIE GARDEN are partners in supplying guidance for the Canadian Prairie Provinces region. Addresses: Extension Department, University of Saskatchewan, Saskatoon; and 92 Queenston Street, Winnipeg 9.

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