A
GARDEN
FOR
EVERY
HOME

The

WINNIPEG FLOWER GARDEN

1954

PUBLISHED BY
WINNIPEG HORTICULTURAL SOCIETY

PRESENTED BY
WEST KILDONAN HORTICULTURAL SOCIETY

FOREWORD

by G. S. Reycraft – President

The Directors of The Winnipeg Horticultural Society take pleasure in presenting the 1954 edition of The Winnipeg Flower Garden which has, in fact, really become "The Western Flower Garden," for it is now distributed, at our cost for extra copies, to a dozen other horticultural societies in Manitoba, several in North Western Ontario, and over six hundred copies through the Extension Horticulturalist of the University of Saskatchewan to members of the Extension Gardeners' Guild in that province.

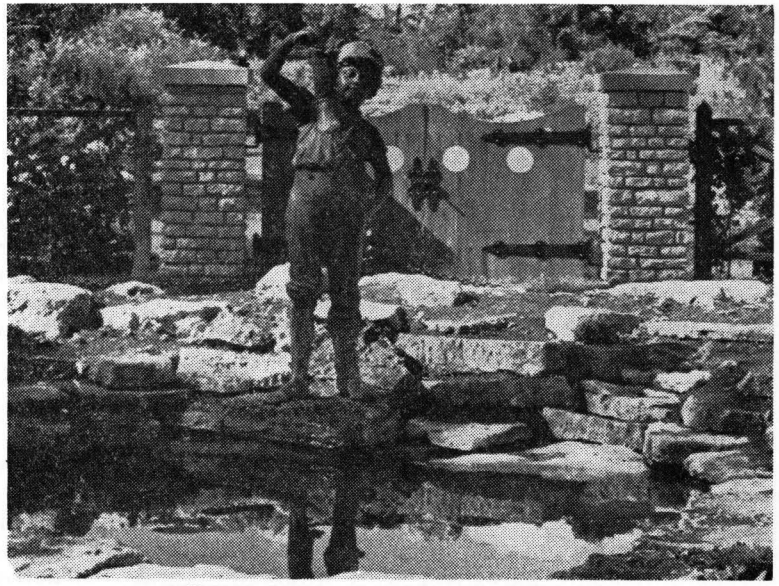
With the ever increasing demand for this book from horticultural societies and the complimentary letters we have received from prominent horticulturalists and many of our readers, we are happy to know that we are filling a need by supplying western gardeners with interesting and instructive information writtten by a host of western horticultural authorities covering their experiences and recommendations for successful western gardening.

The growth of our "Flower Garden" has, however, brought added responsibilities upon our Society. The increased cost of publishing this book each year makes it questionable how long we can continue. We are dependent almost entirely upon our Advertisers and Donors — for without their assistance, we could not publish this book.

As we believe that our "Flower Garden" is making a valuable contribution to Western Horticulture, we sincerely trust that the recipients of our book will give these advertisers every consideration and patronize each and every one to the fullest extent. In this way we can repay them for their wholehearted support. When making purchases, you might inform advertisers you noted their advertisement in "The Winnipeg Flower Garden." This, we hope, will assure our advertisers that their investment in this book was well repaid.

We solicit contributions and suggestions from our readers and from other horticultural societies. Our next job is the 1955 "Flower Garden." Will you help us make it even better?

To all fellow horticulturalists, our very best wishes for another happy and productive year in your garden.



WINNIPEG BOARD OF PARKS AND RECREATION
CIRCULAR APPROACH TO INTERNATIONAL GOODWILL GARDEN — ASSINIBOINE PARK — SHOWING STATUE OF "BOY WITH THE BOOT"

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Manitoba Horticultural Societies

1954

Location	Secretary
BRANDON	A. G. Warr, 636 Princess Ave. E., Brandon
CHARLESWOOD	To Be Appointed
DAUPHIN	Mrs. Fred Robson, Dauphin
FLIN FLON	Dr. B. A. Biggs, Flin Flon
FORT GARRY	Mr. Jas. H. Plewes, 661 Riverwood Ave., Fort Garry
HARTNEY	Mrs. J. A. Fry, Hartney
MANITOU	Mrs. E. A. Stepler, Manitou
MORDEN	Robert Milne, Morden
NEWDALE	Mrs. F. Ridgeway, Newdale
PINE FALLS	F. J. Harrison, Pine Falls
POPLAR POINT	Mrs. H. J. England, Marquette
PORTAGE LA PRAIRIE	M. A. Myren, 15 - 20th St. N.W., Portage la Prairie
RUSSELL	E. W. Robertson, Russell
STEINBACH	Mrs. Ruth Whetter, Steinbach
ST. VITAL AGRICULTURAL SOCIETY	R. W. Gurney, 155 Handyside Ave., St. Vital
ST. JAMES	Mrs. H. J. Sewell, 102 Garden Road, St. James
WEST KILDONAN	Mrs. J. Slipetz, 417 Scotia St., West Kildonan
WINNIPEG	R. W. Brown, 675 Valour Road, Winnipeg
THE PAS	Mrs. J. Harwood, Box 367, The Pas
MIAMI HORTICULTURAL COMMITTEE	Mrs. F. Rumbal, Miami (Pres. Geo. A. H. Knox)
KILLARNEY HORTICULTURAL COMMITTEE	Mrs. Ben Brown, Killarney (Pres. Geo. Furhall, Killarney)
ST. PIERRE HORTICULTURAL COMMITTEE	Tony Morin, Otterburne
CARMAN HORTICULTURAL SOCIETY	Mrs. J. Bowes, Carman
MANITOBA HORTICULTURAL ASSOCIATION	F. J. Weir, 153 Legislative Bldg. (Pres. J. H. Nichol)

Winnipeg Horticultural Society

STATEMENT OF RECEIPTS AND DISBURSEMENTS FOR THE YEAR ENDING OCTOBER 31st, 1953

Membership — 572

RECEIPTS

Membership fees	$ 563.00
Government Grants:—	
Exhibition	342.00
Membership	46.30
Municipal Grant	100.00
Donations	378.50
Entry Fees, Flower Show	71.30
Admission to Flower Show	93.78
Advertising	1,160.25
Sale of Books	360.00
Annual Meeting	150.50
Surplus from Picnic	40.95
Miscellaneous Receipts	4.09
	3,310.67
Balance on hand, Nov. 1st, 1952	362.26
	$3,672.93

DISBURSEMENTS

Printing	$ 265.14
Postage	226.28
Flower, Vegetable and Fruit Show	699.50
Home Grounds Competitions	218.40
Year Book	1,687.21
Stationery	13.95
Honorarium	250.00
Telephone	42.00
Annual Meeting	160.80
Bank Charges	7.78
Life Certificate	5.50
	3,576.56
Balance on hand, Nov. 1st, 1953	96.37
	$3,672.93

Nov. 24th, 1953

R. W. BROWN,
Secretary-Treasurer.

AUDITOR'S REPORT

To the President and members of the Winnipeg Horticultural Society:

I have compared the above statement with the books and vouchers, relating thereto, and certify that it is a correct record of the receipts and disbursements of the Winnipeg Horticultural Society for the year ending October 31st, 1953, according to the information and explanations given me.

Winnipeg, Nov. 24th, 1953.

W. F. BLACKWELL,
Auditor.

Who Makes A Garden

Whoever makes a garden
Has never worked alone.
The rain has always found it;
The sun has always known.

The wind has blown across it
And helped to scatter seeds.
Whoever makes a garden
Has all the help he needs.

Whoever makes a garden
Should surely not complain,
With someone like the sunshine
And someone like the rain.

And someone like the breezes
To aid him in his toil,
And someone like the Father
Who gave the garden soil.

Whoever makes a garden
Has, oh, so many friends—
The glory of the morning
The dew when twilight ends.

For wind and rain and sunshine
And dew and fertile sod,
And he who makes a garden
Works hand in hand with God.

—Douglas Malloch.

Read by Mrs. D. Brown, Dauphin, at M.H.A. Convention, February 13th, 1953, in memory of Cliff Robertson, of Gilbert Plains, who was killed in 1952 in a tractor farm accident. Mr. Robertson was a willing member and Director of the Dauphin Horticultural Society.

New Hardy Garden Plants

F. L. SKINNER, M.B.E., LL.D.
Dropmore, Manitoba

In the following paragraphs, I am giving a short description of some of the new ornamentals that have proven hardy at Dropmore and are likely to become popular in prairie gardens as soon as they can be propagated in sufficient quantity to fill the demand.

Populus tremula erecta. As I saw this tree, growing in Sweden, it was a narrow column about 18 to 24 inches wide and from twelve to fifteen feet high, a form that is very rare in plants, that are sufficiently hardy for the prairies. Apparently, it is quite new as I saw no large specimens. It has survived the past two winters in Manitoba without any sign of winter injury and may, therefore, be considered hardy. The propagation of it in quantity presents a problem for the nurseryman as it cannot be grown from hard wood cuttings and when grafted on our native Aspen, suckers from the Aspen root may smother the columnar tree.

Rosybloom Crabapple Rudolph. The Almey Rosybloom raised at Morden created quite a sensation in the U.S. and many thousands of trees of it have been sold. In many places in western Canada it has not proved hardy and during the winter of '50-'51, all our plants of it at Dropmore were killed back to the snowline while one of our own seedlings flowered freely in the spring of 1951 and has never shown sign of winter injury. The buds of Rudolph are a dark ruby and the open flowers, a deep rose, that keep their color well. The colour of the buds suggested the name. It will be available in 1954.

Rhamnus pallasi is a shrub about three feet tall that came to us as seeds from the Caucasus; its neat habit and narrow glossy dark green leaves should make it an attractive shrub for foundation planting . . . U.S. nurserymen are quite enthusiastic about it. Though we have had it for about fifteen years, it has only recently been released by the Dominion Government for propagation in Canada and it will therefore be two or three years before it is available to the general public.

Primula pallasi. To those who have memories of the woodland Primroses of Britain, this primrose will appeal. The flowers are like those of P. acaulis in form and colour but are borne in clusters like the polyanthus on 8 to 10-inch stems. It is one of the early spring flowers, and, being from the Ural Mts., it is quite hardy though like most primroses

it does not like a situation that is too hot in summer, apart from that it is not fastidious as to soil and location.

Ligularia palmatiloba and **L. Hodgsoni** are very similar in general appearance, both grow from two to three feet tall and have large palm shaped leaves. The former, however, has golden yellow flowers in July while the latter, deep orange yellow flowers about a month later. These flowers come in corymbs and the individual flowers are about 2½ inches across of the aster or sunflower type. The large leaves and bright coloured flowers make these rather striking perennials, they increase readily by root division. Like L. speciosum, they grow best in a deep rich soil that has plenty of moisture during the growing season.

Anemone tomentosa. The Japanese Anemone, native of western China by the way, has never proved hardy enough to flower at Dropmore, but A. tomentosa, the most northern in its distribution of this type of Anemone, has lived three winters at Dropmore without protection and may therefore be considered hardy. In England and Sweden, where it is still a rare plant, this Anemone grows about three feet tall and flowers in July; the leaves are large and wooly much like the grapevine in shape while the flowers, usually pale pink in colour, are from two to three inches across and start opening with us in early August and continue until sharp frost.

Hemerocallis Papagayo and Krishna. In 1938, I had the pleasure of having Dr. Stout, of the New York Botanic Garden, show me his work with Hemerocallis and a few years later Dr. Emsweller, of the U.S.D.A., showed me the hybrids they had raised at Beltsville, Maryland. I preferred the Beltsville varieties and when they became available secured some of them for trial in Canada. Not all of them have proven hardy but of those that have the two following are very colourful; Papagayo (the Parrot) with rich red flowers does very well here and should be available in 1954. Krishna has striking dark brown flowers but, though hardy, does not increase as readily as Papagayo.

Geum sibiricum. The Geums, such as Lady Stratheden and Mrs. Bradshaw, are hybrids of a South American species and are not hardy. Some of the forms of G. coccineum (native of the Balkans and Asia Minor) are hardy and the one known to the trade as G. sibiricum is one of these; it grows to a height of about nine inches and in early summer and sometimes again in autumn has single rose-like flowers of a brilliant orange scarlet, a colour all too uncommon in prairie gardens.

Iris Mt. Robson. Iris kaempferii, from which the Japanese Iris has been derived, is native of Manchuria as well as Japan and this Manchurian form has taken kindly to cultivation in Manitoba. Some breeding work has been done with

it at Dropmore and Mt. Robson is the name given to a pure white form shaped like the kaempferii parent and with the same yellow mark at the base of the falls. As it flowers in late July, it is one of the latest of Irises to flower.

Clematis aethusifolia is a native of northern China and for about 20 years I tried, without success, to secure seeds or plants of it. I saw it growing in Stockholm in 1947 and was very much pleased with its delicately cut maiden hair like foliage. I eventually secured seeds of it from that source and last August it flowered for the first time in this country. The individual flowers are rather small, about an inch across, bell shaped and borne singly on the end of four to six-inch stems. When in full bloom, it becomes covered with these flowers and it then becomes noticeable that it has a very delicate fragrance. It grows to a height of about five feet and apparently dies down to near the ground like some of the C. viticella varieties. Even if it never flowered, this Clematis is worth growing for its finely cut leaves.

Few of the named hybrids of the **Novi-belgi Asters** that have come to us from Europe are really satisfactory in Manitoba, most of them are too late for us or suffer badly from mildew and rust. By crossing them with our native Asters, such as A. laevis and multiflorous, some very handsome and clean looking hybrids have been secured at Dropmore that promise to be well suited to our soil and climate. Aster Avalanche, a two-foot bush that becomes a mound of single white two-inch flowers from early September until mid-October, and Autumn Skies, also a two-foot bush with pale blue flowers that are slightly larger and flower about a week later, are two of the good ones; however, a pink one with smaller flowers is my favourite. I have called it Eventide, it grows about eighteen inches tall and the one and a half-inch blossoms are so freely produced the whole plant becomes a glowing mass of pink and yellow when seen in the setting sun.

What Shall I Plant?

H. H. MARSHALL

Head Gardener, Dominion Experimental Farm, Brandon, Man.

At this time, when a large number of people own or are buying their own homes, this is the question we frequently hear. Of course, what most people want is a planting plan but we are sometimes given the impression that the quest is for a perfect plant.

Such a plant could be an evergreen with beautiful glossy leaves, covered with roses or lilies all summer and coloured fruit or leaves in winter. Also it should grow and bloom quickly when planted and stop growing at any desired height. One colour or fragrance of flower would soon become tiresome so we may as well ask for several of each because we are not likely to find a plant with so many virtues. The only way to have a variety of plant characteristics is to use several types of plants.

Nothing can equal annual flowers for quick results in producing a mass of bloom. Calendula, California poppy, cosmos, larkspur, dwarf marigolds or zinnias, bachelor's-buttons, salpiglossis and a host of others will bloom satisfactorily from seed sown where they are to grow. You will require generous sized packages of seed for this purpose and they should be sown early excepting for a few tender species. You may frequently be able to harvest seed if you do not mind mixtures.

Many other annuals perform better if transplanted. Their first purpose when planted should be to grow and produce strong plants. Those that are in full bloom in the flats will not become established as quickly as more immature ones. Pansies are very resistant to frost and may therefore be planted long before frosts are over. Petunias and snapdragons will survive some frost while marigolds and zinnias are very tender. Phlox, alyssum, lobelia, geraniums and stocks are a few more of a long list in this class.

Unfortunately, few annuals produce bloom of consequence before July and others become seedy and not attractive by September. Perennials will extend the season of bloom as many flower in early or late summer. These frequently require a year or more to become established before results can be expected. In general, early flowering types and bulbs should be planted in September and late flowering ones in the early spring.

Tulips, squills and fritillarias are early flowering bulbs that are usually hardy here. Phlox subulata varieties, per-

ennial candytuft and alyssum, Iceland and oriental poppies, iris, peonies, delphinium, day lilies, lilies and perennial phlox are some species which bloom in succession from May to August. The sunflower family includes many species that bloom in August or September. Among these are heliopsis, asters, chrysanthemums, goldenrod, sneezeweed, cone-flowers, and blazing star.

Annuals and perennial plants still leave the ground vacant from October until May or more than half of the year. Also few are tall and bushy enough for base plantings, screens or background and none for shade or shelter. These vacancies can only be filled by the use of trees or shrubs.

Woody plants vary in size from prostrate species to over sixty feet in height. They also vary in width of spread, texture and color of foliage, type of bloom or fruit and, in fact, in every possible way. As they must remain in one place for many years, it is important to plant them in the correct location. The commonest mistakes are made because the small tree that is planted can attain a very large size. A large shrub such as a lilac or honeysuckle may be planted in a space four feet high under a window. In a few years, it has completely covered the window but it is beautiful when in bloom. By that time, it will require much courage and effort to remove it. It is not uncommon to see a double row of elms or other trees spaced ten feet apart across the front of a property when a single row forty feet apart would be ample, even if this requires only two trees.

The Recommended Horticultural varieties and Zonation Map for Manitoba, distributed by the Extension Service of Manitoba Department of Agriculture, contains a list of hardy species divided into groups according to size and purpose for which they are especially adapted. Many of the species may also be seen around the homes of good gardeners, at nurseries, parks and Experimental Farms. The latter also have bulletins which describe many species of ornamentals in each of the above classes.

In conclusion, we would say that the thing to plant is variety. In this way, a home grounds may contain something of interest for the entire year and what to plant will be governed mainly by enthusiasm and space available.

Why Parks and Playgrounds?

T. A. HODGSON

General Superintendent, Board of Parks and Recreation, Winnipeg, Man.

Today, we are living in an age of fast-moving events. By contrast with our comparatively simple and pastoral life of a few decades ago, we are moving rapidly into an increasingly complex way of life. In its complexity, the need for expanding parks and playgrounds must be expressed through public opinion more vigorously than in the past. If it is not, we risk the loss of a priceless new heritage.

On February 1, 1953, the Winnipeg Board of Parks and Recreation passed its 60th milestone. In this anniversary year, it may be of interest to glimpse back over the past for a lesson, a challenge, or an inspiration to meet the years ahead. In 1893, Winnipeg was an infant community, a knot in a ribbon of steel, binding a vast new Dominion. But the early citizens were people of vision, and courage, and determination joined with an affection for natural beauty.

Quoting from the first report of the Public Parks Board, (1893):— "Owners were improving their properties and simultaneously manifested a desire to add to the city some of the graces that civic pride had given to the older cities in the old lands from which so many citizens had come."

The qualities of the citizens referred to above were also joined with a shrewd appreciation of the practical value of a parks system as noted in the report of the first Chairman of the Board, Mr. E. L. Drewery, ". . . a series of parks which would prove not only educators of a higher taste and admiration of nature, but prove of much practical utility for all citizens . . . Well-kept parks are without question refining and civilizing factors, and to restrict their reasonable development or proper maintenance is decidedly a short-sighted policy."

The names of E. L. Drewery, M. Bull, G. F. Carruthers, Dr. E. Benson, H. C. Stovel, H. Sandison, R. D. Waugh and Mayor Sharpe remind us of the many zealous leaders who, supported by public opinion, helped lay the foundation of our present parks system The development of the parks, boulevards and gardens, and the early work so well done, recalls the names of D. D. England, Robert McFarlane, J. H. Gunn and G. Champion, to whom we shall ever be indebted. The artistry of their work did much to stimulate interest

in the improvement of home grounds. Well-kept lawns, with their flower borders, trees and shrubs have increasingly become a characteristic of the homes of the community, admired by visitors, and a source of enjoyment and a point of civic pride to the owners.

Strange as it may seem to many of us, beauty for beauty's sake is not always sufficient reward or justification for personal or community effort. There is even a need at times to rally a defence for the protection of what has been accomplished and often taken for granted. An increasing expression of public opinion is gathering against the removal of trees for street widening, and on business thoroughfares in order that commercial signs may have more prominence. The advantages sought are transitory, and the demand rises because of a short-range concept or of thoughtless disregard of consequences.

Apart from the aesthetic value of tree-lined boulevards, parks, public squares, and playgrounds, yet because of the sense of well-being which they convey, and the elemental appeal which natural things have for most people, whether it is a grassy field to play on with the children, or a bench under a shady tree to rest, read, or observe the passers-by, I would venture to say the land use and its value in these forms is more than compensated by the increased value of all properties.

In an extract from "Parks as Investments," published by the Metropolitan Conference of City and State Park Authorities, New York City, February, 1926, Comptroller Hawkes is referred to as writing in 1856, shortly after the city acquired title to Central Park, "The increase in taxes by reason of the enhancement of values due to the park would afford more than sufficient means for the interest incurred for its purchase and improvement without any increase in the general rate of taxation. And the New Parks Commission quoted figures from the tax returns of the city to show that while the property in the other nineteen wards of the city increased but two-fold, the property (value) of the three wards in which Central Park was located advanced from about twenty-six and a half millions to over three hundred and twelve millions (dollars). They asserted that whereas before the making of the park, these three wards paid one dollar in every thirteen received as taxes, after the making of the park they paid one-third of the entire expenses of the city and this notwithstanding the fact that the taking of the ground for Central Park removed ten thousand lots from the tax books of the city."

As the momentum of a city's development increases, there is need for a broader citizen support of the principle of parks and playgrounds as vital democratic institutions. In

periods of active demand for homes, parks are required less to help sell new housing projects. Later, when all available land has been subdivided, it may be impossible to satisfy the new community. Unless there is the broad citizen support and acceptance of the rights of all citizens to share equally these amenities to wholesome urban living, the requirements of new areas may be jeopardized by the indifference or narrow self-interest of residents in neighborhoods with established facilities.

Parks and playgrounds are the lungs of a healthy and progressive city. They are of equal importance with sanitation, transportation and education in the scheme of modern living.

Olmstead, Sr., one of the great park planners of the last century, stated the nature and function of a true park as, "a place where the urban inhabitants can, to the fullest extent, obtain the genuine recreation coming from the peaceful enjoyment of an idealized rural landscape in rest-giving contrast to their wonted existence amidst the city's turmoil." This is a classic definition but the root idea is as true for us today as when he composed it.

Prior to 1850, there were no **public** parks on this continent in the sense defined by Olmstead. Parks developed from early historic times were for the pleasure of royalty and the nobility of the land. Public parks are a very new institution, yet may often be taken for granted by the great majority of us today, unaware of the efforts of our forefathers to provide these facilities, "for a more expressive life for all." It is our community responsibility to expand the recreation facilities in step with the growth of our cities that our children may also enjoy these benefits in adequate measure.

It will be noted that the early concept of a park was, "a place for relaxation," and, "passive enjoyment of natural beauty." Today, although this is still an important function of parks, providing an antidote for the tensions of modern city life, there has developed an important emphasis on the functional use of recreation areas. More work is being done by machines, relieving physical fatigue; the forty-hour week has virtually become a recognized standard. There is now a greater need for physical exercise to engage our increasing leisure hours to maintain good health. There will be an increasing need for the provision of active play areas integrated with the scenic landscape, or established as special areas. Golf courses, ball fields, swimming pools, skating and curling rinks, ski runs, all provide the means in season for a wide range of healthful relaxing exercise.

The increasing motor traffic is a feature of our modern city that causes us all, particularly parents, much concern.

Properly located playgrounds provide the means for children to play in safety. Studies of child auto fatalities indicate that the low percentage in cities well equipped, is in marked contrast with other cities of similar size, where there are fewer playgrounds. In Winnipeg, we are indebted to Kiwanis for the interest of this service club in the safety aspect of playgrounds and for their assistance in establishing three neighborhood playgrounds. In more recent years, the Benevolent Order of Elks has matched public funds in assisting the development of "Lots for Tots," in areas otherwise inadequately provided for.

To many people, "a great city is a great wilderness." The pastoral life of our ancestors was characterized by many communal activities; people were drawn together by their personal interdependency, as well as a natural instinct for companionship.

Machine production and increasing ease of transportation has increased our dependence upon one another, but in a less tangible and personal way. Increasing ease of movement weakened personal ties, and we tended to become more individualistic, less community conscious, less neighbourly. Increasing leisure today, however, provides an opportunity to rebuild community life in which neighbourliness may thrive. Neighborhood parks, playgrounds, and more particularly community centres provide opportunities for bringing people of a community together, to promote acquaintanceship, friendship and community goodwill.

This instinctive companionship and neighbourly association is clearly manifest in the growth of the community centres in recent years. There are at present 16 of these centres operating under public sponsorship in Winnipeg, and possibly as many more are to be found in the adjoining municipalities. Although partly supported by public funds in Winnipeg, they function largely as volunteer associations, organizing a wide variety of community activities for all ages, and bearing the major cost of operation. The development of Senior Citizen or Golden Age groups as Community Centre auxiliaries, recognizes the increasing percentage of the over-65-age group in our communities.

