The PRAIRIE GARDEN ... 1959

INFORMAL GARDEN

PHOTO BY A. H. SHORTT — ASSINIBOINE PARK, WINNIPEG — GARDEN AREA—3 ACRES

Published by

WINNIPEG
Horticultural
Society

PRICE
$1.00

Foreword

F. C. W. RICE – President

WINNIPEG HORTICULTURAL SOCIETY

It is with pleasure that the Officers and Directors of the Winnipeg Horticultural Society bring you again "The Prairie Garden" 1959 Edition.

Interest in our publication broadens year after year and in 1958 we printed 6,000 copies to meet the demand. This is very gratifying to the Committee charged with its production. The support given by advertisers, Horticultural Societies and Garden Clubs makes it possible to bring you each year a publication of which we are proud.

To our many contributors whose articles so ably fill the need for horticultural information for the "Prairies" we say a sincere Thank You.

Again a special "Thank You" goes out to Mr. A. R. Brown, C.B.C.'s Prairie Gardener, for all the assistance he has given us.

May we extend to all, best wishes for another successful year of Gardening.

"THE PRAIRIE GARDEN" COMMITTEE

Chairman .....Mr. G. S. Reycraft, 92 Queenston St., Winnipeg 9
Mr. Hector Macdonald, Assiniboine Park S.O. 25, St. James
Dr. W. R. Leslie, 72 Baltimore Road, Winnipeg 13

Advertising .....Mr. J. P. de Wet, 207 Whytewold Road, Winnipeg 12
Mr. F. C. W. Rice, 185 Ash St., Winnipeg 9

In our efforts, over the last number of years, to make "The Prairie Garden" a truly Western Canadian Horticultural Guide, we are deeply indebted to Mr. D. R. Robinson, Extension Horticulturist, University of Saskatchewan, Saskatoon, Sask., and Mr. P. D. McCalla, Supervisor of Horticulture, Department of Agriculture, Province of Alberta, Edmonton, Alta., for the assistance in obtaining many valued contributions from outstanding professional horticulturists and successful amateurs in their respective provinces for inclusion in "The Prairie Garden."

It is our plan for 1960 to have representatives of all three prairie provinces on our Prairie Garden Committee.

Subscription Rates — $1.00 per copy. Special prices to Horticultural Societies and Garden Clubs.

FRONT COVER

Informal Garden, Assiniboine Park. One of the features of this Park operated by Winnipeg Board of Parks and Recreation, Garden is situated on south bank of Assiniboine River one mile west of city limits. Many species of hardy trees and shrubs and hundreds of varieties of flowers, all clearly labelled, make it specially interesting to the thousands of people who visit it each growing season.

Most of the old favourites as well as new varieties still on test are to be seen here. Informal grouping of annuals and perennials makes a colourful display from the time the garden opens in mid-June to the first frost.

THE PRAIRIE GARDEN

Western Canada's Foremost Horticultural Annual

Published by
Winnipeg Horticultural Society
(Established 1931)

A non-profit publication. The work of compilation, solicitation of advertising and the material submitted are all contributed to the advancement of Western Canadian Horticulture.

16th Annual Edition Winnipeg, Manitoba February 1959

Contents

	Page
Forward	1
Contents of Material Reading	3
Horticultural Societies in Western Canada	4
Green Grows My Garden—Dr. A. R. Brown	5
Garden Calendar—Dr. W. R. Leslie	7
Prize Cabbage—Hector Macdonald	17
Kitchen Gardening is Fun	18
Growing Glads in 1958—Stan Gugin	21
Plant Chrysanthemums—W. L. Kerr	23
The Use of Foliage in Flower Arrangements—Mrs. G. K. Peturson	24
Planting the Perennial Border—H. Marshall	31
Annual Flowers for Southern Saskatchewan—C. W. Carlberg	33
My Experience in Growing Tree Fruits in Saskatchewan—K. N. Heaver	37
A Note on Roses—D. R. Robinson	38
Native Plants in the Garden—W. A. Cummings	39
Just a Few Lines about Trees on the Farm—A. Dickson	43
Manitoba's Emblem and its Cousins—F. L. Skinner	47
Fall or Spring—When to Buy Hardy Plants—D. Burke McNeill	49
Your Nurseryman—Walter Shermerdine	51
Construction of Patios—Clyde B. Bethke	53
Why Not a Lily Pool in Your Garden—L. H. Cooper	55
The Certificate of Merit—D. R. Robinson	57
Deciduous Trees for the Prairies—R. H. Patmore	61
Some Common Plant Disease Problems—Dr. B. Peturson	71
Transparent Plastics and the Gardener—Howard Cash	79
Francis Meilland—Hector Macdonald	80
What is New in the Dept. of Horticulture, Saskatoon, as the Year 1958 ends—C. F. Patterson	81
Pest Control in the Home Garden—Dr. R. J. Hilton	87
Manitoba's Vegetable Industry—W. Damen	91
Pine Needle Scale and it's Control—Howard Cash	93
So You Want to Grow Roses—Mrs. W. M. Wilkes	95
Vegetable Gardening Tips—T. A. Sandercock	99
Salad Vegetables in Your Garden—Chas. Walkof	101
Some Notes on Vegetable Gardening—W. A. Russell	105
Lilies Are My Favorites—J. P. de Wet	109
Dianthus (Pinks)—A. Munro	113
Do It Yourself—From Seeds—Wm. H. Gray	116
Notes on House Plants—D. A. Tyson	119
Miniature Dahlias—Hector Macdonald	122
Compost for the Home Garden—J. A. Menzies	123
Free Horticultural Publications—Man., Sask., Alta.	126
Growing African Violets from Seed—Mrs. J. S. Mullan	127
The Propagation of African Violets from Leaf Cuttings—A. W. Sellers	129
Dutch Bulbs—H. F. Harp	133
Why Not Junior Horticultural Societies?—J. H. Martin	137
Red Deer & District Horticultural Society	138
Give Those Tomato Plants a Chance—G. A. Kemp	139
Tips on Landscaping—Dr. W. R. Leslie	141
Kindersley Horticultural Society	145
Setting the Stage—With Concrete	147
Registered Commercial Nurseries in Manitoba	149
Starting Tuberous Begonias	151
Index to Advertisers	152

HORTICULTURAL SOCIETIES IN WESTERN CANADA

MANITOBA

Bowsman ..... Mrs. Robina Metcalfe, Box 58, Bowsman
Brandon ..... L. Gemmill, 532 - 14th Street, Brandon
Carman ..... Mrs. Edith Somers, Carman
Charleswood ..... Mrs. M. Agger, Robindale Road, Roblin Park P.O.
Dauphin ..... A. J. Schmiedl, Dauphin
Dominion City ..... Mrs. G. Kyle, Dominion City
Fort Garry ..... Mrs. W. J. Bowsfield, 810 North Drive, Fort Garry
Flin Flon ..... Dr. B. A. Biggs, 14 Hapnot Street, Flin Flon
Grunthal ..... Mrs. Elsie Janzen, Box 11, Grunthal
Hartney ..... Mrs. J. A. Fry, Hartney
Killarney ..... Mrs. H. J. Lovett, Killarney
Manitou ..... Mrs. Jack Cassels, Manitou
Minnedosa ..... Miss Donna Martin, Minnedosa
Morden & District ..... Robert Milne, Morden
Newdale ..... Mrs. E. M. Switzer, Newdale
Oakville & District ..... Mrs. J. W. Boddy, Oakville
Pilot Mound ..... Dr. Roman Swizczowski, Pilot Mound
Pine Falls ..... A. A. Kruger, Pine Falls
Poplar Point ..... Mrs. H. J. England, Marquette
Portage la Prairie ..... Eric Smith, 74 Main Street South, Portage la Prairie
Russell ..... Miss Sylvia Bryant, Box 13, Russell
Souris & Glenwood ..... Mrs. S. J. Coxworth, Box 56, Souris
St. James ..... Mrs. A. Knight, 416 Conway Street, St. James
St. Pierre ..... Mrs. Annette M. Hebert, St. Pierre
The Pas & District ..... Sidney Wilton, The Pas
West Kildonan ..... Mrs. J. Slipetz, 417 Scotia Street, West Kildonan
Winnipeg ..... W. J. Tanner, 518 Henderson Highway, East Kildonan

Committees

Birtle ..... Mrs. A. Berry, Birtle
Carberry ..... Mrs. W. H. Switzer, Carberry
MacGregor ..... Mrs. Ed. Chant, MacGregor
Miami ..... Mrs. J. Davis, Miami
Reston ..... Maurice Ludlam, Reston
Virden ..... Mrs. F. A. Knox, Virden
Manson ..... Mrs. W. J. Kirby, Manson

SASKATCHEWAN

Assiniboia ..... Mrs. M. Hall, Assiniboia
Balcarres ..... Mrs. L. Sharp, Balcarres
Battlefords, The ..... Mrs. J. D. MacLean, 1451 Henry Street, North Battleford
Canora ..... Mrs. May Gibney, Canora
Carrot River ..... Mrs. R. W. Pomeroy, Carrot River
Eatonia ..... Mrs. V. Rea, Eatonia
Echo Lake ..... Harold Jennings, Fort San
Elfros ..... L. Arnason, Elfros
Estevan ..... Mrs. K. Anderson, Estevan
Eston ..... Mrs. R. Wyman, Box 125, Eston
Humboldt ..... Mrs. J. Platzer, Humboldt
Indian Head ..... Mrs. N. Swinton, Indian Head
Kamsack ..... Fred Tetoff, Kamsack
Kindersley ..... Mrs. Ruth Garman, Kindersley
Lloydminster ..... Mrs. D. E. Breen, Lloydminster
Melfort ..... Mrs. E. Hawke, Melfort
Melville ..... C. G. Casswell, Melville
Moose Jaw ..... Mrs. O. S. Carter, 701 Hochelaga W., Moose Jaw
Pelly ..... Mrs. M. Campbell, Pelly
Prince Albert ..... Mrs. D. MacPhedran, 1419 - 1st St. E., Prince Albert
Quill Lake ..... Miss Violet Palmer, Quill Lake
Regina ..... Mrs. L. M. Robinson, 2265 Wascana St., Regina
Rosetown ..... Mrs. A. H. Burton, Rosetown
Saskatoon ..... E. A. Morgan, 101 - 115th St. E., Saskatoon
Spiritwood ..... Mrs. K. M. Oswell, Spiritwood
Sturgis ..... Alan Sweet, Sturgis
Swift Current ..... Mrs. G. Torrans, 476 - 8th E., Swift Current
Uranium City ..... W. D. Ross, Uranium City
Weyburn ..... Mrs. E. G. Goodrich, Box 989, Weyburn
Windthorst ..... Mrs. P. E. Davman, Windthorst
Yorkton ..... G. L. P. Clements, Yorkton