L. H. Weir, who was one of America's recent outstanding leaders in the Parks and Recreation field, has said, "It is not too much to say that Park and Recreation planners and executives, and the citizens who are giving thought to the recreation needs of our people are perhaps the chief agents in restoring to modern American community life the spirit which made earlier life in America wholesome and desirable."

Although difficult to appraise in terms of specific value, the presence of adequate play facilities under proper supervision and adequate leadership, are recognized as tending to diminish juvenile delinquency. As a city grows, the need for skilled leadership increases. Willing volunteers are to be found on every hand, and are vital to any well-balanced community recreation program, but the limitations to their available time, and specific skills, requires for a constructive, wholesome, continuing influence, the assistance of conscientious leaders for this specialized field of activity. To quote Mr. Weir again, "Just as parents are the most important factor in the home, the teacher in the school, the trained executive in a business organization, so on a playground, at the swimming centre, in the park, the leader is the most fundamental of all environmental factors."

With adequate leadership, the opportunity is provided in parks, botanical gardens, arboretums, conservatories, greenhouses, aquariums, and zoological parks for people to satisfy a natural instinct to "want to know" about the mysteries and wonders of nature. It is in this field that I feel there is one of the greatest challenges to a progressive parks and recreation system.

In many cities, demonstration gardens are maintained to show new varieties of perennials, bulbs and annuals; practice classes are held at the greenhouses for retired folk and others who have not previously had the time to grow things; field trips for school children to observe and learn about our native trees, shrubs, and the animals of the open country, are arranged.

There are, in Winnipeg, 23 parks, 24 playgrounds (14 in parks), 15 community centres, 3 swimming pools, 2 publicly-owned golf courses, and over 200 miles of boulevards. But there are also 30 properties partially developed or undeveloped, totalling 219 acres. These are not adequate, even if fully developed, to maintain the standard set by our early citizens. Fortunately, increasing co-operation with the School Board in the joint planning of school-park-playground areas will increase the potential neighbourhood recreation areas.

With foresight, the early citizens of Winnipeg laid the foundation for a parks and playground system, planted trees and boulevards to bring beauty to the prairie beside the banks of the "Muddy Water" and provide shelter from the summer's sun and the winter's wind. The foundation was well laid. For the majority of our citizens our metropolitan area and its environs must meet most of our recreation needs.

It requires only the support of the citizens of today to further the good work well begun to make Winnipeg a city of which we may continue to be proud, a beautiful city, admired and respected by its visitors.

A Message From Saskatchewan

D. R. ROBINSON
Extension Horticulturist, University of Saskatchewan,
Saskatoon, Sask.

For the most part, 1953 was a good year for Saskatchewan gardeners. Abundant moisture supplies and the absence of unseasonable frosts in most districts contributed much to the success of gardening activities throughout the province. Chartered horticultural societies and other organizations doing similar work were more active than in former years. A total of 45 horticultural shows were staged in Saskatchewan in 1953 — a record number. Of these shows, 22 were sponsored by the chartered societies, nine by Homemakers' Clubs and the remainder by a variety of organizations. One of the encouraging features of society activity is the annual increase in membership. The combined membership of the 21 active societies has increased steadily during the past ten years and now stands at 3,125. Garden competitions are sponsored by almost all the societies. More recently, several societies are sponsoring "Glad of the Week" competitions and window displays. Thirteen societies have special sections in their annual shows for boys and girls and four societies issue worthwhile monthly news-letters during the early part of the year. In general, the trend is towards the development of a year-round program.

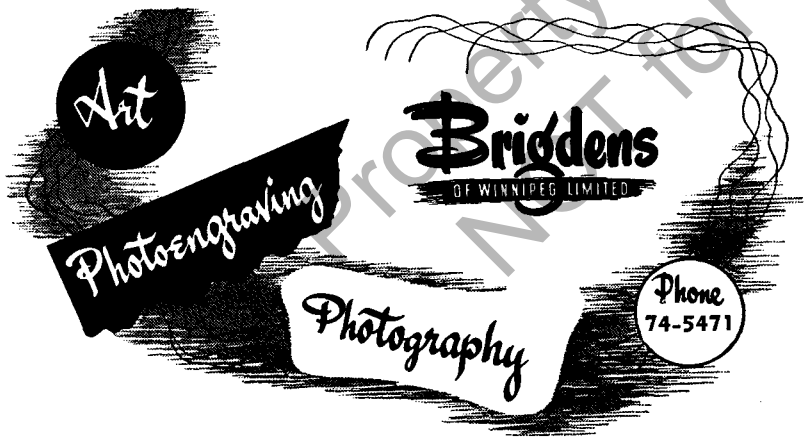
The annual two-day convention was held at Saskatoon last August, in conjunction with the Provincial Fruit and Honey Show and the local Flower Show. This convention is sponsored by the provincial Horticultural Societies' Association. Attendance was good. One of the most noteworthy achievements of the provincial Association was the sponsoring of a Horticultural Scholarship Fund to honor the memory of the late professor J. G. Rayner, former Director of Extension Services at the University. The societies and other groups and individuals have contributed $1,105.20 to this fund. The money will be used to provide an annual scholarship of $100.00 for a student specializing in horticulture at the University of Saskatchewan.

The Tenth Provincial Fruit Show, referred to above, attracted 349 entries and was well above average both with respect to the number of entries and the number of exhibitors. Since its inauguration in 1944, the Fruit Show has been held

in six different centres in the province. In this way, many more people have an opportunity of seeing the variety of fruits actually being grown in Saskatchewan.

Members of the Extension Gardeners' Guild were very pleased indeed to receive the 1953 edition of the "Winnipeg Flower Garden." Numerous favorable comments were received concerning this excellent publication. Quoting one letter, "many thanks for the splendid book; what a wealth of helpful hints there is in it." Guild members receive newsletters and pamphlets at regular intervals. More than 600 gardeners have joined the Guild to date.

We appreciate very much the opportunity provided herewith to extend greetings to our gardening friends in Saskatchewan and beyond the provincial boundaries. To society and Guild members and to gardeners everywhere, we wish you much success with your horticultural activities in 1954.



New Liquid Plant Foods Offer "Balanced Diet"

Liquid manure has long been a favorite means of feeding plants of all sorts. Due to the messiness and sometimes unpleasant aroma of this plant food, it was inevitable that research chemists would find a more welcome product. Well, the market is now flooded with liquid fertilizers. All are good, although some are better than others.

A new "plant food" which the home gardener may either spray on the leaves or apply to the soil is available to home owners through garden supply stores.

This product, known as soluble plant food, will supply a "balanced diet" of nitrogen, phosphorous, potassium and essential trace elements. It may be used as a fast-acting, clean, odorless spray for house plants, roses, ornamental shrubs, flower beds, vegetable gardens, fruit trees, berries, shade trees or lawns.

Nitrogen, principal element used by plants in producing green leaves is the element made most readily available through the use of fertilizer. While there are around 75,000,000 pounds of nitrogen in the column of air above each acre of land, only a few plants, such as beans, peas and clover, are capable of utilizing this elemental atmospheric nitrogen. However, certain nitrogen compounds sprayed on leaves move rapidly through the leaf surfaces and the nitrogen becomes available for plant growth.

Spraying plant food on the leaves is particularly desirable during periods of summer drouth.

Applications at two-week intervals during spring and summer are suggested to keep plants in a healthy growing condition. The plant food may also be applied to the ground around trees and plants in the manner of ordinary fertilizer. This water soluble plant food is highly concentrated and designed for all purposes where a liquid plant food is preferred.

It may be used by dissolving it in water and applying to the soil or to plant foliage. It is recommended for: starter solutions . . . to be used when setting out or transplanting flowers, vegetables, shrubs, trees and lawns started with plugs or stolons; regular feeding of house plants and window boxes.

It also may be used for "quick-feed" soil applications for flowers, shrubs, trees and supplemental feeding of lawns; foliage feeding (leaf spray) of lawns, trees, shrubs and garden plants to stimulate summer growth and deepen foliage color; liquid feeding in home and commercial green houses, golf courses, golf greens and on commercial fruit and vegetable plantings.

New Garden Plants

DR. W. R. LESLIE
Superintendent, Dominion Experimental Farm, Morden, Man.

It has been observed that "to the improvement of plants there is no end." It is exhilarating to ponder on the thought. Prairie Canada, with its extremes of temperatures—summer to winter; its rather scanty precipitation; and its tendency to have frequent drying winds fanning across the vast open spaces, requires specialized plants. All such plants, both annual and perennial, need to be able to tolerate dryish conditions. Trees, shrubs, and other perennial plants must have adaptation to cold prolonged winters.

Happily, much progress has been gained in acquiring a pleasing list of plants suited to our prairies. The plant breeders of the north central United States have achieved much through importation and plant breeding and their successes made freely available to plantsmen in prairie Canada.

In Canada, much advancement in hardy new plants has been effected at the Central Experimental Farm, Ottawa, and considerable at Prairie universities. Nurserymen and private plant breeders are contributing substantially in the prairie provinces.

The main effort of the Canadian Department of Agriculture in breeding garden plants for the cold regions is at the Morden Experimental Station. For the reference of readers, a review of new named plants introduced at Morden from 1929 to midsummer of 1953 are listed. Descriptions of the 67 new varieties are found in Progress Reports of the Experimental Station.

APPLES (18): Mantet, Mortof and Manton (in 1929); Manan, Manred, Moris and Spangelo (1930); Godfrey, Manitoba, Manitoba Spy, Stevenson, Watts (1931); Morden Russet and Breakey (1935); Ostem, Redant and Manbee (1936); Mount (1937).

APPLECRABS (2): Toba (1936); Kerr (1952).

PLUMS (4): Mordel (1930); Mina (1934); Bounty (1939); Norther (1943).

CHERRY-PLUMS (4): Mordena (1930); Mansan (1935); Dura (1942); Manor (1946).

CHERRIES (2): Coronation and Drilea (1937).

SAND CHERRIES (2): Mando (1931); Manmoor (1929).

APRICOT (1): Scout (1937).

PEMBINA (or American Cranberrybush) (1): Manito (1947).

VEGETABLES (8):

Tomatoes (4): Morden (1945); Monarch (1949); Meteor (1950); Mustang (1951).

Sweet Corn (1): Sugar Prince (1946).

Garden Pea (1): Tiny Tim (1950).

Cabbage (1): Morden Midget (1951).

Sweet Pepper (1): Morgold (1952).

WOODY ORNAMENTALS (19):

European Red Elder (1): Redman (1929).

PIN-CHERRY (1): Stockton (1929).

Hybrid Lilacs (6): Royalty (1935); Coral, Nocturne and Redwine (1936); Swanee and Freedom (1937).

American Elm (1): Morden Elm (1939).

Colorado Spruce (1): Morden Spruce (1944).

Caragana (1): Tidy (1944).

Roses (3): Prairie Sailor and Prairie Wren (1946); Prairie Youth (1949).

Mockorange (1): Silvia (1947).

Hybrid Almond (1): Prairie Almond (1947).

Hawthorn (1): Toba Hawthorn (1949).

Rosybloom Crabapples (2): Almey (1945); Sundog (1947).

HERBACEOUS PERENNIALS (6):

Gladiolus (2): Morden Maid (1935); Nasturtium (1939).

Lythrum (3): Morden Pink (1937); Morden Rose and Morden Gleam (1953).

Autumn Aster (1): Sunup (1951).

In addition to the varieties introduced under name, there are hundreds of selections undergoing re-test under number. A few of these will probably win such general approval from the public that a demand will arise to have them named. However, the policy is to make haste slowly in christening plant selections with names. To warrant naming a new selection, it should have sufficient merit to displace a variety now occupying a space on the lists approved by the Provincial Horticultural Associations. Most groups of plants are sufficiently extensive already. Overly long lists of named varieties are discouraging to nurserymen and bewildering to the private gardener.

Set Up a Backyard Soil Conditioner Factory

Maintaining organic matter in your soil is an important part of successful gardening. One of the main reasons that farmers rotate their crops is to keep up a good level of soil organic matter. Adding organic matter to a soil is by no means a cure-all as some folks seem to believe. It does, however, open up heavy soil, permitting air to penetrate. On the other hand, it increases the water-holding capacity of sandy soil. Further, it contains some plant food, and the presence of organic matter in the soil helps to release plant nutrients from soil minerals into available form.

Most gardeners cannot practice crop rotation nor have they access to the other main source of organic matter on farms — animal manures. It is possible, however, to keep soil in good physical condition by maintaining a couple of compost heaps. Composting materials may be piled in a shady, out-of-the-way corner of the garden, or back of the garage. Into them can go all types of garden refuse such as grass clippings, corn stalks, leaves and weeds that have not formed seeds. Vegetable materials should be placed in layers each about 6″ thick and covered with a thin layer of garden soil. Since the bacteria, which break down this raw vegetative material into crumbly, decomposed compost, require extra nitrogen and phosphorous to do their job, it is a good idea to sprinkle each layer of plant material with plant food. In addition to hastening the process of decomposition, the plant food will enrich the compost, making it a more valuable source of plant nutrients.

Alternate layers of vegetable material and soil can be built up to a height of 3 or 4 feet. If the pile is surrounded by wire fencing or wood sides, to keep the sides vertical may be built up somewhat higher. Each layer should be thoroughly soaked with a garden hose, or the top of the heap should be dished to catch the rain water. It is totally unnecessary to add a "compost activator," earth worms, or worm food. The plant food you sprinkle on each layer is the only activator needed, and the worms will come in droves of their own accord.

Composted material that is accumulated during one gardening season will be ready to spade into the soil late next Spring. That is why it is best to have two compost heaps — one which you can use during the year and another one which you can build up for the following year.

2-4-D, Friend and Foe

C. F. PATTERSON, Ph.D.

Head, Dept. Horticultural University of Saskatchewan, Saskatoon.

The chemical designated as 2-4-D has become a friend to many people and a foe to many others. To the farmer it has become friend but to many gardeners it has become foe in no uncertain terms. Through being effective in the control of certain weeds in field crops and through being easily applied, this herbicide has been used extensively by the farmer and its use has resulted in substantial increases in farm income. It has reduced in no small measure the hazard of weeds in the field and has increased appreciably security in farming. Through doing serious damage to trees and certain other garden plants it has become to the gardener at times arch foe No. 1, on the other hand. It has destroyed shelter-belts that required the greater part of a lifetime to develop and it has destroyed garden crops that were the joy and the pride of the tiller of the garden plot. A real problem exists and towards its solution much remains to be done.

Until a safer and better chemical is found, 2-4-D will be with us and we must make up our minds to live with it. We may have to do so for years to come or we may find relief in the not distant future. Whether or not we shall be able to live with it peaceably will depend to a large extent upon the co-operation of those using the material. It is a benefactor without question and we must accept it as such. It can help the farmer greatly and it can be a great aid to the gardener. Every grower of plants owes a debt of gratitude to those responsible for the development of this chemical as a herbicide.

Much of the damage done to cultivated plants by 2-4-D is avoidable fortunately. Thoughtlessness, carelessness and lack of due appreciation of the dangers attending the use of the chemical account for a very large part of the unnecessary injury to such plants. The use of 2-4-D dusts is, in the opinion of the writer, indefensible, in most cases. The use of such dust may be cheaper than a spray to the farmer using the material but when some of the dust used drifts for miles and destroys crops belonging to other people such practice cannot be justified, regardless of any economy in cost that might be effected. The use of sprays on windy days, when some of the mist from the sprayer may be carried considerable distance, can only merit condemnation. The use of a very volatile spray at any time increases the hazard to sensitive plants and can be looked upon only as a very undesirable practice. Failure to appreciate fully that 2-4-D is a chemical highly dangerous

to many cultivated plants; failure to appreciate that this chemical may travel many miles through the atmosphere; and failure to appreciate that only very small amounts of the chemical are required to cripple or destroy certain plants are far too often responsible for the injury to plants recorded.

The damage to cultivated plants occurring in urban centres is usually traceable to two main sources. One source is the local user of the chemical that means well but that lacks knowledge on the use of the chemical. This user may be a next-door neighbor or he may be a neighbor a block or more distant. The other source is the farmer that is using the chemical in the control of weeds in his field crops. He too may lack knowledge on the handling of this herbicide and may be responsible for injury to cultivated plants occurring a mile or more from the place of application.

Can anything be done about the problem? This is a question that is often asked. There are two general procedures that might be followed in dealing with the problem, it appears to the writer. One procedure is to place restriction on the use of the chemical by regulation. The other procedure is to persuade men to follow the Golden Rule and to do unto his neighbors as he would want his neighbors to do unto him.

Of the two procedures mentioned the one that is probably the more practicable is that of imposing regulation. While many people would take kindly to the application of the Golden Rule some would not do so and the problem would remain. How far a municipality or a government can go in imposing regulation in the use of such a chemical the writer is not in a position to state. It may be that little or no action can be taken in this direction legally. In any case, it is a matter that might be taken up with the proper authorities and the possibilities of doing something investigated.

What can the individual gardener or farmer that uses 2-4-D do toward reducing the amount of injury to his own trees and garden plants and to the plants of his neighbor? He can do much. He can reduce this injury virtually to zero and yet attain his objective in good measure. This can be done by using good judgment in the selection of the form of 2-4-D to be used, by restricting the use of the chemical to certain periods when possible and by exercising precautions in making the application. This, of course, does not prevent the possibility of a neighbor not taking the same precautions and much injury being done in the neighborhood as a result.

The selection of the form of the chemical to use is one of the first steps in weed control. Every user of 2-4-D should

be aware that different forms of the chemical are available and that one form is often preferable to another form. From the viewpoint of the gardener and the lover of trees the use of 2-4-D dusts are undesirable and their use should be prohibited. Most of the 2-4-D used as a spray recently has been the ordinary form of ester. This is very effective and usually gives a good kill. It is usually highly volatile, however, and damage to sensitive plants has occurred at great distances from the points of application. These distances are likely to be greater with wind blowing than with a state of calmness in the atmosphere but even with a calm atmosphere the chemical may spread far beyond the boundaries of the area to which it is applied. An ester of low volatility is now available. This ester appears to have most of the virtues of the ordinary form of ester and has advantages, in that it can be used more safely in certain crops and in that its spread through the atmosphere is greatly reduced. The amine form has been recommended and is still recommended for garden use mainly because of its low volatility and its safeness. The use of the sodium salt has virtually been discontinued.

Present indications are that the ester of low volatility will replace the ester of high volatility to a very large extent. This will be an aid in the protection of trees and sensitive garden plants against the chemical and will be welcomed by gardeners and tree lovers in the areas where 2-4-D is used.

Gardeners are advised to use either the amine form or the ester of low volatility. Both are reasonably safe when used properly. The limits of tolerance by the plants to be preserved are lower where the ester is used than where the amine is used and if one is using the low volatility ester one should adhere to the use of the strength recommended by the manufacturer. When using the amine one can increase the strength of the application often considerably without harming seriously the cultivated plants in the area being treated.

Much of the injury that has been done to garden plants in the past by 2-4-D could be eliminated if the period for treatment could be terminated at the end of May. In that case all treatments would probably be given during the last two weeks of May. This would be before woody plants have made much growth for the season and before bedding plants and tomatoes were planted out. While such restriction would not be possible in the treatment of weeds in field crops, it would be possible as far as the use of the chemical in the garden is concerned. The chief use of 2-4-D in the garden area is in the control of dandelions in the lawn and spring treatment in this case is practicable. Before the end of May,

weather conditions are favorable for the treatment to be given and the dandelions are sufficiently far advanced by that time to respond well to treatment. Accepting the last two weeks in May as the period for using this chemical voluntarily, or as a restriction imposed by law, one in an urban centre would be permitted to make sufficient use of the chemical to meet one's requirements under ordinary conditions. Effort should be made, therefore, to restrict the use of 2-4-D in urban areas to this period when the minimum amount of damage to cultivated plants would be done and yet when the weed control desired, under ordinary conditions, can be effected.

The method of application of the chemical determines in no small way the amount of unnecessary harm that may be done. The application of dust is, of course, ruled out without any qualification. Solutions are usually applied as sprays. In some cases cheap, low-pressure sprayers are used, while in other cases sprayers of relatively high compression are used. As a rule, the higher the compression of the sprayer the finer the spray and the more drifting of the spray that is likely to take place. Even with the low-compression sprayer, considerable drifting may occur. The writer has been recommending and is still recommending, wherever possible, the use of a watering-can with a fine rose in making the application. This virtually eliminates pressure and reduces drift greatly. The amount of material required with a watering-can treatment is greater than that required with a sprayer, it is true, but for urban gardens the increase in cost necessitated by the watering-can method is small and would probably be less in most cases than the cost of a package of cigarettes.

The watering-can method of application may be carried out by marking the lawn area off in strips about six feet wide, using twine and nails pushed into the ground at intervals to hold the twine in place. The strips are treated in turn. The operator starts at one end of a strip, moving backward on that strip as the treatment proceeds. The spout of the can is swung from side to side, the distance necessary to cover the strip, with the solution flowing from the rose. The movement can be fairly rapid as merely moistening the foliage submitted to treatment is all that is necessary. **Caution:** The watering can used for this purpose should be kept for this purpose only and not used at any time in the watering of plants.

A calm day is desirable even when using the watering-can method. Winds are capable of carrying the fine streams issuing from a fine rose where not wanted and a state of

calmness in the atmosphere reduces the hazard in using the chemical even in this way.

Using an unbroken strip of paper to protect low plants at the border of a lawn being treated, especially if such plants are very sensitive to the chemical, has virtue. Such protection might easily prevent appreciable harm being done to a border where considerable damage would be done in the absence of the paper. Paper has greater value for such a purpose than burlap or other such very porous material.

The importance of lush growth in the dandelion plants and of moderate or high atmospheric temperatures at the time treatment is given should not be overlooked. On these grounds those not favorable to May treatment often base objection. Dandelions start early in the season and well before the end of May they are usually in excellent condition for treatment. It is well, however, to allow the lawn to develop, before the treatment is given, a little more top than is allowed in ordinary lawn maintenance. For instance, if it is the usual practice to mow the lawn once a week, the mowing might be delayed three or four days when the treatment is to be given. The treatment might be given seven or eight days after the last mowing and the next mowing be done three or four days later. Atmospheric temperatures should be at least 60° F when the treatment is given but no difficulty should be encountered finding a day with such a temperature during the latter half of May in the average season.

The importance of the foliage of the dandelion plants being dry at the time of treatment and of some time elapsing between treatment and the occurrence of rain or the artificial application of water should not be forgotten. At least a few hours should elapse between treatment and any washing effect with water when the amine is used. When the ester is used this period may be shortened greatly.

To reduce the amount of injury to trees and other garden plants resulting from the use of 2-4-D one can accomplish much by:

1. Using the ester of low volatility or the amine at the strengths recommended by the manufacturer.

2. Restricting the use of the chemical to the period in the spring after the dandelions have made considerable growth and day temperatures are above 65° F, but before perennial plants (both woody and herbaceous) have made much growth and before bedding plants and vegetable plants started under cover have

been set out. The last two weeks in May will qualify as this period in the average year.

3. Making the application of the chemical with a watering can provided with a fine rose.
4. Making the application on a calm day.
5. Using unbroken strips of paper to cover sensitive plants at or near the border of the area being treated.
6. Allowing a good development of leaf surface on the dandelion plants to take place before treatment is given to insure that a second and later treatment will not be necessary.

2-4-D is a benefactor in no small measure. If properly used, this chemical need never be looked upon as a foe but may be regarded as a friend standing in readiness to aid the grower of plants in attaining the high degree of perfection sought in his endeavors.

Hungry Plants Tell Their Story!

Garden plants, even as you and I, need a balanced diet. Plants are living things which must have certain nutrient elements for normal growth and development. Underfed plants, like starving people, tend to become puny, sick and ill formed. They display their symptoms for everyone to see. Plants need many elements to grow well. Carbon, hydrogen, nitrogen and oxygen comprise about 95% of the dry weight of the plant. Practically all of the carbon comes from the carbon dioxide in the air while hydrogen and much of the oxygen comes from water taken in by the roots. The rest of the oxygen is obtained from the air. Although air also contains 78% nitrogen, no plants, with the exception of legumes, are able to use this source, and must depend upon the supply in the soil.

The other necessary elements, calcium, magnesium, sulphur, iron, boron, manganese, copper, zinc and molybdenum, plus a host of other elements not known to be essential, make up the remaining 5% of the plant's weight. These elements must come either from the soil or from the plant foods supplied by man. When one or more of them is lacking, the plants will, in their characteristic way, show hunger signs. When plants are literally "starving to death," the symptoms are fairly easy to recognize but when they are merely "hungry," diagnosing the trouble is more difficult even though yields may be reduced or blooms become inferior in size and color.