ALBERTA

Three Hills Flower Club, Three Hills, Alberta ..... Mrs. Arthur C. Webb, Secretary
Medicine Hat Horticultural Society, Medicine Hall, Alta. ..... Miss A. E. Lokier, Secretary
Edmonton Horticultural Society, Edmonton, Alta.
Mr. A. Young, 9950 - 102nd Ave., Edmonton, Alta.
Calgary Horticultural Society, Calgary, Alta.
Mrs. June Oakley, Secretary, R.R. No. 4, Banff Road, Calgary
Calgary Garden Club ..... Mrs. W. Walker, 2308 - 4th St. N.W., Calgary, Alta.
Lacombe and District Garden Club ..... T. H. Newman, Secretary, Lacombe, Alta.
Lethbridge & District Horticultural Society
W. Domier, Secretary, 820 - 12th St. A South, Lethbridge, Albta.
Stettler Horticultural Society ..... Mrs. J. T. Costigan, Secretary, Stettler, Alta.
Lloydminster Horticultural Society ..... E. H. Davies, Box 308, Lloydminster, Alta.
Vermilion Horticultural Society
Mrs. Nora Tebbutt, c/o E. H. Buckingham, D. A. Vermilion, Alta.
Ponoka Horticultural Society, Ponoka, Alta. ..... Secretary
Red Deer Horticultural Society, Red Deer, Alta. ..... Mr. Pat Smith, Secretary
Red Deer River Garden Club ..... Mrs. E. Matheson, Rumsey, Alta.
Bentley Garden Club ..... Mrs. C. F. Damron, Bentleyy, Alta.
Alix Garden Club ..... Mrs. Celia Mansbridge, Alix, Alta.
Myrnam Horticultural Society ..... Mrs. L. Tkachuk, Myrnam, Alta.
Berwyn Horticultural Society ..... Berwyn, Alta., c/o Q. W. Beattie, D.A.
Wainwright Horticultural Society ..... c/o J. S. Duncan, D.A.
Fort Macleod Horticultural Society
J. F. Canning, Secretary, Box 135, Fort Macleod, Alta.
Lethbridge Gladiolus Society ..... Mr. J. P. Talbot, 811 - 18th St. S., Lethbridge Alta.

GREEN GROWS MY GARDEN

by A. R. BROWN,
CBC's Prairie Gardener

Christmas is a season for family gatherings, for neighbourly greetings and the bearing of gifts . . . gifts of love and affection which contribute greatly to the building of a friendlier world.

In these exciting and momentous days when selfish nationalism and conflicting ideologies threaten the peace of the world, we need more than ever before the star of hope hovering over a manger in Bethlehem and the Christmas message of peace, good-will among men.

For only love can dispel the evil forces of darkness, only love can heal the raw wounds of intolerance, only love and understanding can roll back the clouds of hatred and despair . . . love that knows no boundary lines of color, creed or class, love that resolves all differences, love that recognizes the integrity and worth of all men, love that lifts up and sets our feet on the path towards truth, beauty and good living.

This in its essence seems to me to be the spirit and message of Christmas, and of Him whose birth we celebrate.

I think too, this is the spirit of all good gardening. The garden is a friendly place, and love of gardening forges strong bonds of fellowship among those who work with plants. Good gardening builds friendships and friendlier communities, enriches family and community life in countless ways, and is a basic and potent factor in promoting good citizenship.

Man's struggle upward out of the swamps and mists of antiquity has been closely associated with the discovery and use of plants. Without doubt one of the most far-reaching events in history occurred when man learned to till the soil, make a garden and produce his plant needs in his own backyard.

It was the tillage of the soil and the cultivation of plants which first anchored man to one spot called home, and laid the foundations for more permanence and greater security in family and community life.

Down through the ages, the discovery and use of new plants has had a tremendous impact on human society, much more significant than the finding of mineral treasure. Gold

and oil can be extracted and used just once, and so must be hoarded lest they be lost. But plants are living things which can be improved and multiplied in continuing production as our needs demand, and so can be shared in abundance.

Less than a hundred years ago, Mendel, an obscure monk in an Austrian monastery, working in his garden, discovered the laws of heredity and laid the foundation for a plant revolution through the breeding of new varieties.

Plant breeding is transforming the world in which we live, creating new wealth, new beauty and above all, new opportunities for good living and friendly sharing.

We still need plant explorers to discover new plant materials for us, but no longer is it so necessary for them to travel to far places in search of them. Through the wizardry of plant breeding the discovery of new plant forms may be no farther away than our own backyards.

In our gardens we can plan and plant and dream, embark on our own voyages of discovery, and perhaps make notable contributions to human progress.

Horticulture and plant science are playing a major role in the development of the prairie region. In our gardens, you and I are privileged to have a share in the transformation that is taking place.

GARDEN CALENDAR

by DR. W. R. LESLIE, Winnipeg, Man.

Dr. Leslie was Superintendent of the Experimental Farm at Morden, Man., for many years. He is now resident in Winnipeg, acting as a landscape consultant and writing a garden column in The Winnipeg Free Press under the heading — "Over the Garden Wall".

JANUARY: The month of new beginnings.

Potted Plants: remove yellowing leaves; snip off faded flowers; syringe or dust plant foliage from time to time. Humidify the room atmosphere by having pans of water placed on radiators, trays and other containers filled with water set here and there, and by syringing moisture into the air with an atomizer.

Bulbs and Plants in Storage: sprinkle the covering of dahlia and other tubers in roots when signs of shriveling show. Remove any portions carrying rot and dust with sulphur to check progress of disease. If gladiolus corms were not treated against thrips, do it now, using 5% DDT dust. The insects arouse hungry when the room becomes warmer.

Grounds: avoid breakage of evergreens and other ornamentals from snow-crush. Ease the snow off gradually by gently tossing the branches from below with the flat side of a house broom. Feed the birds grit and fodder.

FEBRUARY: The month of rising anticipation. Study nursery and seed catalogs. Prepare orders for springtime needs. Attend horticultural meetings.

House Plants: cheer them up with a weekly bath. Pinch back tips of plants which have become leggy in the weak mid-winter light.

Storage stock: check over again, discarding any diseased parts. Spread out and dry off those which have become soft and moist, then replace in favorable medium. Maintain low temperatures.

Greenhouse: sow seed of long-time plants such as Spanish onions, primulas, violas and lobelia. Make cuttings of coleus, begonias, and geraniums as required for window boxes and border bedding.

Winter Bouquets: cut sprays of flowering trees and shrubs for forcing. Suitable material includes willows, forsythia, flowering quince, crabapple, plum, cherry, alder and birch. Select shoots of fair size and carrying many fat flowering buds. Split the stems for better water intake. Start in water

placed in a cool room, gradually moving to warmer positions. It may take about 6 weeks for most of them to flower.

Keep the bird-feeding stations replenished with heat-producing foods. Test held-over garden seed for germination strength.

MARCH: The month of preparation. Order nursery stock; garden seeds; chemicals to serve as pesticides.

Seed Sowing Program, as recommended by Professor S. J. Westaway, University of Manitoba; March 15 — snapdragon; 22 — portulaca; 25 — dianthus, ageratum, matricaria, salvia, heliotrope, double petunias; 30 — verbena, nicotiana, anchusa, cynoglossum, salvia splendens; **Vegetables:** March 20 — celery, pepper, eggplant, onions. Others which may be sown in late month — pansies, periwinkle, nurembergia, lobelia and dwarf dahlias such as Coltness Gem and Unwin Hybrids.

Storage Plants: Start tuberous begonias in flats or large seed pans, using a mixture of ½ sand and ½ acid peat, or vermiculite. Space the little tubers 2 to 33 inches apart, hollow side up, and press in to depth that leaves only the tips exposed. Bring geraniums up from storage, repot while leaving old soil adhering to the roots; cut back most of 1958 growth; soak in a tub of tepid water; place in a sunny window; water sparingly until a crop of new shoots show need of heavier watering.

Scions: cut those needed for top-working fruit trees, lilacs, hawthorns, etc. Store in plastic bags in the refrigerator to keep them dormant but plump.

Pruning: is now in order. Cut back uneven and tired hedges to rejuvenate them. Cut out and burn insect galls, black-knot cankers, and fire-blight areas. These are likely to be sources of spring infection when sappy fresh growth develops.

APRIL: The awakening month, when activity begins out-of-doors on full scale.

Seed Sowing: April 2 — petunias, coreopsis; 9 — French marigolds, calliopsis (doubles), helichrysum, gaillardia, Drummond phlox, violet alyssum, tagetes, asters, zinnia linearis; 13 — scabiosa, balsam, amaranthus; 17 — white alyssum, larkspurs, nigella, stocks, celosia, cosmos, cockscomb, tall African marigold, zinnias; **Vegetables:** April 10 — tomatoes, head lettuce; 15 — cabbage, cauliflower, broccoli. **Outdoors:** as soon as the soil becomes mellow with dryish topsoil — sweet peas, onions, peas, radish, leaf lettuce, spinach, early carrots. Sow stratified seeds of fruits and woody plants early in prepared sheltered seedbeds.

Harvest over-winter garden parsnips and salsify. They soon become useless after new growth starts. Enjoy tender young growth on winter onions and chives; also early greens from Belgian spinach (sharpleaf dock) and seakale. Bank a shell placed around a rhubarb plant to force a pre-season supply of succulent stalks for tonic sauce and pies.

Pruning: April is the optimum time for general pruning, thinning, heading-back and shaping. Leave most of the spring-flowering shrubs until after blooming. Shrubs that perform best when cut back hard include Japanese spireas as Froebel and Anthony Waterer; tamarisk; hydrangeas; and Tea roses.

Planting: Early planting of trees and shrubs makes for stronger root growth and greater development of branches and trunk. Take advantage of the cool moist soil conditions and the gentle rainy weather of spring. Get hardwood cuttings into the ground as soon as possible. Mulch over the row with 2 inches of straw or hay. Line out your root grafts.

Clean up the lawn with a gentle dandelion rake. Feed established turf with 2 to 5 pounds of ammonium sulphate, spread over 1,000 square feet, and water in immediately. Fertilize old shrubberies and lazy trees, using ammonium phosphate. The aim is to get them in vigorous growth in May and June. Their foliage is large when the roots are well fed in spring. Treat garden soils with insecticide dust if cutworms, wireworms, slugs and other soil pests are in evidence.

MAY: The leafy month. Sow seeds of all hardy vegetables in the garden now. Follow the Indian's calendar by sowing corn when the wild plum comes into bloom, and beans and vine crops, such as squash, when the hawthorn is white with flowers. Harden off transplants of vegetables and bedding plants for at least two weeks before they are to be set out in the garden. Use plant protectors — hotcaps, cloches and other night covers for transplants set out early for the purpose of obtaining pre-season harvest. Rhubarb is at its best this month. Can or freeze surplus. Enjoy winter onions, perennial spinach and asparagus in its third year, or older form. Sow seed of seakale and chicory to provide roots for forcing in the basement next winter.

Fruits: Topwork fruit trees and ornamentals to improved varieties. The second week of May is usually optimum. The sap is running vigorously and healing is rapid. Place a hive of bees in the orchard to effect cross-pollination. Complete pruning and clean-up. Remove winter wraps and soil mounds from trunks. Uncover grapes and tie canes to the wire supports, or trellis. Finish all planting, including strawberry, as early as possible.

Spray against pests promptly when seen. Apply DDT to bush fruits to protect against fruit fly maggot. First, when flowers of currants fade and again in 10 to 14 days.