Why do we hear so much about hungry plants today when so little was said about them a few years ago? In the first place, our soils are becoming older and much of the plant food has been removed by cropping and erosion. Infertile subsoil covers many a newly graded lot in newly built-up areas. Altogether, this presents quite an area of nutrient deficient soil. So be prepared for hunger signs, and beat them to the punch with regular plant food applications to your lawn and garden.

Watering

When plants need artificial watering, the best hours of the day for it are early morning or evening. The roots, however, may be watered at any time. One good soaking is better than many light sprinklings.

The Outdoor Fireplace

C. PLEJDRUP
Winnipeg Board of Parks and Recreation

As we look around today, we see a great many new features in landscaping, particularly stone or brick walls and flowerboxes, etc. Trellis work and woven fences also add a pleasing effect as long as it is not overdone — too much of a good thing easily spoils the desired effect.

One more feature which is becoming very popular, is the outdoor fireplace, or barbecue, as some like to call it. This kind of a fireplace can be very decorative and give a certain atmosphere in the garden which no other feature can match. It is appealing to children as well as grownups, and brings the picnic idea right into our backyard. It also tends to create a closer tie between parents and children, in sharing the fun of building the fire, cooking, etc.

Your garden need not be very large for a fireplace. One can be built almost anywhere, preferably in the backyard, with a background of trees, shrubs, or lattice fence covered with vines — just something to suggest privacy. A good location is a corner of the yard.

There are a great many types of fireplaces, hardly two alike. Some have a grill as well as an oven, others are just a grill set on four posts or legs of some kind. Stone, brick, or even metal pipe set in the ground will do for this type.

One of the first things to consider in making a fireplace, is the type of material to use in building. Ordinary field stone, granite, or lime stone is suitable, and can be gathered little by little on your trips to the country. The stones should not be less than eight inches in diameter, some larger, up to eighteen inches. Brick and concrete can also be used of course, but these materials are not quite as picturesque or natural-looking in the garden. Another things to consider is the direction of the prevailing wind. A breeze blowing towards the fireplace opening helps the fire draw well, and also carries smoke away from the area used for cooking and serving. To avoid getting smoke into your eyes, a chimney should be provided to carry away the smoke, but this is not absolutely necessary. A chimney will provide better draft, and needs to be only five or six feet high. A spark arrester of half inch wire mesh should be installed in the chimney. It is important to provide a smoke shelf or smoke chamber inside the chimney, to prevent smoke blowing out through the fireplace. This is caused by downdrafts of cold air. The chimney should be lined with flue-lining, and the fireplace with fire-brick.

A damper is useful to control the fire; the butterfly type is easily made and installed. With this, the flames can be checked quickly, and coals kept glowing without charring the meat.

Most fireplaces need some sort of foundation. The "floating slab" is suitable for most types. This is simply a thick slab of reinforced concrete laid just below, or level with the ground, the fireplace being built on it. Usually four inches of gravel or cinders are laid down first for drainage, then a concrete slab four to eight inches thick, depending on the size of your fireplace and chimney. All stone joints must be carefully filled with mortar to prevent water getting in and freezing, causing cracks to appear. The fire bed should be well above ground level, to promote good draft, also to prevent stooping when cooking. The space below can be built in such a way that it provides storage space for cooking utensils, etc.

The cooking is usually done on a grill, which generally rests on projections in the side, and placed at a convenient height. Several projections can be made, so that the grill or metal plate can be moved closer to the fire, or farther away, depending on what you are cooking. A combination of a grill and a flat cooking sheet is a good idea. In this way the cooking can be varied.

An oven is useful for heating rolls and keeping food warm, and can be bought at a reasonable price at a second hand store. Place the oven directly alongside the fire so that the heat, but no smoke, gets into it.

A patio of flagstones adds greatly to the artistic layout. The stones should not be less than twelve inches square, preferably larger, and various sizes, laid in a "crazy" pattern. The stones resist wear of constant tramping, and provide dry footing after a rain or watering.

Quiet evenings around the garden fireplace in company with your children and friends, provides relaxation in this world of hurry.

Go Shopping for Top Soil!

No buyer is more at the mercy of the seller than the home gardener in the market for topsoil, or "black dirt," as it is called in some areas.

Most folks just have sufficient knowledge of what constitutes good topsoil when they buy it by the cubic yard. About the only criterion of quality used by the majority is the color of the soil. They reason that the darker the soil, the more productive it is. Sadly enough, color alone means little, but unscrupulous peddlers have taken advantage of the myth and have foisted off material that was dark-colored, true, but due to its poor physical condition, would grow practically nothing.

To help the "buyer beware," here are some points to remember, when you must purchase some topsoil:

1. Shop around. Look before buying, instead of just phoning in your order.

2. Feel the soil. Soil structure is far less easily improved than is soil fertility; a complete plant food takes care of the latter. Do small clods of dry soil break easily when squeezed between the fingers? If they are rock-like and do not crumble, don't buy — no matter how dark-colored the soil may be.

3. If the soil is black, is it also light and fluffy? Don't buy this either — it's muck, and is 90% organic matter, which blows easily when dry and is very drouthy when added as a thin layer on top of clay or sandy subsoil fill.

4. Next watch out for long, jointed underground stems with new shoots arising from them. These are quack grass rhizomes and woe is he who has to eradicate this pest from his garden or flower beds — especially if he paid good money for the source of the infestation.

To sum up, choose a soil that is easy to work, rather than one you think is "rich." Remember that few things are so perennially discouraging in gardening as hard, intractable soil or light, drouthy soil.

Cultivating

Stirring the surface soil of the open ground during the period of growth kills weeds, allows air to enter and helps to conserve moisture. Cultivation may be deep at first, but as the plants grow it should be more shallow to avoid injury to the roots.

"The Bean Seed's Secret" *

"It takes over a year to build a city skyscraper. Thousands of tons of concrete, bricks, and mortar are heaped up on a skeleton of steel beams riveted together till they reach halfway to the moon. Thousands of miles of wiring, plumbing and hundreds of door and window frames and plate glass windows go into a building of this kind . . . the blueprints needed to build it make a stack many feet high . . . Still, all problems have been met and solved by man.

"Yet no one (until now) has ever pierced the mystery — the deep down mystery — of why and how a bean seed sprouts. Scientists haven't the answer. But we're not scientists. We sent out spies and this is what they report . . .

"THE REAL LOW-DOWN"

"To make a long story short, the scientific fellows have it all wrong. They're all mixed up with cotyledons, hypercotyls, enzymes and that sort of thing. The fact is, in every bean seed, limas, stringless and wax included, there's an engineer in charge of operations, two contractors, several sub-contractors, a whole army of hod carriers and countless technicians. In the seed we investigated, the engineer's name was Toby, which, all of us around here have agreed is a pretty strange name for a bean seed engineer. Considering it was his busy season he spent quite a bit of time with us.

"Told us he and his associates were assigned to this seed last fall. During the winter they took inventory, repackaged and cataloged the food supply, shinned up the seed leaves and saw to it that the plumbing was in good order and that any cracks in the seed coat were stuffed with rags to keep out water and dirt. Bean seeds must be kept clean he told us, or they're liable to rot. Along about December, with everything tagged and shipshape, they all got a little sleep . . . all except the crew in charge of the ventilators. Toby told us every seed, or every living thing for the matter, has to breathe. If respiration stops, the game's up.

"SPRINGTIME"

"During the winter they were a little shaken up and discovered, in April when the back-to-work whistle blew, that they were under two inches of soil. Shooting the sun for position was impossible, naturally, but the balminess of the air that filled the spaces between the particles of soil in which

* "The Bean Seed's Secret" appeared in the Summer issue, 1953, Vol. 3, No. 2, of Cyanagrams, trade pamphlet of the American Cyanamid Company, 30 Rockfeller Plaza, New York 20, New York; Peter Hahn, Editor. Permission to reprint this article has been received.

they were embedded was a sure tip-off they were in Florida.

"The first thing Toby did was to send out an advance party consisting of a soils man and climatologist. They checked on soil temperatures, soil type (sandy, with .5% humus and low water-holding capacity . . . this meant a sharp watch on the water tanks and a double check for leaks), food supply in the soil (Toby told us that on his last job the phosphorus level was so low they almost didn't get the roots put together right). The climatologist ran tests on moisture content. With his figures showing a fair supply, Toby ordered the pumps to work to take in water to replace that used in building the seed leaves and roots.

"BEEHIVE"

"It was about this time we stopped by. The place was a madhouse. People rushing all over the place charging furnaces, and feeding stored, raw food stuffs into big cracking units which produced the building materials that went into the swelling embryo. Each of the two units accepted different raw materials and produced different building blocks for roots and leaves. Several men could be seen patrolling the mains which bring in water from outside. A highly skilled engineer sat in a control room routing the water to the different cracking units as it was required. Squads of laborers were erecting scaffolding around the growing seed leaves while others worked on the 'neck' right behind them.

"Toby stayed in a glass-domed pilot house surrounded by dials and telephones which were constantly ringing. Reports of a phosphorus shortage, potash reserves running low . . . a weak spot had been located in the hull and had to be shored up. Each situation was handled swiftly and efficiently. Assays on samples of the surrounding soil showed it particularly low on nitrogen and reserves in the seed were none too high. Toby sent word to the crew working on the roots to be ready with extra rootlets so that as soon as the seed coat was opened and the root sent into the soil, these rootlets could go after all nitrogen available. Also, liaison teams were organized to pick up the friendly nodule bacteria that always wanted to settle down on the root of a good bean seed and do business, trading nitrogen for a home.

"A constant stream of trucks loaded with cell walls, and many different kinds of tissue rolled by Toby's observation post. Some brought up protoplasm, mixed in transit and all of them discharged their loads by the scaffolding and roared off for more.

"THE GRAND OPENING"

"The second day after operations started, Toby gave orders to start soaking the seed coat, softening it for 'the split.'

The next day, with an elaborate system of pulleys and winches, the halves of the seed were split and the roots and the seed leaves — on their tubular stalk — were built out into the soil. Preceding the construction workers as they built outward and down on the roots, and outward and up for what was to be the foliage part of the plant, were the tunneling crew who excavated ahead of the delicate root tip.

"We noticed the workers were particularly thick on the tubular stalk supporting the seed leaves and Toby explained to us that this would be built up into an arched 'neck' that would be pushed up to break the soil surface and make way for the delicate seed leaves. These would be pulled through the broken up soil and then erected into the air. The arched shape of this neck, explained Toby, was structurally very strong and could stand very large compressive forces.

"TROUBLE"

"Then it happened. A messenger charged up on a motorcycle, red-eyed and covered with dust. He told Toby that the root crew had run into solid rock . . . the ordinary hydraulic jacks were unable to split it and the foreman had sent him to request blasting materials and experts. Toby looked very grave. Blasting was dangerous business, and all activities had to be stopped and delicate structures protected against concussion. Further, there was no assurance, even if the rock was successfully fractured, that there would be soil underneath. Yet there was nothing he could do. The red truck labeled 'danger' came out. Toby left his post to an assistant and we went along.

"We found the excavating crew at the root tip completely stalled by a glistening granite wall. Hydraulic equipment was strewn about and the foreman came up and briefed Toby on the situation. Meantime, over the radiotelephone in Toby's car, came an urgent message for building materials from the seed-leaf crew . . . The supply men who went along with the growing root, who picked up the materials as the roots supplied them and brought them to the cracking units, were idle since they hit the rock. Stored reserves had been used up. It became a race against time. Would the rock be broken before reserves ran out? Would raw materials be found underneath? Or would the whole, elaborate, interdependent project collapse?

"Toby immediately gave orders to the blasting crew. Holes were drilled in the rock face and stuffed with TNT. Wires were led out and in two hours time they were ready for the blast. We all took cover. Orders were telephoned to close down at the cracking units and fire patrols were alerted. Martial law was declared.

"Then at 'dawn' of the fourth day the blast was set off.

An awful noise rang through the entire seed; bits of the hull rattled down on us. When the smoke cleared there was the granite wall split in two and we could now see it was indeed flat in shape; there, beneath it, was soil! The men were already building the root into the crevasse. Toby wiped his forehead and we returned to his observation post.

"MISSION ACCOMPLISHED"

"The phone rang as we arrived back. Toby spoke, hung up, and motioned us with him. We were off again. This time we drove into the hollow, growing stem and upward into the 'neck' behind the seed leaves. The surveyor had reported we were about to break through. Sure enough, as we arrived, a great rending, cracking noise was heard and overhead an enormous piece of compacted earth was split up . . . and sunshine streamed through and onto us! Toby sent a call for the chlorophyll units which arrived directly and were systematically set in the sunshine which, when applied to the raw materials obtained through the roots and to the gases taken from the air started to turn out chlorophyll in long, tooth paste-like streams. They went under an automatic chopper which divided the stream into portable pieces and these were distributed through the plant. The neck was through and into the air in a matter of hours and the seed leaves were being guyed upward into place. Soon the leaves, now filled with chlorophyll, were exposed to the sun and new food supplies were being channeled from them, back into the roots for storage and redistribution to other portions of the new plant.

"Toby's work was done. We returned to his headquarters and already the superstructure, and flower crews had come in to take over. Toby handed over the keys and blueprints and told me he was off to California until taking over a new job the next fall. A bean seed engineer's life, he told us, was tough and he needed a good bit of rest."—Joseph E. Barnes, c/o Funk Bros. Seed Co., Bloomington, Ill.

Some Common Insect Pests

A. G. ROBINSON

Department of Entomology, The University of Manitoba

The following notes are based on inquiries submitted in 1953 to the Department of Entomology at the University of Manitoba. About 500 inquiries were received, mostly by letter or telephone, and answered. A record is kept of these inquiries each year, and thus for any one year a fairly complete picture is obtained of the more important pests for that year. Mention will be made here only of those insects common to the home grounds.

Heading the list of troublesome pests in the home grounds are ants. Several species are involved here, some living in houses, some living outside and entering houses to forage, and others just causing damage to lawns. Chlordane is the most effective insecticide against ants. It kills quickly by contact and the spray residue remains effective, usually for several weeks, against ants travelling over treated surfaces. For ants in the house use a household spray containing chlordane. Treat all the baseboards and the floor around sinks, stoves, refrigerators, tables, etc. If the ants are entering from outside, it is usually sufficient to treat only the doorstep or window sill over which they are entering. **Do not use household sprays on vegetation.** Ant hills on a lawn may be destroyed by sprinkling chlordane dust or wettable powder on the hills, and thoroughly watering it in.

Many inquiries were received about the fall cankerworm, **Alsophila pometaria** (Harr.). The small green larvae of this insect feed in the spring on the leaves of Manitoba maple, elm, fruit trees, oak and poplar. Occasionally, a tree, or even a whole shelter belt may be almost defoliated. The larvae should be destroyed as soon as they are noticed, by spraying the tree with a spray containing DDT at the rate of 1 pound of 50 per cent wettable powder in 40 gallons of water.

Although not many inquiries were received, the most abundant insects in the summer of 1953 were leafhoppers. Several species were involved, and much damage done to flower gardens. These small, light green insects jump or fly very readily when disturbed. They cause a speckling of the leaves, by inserting their mouth-parts to suck the plant sap. They may be controlled readily by applying a spray of DDT wettable powder, or one of the commonly known "flower sprays" containing DDT. The same spray will control the tarnished plant bug, **Lygus oblineatus** (Say). This insect attacks almost every herbaceous plant in the home garden, causing damage similar to that of the leafhoppers, but more

often blasting flower buds which results in distorted flowers or fruits.

There are many species of aphids, almost one for every species of plant host. The most available control in the home grounds is the well-known nicotine sulphate spray. Other more effective aphicides are not usually available from local retailers. The most spectacular aphid outbreak this year was that which occurred on nasturtiums. Another species was quite common on sweet peas.

Thrips, particularly the gladiolus thrips, **Taeniothrips simplex** (Mor.), were quite troublesome. Gladiolus thrips can be very easily controlled, by using DDT on the stored corms, and by spraying the growing plants with DDT wettable powder, emulsion, or a flower spray containing DDT. Hundreds of beautiful spikes were ruined in Winnipeg this year by the gladiolus thrips because no control measures were applied.

A few inquiries were received about a small, black slug-like larva on the leaves of cotoneaster. This is the larva of the pear-slug, **Caliroa cerasi** (L.). They can be destroyed by using the ordinary garden flower spray containing DDT.

Cutworms are always more or less of a problem, and many a home gardener has been disheartened at the loss of his transplants or seedlings, both flowers and vegetables. Nearly all species of cutworms work by night, cutting the stem of the plant at the ground level. A good device for home gardeners is to wrap a cylinder of heavy paper around the base of the transplant at the time of planting. Some gardeners use tin cans open at both ends. The main object is to protect the plant for about 2 inches above and below ground surface. If a large area is to be covered, mix a bait of one gallon of bran (2½ lbs.), one quart of water, and any one of the following insecticides: One-quarter ounce aldrin (actual), or three tablespoonfuls 40 per cent emulsifiable chlordane, or 4 tablespoonfuls 50 per cent emulsifiable toxaphene. Scatter this damp mixture on the surface of the garden thinly as though sowing grass seed, on a warm evening.

Red spider mites, although not insects, result in several inquiries every year. They can be indentified by their webbing on the underside of leaves, and by the mottling and greying of the foliage. Two new insecticides, Ovotran and Aramite (see Winnipeg Flower Garden 1952), if they are available, will usually give satisfactory control if directions are followed.

Slugs are also not insects, but appear to be increasing in numbers each year, and were particularly troublesome

during the wet summer and autumn of 1953. Most people detect them on sight, especially if they find them on their favourite lettuce. Destroy their hiding places by removing all boards, stones and other debris from the grounds. Use a prepared metaldehyde bait which can be purchased locally, and follow directions on the package.

Members of the Department of Entomology, The University of Manitoba, Winnipeg, are always pleased to answer inquiries. Better service can be rendered if a sample of the insect, and in some cases the host, are sent in with the request for information.

Annuals for Your Garden

Wm. EMERSON

Gardener, Government House, Winnipeg, Man.

Much has been written about annuals, and much more can be written about them, as these are the most useful type of plants for the gardener. No class of plants is more diversified in size (from a few inches to four or five feet) and colour (all colours of the rainbow).

There is no place on the continent that annuals grow so well, and that their colours are so bright as they are in the West, especially Manitoba. They can be combined with all other classes of garden plants. They fit in well with shrubbery, water gardens, rockeries and perennials, and are very useful in edging the vegetable garden, borders, and hiding unsightly objects.

In this article, we will divide them into two groups; those that can be sown directly outside, and those that require prestarting prior to being set out.

It is not necessary to have a greenhouse or facilities for starting annuals inside the home as many of our more popular annuals can be started right where they are to flower at a cost of a few cents, so there is no reason why everyone cannot enjoy a flower garden.

One of the main items in good gardening is good digging, preferably deep and rough in the fall, so that the frost will break the soil down into a good seed bed for spring sowing. All that is necessary in spring is to rake the plot level.

Annuals should be sown outside as soon as the soil is workable in the Spring. Annual Larkspur should be sown as early as possible, while Zinnias should be sown later. Zinnias will not germinate while the soil is cold. They need a temperature of 65° to 70° to germinate properly. I find that around the 24th of May to the 10th of June is the best time to sow Zinnias. Some annuals, such as Calendula (Pot or Scotch Marigold), and Cosmos, can be sown outside in the fall. Pansies also do well with fall sowing. These fall sowings should be made late in the fall, so that there is no danger of germination before freeze-up. If they germinate before freeze-up they will winter kill. They are sown the same as spring sowing but will benefit from a covering of brush to hold a good snow cover to protect them from drying out during the winter. However, if mice are very prevalent, they may make off with the seed.

When sowing annuals outside, a shallow trench should be made with a pointed stick, trowel, or some other tool. If the soil is dry, a thorough soaking with water is necessary.

The best way to do this is to fill your trench with water and let it soak in, sow the seed in the moistened trench, and then carefully draw the dry soil over the seed, firming with the back of the rake. Care must be taken not to sow the seed too deep. Large seeded plants can be sown deeper than the finer seeded plants. The rule to follow for proper seeding is to plant the seed at four times the depth of its diameter.

The same procedure is followed in sowing annuals in beds or borders, except that rows will be quite short and in some cases they will be sown in spots or patches. These will be marked with a marker. Sunflowers or other large plants are better sown in spots in backgrounds of borders. These rows and spots will of course correspond to the shape of your bed or border or the layout which you have planned.

When the seed has germinated and shows its true leaves, the plants are thinned out to an inch apart. As they develop, they are again thinned out until they are eight to twelve inches apart, depending on the size of the plant at maturity. In any areas in which the seed has not germinated, plants can be transplanted from more thickly populated spots. Great care must be taken in doing this. Lift the plant to be transplanted with a trowel, taking as much soil with the plant as possible, placing it in a prepared hole and firming the soil around the roots. A good watering and some shade from the hot sun and they will be well on their way. It is a good help if one of the water soluble plant foods is used with the water. By following manufacturer's directions these plant foods help overcome the shock of transplanting.

A general list of annuals for outside sowing are: Balsam, Calendula, Candy Tuft, Centaurea or Cornflower, Clarkia, Godetia, Annual Gypsophia, Sunflower (Sungold, the double one is good), Lavatera, Linaria, Mignonette, Annual Larkspur, Nasturtium, Nigella, Phlox Drummondi, Portulaca, Sweet Peas, Salpiglossis, and Zinnias. Zinnias with their wide range of sizes from low creeping types to large three footers, and colors ranging from pastels to vivid shades, will provide a whole garden in themselves.

Seven of the best annuals for outside sowing are: Calendula, Candy Tuft, Cornflowers, Annual Larkspur, Nasturtium, Portulaca and Zinnias.

Most of the plants which require pre-starting are perennials which we treat as annuals. Pre-starting provides us with earlier flowers and an easier means of plant arrangement. Anyone with a sunporch or a sunny window can start a few plants, sowing them in pots or small boxes, and transplanting them later in the spring to larger boxes. Some experimenting may be necessary as to the best time of sowing, due to the variance of home temperatures and conditions.

A cold frame can be used and will enable one to grow more and better plants. The cold frame can be made with a few boards for the framework and the storm windows from the house as sash. A coal oil lamp or electric light bulb placed in the frame, and a covering of blankets or sacking, etc., will help in the event of a heavy frost. Also, if the location is suitable, the frame may be placed over an open cellar window which will supply heat from the basement, and will enable the grower to attend his frames without going outdoors.

Good commercial growers have most of the better and newer plant novelties on their stands. One should choose the sturdier plants which are not in flower in preference to those that are.

Among the annuals which require starting inside are: Snaps, Celosia, Petunias, Asters, Stocks, Nicotine, Marigolds, Alyssum, and Cleome or spider plants. Cleome germinates best in direct sun without glass or paper covers. It seems to like alternate drying and soaking until germination, but at all times care must be taken that you do not overwater.

If a gardener will keep a small diary of times and kinds of plants he sows or plants each year, it will help him to time his sowings and plantings to his particular circumstances and locations.

RELAX IN JULY

Since July is the month for relaxing and enjoying your garden, you will want to hold work to a minimum — and spend more time in the hammock! Maybe these pointers will help to put a minimum on the minimum of work.

For the area of 1,000 square feet, approximately 80 cubic feet or 600 gallons of water are necessary to equal one inch of rainfall. With this information you can sit in the cool basement with an eye on the water meter while the hose is running.

As you stroll languidly about the yard, exert yourself to the extent of picking off all flower spikes that have finished blooming. This slight effort will prevent seed formation and encourage more blooms. With hardy phlox, this is particularly important because volunteer seedlings will fill next year's garden with blooms of a sickly magenta shade.

Don't bother to prune tomatoes to a single stake unless you are short of space. It is time consuming, reduces yield and besides the sun is too hot for all but the most pressing activities.

Old kitchen knives and grass stained knees are no longer the trade marks of the lawn weeder. Instead, he just sprays the weeds away with a 2,4-D preparation.

Admittedly, garden weeding is a chore, so don't try to pull the weeds nor dig them up bodily with the hoe; merely

snip them off just beneath the surface of the soil. It is easier to make frequent trips about the garden to nip the small weeds than it is to postpone the job and wind up with a truly laborious session.

Scatter a few handfuls of complete plant food among your tomatoes, peppers, eggplant and corn, while you are walking about admiring them. They will appreciate this little booster, especially if you have a very sandy soil and have had lots of rainfall.

Pick no more asparagus after July 1st. The plants need to put out some vegetative growth — the "factory" which prepares, then stores the makings of next year's crop in the roots.

Give your roses their last feeding of the season — one heaping tablespoonful per plant. If you have a grass catcher on your mower, empty the clippings around the bushes as an insulating mulch. Set the mower high — it will be better for the grass — and easier to push!

A Rose Jar

GLADYS MATCHETT

The following directions assure the successful making of one's own rose jar or pot pourri. Some years ago, my mother made several rose jars. The perfume is still fresh and fragrant.

Toss dry rose petals lightly on a table in a cool, airy place, and leave the petals exposed for 24 hours (or until dry).

Next, place the petals in a large glass jar. Sprinkle salt lightly over ½-inch layers of the petals. Too much salt makes the mass soggy. This caution is very important. It is best not to rush the process. Even a few damp leaves added to the collection will result in mold collecting with the resultant loss of all the gathered leaves. Add petals to this until enough petals have been gathered, letting them stand in the jar for 10 days after the last are put in, and stirring the whole every morning.

Have ready: ½ oz. allspice
¼ oz. mace
½ oz. cloves — the above all coarsely ground
½ a grated nutmeg
½ oz. cinnamon, broken into bits
½ lb. powdered orris root
¼ lb. dried lavender flowers

Mix these together in a bowl, and fill the rose jar with alternate layers of the "stock" and the mixture of the spices. A few drops each of several essential oils (rose, geranium, bitter almonds and orange are good) should be dropped on the layers as you progress, and over the whole, pour 1 oz. of your favorite toilet water or eau de cologne, and close the jar.

When the mixture has stood for some time, it may be divided into several jars, and kept tightly closed. After sufficient time to permit blending, the jars may be opened for short periods to provide a delightful aroma in any room.

The result is well worth the time and effort.

Construction of Ornamental Pools

W. A. MILDREN, S.E.I.C.

One of the primary considerations in the construction of a pond or pool, is its location with relation to permeability of the soil and drainage away from the pool edges. For the most economical construction the bottom of the pool is of well tamped earth which must be of an impervious nature, or preponderantly clay. If the pool is situated in a low spot, any appreciable rain will cause draining water to run into the pool carrying debris with it, thus necessitating frequent cleaning. From these factors it can be seen why a raised, well-drained area of impervious soil is most suitable for pool construction, when the pool bottom is of tamped earth.

Although the floor of the pool many be of earth, the sides must be of a more durable material, the one most commonly used being concrete, the forming and pouring of which presents no great difficulty to the handy man. A circular shape offers the greatest strength against the pressure due to expansion of the earth behind the walls and as this stress is compressive, plain concrete of a suitable thickness may be used although it is wise to include a layer of steel mesh, placed vertically, or small diameter rods, placed horizontally and vertically, in the walls to take care of any unforseen stresses. For shapes other than the circular, the use of steel in the walls is definitely advisable, as shapes such as the square and rectangle produce some tension in the concrete walls. There will be a greater pressure exerted at the middle point of each side, thus requiring a greater thickness of concrete there or the placing of proportionately more steel to take care of these stresses. At the corners steel should be placed to resists shearing action or unsightly cracks may develop, causing leakage and the eventual breaking down of the structure unless frequent patching is resorted to. Oval shapes offer good strength characteristics but are somewhat more difficult to form, however, as this shape is usually very pleasing to the eye, it may well be worth the extra time and trouble.

The disadvantages of an earthen floor are: leakage, liability to disturbance, and muddiness of the contained water. The amount of leakage will depend upon the state of saturation of the surrounding soil, being more in a dry year, and less when the soil has been saturated by rains or melting snows. Swelling of the undersoil may destroy the smoothness and well-tamped condition of the pool floor, necessitating

raking and retamping when the pool is drained, or just before filling, at the start of the summer season. Mud can be stirred up by wind action, birds, or root growth of plants in the pool, hence giving the pool a murky appearance, and if it is desired to keep fish in the pool, muddiness may be a detriment.

To overcome the disadvantages of an earthen floor, the whole pool may be constructed of concrete, suitably reinforced. A pool of this nature is somewhat higher in cost but is more durable and much easier to maintain. For a small garden pool the difference in cost between an earthen floor and one of concrete is a few dollars, and well worth the extra expenditure.

When constructing a pool entirely of concrete, the most practical shape is a shallow bowl or deep saucer. This shape has the advantages of strength, ability to move as a unit with any displacement of the under-soil due to swelling or shrinking, and if ice collects in the pool the concave shape allows the expansion to take place in an upward direction lessening the direct stresses against the concrete. To construct a pool of this shape, the earth is first excavated to the desired depth and shape, allowing in the depth for a layer of crushed stone or gravel, at least 4 inches thick. Over this gravel bed a mat of steel mesh is placed and positioned by means of stones or pieces of concrete so that it is at least 2 inches above the gravel. A mesh of 3/16 inch wire made up in 4-inch or 6-inch squares should prove adequate for the type of pool under construction. Next, a concrete of good workable consistency should be poured over and around the steel mesh spreading uniformly over the gravel bed. A minimum thickness of concrete of 5 inches is deemed advisable. The final operation, before the concrete has stiffened, is the smoothing of the concave surface with a large trowel. Careful placing and trowelling of the cement mixture should give a smooth surface which will be easy to keep clean. The edges of the pool can be made level with the surrounding terrain and hidden by the careful placing of stones or rocks to give a natural effect. It must be born in mind that such items as the stubs of drain, overflow, and water supply piping must be put in place before the concrete is poured and precautions taken in order that no concrete shall enter and block these pipes. A pool constructed according to the data given in this paragraph can be seen at the entrance of the International Friendship Garden at Assiniboine Park in Winnipeg. The pool is part of the setting for the statue known as the "Boy with the Boot." Where the bottom of the pool and the walls meet at, or close to a right angle, there must be an anchoring of wall steel in the floor, and floor steel in the walls, to prevent separation along the seams.

A method of filling and draining is another consideration of some importance. When a pool is small it may be filled by bucket or hose and emptied by bailing out the water or by using a small hand pump. This is the most economical method, but, in a number of cases, particularly with larger pools, it may prove arduous and impractical. For the added expenditure required to construct a drain from the pool, most of the objections to the first mentioned method are removed. A 2-inch or 3-inch drain should prove adequate and the pipe should be laid with a good grade away from the pool to a sewer, or point where water will not stand or cause damage or inconvenience. The proximity of a body of running water lends itself, excellently, as a receiver for drain water, but this may occur in only a few instances. Draining the water over a flower bed or lawn is sometimes resorted to, but, if the pool is drained frequently, certain areas of the bed or lawn may become very soggy, particularly if the soil is already water-logged as after rains. Conduction of the drain water to a sewer line is the most desirable solution, but, in climates where sewers are necessarily laid some feet below the ground level to escape frost action, excavation costs may be prohibitively high. To lessen the cost, the pipe could be laid close to the surface most of the way and the connection to the sewer made in one sudden drop with a trap between the sewer and the pool line. In this way the required excavation is a relatively shallow trench, with a deep hole at the sewer connecting point. It must be borne in mind that whenever a pipe is laid close to the surface in cold climates, it must be blown free of water, before frost, and the surface opening plugged to prevent molten snow entering the pipe, refreezing, and causing possible fracture of the pipe.

It has already been mentioned that pools may be filled by means of a hose, and as most homes have outlets for a garden hose, filling becomes a relatively simple matter. Where it is desired to have a constant flow, particularly where pressure to operate fountains is required, pumping devices must be resorted to. In cases where economy of water usage is to be considered, a tank or large barrel may be utilized as a reservoir, from which water is drawn by a pump, and returned to it by way of the pool. With this method, the same water can be used over and over again with the only additions required being those necessary to make up for evaporation and kindred losses. When a large body of water is close at hand the pump can draw from this source and drainage can be returned to it. Where water is supplied from a household surface and wasted to the sewer through the overflow, a control valve should be placed inside the house, in order to regulate flow and act as a turn-off when the pool is not in use, and as a protection against frost. If a fountain or spray

effect is desired, the inlet pipe will need to be placed at, or close to the centre of the pool, but, in other cases the inlet can be placed just under the rim, opposite to the overflow.

When the water is pumped the cost of maintaining the pool is proportionately higher, due to care of pumping equipment, fuel, or power requirements and the necessity of housing the pumping installation in order to protect it from the weather. A relief system should also be incorporated in the pumping set-up in order to prevent damage to the pump if there should be a stoppage somewhere in the line. Pumping, and pumping techniques, is a complete subject in itself, and it is regretted that space does not allow for a more thorough treatise of this subject.

The foregoing article is intended as a guide to those who may be intending to beautify their gardens by the addition of a pool and it is sincerely hoped that the information contained will be of assistance.

"Lime-Induced Chlorosis"

R. A. HEDLIN

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In Manitoba, a deficiency known as "lime-induced chlorosis" is a common problem with plants such as mountain ash, rose bushes, raspberries, strawberries, and crabapples. Due to the high lime content of our soils, iron and manganese, although they are usually present in adequate amounts, are not available to some species of plants in sufficient quantities. The first sign of deficiency is a yellowing of the newer or upper leaves of the affected plants. Characteristically, the veins remain green while the interveinal tissue turns yellow. With increasing severity all the leaves of the plant may be affected and the more severely affected leaves may turn almost white, then shrivel up and die. In extreme cases, death of the plant may result.

This deficiency can be overcome by adding compounds to the soil which will make the soil acid or by supplying the plant with iron in the form of ferrous sulphate. The more important methods for doing these things are outlined below.

1. **Adding powdered sulphur to the soil.** Sulphur should be added at the rate of one to two pounds per 100 square feet and worked into the top six inches of soil. The sulphur gradually increases the acidity of the soil, thereby increasing the solubility of iron and manganese. This type of treatment is most effective for shallow rooted plants. The treatment may need to be repeated after two or three years.

2. **Adding acid peat to the soil.** Soil acidity can be temporarily increased by mixing one part of acid peat with two parts of soil. This is a common practice where plants which are susceptible to "lime-induced chlorosis" are being grown in pots or flats. It can also be used to temporarily reduce the danger of "lime-induced chlorosis" when small trees or shrubs are being transplanted.

3. **Making pocket or nest applications of ferrous sulphate near the feeding roots.** This is frequently used to control "lime-induced chlorosis" in trees or shrubs. Ferrous sulphate should be applied in the following manner:

(a) Using an auger, make five or six holes one to two

feet in depth and one to two feet from the base of the tree or shrub.

(b) Place a few ounces of ferrous sulphate into each hole — one to two pounds per tree or shrub depending on the size.

(c) Water the tree or shrub well.

The effectiveness of this method depends on placing the ferrous sulphate near to the feeding roots. If excess ferrous sulphate is used the leaves may be severely burned. In the experience of the author, the damage is always temporary. In fact, some of the most effective treatments often result where the leaves were burned following the application of ferrous sulphate. Where a successful application has been made, the benefits often last for several years.

4. **Spraying the plants with a dilute solution of ferrous** sulphate. The solution is prepared by dissolving about one ounce of ferrous sulphate in a gallon of water. This should be applied as a fine spray taking care to cover all the leaves. Excess spray should be avoided as it may result in burning of the leaves. Where experience indicates that chlorosis is likely to occur, it is well to spray the plants early in the season. Spraying may need to be repeated once or twice during the summer.

Early Flowering for Mums

Mums are classed as "short day" plants, which means that they are induced to set buds and flower by the reduction of daylight hours, regardless of what season it is done. In other words, reducing light out of season for several consecutive days with black cloth has the same effect that the natural cutting down in the fall has.

The Modern Way of Decorating with House Plants

ROSE GLESBY, Ballerina Flower Shop

Gone are the days when Grandmother filled her windows with plants of every sort that she could get her hands on, planted in any tin can that she could find.

Yes, gone are the days when Mother didn't want to bother with any plants, because of the mess and clutter on her window sills.

Now, we have the daughter who is much wiser and who has found the happy medium; she uses plants in the modern way, in lovely china or copper containers where a corner or nook needs to be brightened. She knows that the right plants in the right places make the room alive with warmth and hospitality and where a stranger immediately feels at ease. We also find that restaurants, hotels, theatres and other business places have discovered this. They decorate with suitable live plants, and find that more people frequent their establishments.

For example, our modern homes have picture windows, what better place could you find to build a well in the floor under the window, and fill it with plants where you can have a tropical summer the whole year round. If building a well is too expensive, then a plywood box suitably painted to match the room and furnishings, with a copper liner recessed into it will do the trick.

You can divide your rooms with a trellis or glass blocks reaching to the ceiling. Suitable plants can be grown to give the desired effect here.

Filling your plant container is important. Start with the drainage material which is a layer of broken pots, gravel or stone. Remember to put in a thin layer of charcoal to keep your soil sweet, then a good mixture of manure soil and sand and never, at anytime, overwater your plants. No matter how amateurish you are, you will be able to grow lovely plants.

Put sun-loving plants in windows facing south and shade-loving plants in windows facing north. For northern exposures, halls and other places where you don't get much sunlight, the best plants to grow are these:—

Philodendron
Pothos
Nephytis
Chinese Evergreens
Pepperomia
Pilia
African Violets
Begonias
Cyclamen

and other suitable flowering plants.

In the southern exposures where there is a lot of sun these plants will thrive:—

Cacti—
in all varieties
Succulents
Sanseverias
Marantha
Aspidistra
Jade Plant
Geraniums
Coleus
Amaryllis
Forced Bulbs
Gardenias
Camellias

One must keep in mind when arranging plants inside the picture window, that the plants on both side of glass, inside and outside, must blend and harmonize for the best and most pleasing effect.

Caring for plants is like caring for children, too much attention will spoil them, and neglect will kill them. The right amount of care at the right time will make them thrive.

Yes, the daughter has gone a long way in getting the most out of her plants, I wonder what the grandaughter will do?

Hardy Lilies for Prairie Gardens

A. J. PORTER

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Until quite recently, our choice of hardy lilies that were easy and reliable in this climate was limited to the Tiger lily and Coral lily in the turkscap type, and the Hollandicum (Umbellatum), Elegans and Dauricum in the upright or cup shaped lilies. Now, hundreds of new hybrids are being produced here in Canada, in the U.S.A., and by lily breeders all over the world. Many of these sorts, though not all, are likely to be well worth trying here.

These new lilies will be roughly grouped into four classes for the purpose of this article: 1. The trumpet lilies; 2. the Aurelian hybrids and other hybrids of L. henryi; 3. the L. wilmottiae or davidi hybrids; and 4. the L. tigrinum hybrids.

Taking the trumpet lilies first, which in milder climates are the most important single group of lilies, we must proceed cautiously with them under our conditions. In general, they have insufficient winter hardiness for our northern prairie region. L. regale has long been considered the hardiest of the group. It will winter here under favorable conditions, usually where snow comes early and is deep enough to prevent very low soil temperatures. Recently, both the Morden Station and Dr. Frank Skinner, of Dropmore, Man., report having strains of L. centifolium that are more reliably hardy than the Regale lily. These are probably the hardiest trumpet lilies in existence and should not be confused with strains of L. centifolium and L. cent. hybrids originating in milder climates. We hope that both Mr. Skinner and Morden will soon give their strains apropriate names to distiguish them. There are now being produced in easier climates trumpet lilies in shades of pink, yellow, wine, and chartreuse. No doubt, such colors will eventually be bred into these hardier strains. Mr. Skinner already reports progress in this direction in hybrids between L. centifolium and L. henryi.

The second group of hybrids which have recently received a great deal of publicity are a product of crosses between L. henryi and various trumpet lily species. Many of these are known as Aurelian hybrids, having descended from a cross made by M. Debras, of Orleans, France. (Aurelium was the old Roman name for the city). Henryi is a tall turkscap lily from China usually of a soft orange yellow shade. There is also a pale lemon yellow form. This lily is hardy

here on the prairies but blooms so late that only in favorable seasons does one have the pleasure of enjoying its beauty. The hybrids are worth all the praise they have received, but the gardener here had better think of them as a gamble when he reads the attractive descriptions in American magazines. Maybe some of these hybrids will have the winter hardiness of L. henryi, most of them probably won't. Some will bloom early enough to be of value here, many will be too late. As they are now coming forward in dozens of named sorts and strains, better leave them alone unless you are prepared for numerous disappointments.

The next group, and at the present time the most important to us in cold climates, is the Wilmottiae group of hybrids. L. wilmottiae is a form of L. davidi found in China which is very hardy and very floriferous. It is somewhat like a smaller edition of the tiger lily, blooming much earlier. The color is orange red without the pink tone present in tiger lilies. The first important group of these hybrids to be introduced were the Stenographer hybrids from the Central Exp. Farm, Ottawa. Raised by Miss Isabella Preston from a cross between L. wilmottiae and L. dauricum, they were intermediate in form between the two parents. Some half dozen were named and introduced. Edna Kean gave us a new color, a rich cherry red. The others were all in shades of golden orange to orange red, all good hardy attractive lilies. Brenda Watts is the most vigorous of the group, quickly making a large clump, with soft orange red blooms. Later generations from this cross produced a wider range of form and color. Two good yellows appeared, Coronation and Sovereign. A number of other good ones were named after the fighter aircraft during the war, such as Hurricane, Spitfire, and Lysander. These three are upright facing lilies with more or less of the grace of the wilmottiae parent.

Varieties Developed on the Prairies

Further work with L. wilmottiae was done by Dr. Skinner. He can be regarded as the man who first made lily growing interesting and popular on the prairies. He has introduced a number of fine varieties, all of which are easy to grow in any good garden soil. Some of his introductions descended from L. wilmottiae are Maxwill, Scottiae, Dunkirk (good dark red), and Lemon Lady (a vigorous lemon yellow). Other hybrid lilies from Dr. Skinner, though not of wilmottiae breeding, are The Duchess, a large side facing golden yellow L. amabile luteum cross; Helen Carroll, a fine large orange yellow selection of L. elegans, and Margaret Johnson, a hybrid of L. tigrinum. Mr. Skinner has a number of new selections not yet introduced that are sure to be of great value.

Mr. Percy H. Wright, of Moose Range and Sutherland, Sask., has given us some of the darkest reds yet seen in these Wilmottiae hybrids, such as Nubian and Abyssinian. He, too, has many other good ones coming along.

Dr. Patterson, in charge of the Dept. of Horticulture at the University in Saskatoon, has broken new ground by combining Wilmottiae with still another Chinese species, the delicate lilac pink L. cernuum, and also added a touch of L. tigrinum blood. This has given us a whole new series of varieties in shades of rose with various amounts of coppery orange, two good hardy white lilies, and an excellent lemon yellow. All so far introduced are pendant or side facing in form, with more or less reflexing of the petals. White Gold and White Princess can be regarded as the two hardiest white lilies obtainable. They are a pleasing creamy white in tone and are a distinct break in this class of lily. Edith Cecilia is a remarkably beautiful pale creamy pink lily with up to forty flowers on a stem. The most vigorous grower of the lot is Rose Queen, reaching a height of six feet or more under favorable conditions. Pink Charm is a lovely shade of pink, the nearest to a true pink so far. Rose Dawn, Burnished Rose, and Jasper are all excellent lilies, named according to their coloring. Dr. Patterson has also introduced a good L. wilmottiae X L. elegans cross named Apricot Glow. It resembles Mr. Skinner's Scottiae in habit but is larger and more vigorous in every way, the individual flowers sometimes measuring as much as seven inches across. All these lilies are growing in the open field on the University land at Saskatoon and there can be little doubt of their hardiness and adaptability to prairie conditions. Such growing conditions have led Dr. Patterson to select for naming only those sorts that have sturdy stems able to stand up to our prairie winds. One exception to this may be Lemon Queen, a very lovely lily whose more slender and graceful stem may need some support in exposed locations.

Tigrinum Hybrids

Although not yet very widely grown, these hybrids of the familiar Tiger Lily promise to be just as important to us here as the L. wilmottiae hybrids. They combine vigor, hardiness, ease of propagation with many new color shades and forms of flower and flower spike. Most are just as easy and adaptable as the tiger lily itself and bloom earlier. One has already been mentioned, Mr. Skinner's Margaret Johnson. This resembles the ordinary tiger lily in color but has upward facing blooms. Mr. J. C. Taylor, of the Guelph, Ont., Agricultural College, has combined the tiger lily with L. amabile to give us a very brilliantly colored hybrid named Cardinal. Dr. E. F. Palmer, of the Vineland Exp. Station, has given us

Viking, Valiant, and Redbird in this group, all easily grown, vigorous lilies. Perhaps the most outstanding contribution has come from Jan de Graaf, the famous Oregon lily breeder. He crossed tigrinum with the upward facing Hollandicum lilies and has given us nearly twenty new named sorts in various shades of color, and in form from side-facing to upright. These can all be expected to be hardy here and should soon be available to us in Canada. Space will not permit descriptions of them here but they are already to be found in most U.S. lily catalogs, and, as they become available, will no doubt be described in Canadian lists.

We should mention here, too, the work done by Mr. De Graaf with the elegans and hollandicum varieties of lilies. Elegans is the name given to a group of hybrids developed in Japan. Their origin has been lost but they are thought to be descended from crosses between L. dauricum and L. concolor. These were taken to Holland during the past couple of centuries, where they were crossed with the European upright lily, L. bulbiferum, giving us the group of hybrids formerly known as umbellatums, now called hollandicum. Mr. de Graaf has taken these, and by raising acres of seedlings, doing much crossing and painstaking selection, has purified the colors and improved the texture and form of the flowers. His Golden Chalice strain is a selection of yellows in various shades that come nearly true from seed. The Rainbow hybrids contain the best of the remainder in various colors in reds, oranges, apricots, golden yellows, and salmon tones. A lot of a dozen bulbs will give many interesting variations.

Hybrids with our Prairie Lily

Our native lily, L. philadelphicum, is being used to some extent by hybridizers. One of the most beautiful of the upright lilies, it has not been very successful as a garden subject. Its hybrids are proving much more adaptable. Mr. Skinner has succeeded in crossing it with L. dauricum, and has named a number of seedlings, including Azalia, Glow and Skinner's Orange. These are all upright facing, with large heads of bloom, up to twenty or more flowers in some cases, on established plants. Mr. J. C. Taylor crossed it with the Coral lily to give us Goldcrest, a good orange yellow, pendant lily with no spots. He also crossed it with L. amabile luteum and named one of this cross Waxwing. Waxwing resembles Dr. Skinner's The Duchess very much but is a more vigorous and taller growing plant.

Species Lilies

With all these new hybrid lilies coming along we are apt to lose sight of the value of some of the species from which

they have developed. In most cases, the hybrids will not come true from seed so must be propagated vegetatively, which is a more expensive method. The species can be grown readily from seed, thus avoiding the transmitting of such diseases as mosaic, and insuring healthy, vigorous stock. An exception to this is the Tiger lily, which does not form seed under ordinary conditions. Four species of particular value to us here on account of their drought resistance and earliness are L. pumilum, L. amabile and its variety luteum, L. concolor, and L. dauricum. Pumilum is the species name for the well known Coral lily, that sweetly fragrant, early blooming turkscap. Besides the usual coral scarlet, there is a golden orange form known as Golden Gleam. Mr. Skinner has also selected a yellow he has named "Yellow Bunting." L. amabile, the Korean lily, is one of the most vividly colored lilies we have, being a particularly bright shade of red. The yellow form, still rather scarce, is a very desirable lily. Neither should be used as cut flowers, though, due to their rather unpleasant scent. L. concolor is a species that is not planted as widely as it should be. Its dainty upward facing star shaped blossoms are excellent for the rock garden and border and make good cut flowers. There is a good hybrid between this and the coral lily known as "Red Star." It is a true dwarf, seldom growing over a foot in height, vivid red, spotless flowers, considerably larger than the coral lily, and facing out. In many catalogs, it is listed as a variety of Coral lily. Dauricum is another up-facing lily, much like our own wild lily in shape but stronger growing and a better garden lily. It comes in several varieties, the commonest being an apricot red. Wilmottiae has already been mentioned. It is easily grown but has a weak stem and is inclined to wander underground before emerging in the spring. An improved form that has neither of these bad habits is L. wilmottiae unicolor. Many seedlings of the wilmottiae hybrids resemble the species but are much more vigorous and these seedlings should, perhaps, be planted in place of the true species when available. L. henryi has also been mentioned. Someone should grow a large number of seedlings of this species and select the early blooming ones for our conditions. L. Cernuum is a lovely lilac pink from China and Korea. It is sometimes called the pink coral lily, though quite distinct from that species. Like it, though, it tends to be short lived in some gardens but is just as easily raised from seed as the coral lily.

We have by no means exhausted the list of hardy lilies that can be grown here. The species lilies and a few of the older hybrids are fairly plentiful and reasonable in price. Many of the newer sorts are still scarce and rather more expensive. Good lily bulbs are an investment that will increase in value and beauty through the years. In purchasing

bulbs, avoid those that have been exposed and dried out on store counters. The lily does not go completely dormant as the tulip or gladiolus does, but should be kept packed in some moist material, preferably sphagnum moss, when out of the soil, just like any other herbaceous perennial. Buy them from a dealer or grower who cares for his bulbs in this way.