Grounds: use aerifying fork to open turf on old lawns; apply fertilizer; set mower to cut at 2½ to 2 inches so that

grass roots be encouraged to grow deeply before hot weather. Dig and fertilize gaps in the flower borders. Divide autumn asters, daylilies, and other perennials which make a broad crown in one or two years. Interplant spaces between tulips by sowing seed of hardy annuals or by using bedding plants. Set out chrysanthemums when the Darwin tulips are in full bloom. Plant dahlias about the last week and cannas four or five days later. Set gladiolus in mid-month and at weekly intervals. Place the window boxes and furnish them. Mulch plants to keep roots cool and moist and to conserve moisture and maintain mellow surface soil conditions.

JUNE: The month of peonies, roses, strawberries and salads.

Complete transplanting to the garden. Shade transplants temporarily if hot and sunny. Thin vegetables and flower rows. Keep weeds eliminated. Mulch asparagus bed with barnyard manure. Irrigate when soil dries. Do not allow celery to become dry at any time. Prune staked tomatoes and sweet peas. Remove spent crops — radish, lettuce, cress, spinach, to the compost heap. Can peas, spinach, beets. Cultivate soil towards potato plants to prevent sunburned tubers. Keep all rubbish cleaned up, thus removing harbor for pests.

Remove flowers on newly set bed of everbearing strawberry plants until the first of July. Thereafter let them set fruit. Prevent new plants rooting closer than 8 inches from its neighbors. Hoe out surplus suckers in raspberry rows. Mulch berry patches. Use DDT against chewing insects; malathion on aphids and other sucking insects; aramite to kill red spider mites. Layer lower branches of fruits and shrubs to make increase plants. Use dieldrin to fight cutworm and other soil insects. Record all new planting in your record book.

Grounds: Take cuttings of select lythrums and root them in sand or vermiculite. Pinch out tips of leggy stalks to promote bushiness. Clip off flower stems as quickly as bloom deteriorates. Stake tall subjects which have weak stems. Apply 'general purpose' spray or dust from time to time against insects and diseases. Trim formal hedges before new wood becomes hard and wiry. Feed old established shrubberies, spreading to the rim of the branches, raking it in gently and water into the upper soil. Feed iron chelates to roots and leaves of any subjects yellowing because of hunger for iron. Watch evergreens for pine leaf scale and spider mite. Combat with malathion and aramite. Dust Tea roses weekly with a mixed rose poison. Contral stature of dwarf evergreen by rubbing out the terminal spike in growth cluster of pines and by clipping cedars and junipers. Treat lawns against weeds. Mow lawns to 1½ inches; feed; water.

JULY: The month at the top of summer, the time of vacations, heat waves, sharp thunderstorms, and glory in the annual

flower border. The big flush of growth that featured June continues but somewhat abated. The big task is to see that ample moisture for plant root needs be available.

Aim to keep growth of woody plants vigorous until mid-month. Thereafter, stimulating cultivation and frequent watering is withheld to the end that the plants commence the hardening up of their tissues, preparing themselves for the dormant season. In contrast, flowers and lawns are encouraged to keep pulsating in strong growth.

Fruits: Complete thinning of apples, pears and plums. Remove surplus side shoots from grape canes to let maximum sunshine into the vines. Support heavily laden branches with comfortable crotched sticks or notched boards. If the season be very rainy, sow a cover crop of oats, barley, buckwheat, or rape, alone or in combination, to lessen soil moisture and thus check extension of new growth. Keep all suckers from below the grafts cut off. The soil over layered branches should be kept moist through the month. Allow flowers on everbearer strawberry plants to produce fruits.

Vegetables: Cease harvest of rhubarb and asparagus. Feed these plants to make up fat storage of food in their fleshy roots for cropping next year. Sow seed of Chinese cabbage, Swede turnips for main crops, and seed of leaf lettuce, beets, carrots and kohlrabi for succession. Maintain a dust mulch, cultivating to depth of not more than 2 inches. Support pole beans and pruned tomatoes with adequate stakes. Shade cauliflower heads by fastening the tips of the leaves together with a rubber band. Harvest summer squash in juvenile stage. Can surplus beans, beets, carrots and chard.

Grounds: Prune early flowering shrubs when blossoms fade. Trim coniferous hedges the first week of July, giving them their once-a-year shearing. Prevent chlorosis by iron feeding. Brace weak crotches with cable or stout wire fastened to eye bolts or wood screws. Remove flower heads before seed forms, excepting shrubs and trees with showy fruits. Dig up tulips when the leaves turn brown and ripen the bulbs for September planting.

AUGUST: The month of melons, tomatoes, plums and phlox.

Fruits: Harvest tree fruits with care, saving the spurs unharmed. Collect and burn all dropped specimens which may be carrying pest troubles. Irrigate bearing trees in periods of prolonged dry weather. Exhibit at the flower shows. Prune raspberry patch when picking is complete. Finish budding fruit and other nursery stock. Set out pot-plants of strawberries.

Vegetables: Irrigate as required to assure crisp, tasty, nutritious produce. Blanch celery. Sow leaf lettuce, radish and spinach for autumn crops. Collect matting and rugs and cartons as night coverings for plants on cool nights. Save seeds of select varieties of peas, beans, cucumbers and tomatoes, choosing the earliest and finest.

Grounds: Transplant spruce and pines in mid-month. Sow grass seed the third week. Root prune woody plants growing too rampantly in shoots. Plant out nursery stock obtained in canes. Make final hedge shearing. Bud roses. Sow seeds of hollyhocks early if not already done in July. Plant hardy strain of Madonna lily. Transplant oriental poppy. Sow seed of delphinium and gasplant as soon as ripe. Plant freesias in pots. Order dutch bulbs. Gather everlasting flowers for winter bouquets. Take cuttings of border geraniums and other plants desired for house culture. Transplant spring-sown seedling perennials into the borders. Keep chrysanthemums well watered. Stake tall autumn asters. Spray needy spruce and pines with malathion and aramite against scale and mite insects. Complete the iris border as early as convenient. Patronize the Garden Shows.

SEPTEMBER: The month of harvest.

Borers: Surround the trunks of plum, and other trees infested, with a "death-ring" of DPB (paradichlorobenzene), and cover with a cone of soil tapering up against the trunk or stems.

Vegetables: Store potatoes temporarily in the field to harden skins. Sow lettuce and radish in hotbed for late crop. Plant perennial onions, chives and rhubarb. Fumigate the root cellar. Select only the well-matured, sound, unblemished specimens for filling storage bins and shelves. If cabbages are splitting, thrust a shovel down one side and ease the head over, severing some of the roots and lessening intake of water. Cover tender plants on very cool, clear nights. Remove coverings in mid-morning when the air warms. Pot two plants each of parsley and chives for house growing.

Grounds: Raise the lawn mower to the 2 to 3-inch level. Spread 2 to 8 pounds of chemical fertilizer over 1,000 square feet of grass. Rake up fallen leaves and dispose on the compost pile. Divide and replant such perennials as phlox, bleeding-heart, daylilies and gaillardia. Plant lilies and peonies after the middle of September. When they become available plant lily-of-the-valley, St. Bruno lily, ixiolirion, oxalis, ranunculus, squills, grape hyacinth and hardiest strains of crocus, narcissus. Keep tender lilies in cellar storage until spring. Make over tulip beds where the bulbs have increased to the point they are crowding and becoming small. Keep chrysanthemum and aster borders watered and mulched as their roots are near the surface. Gather gourds before frost. Pull

all vagrant weeds and carry them off or bury deeply to rot. Early September is better than later for transplanting shrubs, allowing for root growth and anchorage before the soil becomes cold.

OCTOBER: The month of thanksgiving and contentment.

Make hardwood cuttings of currants, gooseberry, and store under a foot of soil at the north side of shelter. Open drainage ditches to carry off winter thaw waters. Bait mouse runways. Dig chicory and seakale and store in boxes of soil placed in a cool cellar. Dig large root clumps of rhubarb for winter forcing, leaving same out to freeze for a few weeks.

Fertilize the gardens with barnyard manure and dig in to depth of 8 inches or more. Leave the surface in the rough for winter. The lawns should be aerated and given a spread of organic, or animal and plant, manures. Deliver garden refuse and leaves from lawn rakings onto the compost heap. At the end of the month grass seed may be sown, to remain dormant until spring.

Trees and Grounds: Sow seed of sugar maple, walnut, horse-chestnut and other fleshy seeds in prepared seedbeds. Water well before freezing. Mulch with cover of leaves after freezing. Protect against mice. Mound recently planted woody subjects with a cone of soil. Surround valuable young evergreens with a circle of slat fence, fastened securely to stout posts. Add a robe of burlap in a manner that will leave all branches free of contact. Winterize the rose bed. Take down vines of tender constitution, lay on the ground and cover with dry leaves scattered through a mesh of brush to prevent matting. Take delivery of nursery stock and heel in pending spring planting. About the middle of the month, water all evergreens thoroughly, unless autumn rains have done so. Irrigate any woody plantings in dry soil. Leave herbaceous perennials on the dry side as sodden plants are likely to rot.

Flowers: Complete planting of dutch bulbs and lilies and peonies. Lift dahlias, cannas and gladiolus. Lift and pot chrysanthemums wanted for increase supply of cuttings. Clean up the borders and mulch as required. Fertilize and dig spaces in the border. Spread brush over the rock garden. Drain all water pipes. Bring equipment under cover.

NOVEMBER: The month of seasonal change, autumn gives way to winter.

After the first snowfall, add another 2 inches of straw to the strawberry patch. Tie up with bands of burlap dwarf evergreens and any other materials, particularly those near buildings, which are in danger of breakage from snow-crush. Erect temporary shelter to parts of the garden exposed to northwest winds. Store potting soil. Use brush or a spread

of chicken wire over leaf muches to keep them in place. Clean out the eave troughs. Fill hotbeds and cold frames with fresh soil. Dig holes where trees and shrubs are to be planted next spring. The frost action will mellow the subsoil and snow waters will soak in deeply. Renew subscriptions to garden journals and memberships in the horticultural and natural history societies.

DECEMBER: The windup of a good garden year.

Plan for 1959 and for 1960. To the improvement of gardens there is no end. We derive so much of our pleasure from the surroundings in which we live that we should resolve to make them continuously of increasing and changing interest. Aim to have color on the grounds in winter as well as during spring, summer and autumn. Pay due attention to the friendly birds, keeping their feed trays supplied with their choice of food and with grit.

Give periodic attention to materials in storage. Keep rose roots, fruit stock, tubers, bulbs and corms, cool and dormant. Control the humidity of storage chambers. If molds show up, dust with sulphur, Terra chlor, 20% dust, or spray with captan, one ounce in 3 gallons of water.

Coleus plants need full sunlight to bring out rich foliage coloring. Keep them amply watered. Pinch back terminals to promote compact growth. Cacti also want bright light. Pot up the begonias started as leaf cuttings as soon as the first break of leaflets shows. Make carnation cuttings from side growths. Syringe potted plants now and then. Use cones and evergreen branches in making sprays and wreaths for Christmas adornment.

PRIZE CABBAGE

by HECTOR MACDONALD,

Winnipeg, Man.

Man, I grew some big cabbages this year.

Took one down to the Flower Show. Won first prize for heaviest cabbage (only one entered). They grew a lot bigger after the show. Lucky they were the flat-topped kind, we were able to roll them into the house like a wheel, a big wheel.

There's only the wife and me and the dog, and the dog don't go for cabbage. We had a lot of cabbage to eat.