Just a word or two about planting: Choose a well drained spot. Lilies will not stand wet feet or flooding at any time, though they do require a fair amount of moisture during the growing season. If manure is used in the garden, do not allow it to come in contact with the bulbs or they may rot. We have found it good practice to place a little of the moss they come packed in, around the base of the bulb when planting. Plant with from three to five inches of soil over the bulb, depending on the size of the bulb. Some species, such as pumilum, have naturally rather small bulbs. Plant in the fall if possible to obtain bulbs at that time. Spring set bulbs will not make as vigorous a growth the first season, though we have had success with spring planting. Lilies start to grow very quickly in the spring and usually there is not more than a week after the frost is out during which they can be dug and handled safely at that time. If the sprout should be broken in handling, that bulb will not grow until the following spring. If these points are watched, then any gardener should have from ninety to a hundred per cent success with any of the lilies mentioned except those in groups one and two. One more warning: Avoid hoeing around the bulbs in the spring until the sprouts push through the ground, or disaster may result.

Wild Flower Protection

PROFESSOR C. W. LOWE

Formerly of the Dept. of Botany, University of Manitoba

The question of Wild Flower Protection is part of a much greater problem — the conservation of all our natural resources. Some of our resources are exhaustable; these are oil, coal, gas and minerals. Others, such as our plant and animal life are not so liable to disappear from the earth if they are wisely controlled and protected. The present great increase in the world's population and the rapid expansion of towns and cities are reducing considerably the area of the earth's surface which is capable of supporting our indigenous plant and animal life. There are many people who do not realize that every green leaf takes its quota of the poisonous carbon dioxide from the atmosphere and gives back the life-giving oxygen in its place. Plant life also is either the direct or indirect source of food for all animal life including man. With growing cities and diminishing fields and forests, it behoves us to protect all our forests, keep our fields green, and make the wisest use possible of all natural resources if future generations are to have the joys of outdoor life that we now have.

It has long been recognized that if our game birds, mammals, and fish are to continue to live and multiply so that future generations can enjoy them as we do now, then these creatures must be protected for months or even years at a time. If these forms of life, which have the power within themselves to flee from man, need protection, how much more is the need for our trees and small flowering plants to be protected? Just as some of our birds have become extinct in recent years and others threatened with extinction, so are some of our prettiest and most attractive flowers fast disappearing from our midst.

Since the end of World War One, the red prairie lily, the yellow lady's-slipper, the orchid, the puccoon and other flowers have almost entirely disappeared from around Sturgeon Creek and St. Charles. The pink showy lady's-slipper, once plentiful between the Red River and Gonor, is now quite rare. Birds Hill, twenty-five years ago, had a varied and interesting flora, but now only weeds flourish there. The beautiful fringed gentian and other lovely blue gentians are now difficult to find in many of the more settled parts of Manitoba. In many country areas, the farmers have plowed up every bit of land possible, until, in many townships, it is impossible to find even a few square yards of virgin prairie or woodland.

A few years before the second World War it was not an

uncommon sight in spring to see near the post office on Portage Ave. pails and baskets full of the showy pink lady's-slipper flowers offered for sale. As the leaves were always plucked with the flowers, the root-stocks of these plants were doomed to die. The Manitoba Natural History Society protested to the provincial government officials against this wholesale destruction of a non-too-common beautiful flower. Unfortunately, it was not expedient for the government to do anything to protect this flower.

Many States in the U.S.A. and some provinces in Canada have laws which protect many of their native flowers. Here, in British Columbia, it is illegal to pick the blossoms of the flowering dogwoods and the so-called Easter lilies without the permission of the owner of the land on which they grow.

The people should learn that some perennial flowers can be gathered if enough leaves are left to nourish the roots for the next season. This is easy to do in the case of the prairie anemone (prairie Crocus) where the flowers appear before the leaves. Plants with only a few leaves, as in many orchids, usually do not survive as the leaves are nearly always taken with the flowers. When flowers of the annuals are gathered, enough of the earliest blooms should be left in order to ensure a good supply of seeds for the next year. If all the flowers are taken that species is doomed. This has happened to the Gentians in many districts.

If we wish to save our lovely native plants, now is the time to act. Every farmer and land owner should be encouraged to leave a small strip or corner of their land to develop its natural vegetation in its own way. This will not only save many species but when shrubs and trees begin to grow they will give shelter and nesting sites for many birds which are beneficial to the farmer.

Let us save our heritage of plants and animal life by teaching the people its great value now, otherwise it will have to be protected by legislation and this may be too late for some of our most beautiful flowers.

Early Flowering and Late Flowering Perennials

D. R. ROBINSON

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Many flower borders present a beautiful display of color only during midsummer or for a period of about six weeks. The true flower lover, however, will not be satisfied with the pleasures of the garden for just a short while. He will search for those varieties and species which bloom either in early spring or during the autumn season. A careful selection of perennials which belong in one or other of these classes will add much to the flower border and will make it a source of delight from mid May until the end of September. The early flowering and little known bulbs, such as Squills, Grape Hyacinth and Tulip species can mean as much to the gardeners as do the peonies, delphiniums and other flowers of midsummer.

In addition to the Scillas or Squills and the Grape Hyacinth, already mentioned, the following May-flowering perennials deserve consideration: Crimean or Dwarf Iris (I. chamaeris or I. pumila), Ruthenian Fritillary, Darwin and Early Single Tulips, Mountain Anemone, Bleeding Heart, Draba and Temiscaming Phlox. When speaking of Tulip species we had in mind particularly T. tarda and T. kolpakowskyana. No doubt there are others equally good. Common garden pansy seed, if planted in June, will produce strong, vigorous plants by fall. If these plants are given a light covering before freeze-up, they will often winter over and produce an abundance of bloom in early May. By mixing some peat moss with the soil and watering occasionally, we have succeeded in growing the native Marsh Marigold at Saskatoon for several years. It blooms in late May.

With the coming of June, the choice of perennials widens and the flower border becomes truly colorful. Several species and varieties of Globeflower or Trollius are now available. These should be more widely grown. Outstanding at this season of the year are the German Irises in a wide range of colors. The dainty Siberian Iris should not be overlooked. Many people are acquainted with the leading varieties of July-flowering peonies but too few are growing the double red Fernleaf peony which blooms about June 10. Likewise, the single red and single pink forms of P. officinalis deserve

a place in the border because of their early flowering habit. Other perennials blooming at this time of year include Double Buttercup, Snowdrop Anemone, Creeping Gypsophila and Columbine.

Now, let us skip midsummer and take a look at the perennial border in late August and September. Perhaps, the most important addition to the autumn flower garden is the new group of hardy or semi-hardy Chrysanthemums. Because of their recent origin, not too much is known of the relative hardiness of the numerous named varieties. However, these outdoor 'mums should be widely tested to determine their suitability. With some varieties it may be necessary to dig them and keep indoors over winter. Other varieties will probably survive out-of-doors with a mulch covering. These new chrysanthemums are particularly valuable because of their ability to resist autumn frosts and to brighten up the border until early October. The Morden Pink and Dropmore Purple Lythrums add a bright touch of color to the perennial border in August and September. We understand that some new varieties of perennial asters will soon be available. Of those now offered by the nurserymen, the Pink Beauty is outstanding. Additional autumn flowering perennials are: Sneezeweed (H. autumnale), Wideleaf Sea-Lavender, Showy Coneflower, Caucasian Scabious and Golden Glow. There is much to be said for these hardy, autumn flowers which brave the early fall frosts; thus prolonging the joys of the garden for a few more weeks.

Fancy Leaved Caladiums

Since time immemorial bright, pleasing colors have attracted and appealed. But never was appreciation of bright colors so great as today, probably because their cheering effect was never so much needed. But the prime explanation for color interest is it attracts. The value of the colorful Caladium is immeasurably increased by the harmonius way in which their colors are combined. In no class of plants are they more pleasingly arrayed than in the stately subject of this sketch. But to develop all their color possibilities calls for attention to a balanced soil fertility, plenty of heat and when in full growth, lots of water. Attractively colored foliage plants, especially when in the form of pot plants, have an appeal that we must take advantage of. This applies particularly to the fancy leaved class of Caladiums because they are at their best during the summer months, when attractive pot plants are not only scarce but wanted, or called for.

The dormant tubers should be started in deep flats, filled with about equal parts of light sandy loam, peat moss and leaf mold, or any other organic material. Because their bulbs or tubers have some susceptibility to rot, steam the soil mixture before using. Also any indication of decay in the bulbs should be cut out before planting and the cut dusted with charcoal.

Since the roots start from the crown of the bulb, they should be planted upside down, pressing them about half way down into the soil. Water thoroughly and place in a warm house. Since these Caladiums are native to the Amazon tropics, it follows that they must necessarily have heat and lots of it. Anything in the 80's is all right, but they seem to enjoy more. This will promptly induce root formation that is indicated by the eyes swelling. During the inactive stage after planting, that tendency of the bulbs to decay is increased if kept wet. But don't let them get real dry, either. Watch these moisture points. If you haven't a warm house, place the flat on or near heating pipes. But if placed directly on such pipes they might get "stewed." Any temperature in the 80's is safe. As roots develop it should be indicated by the eyes swelling. In this stage the awakening bulbs should be carefully lifted and potted into 5 or 6 in., using about half or more of light sandy soil, the balance in peat and leaf mold. To this mixture add a full 3-in. pot full of 16% superphosphate to each 2 cubic ft. of soil. This soil mixture will or should test slightly acid. But always remember that these Caladiums are very much tropical, and that at all stages they must be kept warm, and when in full growth, wet and humid.

Amaryllis

Though they flower but once annually, appreciation of the improved Amaryllis of today is such that many thousands are sold every season, and when in flower they sell themselves. While their culture is simple, it must be understood and carried out. The Amaryllis rests during the winter. In this resting state the pots are laid on their side in a temperature of around 55-60° and they receive no water. Under a greenhouse bench is a good place for them. About February 1, their flowering spike will or should show signs of life. At this stage the pots should be set on a light bench of a 50° greenhouse and watered. The amateur can store them in a fairly warm basement, moving them to a light cool window. Keep them watered without overdoing it. The spike that is the first sign of life lengthens and flowers. After this stage they produce leaves, and from this point until October is their period of growth during which they must, of course, be watered.

After danger of spring frost is over, the best place for them is a cold frame. To assure greater uniformity of moisture with less attention, they should be plunged. We should prefer this plan to planting them out in the open as some do. To help along their development during this growing period, apply some weak liquid fertilizer containing largely nitrogen. After early October, they are gradually dried off and again placed in their resting or winter quarters. Amaryllis are tender and must not be exposed to frost. A 4 or 6 in. pot will carry them along for 4-5 seasons. They seem to resent being disturbed at the roots, which accounts for occasional lack of flowers the first year after potting or repotting. When a shift becomes necessary or if the bulblets are to be removed, the time to do so is immediately after flowering.

Some growers use an enriched top dressing after the plants have flowered and are well started into growth. Some of the old top soil is removed before doing so. Soil used should drain freely, therefore it should not be stiff or heavy. In potting, leave about 2/3 of the bulb above the soil.

Propagation is either through seed that forms readily if the flower is pollinated, or through bulblets. While the seed method is much faster, it usually results in a mixture of colors, the choicest of which can be used for building up one's stock. Seedlings usually flower the third season after sowing if they are grown on steadily without a rest. Sometimes they flower in two years from sowing. Plant them in flats 2-3 ins. apart and keep them going until they bloom. Propagation can also be done by scales, but this method is not so generally

used. Separating the offsets from the parent bulb, after they have made some size and roots, will insure offspring which are like the parent in all respects.

Amaryllis bulbs, if properly handled, will become 15-20 years old without deteriorating in either bulb or flower. Flowers are usually produced late winter or spring. Occasionally a flower will show up during their summer growing season, but this is not dependable.

List of Annuals

FOR CUT FLOWERS

Antirrhinum
Aster
Calendula
Centaurea
Clarkia
Larkspur
Marigold
Nasturtium
Salpiglossis
Scabiosa
Stocks
Sweet Peas
Zinnias

FOR PART SHADE

Centaurea
Clarkia
Lupin
Pansy
Viola

FOR FRAGRANCE

Alyssum
Candytuft
Matthiola
Mignonette
Nasturtium
Nicotiana
Petunia
Scabiosa
Stocks
Sweet Peas
Godetia

FOR DWARF EDGING

Ageratum
Alyssum
Lobelia
Marigold (Fr.)
Nemesia
Pansy
Portulaca
Viola
Virginia Stock
Zinnia
Tom Thumb

FOR POOR SOIL

Alyssum
Celosia
Cosmos
Nasturtium
Portulaca
Verbena
Clarkia

FOR DRY SOIL

Alyssum
Bartonia
Calliopsis
Candytuft
Centaurea
Cosmos
Helianthus
Marigold
Petunia
Portulaca
Scabiosa
Verbena

Keeping the Garden Healthy

1. Spray and dust with reliable insecticides as soon as there is the least suspicion that insect pests may be at hand. Do not give them a chance to get a foothold. "An ounce of prevention . . . " is a safe maxim to follow.

2. In fall, remove and burn all rubbish in the garden. Many insect eggs may thus be destroyed that would otherwise be harbored over winter.

3. If you have had unsatisfactory results because of certain plant diseases, try some of the new strains of flowers and vegetables that are resistant to disease. You will find many disease-resistant strains listed.

Some Gardening Hints

Do not roll lawn when very wet. This will cause soil to pack hard.

Old sinks are excellent for the making of miniature gardens, as they have, of course, an outlet for surplus water. Put old broken bricks or stones in the bottom of drainage.

Sponge the leaves of aspidistras and palms with tepid soapy water and syringe off with clear water.

By pinching out the tips of snapdragons you cause the plants to become bushy and it is possible to obtain plants of an even height.

Withhold water from tuberous-rooted begonias grown in pots after flowering. Dry off and store in a frost-proof place.

Transplanting

Proper methods in setting the young plants outdoors are just as important as good care while getting them started indoors.

1. It is a good plan to harden the young plants to outdoor conditions by setting the boxes outside in good weather for several days before transplanting.

2. Either choose a day that is cool and cloudy, or do the transplanting in the afternoon.

3. Water the plants well before disturbing them.

4. Avoid injury to the roots in taking up the plants, and, if possible, keep a ball of earth around them.

5. Water the soil before and after setting the plants. If the soil is very dry, partly fill each hole with water before setting the plants.

6. Firm the soil around the roots of the plants so that they can take hold securely.

7. The plans will get a quicker and better start if they are shaded from the direct rays of the sun for a few days after transplanting.

Plant Disease Control

B. PETURSON

Introduction

Plant diseases are among the more important hazards that beset growing plants and success in gardening depends to a considerable extent on effective disease control. The principal causes of plant diseases are fungi, bacteria, viruses, and improper environmental conditions. The present article deals with a few of the more important troubles due to the four disease causing agents named above.

Diseases Caused by Fungi and Bacteria

The fungi are a large group of very simple plants. They have no leaf green (chlorophyl) and hence cannot manufacture their own food as green plants do. They obtain their food from dead or living plant and animal tissue. The ones that live on dead material are called saprophytes while the ones that attack living material are called parasites. There are about 7,000 different kinds of fungi that are parasitic on plants. Fortunately, only a small percentage of these occur in any one area. Most, although not all, parasitic fungi are small and can be seen only with the aid of a magnifying lens or a microscope. Most of these parasites, with the exception of the true mildews (powdery mildews) enter the plants through wounds or by way of the breathing pores of the leaves and stems. Once inside the host, the parasite is safe from all ordinary dusts or sprays applied to the host plant. The powdery mildews, however, are surface parasites. The threads (mycelium) making up the main body of the mildew grow on the surface of the host plant and small feeding organs (haustoria) penetrate into the uppermost layers of host cells. The mildews are usually more readily controlled than the diseases caused by the fungi that live inside the host plants. Generally, fungi spread from plant to plant by means of small bodies called spores. These are usually produced in vast numbers and correspond to the seeds of higher plants. The spores are very small and hence readily carried by air currents. In regions such as ours, that experience severe winters, many plant parasites overwinter in the form of spores in the soil, in diseased plant parts that have not been destroyed, and on seeds, bulbs, corms, etc. Some parasitic fungi can live on dead plant material as well as on living plants and, consequently, can live in the soil for several years even in the absence of living host plants.

Bacteria are an even simpler form of plant life than the fungi. The bacteria are very small. About 200 of them, placed

end to end, would equal the thickness of the paper in this book. They are not readily spread by wind, but are carried from plant to plant, especially in wet weather, by humans, animals, insects, garden implements and the action of splashing rain. They usually enter plants through wounds. Many bacterial diseases are seed-borne. Upwards of 175 diseases are caused by bacteria. Some of these are very troublesome in Manitoba. Bacteria can live over winter in the soil and especially in dead plant parts. Control measures for a few of the more common diseases caused by fungi and bacteria are given below.

Damping-off of Seedlings. Damping-off, the death of young seedlings, is a very common trouble of most vegetable and ornamental crops. The seedlings are killed by soil fungi, chiefly **Pythium** and **Rhizoctonia.** These losses can be minimized by observing the following practices: (1) Treat all seeds with a good fungicide. (2) Plant in moist soil, cover with sand, and water as little as possible until seedlings emerge. (3) Give plants plenty of sunshine. (4) Keep plants at the optimum temperature for germination of seeds sown. (5) Avoid overcrowding of seedlings. (6) Sterilize soil by heating in an oven at 180° F. for half an hour after the centre of soil reaches this temperature. This treatment can be carried out without the use of a thermometer by setting the oven at 250° F. and leaving the soil in the oven for about two and a half hours. (7) Sterilization of soil by means of chemicals. For this purpose, commercial formalin is very good. The disease organisms in a small quantity of soil can be destroyed with formalin as follows: Moisten the soil until it is about right for planting seeds. Spread it out in a layer about two inches thick and sprinkle it with a solution made up of five tablespoons of commercial formalin (40% formaldehyde) in one pint of water. Then cover the treated soil with a moist cloth or moist newspaper for twenty-four hours. It is safe to sow seeds in the treated soil the day following treatment but the soil must be well watered when the seeds are sown. However, house plants must not be planted in formalin-treated soil until the formaldehyde odor has disappeared. One pint of the above described solution will treat about two bushels of soil. This treatment must be carried out outside to avoid the strong formalin odor. Arasan can be used safely as a seed dressing for all vegetable and flower seeds. Ceresan M mixed with powdered talc at the rate of one volume of Ceresan to two volumes of talc makes a good seed protectant for flower and vegetable seeds.

Powdery Mildews. A large number of crops, vegetables, fruits, and ornamentals are attacked by mildews. The mildews are easily recognized because they form a whitish fungous growth on the leaf surface. Powdery mildews are best controlled by applications of fine dusting sulphur.

Early and Late Blights of Celery. These diseases are of common occurrence. Both are caused by fungi and can be controlled by seed treatment and by spraying the plants with Bordeaux mixture several times during the season. The seed treatment consists of immersing the seed in hot water (118-120°C.) for thirty minutes. Another important control measure consists of destroying all infected plant material in the fall.

Bacterial Blights of Beans. Common blight and halo blight of beans are probably among the most prevalent vegetable diseases in Manitoba. They cannot be effectively controlled by sprays, dusts or seed treatments. The most effective control measure is use of disease free seed, which, however is not always easy to obtain. As the bacteria overwinter in plant debris and can live in the soil for a year or more, crop rotation and destruction of affected plant material are helpful. It is most important to keep out of the bean fields when the plants are wet.

Angular Leaf Spot. This disease is caused by a bacterial organism. It has been quite prevalent on cucumbers in Manitoba during the past two years. Water-soaked spots appear on the leaves, stems and fruits. On the leaves, the spots are tan coloured on the upper surface but gummy or shiny on the lower surface. These spots are angular in shape because they are bounded by the leaf veins. Sprays and dusts do not control this disease effectively. However, Bordeaux mixture and fixed copper dusts and sprays give partial control. The most effective control measures are as follows: (1) Crop rotation is essential because the causal organism lives in the soil in plant refuse for some time; (2) Destruction of infected crop refuse by fire; (3) Seed treatment to destroy the bacteria carried in the seed. There is no known way of destroying all the bacteria in the seed without injuring it. However, most of the bacteria can be killed by soaking the seed for from five to ten minutes in a 1/1000 solution of mercuric chloride (1 part mercuric chloride to 1000 parts of water). The seed should be rinsed in water immediately after treatment. When the seed has dried it should be treated with Arasan or some other good seed dressing.

VIRUS DISEASES

Virus diseases of plants are caused by a small infective principle, so small that it cannot be seen with any ordinary microscope. The viruses are active in living cells only. In spite of their small size, they can multiply very rapidly. Although they cannot increase in dead tissue, they can remain infective in dead plant parts for long periods of time. For example, the tobacco-mosaic virus can retain its viability in tobacco for many years. Virus diseases are usually not carried

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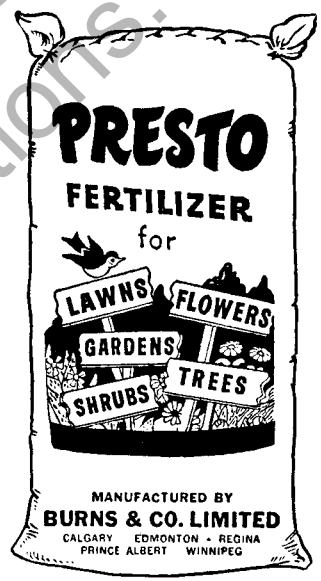

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in the true seed of plants. However, they are transmitted in propagative parts, such as buds, bulbs, corms, and tubers. In the field, some virus diseases are spread by contact as those of tobacco mosaic, and cucumber mosaic, while others, like aster yellows, and most of the virus diseases of potatoes, are spread by insects, chiefly aphids and leaf hoppers. Following are suggestions for control of certain specific virus diseases:

Virus Diseases of Potatoes. A number of virus diseases attack potatoes. The virus infection cannot be controlled by sprays or dusts. Rogueing in commercial fields is of no practical use and crop rotation has no value because potato viruses do not live in the soil. All potato viruses are carried in the tubers. Hence, to avoid them, one must not use tubers from virus infected crops for planting. The use of certified potatoes for seed tubers is the best way of avoiding virus diseases. It is extremely risky to use potatoes of unknown origin for planting. Certified potatoes are available to every one at a moderate cost. By using them, virus diseases, as well as many other important potato diseases, can be avoided.

Virus diseases of Tomatoes. Tomatoes are attacked by a number of viruses. They cause a mottling or yellowing of the leaves and in some cases, a brown streaking of the stem and brownish spotting of the fruits and leaves.

Common tomato mosaic is caused by the same virus that causes tobacco mosaic. This virus can live in cigarette, cigar, and pipe tobacco for many years and can be transmitted from the tobacco on the hands of smokers to tomato plants. It is very important to refrain from smoking when working with seedling tomatoes. Plants that do not become infected until nearing fruiting are not badly damaged.

Tomato plants that have been infected with the tomato mosaic (tobacco-mosaic virus) and then become infected with the X virus of potatoes, develop a very serious virus disease called double-virus streak. Plants thus affected, develop brown streaks in the stems and brown spots on the leaves and fruits. Double-virus streak infected plants set few fruits of poor quality. The X virus of potatoes is present in all the old potato varieties but does not seem to harm them appreciably. It can be transmitted to tomatoes by the hands of workers who have come in contact with growing potatoes in the field or have worked with potato tubers before handling tomatoes. Hands can be freed from the virus contamination by thorough washing with soapy water. The X virus of potatoes by itself does not appreciably damage tomatoes. This disease can be controlled fairly well by avoiding the handling of tobacco or potatoes before working with tomatoes.

Benefits of a Small Greenhouse

MABEL C. JILLETT

Briefly, the benefits of a small greenhouse may be listed under four headings:—

1. Saving of expense.
2. Earlier bloom.
3. Adequate supply of plants.
4. Congenial atmosphere for work.

The fall is the time to start preparations for next year's garden. See that small trowels, spades and other greenhouse hand tools are cleaned off, oiled, wrapped in paper and stored in a dry place to prevent rust. Clean off old wooden labels and repaint, unless you are fortunate enough to possess aluminum ones. Seeds may be gathered from one's own garden from perfect seed pods. If the supply of these is limited, be sure to buy selected seed from a reliable seed house as it pays to plant the best, and the cost of seeds is negligible when compared with the cost of young plants.

Get enough garden soil prepared for seed flats. This soil should be screened through a one-quarter inch wire sieve and mixed with equal parts of sharp sand and stored in the greenhouse.

Although the average gardener may have a small greenhouse, he does not heat it until about the middle of March, so he has no fond visions of producing thousands of beautiful Roses and Azaleas as they do in Medicine Hat where there are twenty-one acres under glass, therefore this little article applies only to amateurs.

About the middle of February is the time to start seeds of slow germination such as Lobelia Salvia, Verbena, Petunia and even a few Snapdragons. Either shallow bulb pots or shallow wooden boxes may be used. The latter may be made of any scrap lumber with spaces between boards in the bottom or with a few holes bored through them. A handy size is twelve inches long by nine inches wide by two inches deep. Place some coarse gravel or broken pottery in bottom of container for drainage and fill with soil mixture to within half an inch of the top and press down firmly. (Although this soil was mixed and stored in the fall, it should be baked in

the oven for twenty minutes at 250 degrees to kill any insects or bacteria, before being placed in the seed flats).

The best way to water is to submerge the pot or box in a pan of water to two-thirds of its depth. When moisture just begins to appear on the surface, remove container from water and allow to drain for an hour or two. Now for the seed planting, which should be even and **not too thick.** Better to have two or three small boxes of one variety, than to grow weak plants. Any good seed house can supply an adjustable seeder for either small or coarse seed, but even while using one of these, it is necessary to mix very small seeds, such as Lobelia and Petunia with very fine sand to insure even planting. The usual rule is to cover with soil about twice the diameter of the seed, and this top covering should be half fine soil and sand. A good screen to use for the purpose is a discarded flour sifter. Many of the finer seeds need only to be pressed into the soil and not covered at all except with some cloth or paper to keep them from drying out. Now is the time to label the containers and place them over heat. They may be placed on boards on the top of the furnace or radiator or on a table above a hot air register — any place where there is gentle underneath heat. Glass may be placed over them and paper on top of the glass, but the glass will need to be raised about one-quarter of an inch at one end to prevent mildew. The temperature should be about 70 degrees while the seeds are germinating and 45 to 60 degrees thereafter. As soon as a fair number of plants appear, the paper should be removed, and the containers placed in light for two or three days before exposing them to direct sunlight.

Watering young plants will need to be very carefully done, and should be from the top. A rubber bulb plant syringe is best, but a watering can with a very fine spray can be used all season to good advantage in the greenhouse. If available, use rainwater with the chill off it, and **do not** give too much or the young plants will damp off. They will also damp off if too thick in the seed box so should be carefully thinned by pulling and a very light sprinkling of sulphur applied.

When the plants are well established, it will be about the middle of March and time to heat the greenhouse. This should first be well brushed down and fumigated with burning sulphur. When it is warm and the shelves in place, the boxes and pots may be moved out, care being taken that they do not get chilled.

The remaining seeds may now be planted at intervals so that they will not be ready for transplanting at the same time, and the earlier plants will be fit to move to the cold frame and avoid overcrowding in the greenhouse. For example,

Marigolds need not be planted until about April 15, and Zinnias even later than that, the gardener always bearing in mind that seeds sown indoors produce bloom four to six weeks earlier than those sown outdoors.

Do not transplant until the first pair of true leaves have developed. The plant flats should be clean and of uniform size so they will fit well into allotted space — about 12 inches wide, 16 inches long and three inches deep is a convenient size. Have holes in the bottom or spaces between boards, and also a layer of coarse broken sod or other "rubble" for drainage. Have the soil mixture **well** mixed and screened through a one-half inch sieve all ready on the greenhouse bench. The mixture should be about two parts good soil, one part sand, one part leaf mold and thoroughly rotted manure with about a tablespoon of Vigoro allowed for each flat. Fill flat to the top with mixture and press down firmly with a board or flat steel. Have a pointed stick ready to make holes for the young plants and remove them very carefully so as not to disturb the root system. Transplant about one and a half inches apart and firm the soil around the roots. When the flat is filled, set into shallow water in a metal tray until moisture just appears on surface, then let flat drain and set away out of direct light for a couple of days, then move to bright light and see that plants do not dry out.

As in any greenhouse anywhere, a constant battle must be waged against pests and bacteria. There are many good insecticides on the market — some in powder form such as "End-o-pest" D.D.T., Nicotine Sulphate Spray, and the different fumers or bombs. The Era Tom is a strip of paper treated with Lindane and lighted with a match and is usually effective against white flies. Parathion bombs go into action against red spider and thrips. Arsenate of lead combined with Bordeaux mixture will control both insects and diseases. Then there is the old reliable Derris Dust which contains rotenone and is especially effective against aphids. The Green Cross products are also very good. There is a new product out this year, which is to be used as a liquid spray. It is called Malathion, and is highly recommended. It will probably be on the market within the next two or three months.

The ideal method of heating a greenhouse is by steam or hot water, but most of us cannot manage that and have to use a small coal heater and augment it at night with a portable electric heater. Next to steam heating, a small oil heater is best as it can be regulated and is dependable. The temperature of the greenhouse should be controlled if possible and not allowed to go above ninety degrees in the daytime, nor below fifty degrees at night.

When the plants are sufficiently well established in the flats, these should be transferred to a cold frame to be hardened off before setting in the open ground. If nights are cold, there should be an electric heater placed in the frame, the glasses fitted on tightly, and the whole covered with a canvas or heavy sacking.

The amateur gardener will derive a lot of pleasure and benefit, too, out of working in his little greenhouse. It is a pleasant bright spot, and there is such healing power in the "good earth" that he will never emerge with tense nerves, no matter what severe strain he has been under. He will also have the satisfaction of growing as many plants as he wishes and need not worry if a few are lost. Then there is the added pleasure of having bloom as early as he wishes and being sure of his varieties.

Climate Control by Planting

Planned planting of trees and shrubs may control climate on a good-sized lot by as much as 10 to 15 degrees, according to James I. E. Ilgenfritz, president of the American Association of Nurserymen. "By proper landscaping and planting, the COMFORT and LIVABILITY of the home and its surroundings can thus be INCREASED GREATLY," he said. "The home can be made COOLER IN SUMMER and WARMER IN WINTER and at the same time the home owner can SAVE on fuel bills."

Climatic conditions are not neat belts around the earth but vary a great deal even within a small space. Studies by Dr. H. E. Landsberg, executive director, Committee on Geophysics and Geography, U.S. Research and Development Board, show that the climate on a lot can be moderated to considerable extent by proper planting engineering. His conclusions are incorporated in the following digest.

Nine ways in which climate can be controlled to some extent by planting, according to Mr. Ilgenfritz are:

(1) By use of hedges of trees and shrubs as a **windbreak.** To heat an ordinary house, it requires twice as much fuel at a temperature of 32 degrees, and a wind of 12 miles per hour, than it does for the same temperature and a wind of 3 miles per hour. In fact, the fuel requirement is a little larger for the combination of 32 degrees and a 12 mile wind than it is for zero temperature and a 3 mile wind.

(2) By use of one or more trees close to the house to keep the roof cool, especially during hot summer afternoons. If the foliage of the tree shades the roof and the west wall, their temperature may be held down as much as 20 to 40 degrees. This helps to eliminate the well-known "attic furnace." Under extreme conditions in the hot sun, rooftop temperatures of 170 degrees have been recorded. By use of trees that shed their leaves, the house will get the fuel benefits of the sun in the winter when it needs it most.

(3) Even on a lot that only slopes slightly, protection from very early frosts can be obtained by hedges or other means to guide the coldest air away from vegetable or flower gardens. Early frosts travel close to the ground from the highest to the lowest point and settle at the lowest level. Sometimes this cold strata of air is no more than three inches above the ground.

(4) By building an outdoor living room around or near a tree close to the house to afford shade and to cool the ground during the day. This also helps to keep the ground tempera-

ture warmer on cool nights. Here is a typical case on a relatively cool afternoon in August: temperature at a height of 6 feet in the shade, 77 degrees; a concrete walk in the sun, 95 degrees; a roof, 110 degrees. Short grass in the sun had a temperature of 88 degrees.

(5) Use of walks and terraces with materials such as concrete laid in small squares, flagstone or brick, with grass growing between them will keep them cooler in summer and prevent overheating of the air directly above. Grass temperatures in the sun are cooler than a solid walk.

(6) Hedges will keep much of the heat of paved roads, streets, and sidewalks off the lot, filter out dust, and absorb noise. On the leeward side of a belt of trees, dust counts may be reduced by as much as 75 per cent.

(7) Strong winds will evaporate the moisture from the soil much faster than still air. Control of the winds by various planting devices will help to control the evaporation, and reduce the amount of water necessary.

(8) The sun rises in the northeast in summer and in the southeast in winter. By arrangement of plantings to take advantage of the sun's position at various times of the year, you can derive a greater measure of its advantages and at the same time, to a considerable extent, be relieved of its disadvantages.

I do the very best I can and I mean to keep on doing it until the end. If the end brings me out all right, what is said against me won't amount to anything, and if the end brings me out wrong, ten angels swearing I was right will make no difference.—Abraham Lincoln.

Raspberries & Strawberries for the Home Garden

ARNOLD FAST

Kleefeld, Manitoba

In planting raspberries first thought should be given to the location. A well sheltered spot with hedges or wind-breaks on the south and west sides is advisable, for protection from hot south winds and the cold north-west winds.

The chosen area to be planted to raspberries should be relatively free of weeds and grasses. A thorough summer-fallowing should be given the year before planting to ensure this and also to obtain a friable soil with reserve moisture. Raspberries will do well in most soils, but they prefer sandy loams rich in organic matter. As the raspberry patch is likely to stay ten to fifteen years, a heavy application of manure should be worked in before planting.

Now in regards to varieties, the Chief and Latham are the two most widely grown. Chief is hardier and is a fairly sure crop every year. However the fruit is somewhat smaller but of excellent quality. The Latham will not take our winters too well without covering or protection. The fruit is of good quality and larger bberries of dark red color. Now it is hard to say which variety will do best with you as the variety we consider best may not do well at all in other gardens as we have experienced.

In selecting your planting stock only young plants or suckers should be selected and these from disease free plants. Virus diseases in the parent plants will certainly be carried on to the young plants.

Spring planting is best as a rule and can be done as soon as your soil is workable and before canes have made too much growth. Once the leaves have reached any size, it is difficult to keep these canes growing. Care should be taken to keep roots moist. Upon arrival of plants, place them into a pail of water and plant as soon as possible. If however you are not ready for planting, place them in a trench and cover with moist soil. A cool cloudy day is ideal for planting or towards evening, which gives them a better start.

After the plants have been set about two inches deeper than they grew in the nursery, cut back the canes to about 6 to 8 inches from ground level. This is very important as it prevents most of the losses due to excessive top growth and fruiting the first season. A stronger root system will develop and a much better stand may be expected.

Rows should be 8 to 10 feet apart and plants in the row 2 to 3 feet apart. This wide row spacing allows for better cultivation and better plant development. Should you consider a bigger plantation, we find it best to have no more than four rows and then leave at least a 40 foot space and then again 4 rows. This allows for easier working when it comes to carrying away the trimmed out old canes every spring, especially when the rows are long. The lot between the raspberry plots is an ideal setting for your strawberries. The protection from the raspberry hedge helps keep snow on the strawberries.

Once the raspberry plants have developed into a solid row, trimming or training should not be neglected. Keep the rows narrow, from 18 inches at the base to not more than two feet and thin out the plants in the row to about 10 to 12 plants for every 2 feet of row. Excessive growth will result in smaller fruit and reduced yields. The tips may be "headed back" to advantage in spring. The tips are usually weak and produce very little fruit and absorb that which is needed by the healthy part of the plant. You can cut off about 1/5 of the length of the cane without fear of injury to the plant.

Soil moisture will be the deciding factor in obtaining a high yield and large berries. The fruit season is so short and if it happens to be dry and hot as it usually is around raspberry time, the yield may be disappointingly low. The yield will always be higher with irrigation.

In strawberry culture, the conditions required are more or less the same as in raspberry growing. First in importance is the location. A shelter belt is a must in the culture of strawberries. Without the shelter of trees or hedges, the strong winds cause undue evaporation of soil moisture. In winter time, the hedges serve as a snow trap to keep snow on the plants which is of great importance to the plants for survival of our cold winters.

In preparing your soil, a heavy application of manure should be applied and plowed down. We have tried to grow strawberries without this application and we did not get the high yields of properly prepared fields.

In selecting your variety for your home garden, you have the choice of the June bearing and the everbearing. Late spring frosts frequently kill the blossoms and consequently vary yields in spring. The everbearing again may be expected to yield a good crop of quality berries in fall.

In the everbearing varieties Gem is most commonly grown. The fruit is medium to large and very productive. Sparta is somewhat later but the fruit is much superior to the Gem, but not nearly comparing to the yield of the Gem.

Sparta has its place in the home garden but we would not consider it for commercial growing.

Newer varieties like the Red Rich and Brilliant deserve wider trials in Manitoba. The fruit of both varieties are very sweet and large. I believe the Brilliant will outyield the Red Rich, but here again conditions may vary and Red Rich may do better with you.

In the June bearing varieties the Dunlap, Glenheart and Glenmore are probably most widely grown. British Sovereign, a B.C. variety, will not do well in Manitoba and most likely will bear no fruit at all. It is always best to select your variety, that is grown under the same climatic conditions.

In planting have your rows four feet apart and the plants two to three feet apart. This should give you a well filled matted row by fall under normal conditions.

Plants sould be planted in spring as soon as your soil is workable. Late April is preferable to May planting.

In planting two persons work togather. A pointed spade is used for the planting. Push your spade down about 8 to 10 inches, then push your spade forward, and then the planter takes the plant and swishes the roots into the hole so that they fan out against the firm side of the hole. The spade is then withdrawn and with your heel press down the earth firmly around the plant so that no air can come down to the roots. This operation can be done in much quicker time than it takes to explain.

The depth of the plant is very important. If any part of the roots are exposed, the plant will not survive. Again, if they are set too deep, they smother. Many plants are lost due to improper planting. Plants should be set so that the middle of the crown is even with ground level.

Cultivation begins as soon as your planting is done. This will keep your soil friable and the runners as they develop have a better chance to take root. By all means do not allow any weeds the first year, as cultivation is not so easy the second year.

Flower stalks should be removed as they appear. If allowed to develop, they drain the vitality of the plant and will result in few runners and a very weak plant. In the everbearing varieties, the flower stalks may be permitted to develop after early July. These may produce a fair crop in late summer.

Aas the runners develop train them along the row and push a little earth on the vine to keep it in place, enabling it to take root much sooner. Cut off excessive runners and do not allow the row to get more than two feet wide. If the plants

are allowed to grow at random overcrowding takes place with the result of smaller berries and greatly reduced yields.

In some seasons much fruit is lost due to mis-shapen berries, commonly called nubbins. This may be the result of unfavorable weather when bees are not working and poor pollination is at fault.

Again it may be insect damage to the blossoms. Dusting the plants with DDT just before flower stalks appear should be practiced. According to a test carried out at Morden Experimental Station, two plots side by side, the one dusted had only 5% nubbins whereas the plot that was not dusted had 80% nubbins.

A grower from B. C. claims that nubbins may be due also to faulty cultivation practices. If the feeder roots are disturbed during the fruit season, nubbins will be the result he stated. This may be or may not be a cause but feeder roots should not be disturbed during the fruit season.

Sufficient moisture will be the determining factor in obtaining a good stand of plants and also of a high yielding crop. Without a water supply and irrigating facilities, strawberry growing is a risky venture.

The sprinkler type irrigation system with aluminum pipes is expensive but will more than pay for the expense involved in a few pickings of a fair sized field. No water, no strawberries is correctly stated and we had this painful experience happen to us.

Winter protection is not to be neglected. Any covering that will keep the snow on will do, as long as it is not a material that will pack down tight and suffocate the plants. We spread corn stalks this year and they hold the snow down fairly well.

Now to the strawberry lovers the oft repeated remark of Dr. William Butler still holds true — "Doubtless God could have made a better berry but doubtless God never did."

Plants for Garden Beautification

JOHN WALKER, SUPERINTENDENT
Forest Nursery Station, Indian Head, Sask.

Because of individual likes and dislikes we enjoy variety in music, reading, sport and gardening. Fortunately, there is practically no limit in variety in the plant kingdom whether our chief interest may be in annuals, perennials, shrubs or trees.

However, in any plan for garden beautification authorities agree that, for continuing and pleasing effect, there should be proper balance and harmonious association between woody and herbaceous perennials and free-flowering annuals. The woody plants are necessary in the development of a permanent garden and on the plan their size at maturity must be visualized. Grouping is preferred to row planting and they should provide interest in more than one season of the year.

The lawn is the unifying link between all parts of the garden. In order to move freely in a room the carpet is kept open in the centre. So should it be with the lawn. Do not impoverish it by planting too many shrubs and trees in the lawn area.

Only a minority of home lots permit a distinct division between public, private and service areas. Through the use of shrubs, climbers, trellis, etc., privacy may be secured in the smaller lot, and features connected with servicing and maintaining the home may be partitioned off.

Let us consider some factors which influence today's trend in garden beautification and which show the need and increased demand for planting material.

1) Increased number of new homes in almost all urban centres.
2) Smaller size of most present-day homes.
3) Widespread use of picture windows.
4) Trend towards earlier retirement in many professions and occupations.
5) Lessened working hours and increased leisure time.
6) Desirability of a greater variety of material in public parks.

It is not difficult to visualize the broader horizon of horti-

cultural activity, particularly in garden beautification, which these conditions have created.

The construction of new homes is likely to continue at a steady rate for some time to come. Here is a fertile field for providing advice and help to potential horticultural society members, and for horticultural societies to give real community service. An enormous quantity of planting material will be required in the future if the surroundings of these new homes are to be made attractive and pleasing — a challenge also to our nurserymen.

Present trend in constructing smaller (and ranch-type) homes means a more specific type of planting material. Demand is particularly for more ornamental and smaller trees. Smaller trees and shrubs not only develop in keeping with the home and its surroundings, but require practically no pruning in the process. The appearance of such planting is, therefore, quite informal, and the plantings can be maintained with the least amount of effort.

Coupled with the trend towards smaller homes is the adoption of picture windows. These almost demand more careful planning and planting of material, because picture windows suggest a very close association between indoor and outdoor living quarters.

This close association should mean, first, a careful selection of planting material, and, second, the most suitable arrangement of it, having in mind year-round appeal from doors, windows, along walks and from one part of the garden to the other. Often the limits of ornamental design and planting have been determined wisely, or otherwise, by the building contractor!

Views from windows should be unobstructed, the whole design should not be evident from one spot, and, above all, the appearance should be inviting and interesting. That is what the garden should be for the passers-by as well as for the owners and inhabitants of the home. At the Forest Nursery Station I am very conscious of the fruits on Peking Cotoneaster, the colored twigs on Poiret Barberry and Siberian Currant, and evergreen leaves on dwarf Euonymus which I pass near the residence every day. There are many other shrubs that contribute to the winter scene.

Another factor to be considered, and offering an opportunity for the enjoyment of home surroundings, is that of retirement from business and profession at a younger age. As a hobby and pastime to keep active people busy and interested I know of nothing more healthful and stimulating than some phase of garden beautification.

Trend towards the reduction of working hours and granting more leisure time also provides an opportunity for an expanded interest in horticulture. This factor should be considered in developing horticultural society programs.

Because the number of ornamental plants which can be accommodated in our individual gardens is limited, a legitimate project for horticultural societies and their members is the planting of more and better material in public parks. More than that, such plantings could be inspected on field days and tours so that local citizens, young and old, may develop a fuller knowledge and keener appreciation of plants we can use in garden beautification.

Members of natural history societies think nothing of winter hikes to make notes on birdlife. Why not have members of horticultural societies plan similar tours to inspect ornamental plantings in our parks. Indeed, these two groups might work together in a common project. Let us do all we can to make Greater Winnipeg famous for the wealth of material in its public parks and private gardens.

I think that the factors listed also indicate in no uncertain manner that ample opportunity exists for the commercial grower and professional horticulturist to advance their business.

A complete list of trees and shrubs which may be planted is contained in the Manitoba leaflet and zonation map approved by the Manitoba Horticultural Association, and prepared by the Extension Service, Manitoba Department of Agriculture, Winnipeg.

Brief lists of species which I consider particularly valuable for planting in average home lots follow:

A. SMALLER TREES

American mountain ash—(**Sorbus americana.** Marsh)
Best in semi-shade, blooms white, early June, spurs one-year wood, orange-red fruit clusters September, keep in bush form.

Amur lilac—(**Syringa amurensis.** Rupr)
Blooms cream-white, large spreading panicle, late June, fragrance not pleasant, spurs one-year wood, bright green leaves.

Bur oak—(**Quercus macrocarpa.** L.)
Attractive glossy leaves, corky ridges on twigs, nuts conspicuous in late August, drought resistant.

Little-leaf Linden—(**Lilia cordate.** Mill)
Smaller leaves than American Basswood, blooms fragrant, bark and buds attractive in winter, graceful tree.

Ohio Buckeye—(**Aesculus glabra.** Willd)
Blooms cream-white early June, buds one-year wood, fruits ripe early September, symmetrical tree, bright foliage for short time in fall.

Siberian elm—(**Ulmus pumila.** L.)
Finer branches and smaller leaves than American elm, conspicuous winged seeds early June, rapid growth, forms dense hedge.

Silver-leaf willow—(**Salix** x species)
Attractive silver foliage, hardy, upright habit.

B. SHRUBS OF MEDIUM HEIGHT FOR SUNNY SITUATIONS

(Plant from 3 to 6 feet apart, and from 2 to 3 feet from house, fence, etc.)

Altai Scotch Rose—(**Rosa apinosissima var. altaica.** Rehd)
Blooms white, yellow centre, about May 28, buds one-year wood mostly, maroon fruits persist, fine foliage, sucker growth.

Amur Chokecherry—(**Prunus maacki.** Repr.)
Blooms cream-white, early May, buds one-year wood, fruits purple, strong growth, upright habit.

Cherry Prinsepia—(**Prinsepia sinensis.** Oliver)
Blooms early, yellow, fruits dull red late August, retained during winter, spiny, protection for wildlife.

Eastern arborvitae—(**Thuja occidentalis** and varieties. L.)
Evergreen, fragrant.

Flowering Plum—(**Prunus triloba.** Lindl)
Blooms white and pink, early April before leaves, buds one-year wood, upright habit.

Hybrid lilacs—(**Syringa** x species)
Blooms bicolor various shades, late May and June, fragrant, buds one year wood, no sucker growth.

Oriental Spirea—(**Spiraea media sericea.** Schmidt)
Blooms cream, Early May, buds one-year wood, arching branches, hardy.

Peking Cotoneaster—(**Cotoneaster acutifolia.** Turez)
Blooms pinkish, inconspicuous, about May 28, buds one-year wood and spurs older wood, black fruits, bright foliage in fall.

Rocky Mountain Juniper—(**Juniperus scopulorum.** Sarg)
Evergreen, various shades of green and habit of growth.

Sweetberry Honeysuckle—(**Lonicera coerulea edulis.** Reg.)
Blooms cream-white, May, buds one-year wood, fragrant, fruits bluish, compact plant.

C. SHRUBS OF MEDIUM HEIGHT FOR SHADY SITUATIONS

(Plant from 3 to 6 feet apart, and from 2 to 3 feet from house, fence, etc.)

Common Ninebark—(**Physocarpus opulifolius.** Maxim)
Blooms white, end May, short spurs one-year wood, conspicuous seed pods, bright foliage in fall.

Highbush Cranberry—(**Viburnum trilobum.** Marsh)
Blooms white, about May 28, short spurs one-year wood, red fruits end of August, retained throughout winter, bright foliage in fall.

Mock Orange—(**Philadelphus** x species)
Blooms white, single to double, fragrant, late June, short spurs one-year wood.

Redosier Dogwood—(**Cornus stolonifera.** Michx)
Blooms white about May 28, spurs one-year wood, fruits white, bright foliage in fall, reddish bark in winter.

Rosybloom Crabapples—(**Malus** x species)
Blooms pink, about June 5, spurs older wood mostly, foliage and fruits reddish, fruits various sizes, retained into winter.

Showy Mountain Ash—(**Sorbus decora.** "Sarg" Schneid)
Similar to American Mountain Ash, blooms later, larger leaves, fruits ripen later, larger.

Siberian currant—(**Ribes diacenthum.** Pal 1)
Blooms inconspicuous, fruits red, bright foliage in fall, chestnut bark color, no sucker growth.

D. DWARF SHRUBS FOR SUNNY SITUATIONS

(Plant 1½ to 3 feet apart, and 1 to 2 feet from house, fence, etc.)

Bush Cinquefoil—(**Potentilla fruticosa.** L.)
Blooms yellow, June to October, spurs one-year wood and currant wood, free-flowering, small leaves, compact plant.

Creeping Juniper—(**Juniperus horizontalis.** Moench)
Evergreen ground cover, fragrant.

Dwarf euonymus—(**Euonymus nanus.** Bieb)
Blooms not conspicuous, showy bicolor winged fruits, evergreen ground cover.

Poiret Barberry—(**Berberis poireti.** Schneid)
Blooms yellow, early June, spurs one-year wood, red fruits August, bright foliage in fall, sucker growth.

Prostrate Broom—(**Cytisus decumbens.** Spach)
Blooms yellow, about May 24, buds one-year wood, fine foliage and stems, low ground cover.