Mike, my Ukrainian neighbor, said, "Make sauerkraut". I said, "Don't know how, no sauerkraut in Scotland, we boil cabbage". Mike says, "I fix for you, get pickle salt, spice, some apples and big crock, I bring machine".

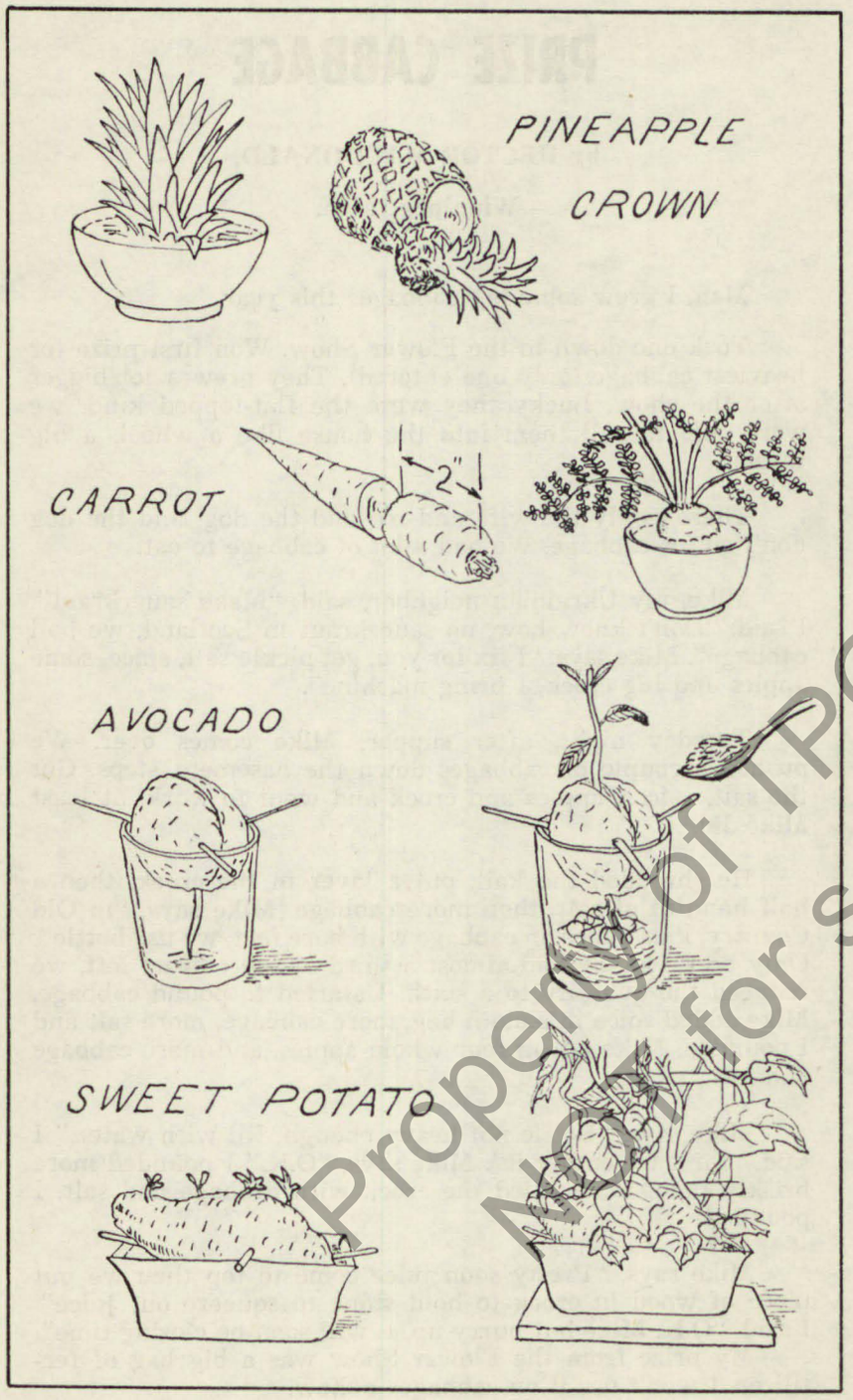
Tuesday night, after supper, Mike comes over. We pushed a couple of cabbages down the basement steps. Got the salt, spices, apples and crock and went to work, at least Mike did.

He shredded the kail, put a layer in the crock, then a half handful of salt, then more cabbage. Mike says, "in Old Country, kids dance on cabbage with bare feet, we use bottle". Only bottle handy had almost a third of rye extract left, we reduced the quantity to a sixth. I started to pound cabbage, Mike added spice in a cloth bag, more cabbage, more salt and I pounded. Mike put in four whole apples, and more cabbage and salt.

Mike says, "Bottle not heavy enough, fill with water." I said, "First we empty it". Mike says, "O.K." I pounded more briskly then. Mike filled the crock with cabbage and salt, I pounded.

Mike says, "Pretty soon juice come to top then we put piece of wood in crock to hold stone to squeeze out juice". I said, "O.K. Mike but hurry up, it will soon be closing time".

My prize from the Flower Show was a big bag of fertilizer. I won't use it on cabbages nohow.



KITCHEN GARDENING IS FUN

Did you know that you can have a handsome array of house plants at practically no cost and with very little trouble? By using such kitchen discards as avocado seeds, carrot tops and pineapple crowns it's easy to grow exotic-looking plants. You'll enjoy seeing the plants develop step by step, as tiny white rootlets evolve into strong root systems, and tender shoots give rise to thick green foliage. "Kitchen gardening," because it offers the opportunity of closely observing the way of plant life, is also an excellent way of giving children their first lessons in botany.

PINEAPPLE CROWN — Pineapple crown develops distinctive-looking top growth when placed in dish of water and pebbles. Set crown on needle holder and keep covered with water.