Pygmy Caragana—(**Caragana pygmaca.** D.C.)
Blooms rich yellow, large, about May 28, buds one-year wood and older, narrow foliage.

Russian Almond—(**Prunus tenella.** Stokes)
Blooms light pink, before May 15, buds one-year wood, wooly fruits later, sucker growth.

E. DWARF SHRUBS FOR SHADY SITUATIONS

(Plant 1½ to 3 feet apart, and 1 to 2 feet from house, fence, etc.)

Early Forsythia—(**Forsythia ovata.** Naker)
Blooms yellow, very early, buds one-year wood before leaves, somewhat spreading habit.

February Daphne—(**Daphne Mesereum.** L.)
Blooms rose-purple, fragrant, late April, buds one-year wood, red fruits ripe end July.

Panicle Hydrangea—(**Hydrangea paniculata** var **grandiflora.** Sieb)
Blooms cream-pink, late August, spurs currant year wood, prune severely in spring.

Pygmy Caragana—(**Caragana pygmaea.** D.C.)
(See in Section D)

Winged Euonymus—(**Euonymus alatus.** Sieb)
Blooms inconspicuous, corky flanges on stems, small bi-color winged fruits, very bright foliage early in fall.

F. CLIMBERS

American Bittersweet—(**Celastrus Scandens.** L.)
Hairy Honeysuckle—(**Lenicera hirsuta.** Eaton)
Oriental Clematis—(**Clematis tangutica.** Korah)
Riverbank Grape—(**Vitis vulpina.** L.)
Ross Rose—(**Rosa begerriana.** Schrenk) (and seedlings)

In the beautification of home grounds it is always helpful to understand desirable association of shrubs, particularly where a lower-growing species may be planted to "face" a taller-growing one. A few suggestions are (taller-growing species are named first):

American Mountain Ash with Cherry Prinsepia.
European Red Elder with Common Ninebark.
Rosybloom Crabapple with Altai Scotch Rose.
Hybrid lilac with Bush Cinquefoil.
Redosier Dogwood with Peking Cotoneaster.
Tatarian Honeysuckle with Pygmy Caragana.

Good subjects bear repetition in the garden. There should be succession of interest with the passing months. In the completed picture there should be a pleasing balance of lawn, woody and herbaceous perennials, and annual flowers. Pleasing architecture should not be completely hidden by shrubbery. The object of the plantings is to provide a suitable setting for the house — some conical types for homes with high gables, and round, spreading types for low bungalows.

What's New For The Home Gardener

H. R. HIKIDA,
Agricultural Research Officer, The University of Manitoba

Vegetable Varieties

GREEN THUMB pickling cucumber is one of the newest variety made available to the home gardener. The color of the fruits at the pickling stage is a dark green. The fruits are smooth, parallel-sided, blunt-ended and have few white spines. The quality is retained up to and beyond the ideal dill size. Yield of this variety is high. In season this variety is early.

SALAD BOWL leaf lettuce should be included in most vegetable gardens. The leaves are short, closely set, waved and notched. The quality of the rather thick leaves is excellent. Unlike other leaf lettuce varieties, bitterness is absent for a long period of time, even during the heat of summer. Salad Bowl is slow to bolt and hence is a good home garden variety.

BONANZA cabbage is as good as Penn State Ballhead or Danish Ballhead. It is a very short-cored variety with all the qualities of the other two varieties.

CHERRY BELLE radish is still the best variety of radish. The roots are round, crisp, and uniform. The color is a bright scarlet. The tops are small and short. It is slow to bolt and the roots do not become pithy as most varieties do.

AMERICA spinach is the new longstanding variety. It is a few days later than Bloomsdale Longstanding but the season of its usefulness extends over a much longer period. The leaves are savoyed like those of Bloomsdale, are dark colored, and have good quality.

For good mealy squashes BUTTERCUP should be tried. The fruits are small, weighing about two pounds each — a nice family size. The baked product is dry, mealy, and sweet — not too unlike sweet potatoes. Excellent pumpkin pies may be made from Buttercup squashes.

MUSTANG, METEOR and MONARCH are bush tomato varieties that are still performing well. One must remember that Mustang and Monarch are hybrids and therefore seeds from these should not be saved. Mustang is the earliest in maturity followed by Meteor and Monarch. The season of

these varieties is a little earlier than that of Early Chatham or Bounty.

STOKESDALE No. 4 and VALIANT are two staking varieties of tomatoes that are dependable in the production of many medium to large sized fruits. These are sufficiently early that they are worthy of a place in the home garden.

Hybrid onions are commanding more interest. The new varieties showing promise in Manitoba are AUTUMN STAR and AUTUMN SPICE. Both varieties are as early as Early Yellow Globe.

CANADIAN ACRE is an early variety of cabbage that is worth trying. The heads are small, averaging approximately two and half pounds each, round, well-formed, and of dark green color. The core is short and the quality good.

Equipment and Gadgets

A PART CIRCLE SPRINKLER may be just the thing for your lawn or garden. Adjustments can be made to sprinkle a narrow or a wide "wedge," (from 20 through to 340 degrees). This sprinkler placed along the sidewalk or driveway will sprinkle, when adjusted, a half circle on the lawn or garden.

PERFORATED PLASTIC HOSES are excellent for lawn sprinkling. Minute holes spaced along the length of the plastic hose provide fine streams of water for watering.

Plastic PLANT MARKERS made in the stake type or the tie-on type are ideal methods for marking the plant materials.

"Service at Cost" in Your Horticultural Society

J. M. B. NICOLL
Director, St. James Horticultural Society

We are all familiar with the slogan, "Service at Cost," so popular in co-operative organizations. In the St. James District of Greater Winnipeg, a new and practical turn has been given to the idea by the local Horticultural Society. As we know, it is one of the functions of a successful horticultural society to encourage and stimulate interest in various phases of horticulture. To this end, the St. James Society has successfully pioneered a scheme, providing garden facilities at a very low cost for members who have not the necessary space on the home lot or suitable ground adjacent thereto.

The idea first began to take shape in the early days of the Second World War when people were being urged to grow their own vegetables. The garden plots, then so common on vacant city lots, were popularly known as "Victory Gardens." In addition to the individual plots, there were on the outskirts of the City larger garden areas which were operated as a community effort. We believe one or more of them still functions.

About that time, the St. James Horticultural Society leased from the Municipality a tract of land on the Strathcona Estate which, after being plowed and put in good condition for gardening, was set out in plots of approximately twenty-five hundred square feet. These plots were made available to members of the Society at a nominal rental sufficient to cover the outlay for preparing the soil. From a small beginning, with about a dozen members operating garden plots, the project grew each year. It was not long until over forty good gardens were providing as many families with fresh vegetables in season, as well as a good supply for winter use.

Unfortunately, from the Society's viewpoint, the land, together with the adjacent acreage, was sold for building sites, and the executive had to cast around for another suitable tract of land. This was located by the Truro Creek close to the south end of Stevenson Field Airport, and arrangements were made with the Municipal Council for its use. For the past three years, this new garden site has been under development. Forty garden plots were under cultivation last season. Additional land was broken during the summer, which has been plowed this Fall and will provide between fifteen and

twenty gardens next Spring. In all, there will be about sixty garden plots rented next season.

It has been found that a plot thirty feet by sixty feet meets the needs of the average gardener, and when carefully laid out and planted, and properly cultivated during the growing season, provides a family with an ample supply of good vegetables.

The initial cost of breaking the land and bringing it into condition for gardening is fairly high but subsequent expenses are moderate. By averaging the expense over a period of a few years, it is possible to rent the individual plots at a figure well below what would be charged for cultivating the average backyard.

Working side by side, there is a spirit of co-operation amongst the group as well as a friendly rivalry and competition. Older and experienced gardeners are ready to give helpful advice and instructions to young members who may have only a limited knowledge of vegetable gardening.

While the primary function is to provide members with garden facilities and also encourage them to grow their own vegetables, the plan pays dividends to the Society through increased membership. Entries from the garden plots also help to build up the vegetable section at the annual show. In addition, a few of the plots have been developed to the stage that they successfully compete in the Society's Vegetable Garden Class.

In small towns and villages land suitable for gardens is usually readily available but such is no longer the case in most sections of Greater Winnipeg. Hence the desirability of a Horticultural Society securing suitable land, if it can be got, and making it available, at cost, to its members.

In the event of projects similar to that operated by the St. James Horticultural Society being developed by other horticultural societies in Greater Winnipeg, it might be possible to arrange a competition between the various garden allotments, thereby stimulating interest, and developing the gardens to the highest possible level.

Viewed from any angle, the Vegetable Garden Allotment is a commendable worthwhile project from which any district may benefit. Here then is a challenge to Horticultural Societies in Greater Winnipeg.

In the garden grows
Far more than herbs, and flowers,
Kind thoughts, contentment, peace of mind,
And joy for weary hours.

Women and Gardens

M. O. ROBSON
Secretary Treasurer, Dauphin Horticultural Society,
Dauphin, Man.

If I were to mention the particular work or gardening hobby of women individually, I would end up by writing a book. There are so many successful women gardeners and florists and those who have been successful in the field of hybridizing. So, I will just write of impressions left with me by friends and acquaintances as to the thought and feelings connected with gardening activities.

A passionate love of flowers and all green and growing things is so strong in many women it is like a primal instinct coming down through the ages ever since our first ancestors inhabited the Garden of Eden. This love of growing things gives the desire to plant, to cultivate, tend, and then watch joyfully the miracle of growth unfold, as coaxed and wooed by the bright sunbeams of Spring, the soft patter of rain and the sweet whisper of the south breeze, the little seeds become small green plants, bulbs send up green sprouts. Roots that have slept snuggly under a blanket of earth and snow stir again, sending their stalks reaching up to the sun. Some little plants simply unfold the buds that they cuddled all winter and bloom truly "miraculously early," thrilling all who see the first little flowers of spring.

Gardening is not a new idea among women though it is becoming increasingly popular. For centuries back, many "Ladies of the Old Land" had their gardens, though they hired gardeners to do the work. The ladies had the pleasure of strolling in the garden enjoying its beauty and fragrance and the pleasure of gathering flowers for indoor use, for, after all, who could take any active exercise in their type of clothing — with nipped-in waists and all those skirts — and skirts — and skirts. They never knew the joy of getting into slacks or blue jeans and flat soled shoes and actually taking part in the work of growing a garden.

Today, no matter where one goes, one will find women gardening. Some on a large scale, others with only a few plants in a window garden; or perhaps only a geranium on the window sill. No matter if the home is a city bungalow, a brick mansion on the prairie or a lone cabin in the woods, one will, nine times out of ten, find a geranium in the window. So many, many times it will be a red geranium planted in a tin can. For geranium slips are easy to carry and tin cans handy and geraniums really do well in a tin of prairie soil.

Whether "Prairie Women" realize it or not, they have truly made the geranium their emblem, for no matter where one goes, there is the geranium. No matter how large or small the house plant collection, the geranium is certain to be there and if there is only one house plant in the home — it is almost sure to be a geranium.

It is the love of green and growing things that gives women living in the most crowded places a desire to grow a few flowers in a window garden, if there is no other place for a garden. But, if even a tiny piece of ground can be had, no matter how small it is, a woman with the love of flowers will grow a garden and make it thrive against all odds.

Where there is a big family and many mouths to fill, and of necessity, a large vegetable garden is grown, it is nearly always the woman who "brings along" those few early tomato and cabbage plants on the kitchen window sill, who "cut the potato eyes" for planting. Also sows the package of early radish and pinch of lettuce seed in a sunny spot in the garden and "Molly Cuddles" a few early watermelon. Even with all this gardening, the flower-loving woman will find time and space for a few annual flowers for those bouquets and flower arrangements so dear to every woman's heart. No doubt she will find time too, for a little window garden and the usual geranium.

Whether the woman's garden is a big one filled with lots of fruits, vegetables and flowers or made of spacious lawns and shrubberies, or just a tiny garden plot, a woman will find relaxation in her gardening and find it also a source of inspiration for busy days ahead.

I have a little poem that fits so nicely with my thought of my garden, I would like to quote it here as I am sure many will agree with the words of Thomas E. Browne in his poem.

MY GARDEN

A Garden is a lovesome thing. God wot!
Rose plot
Fringed pool
Ferned grot —
The veriest school
Of peace; and yet the fool
Contends that God is not.
Not God! in Gardens! When the eve is cool?
Nay, but I have a sign;
'Tis very sure God walks in mine.

Some women have a veritable passion for that soul satisfying art "Flower Arranging." They grow a garden with this as their foremost thought. From their gardens come endless armfuls of all kinds of cut flowers which go to make bouquets

for their homes, their church, their friends and to the sick and shut-in.

It is said that gardening "grows on one"; well, it is just the same with flower arranging — at first one "attempts to arrange" a few flowers in a certain design and very soon one conceives all sorts of ideas as to ways to use the various kinds of flowers and foliage. Some of the "ideas" may seem a bit fantastic, but these are often the best as they possess character and individuality — a creation that really stands out!

Many women's groups now hold what is called a "workshop." There is nothing that is more fun for a group of flower-loving women than a flower arrangement workshop! If you have not taken part in one, be sure to get your group together next summer. Have them bring along an assortment of flowers and a container and other necessary equipment, such as pin holder, clay, etc. Each one make an arrangement, then criticize and re-arrange each others, or have your florist or some other capable party place and adjudicate your arrangements. You will find it loads of fun as well as interesting and instructive. After the group project, work on your ideas, being sure not to leave out the fantastic ones, then make and take an arrangement or two to your nearest horticultural show.

Some women like to include in their garden a goodly number of everlasting flowers to have when dried for winter bouquets. Many lovely, long lasting and interesting arrangements can be made with these.

Growing a garden satisfies the artistic urge in some women. This urge may be strengthened by a desire for lovely grounds surrounding the home for who, with a sense of fitness or proportion, would set a beautiful or expensive jewel in lead, iron or tin? So, the little woman dreams up a landscape design of lawns, shrubs and flowers as a suitable setting for her most precious jewel — her house. Then she goes about helping in various ways to make this all come true. Though it may take several years of work, an attractive home ground is created, part and parcel of her dream and very satisfactory to the artist in her soul.

Take a walk in a flower garden on a golden sunny summer day, how lovely all the flowers with their colors of blue, red, white and tints of every hue. Listen to the buzz of the bees, the whir-r-r of the humming bird's wings as it flits about, sipping nectar here and there. How dear the little pansy faces! How pure and serene the lily! How sweet the rose! Everything is so perfectly peaceful and gay one can scarcely imagine a battle being fought there. Oh! I don't mean the fight against weeds, insects and disease, though that is a very real battle indeed; nor do I mean a fight with guns, swords or fists —

I mean women's own battles. As the love women have for flowers and all green and growing things has come down through the ages, so have women through the ages taken their problems and sorrow to the field and garden and there, as they tilled and tended, the answer to many a problem came as if it were wafted up on the vapors that rose from the earth.

Many a pansy has looked up in silent sympathy during a woman's whispered prayer for strength to carry some heavy burden.

Many a lily and a rose have felt a hot tear mingled with the cool dew as a woman with sorrow in her heart goes early to the garden with its glorious dew-kist beauty wrought by nature and the work of her own hands. There, in the fresh early morn, with the sweet promise of a beautiful new day, she finds comfort and a tranquil spirit tranquilly putting her footsteps in the pathway leading to reconciliation of things in life which can never be changed.

Many women find the evening in the garden most enjoyable. The garden is truly loveliest then, with the sunset tints streaking the western sky, a soft cool breeze caressing one's cheek and whispering in the tree tops. The perfume of mignonette, sweet allysum, lillies, roses and other flowers, filling the air. The evening star appearing. The silence broken only by the sleepy twitter of a bird. On such an evening, one can indulge in relaxation deluxe — and dream a little, or think such thoughts as these, written by Daniel Whitehead Hickey.

PRAYER FOR A GARDEN

O God, be gentle to this garden spot.
Here have I rested on a summer day,
Drinking the wine of this forget-me-not,
Breaking the bread that full-blown roses lay
Before my hungry eyes, filling my ear
With bells of tulips ringing bright and clear.
Here have I slept when night came to each flower,
Wrapped in these shadows, pillowed at my head
With velvet pansies through the dark's blue hour;
Here have I dreamed, and I was comforted.
O kindly Father, write upon Your scroll:
This is a petalled tavern for the soul.

—From the Golden Books

The Newdale Horticultural Society - 1953 -

F. J. WEIR, Provincial Horticulturist

The Newdale Horticultural Society was organized September 1, 1927, and given its charter December 1, 1929. Since that time, it has become one of the outstanding Horticultural Societies in Manitoba.

Although the total membership for 1953 was only 66, the activities and projects have been undertaken with such enthusiasm and zest, it is apparent that most of the members are behind all undertakings with an active executive encouraging member participation.

Newdale is situated on Highway No. 4, about 60 miles north of Brandon. It is a homey village of a few hundred inhabitants, located in an area of excellent mixed farming land. Farm land tends to be rolling in nature, and the presence of the occasional tree-fringed slough relieves the monotony of the level prairie seen in so much of the province.

Newdale is a typical Manitoba community, whose residents are in most cases, either retired farmers or connected with the local business establishments. Here are found the familiar and usual cafes, hotel, lumberyard, bank, post office, barber shop and stores. The proprietors are proud of, and are all deeply interested in the improvement of their town.

This interest has been used to advantage by the directors of the Newdale Horticultural Society. In the success of any organization, the degree of public interest and the support given is important. The Newdale Society has had the wholehearted support of the commercial firms, in all projects undertaken.

In looking over the original membership list, an interesting item comes to light. One of the original members, in 1927, was Mr. Thos. Rose, who is the present president. Mr. Rose has been at the helm for some years, and has been a very significant factor in the success of the Society.

Since 1927, the Society has come a long way, both insofar as number of worthwhile projects undertaken and the degree of participation in these projects is concerned.

In 1953, the list of projects undertaken includes the following:

(1) **Meetings**

Regular monthly meetings are held. At these meetings lectures, papers, and reports are given on pertinent topics.

Encouragement of discussion among members has resulted in a greater degree of member participation.

(2) **Family Picnic**

A family trip to Westbourne and Portage la Prairie was well attended, both by members and non-members. "Perry Park," a picnic area established at Westbourne by Mr. and Mrs. D. Patterson, was the site of a picnic, and afterwards, the group proceeded to Portage la Prairie, where members of the society there guided the group in viewing various home grounds and other places of horticultural interest.

(3) **Field Day**

Representatives of the Society attended the field day in connection with the Vegetable Variety Test Plot at the farm home of Mr. and Mrs. Wm. Shafer, at Poplar Point. This project was undertaken by the Horticultural Society there, in conjunction with the Manitoba Horticultural Association.

(4) **Provincial Fruit Show**

Representatives attended the Provincial Fruit and Honey Shows at Portage la Prairie, held in conjunction with the Portage and District Horticultural Society Show.

(5) **Variety Records**

The society kept records of the varieties of corn, cucumbers and carrots grown in the area, to determine the varieties most adapted to the local soil and climatic conditions.

(6) **Reports**

Any field trip or show attended is reported on at meetings, so that all members profit, even though many might not be able to go on the trip.

(7) **Children's Playground**

The Society owns a small park site. This is being converted into a children's playground, and in the past year, a start was made in obtaining equipment. Additions will be made as more funds are available.

(8) **4-H Garden Club**

The society sponsors the activities of the Newdale 4-H Garden Club of which Mrs. N. Kingdon is the very capable leader. In encouraging the garden interests of the boys and girls, the society is "starting at the bottom" to ensure future youthful membership in the adult club. The Garden Club members exhibit their entries at the annual show.

(9) **Gladiolus Displays**

Displays of gladioli were staged in one of the general stores, for three consecutive Saturdays. Total entries in these displays in 1953, were 126.

(10) **Village Flower Garden**

A small garden of annual flowers in the vicinity of the village pump is planted and tended each year. This bit of color is a good advertisement for the Horticultural Society.

(11) **Competitions**

Competitions were staged, both on an Urban and Rural basis, in boulevards, lawns, vegetable gardens, window boxes, flower gardens, and home grounds.

In and around Newdale, are to be found many home grounds which have been well planned and well planted. The use of permanent material, in the form of trees, shrubs and perennials, has been a great asset. Most farms have adequate shelterbelts, well planned vegetable gardens and fruit plots.

An interesting item in connection with the home ground competitions is that one of the most loyal members, Mr. John Howard, who won first prize for the best kept boulevard, second and third prizes respectively in the lawn and home ground competitions, is 84 years of age. Mr. Howard is an ardent gardener.

(12) **Annual Horticultural Show**

The Annual Horticultural Show in 1953, was the largest on record, and included 874 entries. These can be broken down as follows:

388 in cut flowers, 221 in vegetables,
192 in house plants, and the remainder in miscellaneous items.

A visitor to the Newdale show is impressed by several aspects. On entering the hall, the general attractiveness of the complete picture is noted. The quality of entries is high, particularly in house plants, sweet peas, dahlias, pansies, gladioli, and flower arrangements.

The Horticultural Show is opened to the public as early in the afternoon as possible. After viewing the flower entries, visitors find their way down to the basement, where the vegetables and entries of the 4-H Garden and Grain Clubs are displayed. Here again, quality is consistently high.

A very pleasant feature of the annual show is a dainty lunch served in the basement. Here, over a cup of tea, notes are compared on the prizes won, varieties, and any special kinks employed by individuals in selecting and preparing their entries.

And so, Mr. Thos. Rose, President, and Mrs. E. Switzer, Secretary, we take off our hats to you and your energetic society at Newdale. May your activities as a society continue to progress, and may your society realize continued satisfaction, in the encouragement of horticultural development in your area.

Artificial Frost Protection

R. A. HORNSTEIN
Dominion Public Weather Service, Halifax

One of the simplest methods of protecting plants against frost is that which I've seen used by housewives as far back as I can remember. I'm referring to the covering of plants by some kind of easily available material. The endangered plants may be covered, either singly or as a whole, with newspapers, cardboard screens, caps, braided mats, boards or other similar objects.

Some of the experts in the field make a distinction between screens and caps. The screens, which are usually set up in a horizontal position, come between the plants and the night sky. They absorb the radiated heat themselves, so that the plants don't cool below the air temperature, and even serve as protection to the surrounding ground. Screens are most effective when the sky is clear and radiation outward is strong. By and large, the gain in temperature for the plants is of the order of 3° F; in other words, protection is gained for temperatures down to about 29° F.

Whereas screens of this type permit a free exchange of air on all sides, the cap encloses a definite air space, depending on its form and size. With the cap, the movement of heat from the soil is made available for the enclosed air, so that caps accomplish more than screens. The cap should be made of non-conducting material in order that the cooling of its outer surface may be carried through as little as possible to the inner side. Furthermore, it's desirable that the cap should have an opening near the ground. The cold air inside seems to leak out through this hole, while experience shows that cold air from the outside doesn't force its way in.

I'd like to point out that unless a proper type of cap is used there may be disastrous results. For example, the owner of a certain garden tried to protect part of his plants by covering them with empty tin cans. The supposedly protected plants froze while the others didn't. The trouble was that the metal was a good radiator and conductor of heat, while the air space between the tin cans and the plants was too small, and there was no outlet for the cold air along the inner wall.

With suitable form and location of the caps, a temperature gain of about 4° F. can be counted on. In many cases this isn't enough. Also, on account of the great labour involved in repeated coverings and uncoverings, the method isn't suited to large-scale installations.

Morden Note — Tomato plants set in the garden of May 15 and covered with hotcaps, paper protectors, yielded two and four times as much as those set in the garden unprotected on June 3. Muskmelons, also, were three weeks earlier with this kind of treatment.

Tree Tips

Hector MACDONALD
Assiniboine Park

Around mens' dwellings, trees provide shelter, fuel, food, beauty and often the material of which the home is built. For thousands of years man has planted trees to provide the necessities of life and to improve the appearance of his home site. It is only natural then that we, modern home builders, desire to surround our houses with trees and too often we see this desire to plant a tree lead the inexperienced home owner into pitfalls that could be easily avoided.

Trees are the largest living organisms we have and trees live longer than anything else. Trees in Manitoba can live for two hundred years and grow over one hundred feet high. We can see the trunk and wide spreading branches of an Oak or Elm but we don't see the root system underground, spreading wider than the branches, roots as thick as the heaviest branches and as delicate as hairs. A large growing tree such as Oak, Elm, Ash, Maple, Spruce and Pine should never be planted close to a house or near a garden, they need ample room to develop and must have a wide area for root development and food supply. We have a good selection of small growing trees for planting in the immediate vicinity of the house. Ginnala Maple, Crab Apples and Mountain Ash are examples. We find trees growing in bogs and swamps, in dry land and on gravel ridges. Some trees like protection from wind and won't thrive in exposed locations. Some trees must have acid soils while others do not thrive in too much peat. This must all be considered when choosing trees to plant around the home.

The planting site must be carefully considered and the appearance of the tree when full grown must be visualized. A young tree may fit in very nicely in a corner of the home lot but what is it going to look like in twenty years time when it is too big to move?

When the site is chosen and a suitable tree selected, planting is the next consideration. This can be done either in early spring before the leaves develop or in the fall as soon as the leaves have ripened. Fall planting should not be attempted unless a good supply of water is on hand. At no time should the roots of a tree be allowed to dry out. The fine hair-like roots that feed the tree soon wither if allowed to get dry and this will retard the growth of the transplanted tree if it isn't killed outright.

Dig a large enough hole to accommodate the roots of the tree without bending or doubling and the hole must be deep

enough to have the tree planted at the same depth as when dug. Ordinary top soil around the roots suits most of our common trees, heavy clay should be avoided. If there is a great deal of clay in the soil, sand, black soil and peat or leaf mold should be added. Barnyard manure unless very old is not suitable for adding to the soil near the tree roots. Pine, Spruce and Birch prefer light soils.

When planting a young tree a stout stake should be driven into the soil close to the trunk and the tree securely tied to it. Newly planted trees are easily loosened in the soil by strong winds and this may prove fatal. Baling wire threaded through a piece of rubber hose makes a good tie. The rubber hose protects the back from chafing and the wire can be securely bound to the stake.

When filling in the hole, be sure to pack the soil firmly on top of the roots and fill to within two inches from the top; fill the two inches with water and after it has soaked in fill the hole to ground level with soil. The top inch of soil should be left loose. No more water is required for a week or ten days if the weather is dry; if the weather is wet, no watering may be needed until a real dry spell arrives. In fall planted trees be sure that there is a plentiful supply of moisture available at freeze up. In fact, all trees do much better if the ground is moist at freeze up. A dry fall and freeze up causes much of the winter damage that sometimes happens to trees.

A well grown, well placed tree is a most attractive sight, a poor specimen in the wrong place is an eyesore. We need more trees on the prairies but they must be in the right location.

In Memoriam

J. H. Evans

J. H. Evans was born at Clog-y-Farm near St. Clear's Carmarthenshire, Wales, 69 years ago.

He studied Agriculture at the University of Aberystwyth and came to Canada in 1906.

He worked as a farm hand in the Kenton district before attending the Manitoba Agricultural College, from which he graduated with the degree of B.S.A. in 1912.

After farming for a time, he joined the Manitoba Civil Service in 1913 and was appointed Deputy Minister of Agriculture six months later.

For a period of 33 years he was Deputy Minister. During this time the Department grew from one with a small staff to one of over sixty Agriculturists and Home Economists.

His length of service as Deputy Minister was a record in Canada and during that time Manitoba ceased to be largely a wheat-growing province and became widely diversified.

Mr. Evans was an ardent Horticulturist and constantly strove to interest all citizens in improving their home surroundings and developing a love for trees, flowers and all other plants in order that his adopted province might be a better place in which to live.

He was an administrator, a man of vision and good judgement, richly gifted, a fine public speaker and possessed an unquenchable optimism and cheerfulness.

He received many honours during his lifetime and one that he cherished greatly was being elected in February of 1953 to receive a Life Membership in the Manitoba Horticultural Association.

The Horticultural Societies have lost an ardent champion but much of the energy and enthusiasm he possessed has resulted in a wider and keener interest in the growing of things of beauty and utility in cities, towns and farms throughout Manitoba.

William Godfrey

Late autumn saw the departure from the prairie scene of a greatly esteemed citizen and an outstanding gardener in the person of William Godfrey.

Born in Newcastle-on-Tyne, England, December 1878, he chose gardening for his profession. As a journeyman, he gained practical experience at various extensive estates renowned for their distinctive gardens. Hence, it was as an accomplished craftsman that he came to the Experimental Station, Rosthern, Saskatchewan, in the spring of 1913. A man of high ideals, he joined the Canadian Army at the outbreak of World War One. After four years of active service overseas, he returned to his post at Rosthern and in early spring 1923, transferred to the Experimental Station, Morden, Manitoba, as Head Gardener. Since then, until his sudden death on the late evening of November 24th, his presence has continuously enriched Manitoba.

Gardening appears to carry more complexities than any other branch of agriculture. William Godfrey was recognized as a master in all phases of the art. He knew the details of growing flowers, fruits, vegetables, shrubs and vines both under glass and in the out-of-doors. When pests arrived he proved an efficient plant doctor. As a judge at garden shows, his selections won general approval. As a builder of bouquets and floral decorations he was unequalled hereabouts. His most notable material contribution to the general public was the 87-page illustrated bulletin "House Plants," Publication 798, Dominion Department of Agriculture. That bulletin has proved one of the most popular ever printed in Canada. Several reprints have been made and still another is now under way.

The most distinguished award received by him was that of the Stevenson Memorial Gold Medal, presented by the Manitoba Horticultural Association at the Great Plains Region horticultural convention, Morden, Man., August 25, 1947. The medal is presented for conspicuous achievement in the improvement of hardy garden plants. The five former recipients, Dr. F. L. Skinner, Dr. N. E. Hansen, G. F. Chipman, Norman M. Ross and Professor W. H. Alderman were all among his intimate friends.

November 24th was a day of much sorrow. Professor V. W. Jackson's death at Grimsby, Ontario, was announced in the morning and then his, and our staunch and cultured friend Bill Godfrey, after a busy day, passed on in the evening. They both leave us multitudes of treasured memories.

Peter Daman

Peter Daman was born in Amsterdam, 43 years ago, coming out to Canada with his mother as a boy of 14 years. They homesteaded at Ashern, Manitoba, for some ten years before coming to the Winnipeg area. He then went into market gardening, which was to become his life's work, spending four years in North Kildonan and the last twenty-nine years in St. Vital.

Peter Daman passed away on September 20, 1953. Those who had the privilege of knowing him realize the great and lasting contribution Peter Daman has made, not only in his chosen field of market gardening, but also to Manitoba horticulture. His keen and analytical approach to the science of vegetable growing has been of unestimatable value to the market garden industry, as well as making him a successful and highly esteemed member of his profession.

His ability and interest is shown by tthe many appointments and activities which made up his busy and useful life.

He was a member of the Manitoba Horticultural Association for the past 18 years; member of the Executive since 1938; was second, then first Vice-President and then President in 1944. He was also Chairman of the Vegetable Committee for Recommended Varieties.

He was a member of the Western Canadian Technical Agriculturists.

He was a member of several important government appointed committees during the last war covering control of supplies of fertilizers, insecticides, etc. He was appointed by the Dominion Government to represent the four western provinces under the Seeds Administration.

He was a member of the American Vegetable Growers' Association since 1937, attending and actively participating at their annual conventions.

He was also active in community affairs. He was Chairman of the local school board for several years.

He was a member of the Board set up to investigate compulsory marketing for potatoes and vegetables from 1938 to 1942.

He was also an active member of the executive of growers organizations, being Vice-President of the Gardeners Wholesale Unit from 1936-1939 and President and one of the founders of the Winnipeg Gardeners' Co-op Ltd.

Rock Garden, Home Grounds and Free Press Vegetable Garden Competition

F. J. SKAPTASON

Chairman, Home Grounds Committee

The usual competitions were held during the summer and the 1st. prize winners were: —

Rock Garden Competition — 8 entries in Class A, and 5 entries in Class B.

Ist. in Class A ..... Mrs. F. C. Hagman
1st. in Class B ..... Joe. Magda

Judges — Dr. W. J. Cheriwick, F. E. Ball and G. S. Reycraft.

Home Grounds Competitions — 26 entries.

Section 1, Lots up to 33 ft. ..... Miss M. C. Jillett
Section 2, Lots 34 to 66 ft. ..... Mrs. C. F. Polley
Section 3, Lots over 66 ft. ..... Mr. F. M. Parker
Section 8, Novice ..... Mr. T. H. Hallmuth
Section 4, Utility Garden ..... Mrs. C. F. Polley
Section 5, Flower Garden ..... Miss M. C. Jillett
Section 6, Window Boxes ..... Miss M. C. Jillett
Section 7, Lawns ..... Mr. Joe. Magda
Highest Aggregate ..... Mrs. C. F. Polley

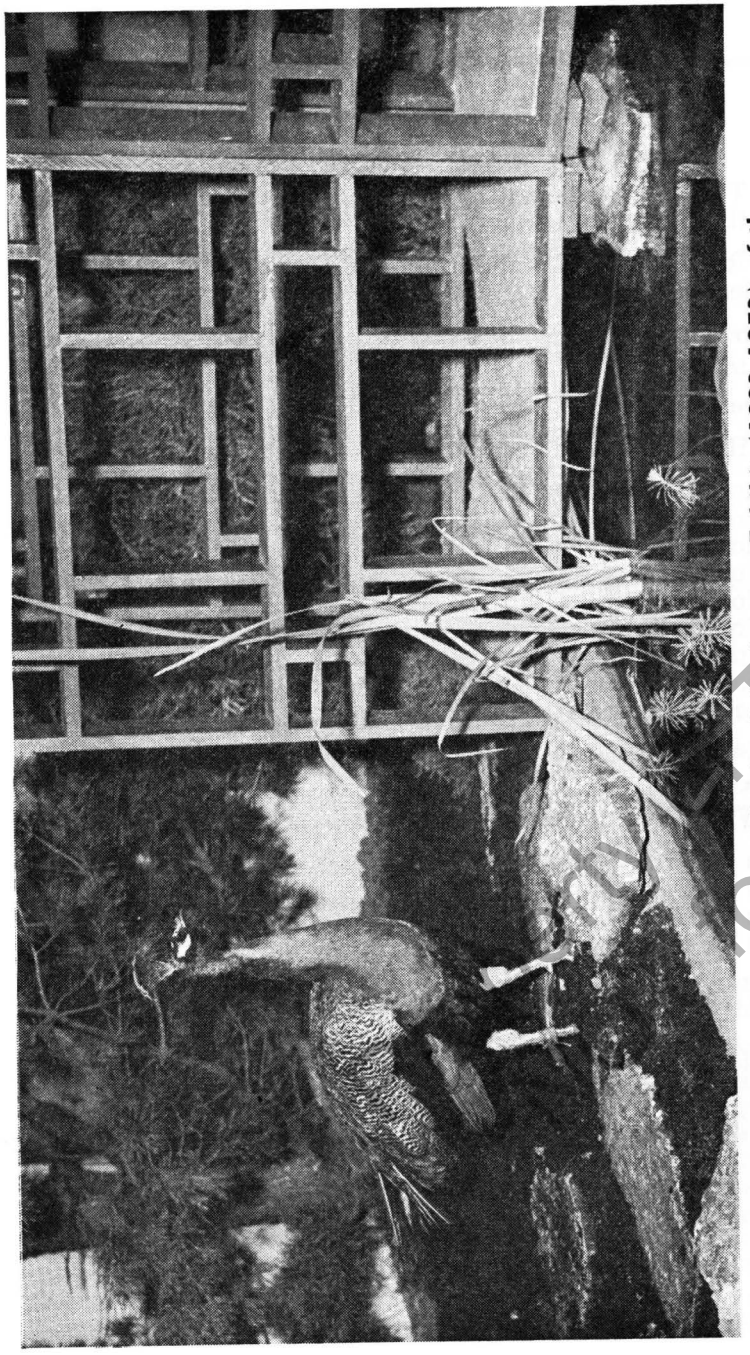
Judges — Prof. E. T. Anderson and Mr. F. J. Skaptason.

Free Press Vegetable Garden Competition. Prizes donated bby Free Press — 101 entries.

Class A, First year garden ..... Mr. M. Niewcross
Class B, Garden up to 25 ft. ..... Mrs. L. Richmond
Class C, Garden 25 to 50 ft. ..... Mr. G. E. Hennigar
Class D, Garden over 50 ft. ..... Mrs. C. Watkins

Judges — Mr. R. Skelding, Mr. J. P. DeWet, Mr. H. J. Sewell and Mr F. J. Skaptason.

Your Committee wishes to express its thanks, on behalf of the Society, to the following, who donated the prizes — Mr. J. K. May, Mr. J. T. LePage, Mr. A. M. Oswald, Rockhome Gardens, Winnipeg Free Press, Hudson's Bay Co., Winnipeg Supply & Fuel Co., T. and T. Seeds, Swift Canadian Co., J. H. Ashdown Hardware Co., Morden Nurseries, Salok Nursery, Consolidated Mining and Smelting Co., Burns & Co. Ltd. Prairie Nurseries Ltd., Steel Briggs Seeds Ltd., W. Atlee Burpee Co., Skinner's Nursery Ltd., City Hydro, Holland Bulb Gardens, Patmore Nurseries Ltd., Wallace Nurseries Ltd. and Mr N. Pankiw.



A section of the "Oriental Garden," Anniversary Exhibit (1893-1953) of the Winnipeg Board of Parks and Recreation, at the Annual Flower Show.

Flower, Fruit and Vegetable Show

W. J. TANNER

Chairman, Flower Show Committee

The annual Flower, Fruit and Vegetable show was held in the Civic Caledonian Curling Club Rink on August 26th and 27th, 1953.

A total of 782 entries were received from 104 exhibitors, which was a slight increase over last year. Entry fees amounted to $71.30, and admissions were $93.78. Total prize money paid was $517.25, and rent, printing, music and other expenses amounted to $240.00, making the total cost of the show, $757.25.

Judges in the flower section were Mr. H. F. Harp of Morden, Mr. J. Ormiston, Mr. M. McCaw, Mrs. W. D. Buhr, all of Winnipeg; Fruits, Mr. Fred Weir of Winnipeg; Vegetables, Mr. A. T. Craig of Portage-la-Prairie. To them, and also to the ladies who assisted them, our sincere thanks.

A very pleasing exhibit by the Winnipeg Board of Parks and Recreation, commemorating their 60th anniversary, was an oriental garden, complete with waterfall and a live peacock. This was an outstanding attraction, and drew many favourable comments. Mr. R. T. Hodgson and his staff spared no effort in making their exhibit so attractive. We are indebted to the Dominion Experimental Sation at Morden for a fine display of named varieties of fruits. Another very interesting display of Manitoba grown fruits was presented to the Society by Mr Harold Orchard. Proceeds from the sale of this fruit at the close of the show helped to reduce expenses. Thank you, Mr. Orchard.

We owe a debt of gratitude also to the T. Eaton Co. for their continued kindness in supplying the tables used in our show each year.

To Mr. R. W. Brown and all who assisted him looking after the entries, my personal thanks. I would like also to say thank you very much to all those whi assisted in setting up the show, and to the many exhibitors who, after all, are the ones who make our venture a success. Your comments, whether favourable or otherwise, are always welcome. Your Flower Show Committee finds a good deal of help from your suggestions when planning next year's show.

What Beautiful Glads!

by EVERED LAWRENCE

Winnipeg Gladiolus Society

"What beautiful Glads!" You have heard someone say — yes and you too can have just such beauties for a little time and a small investment.

Gladiolii do best in the vegetable garden away from the trees and in plenty of sunlight. At blooming time, they will love considerable moisture.

Plant breeders throughout the world are striving to give the gardening public some of the finest flowers, shrubs and grasses and this holds true in Glad breeding. Some marvellous new varieties of this beautiful flower (which is one of the oldest plants known) have been introduced in the last fifteen years.

Glads offer you a wide field of color from the purest white to almost black and, with the exception of a true blue, all other shades and colors are available from the most delicate and refined pastels to the most vivid and startling combination of colors.

Glads offer a wide choice of sizes, ranging from a one-inch diameter floret on a miniature to an eight-inch diameter floret on a giant type. There are early, mid-season and late flowering varieties. This varies somewhat according to the size of bulb, climatic and soil conditions. Glads, today, also offer the gardener a choice in plain petalled, waved, or intensely ruffled florets. There may too, be almost round florets on some varieties while others produce needle-pointed or butterfly type bloom.

Certain varieties will open a ribbon of bloom for you as many as 12-14 florets at one time, while others may give you only 4-5 open. They vary also in the number of buds per spike, from 10 to as many as 24 or more on some better varieties. There is also a great difference in substance, saturation of color, sheen, stiffness of stem, attachment of floret to stem and resistance to heat.

I believe Glads do best if you have space to plant large bulbs (1¼ inch and up) about 8 inches apart, and an 18-inch space between your rows. They much prefer a well, deeply dug bed and to be planted four inches deep. If you have a well balanced fertilizer, such as Vigoro, they respond well, but do not over do it. Plant early in May, but good spikes can be had from planting to the end of May. Blooms usually begin

to appear by late July and, depending upon varieties, size of bulbs and number planted, will continue to give you bloom until a heavy frost.

Glads vary in price from about 75c per dozen for large bulbs, to over $5.00 per bulb for newer varieties. For enjoyment, and at the same time have perhaps the thrill of a winner at a show, I will offer to you a few suggestions:

These are proven varieties, moderately priced, which can normally be relied upon to give good bloom.

Color	Variety
White	White Goddess, Florence Nightingale
Cream	Professor Gaudriaan, Leading Lady, Lady Jane
Yellow	Spotlight, Sundance
Buff	Patrol, Sunspot
Orange	Atlantic, Circe
Salmon	Polynesia, Boldface
Pink	Evangeline, Tivoli, Spic & Span
Red Scarlet	Dieppe, Red Charm
Rose	Burma, Folklore
Lavender	Elizabeth The Queen, Benjamine Britten
Purple	Lancaster, King David
Blue	Ravel
Smoky	Sandman, Stormy Weather, Storm Cloud

The following small sized varieties will produce nice size spikes for those who prefer the little ones, and are excellent for home decoration:— Wedgewood, Little Sweetheart, Crinklette, Atom, Cupid, Crusader, Little Gold and Statuette.

The smallest variety which I grow (floret size) is Starlet, a dainty little white of just over 1" diameter.

The largest—Tunias Aristocrat, 8" diameter floret.

The tallest—Ja Waggoner, 6' 3" to the top of the spike.

Longest flower head—Evangeline, 43½".

Nearest to block—Tobruk.

Most consistent—Spic & Span.

Most startling color combination — Pactolus, a striking yellow and red.

Should you have a nice spike in your garden and you would like to show it, endeavor to cut it to have 40% of the total length of the spike below the bottom floret and 60% flowerhead. Cut early in the morning with only one or two florets open.

It is advisable to spray your Glads with Flower Spray or D.D.T. at about two week intervals after the third leaf appears. This will protect them from thrip — a small insect, enemy of the gladioli. Use your spray according to the manufacturer's directions.

When you decide to add "Glads" to your garden or to increase your present stock and grow a spike which looks good to you — show it — for you may find you have a champion or you may win a ribbon which in itself is a thrill to a grower. If your best is over or not in bloom when the shows are on, and this happens to us all — visit the show anyway — look the Glad sections over and choose your favorites. Remember, too, to visit the gardens of the Glad growers, they will love to show you around and discuss the merits of the various varieties with you.

For sheer beauty of bloom for show in the garden or for practical use for home decoration, and for interest and enjoyment, Glad growing is an extremely satisfactory hobby.

Good Luck, Good Gardening and Good Glads!

Keep Your Lawn Beautiful All Summer Long

June ushers in the summer period for your lawn, and a trying period it is with hot weather coming on these are the things to remember:

1. Cut your lawn high. Never clip shorter than 1½ inches in the summer. Too close cutting exposes the crown of the grass plants to the hot sun. In time, it will also result in a decreased root system that cannot adequately support a vigorous top growth.

2. If you feel that it is necessary to water your lawn, give it a good soaking once or twice weekly. Never be guilty of giving frequent light sprinklings as this causes the roots to grow near the surface where they are subjected to more heat and there they do not find a good food supply.

3. Control lawn weeds. With improved selective lawn weed controls, you can spray ugly weeds out of your lawn quickly and easily. Simply dilute according to directions and apply with the "side-spray" applicator or any other type of spray equipment. In a week or so weeds will be gone — roots and all — without harming ordinary lawn grass.

A Rural Venture

MRS. W. SHAFER

It was the privilege of the Poplar Point Horticultural Society to sponsor a demonstration vegetable plot during 1953. This project was an enlargement of an idea whereby a society would hold a vegetable Field Day at which capable garden specialists would address the members and discuss with them their gardening problems. However, our enterprising Provincial Horticulturist, Mr. F. J. Weir, saw in this plan an opportunity to incorporate an idea which he and Mr. H. R. Hikida, of the University of Manitoba, had wanted to try out, namely a variety test plot of various vegetables. A list of suitable varieties was prepared which included both the old proven varieties as well as some of the newer less familiar ones. One of the members of the society volunteered to plant and care for the plot. The plan called for 20-foot rows of each of the following:— 3 varieties of radish, 4 lettuce, 2 onions, 7 beans, 7 peas, 5 cabbage, 4 cauliflower, 8 tomatoes, 8 sweet corn, and 6 cucumbers. Cabbage, cauliflower, tomatoes and lettuce varieties were started indoors and transplanted out when weather was suitable. Duplicate rows of cabbage and cauliflower varieties were sown in the garden as a fall crop. Radish and lettuce varieties were sown at about 15-day intervals, beginning as soon as the ground was in condition in the spring.

A well attended field day was held the 2nd week of August at which the relative merits of the various vegetable varieties were compared and discussed. Speakers were on hand to talk on various phases of gardening and a variety of material was on hand for identification of diseases and insect damages of garden crops and flowers. All in all, a very profitable and sociable afternoon was had.

Though information from only one year's trial cannot be conclusive, it should be noted that the performance of some varieties is worthy of mention here. Tendergreen, Round Pod Kidney Wax and Pencil Pod Black Wax bean varieties were noted for the high yield and excellent quality. Niagara and Straight Eight slicing cucumbers and National Pickling and Green Thumb pickling cucumbers deserve a place in many home gardens. Salad Bowl was a longstanding, sweet-tasting variety of leaf lettuce. It is the hope of the Poplar Point Horticultural Society to continue this vegetable variety plot and to have it rotate amongst various members of the society from year to year. It has proven of great interest among the members in showing at first hand how the various varieties of vegetables compare under local soil and weather conditions.

Care of the Cyclamen and Azalea in the home

by MRS. R. MUNT

A favorite gift plant of the Christmas and winter season is the colorful cyclamen. A common complaint from people who live in warm houses or apartment buildings is that these lovely plants die two or three weeks after they have been delivered by the florist. The fault lies mainly in the 68° F-75° F temperature of the average home. Back in the florist's greenhouse, your cyclamen was growing in a temperature at 40° F to 50° F. The quick change from cool to comparatively hot air is more than the plant can stand.

An east or west window where the temperature may be lowered at least 10° F may help to keep your plant in bloom a few weeks longer with a house temperature at 65° F at night, it should be about 60° F on the window.

At other times the cyclamen may not die but in a few days the leaves will start to turn yellow. The temperature has something to do with this too, but it is mainly due to the dry atmosphere of the rooms and insufficient watering. Usually housewives are too kind to their plants and overwater. But it is almost impossible to overwater a cyclamen in a hot room. Under these conditions, watering twice a day will not be too much. It should also be kept away from too much sun. With proper attention, these plants should stay in bloom from Christmas until some time in March. Whatever you do, don't place your cyclamen near a hot air register. If you tend your cyclamen properly, you can have delightful bloom for many weeks. When cyclamen are through blossoming, retard water slowly and put it in the basement in a cool spot. In the spring, when all danger of frost is past, repot and plant in rich soil with a little plant food added. Place plants in partial shade and water every day.

There is a good chance that at sometime you will either buy or be given a white or pink flowering azalea. In forcing these plants to bloom the temperature in the greenhouse must be constant at 40° F. Compare this with our homes where the temperature is at least 70° F or higher. It is not too bad if rooms are this temperature during the day but it definitely shouldn't rise higher than 60° F at night if you want to get a long blooming season from your plant. Another big factor in shortening the flowering season of this fine plant is the lack of humidity or moisture in the air. A pan of water set alongside your azalea will do so much to give the air around it the moisture it needs. A good soaking every day should be the rule when the plants are in bloom. Otherwise, not only will the flowering season be shortened but the leaves will start to drop from the plant.

There are few spots in Canada where azaleas are hardy so it won't be worthwhile keeping your plant until spring.

You may as well forget also any ideas you may have about keeping the azaleas and having them flower again next Christmas. The forcing into bloom out of season takes so much out of these plants that it is improbable you will get them to bloom the next year. Even if they did the quality of the flowers would not be worth the trouble.

The gloxinia is a good house plant. If you are looking for an easy-to-grow house plant this year, try a gloxinia.

The soil for these fine plants should contain quantities of humus. I suggest you use a soil mixture containing two parts good garden loam, two parts either material from the compost pile, well rotted manure or peat moss and one part sharp sand.

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