CARROT — Top 2" of carrot will make attractive plant with delicate, feathery foliage if it is set in container of water. Carrot can be supported with pin holder.

AVOCADO — Thrust three toothpicks into base of pit so that it rests with bottom touching water. Replace water as it evaporates. When plant has developed substantial roots and foliage and is ready for potting, add soil gradually to water. Prune to keep within bounds. Good-sized avocado plant can be put into garden soil in its pot during summer months.

SWEET POTATO — Start sweet potato plant in bowl with toothpick support, or in narrow-necked jar which holds base at water level. Top growth is vine-like, needs to be tied with soft string to support. When roots are well established, add soil gradually. Bamboo stakes laced together form attractive support for sweet potato vine. Make base of wood, bore holes for stakes.

PERIWINKLE

Vinca herbacea: To those who have fond memories of Vinca minor but who find that they cannot grow it Vinca herbacea will be a most welcome substitute. Vinca herbacea is almost identical with Vinca minor while in full growth in summer but dies down entirely in winter. It likes a sunny, well-drained bank and will soon cover such a site with its tendrils, these roots at the tips and should be a good soil binder for those sunny spots that are hard to clothe.

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

GROWING GLADS IN 1958

by STAN GUGIN, B.S.A.,

President, Minnedosa Horticultural Society, Minnedosa, Man.

The 1958 season was a difficult one for growing flowers in this area but in spite of it all the Glads came through with flying colors. Heavy frost on June 5th and again on June 12th levelled many of them to the ground. A few varieties escaped damage from the frost each time, suggesting a possible varietal difference in frost tolerance. The dry cold Spring was followed by one of the driest summers on record, and although I was not able to irrigate many of my nearly 5,000 Glads, there were rows of fine spikes in my plot, and most of the varieties went on to bloom well. My Glads were grown on well worked summerfallow which had a good moisture reserve. I used some black plastic mulch and some rotted manure, and sawdust, but did not get on my hay mulch this year, as I was waiting for a good rain before putting it on, and that rain never came.

Of nearly 200 varieties of Glads both old and new the following did best for me in 1958: In white — **White Plume** — tremendous Glad with many open florets; **Sierra Snow** — beautiful and dependable, and snowy white; **Prof. Goudrian** — a most reliable Glad; **Connie G** has been my most beautiful cream colored Glad, though I must rate **Lorelei** and **Lief Ericson** above it for a better spike. **Carved Ivory** is a beauty in this color, only smaller. In yellow, **Fort Knox** has been by far the best with me. It is early, grows a good spike, has good color, heavy texture, and lasts well. **Prospector** is also good as is **Gold Bank. Golden Sunshine** is very good though late.

In buff, **Peach Glow** was the best followed by **Patrol.** I find **A. B. Coutts** pretty late here. Of the orange colored Glads I have found **Debbie** and **Fire Opal** to be the most beautiful, but **Atlantic** is still the best spike maker. In salmon, **Sally Rose** was the most beautiful this year. **Salmon Queen** grows a tremendous spike, and is generally good. **Wax Canary** and **Polynesia** are others I like in this color section. In light pink, **Ethereal** is both large and beautiful; **Pink Elegance** is good and **Pink Harmony** grows tall and straight, but shows some misplacement of florets. Of the deep pinks the new All American **Maytime** was the most beautiful and outstanding. **Boudoir** was also good. **Spic and Span** and **Tivoli** are two old ones which can be depended on. In scarlet, it was **Revelation,**

Viking, and **Sans Souci.** In red — **Red Pepper, Royal Stewart, Life Flame** — an early red, and old dependable **Red Charm.**

There are lots of rose Glads both light and dark: pale colored **Innocence** and beautiful **Rose Spire** are tops; dark **Roselyn** — an improved and earlier **Burma, Julia Mae** — a lovely rose pink, and **Edgewood** are among my favorites. **Rosita** was disappointing this year, being soft and floppy. Good lavenders are difficult to find, although **Balmoral** is both large and beautiful. **Princess** can be outstanding but needs lots of water to do its best; **Companile** is tall and pretty but somewhat erratic in behavior.

Royal Velvet was my favorite purple this year, though **King David** continues to be outstanding. **Karen** is a beauty worth growing, and **Wonder Boy** is good but late.

Dark David continues to be outstanding among the black reds; **Negus** though with smaller florets grows tremendous spikes. **Black Cherry, All of Spades** and **Ruffled Ebony** are the blackest.

Violet Charm is the most outstanding violet if not the most outstanding Glad of all. **Blueberry** and **Pfitzer's Sensation** are good dark blues.

My favorite smoky this year was **Gunsmoke** though **Tan Glo** continues to do well. **Salamance** and **Sandman** are worth growing if you like smokies.

In miniatures I like **Alecia** — a plain petalled white, **Daintiness** — a ruffled white, **Statuette, Bo-Beep, Peter Pan, Emily's Birthday, Atom, Zig Zag** and **Fifth Avenue.**

The following varieties are some of our favorites for arrangements and vases: Friendship, Atom, Radiance, Apple Blossom, Golden Hour, Fire Opal, Carved Ivory, Savoy, Lavender Petunia, Wild Rose, Green Thumb, and Juno.

PLANT CHRYSANTHEMUMS

by W. L. KERR,
Superintendent, Forest Nursery Station,
Sutherland Sub Post Office, Saskatoon, Sask.

Chrysanthemums are perhaps the most versatile of all flowers. As a long lasting cut flower with a wide range of colors, size and form, they are unexcelled. With very little attention a good bouquet may last for two or three weeks. In the garden or flower bed they may be treated as perennials or annuals. Some varieties will commence blooming shortly after planting out in late May or early June and continue after early fall frosts until late October or early November. Open bloom may be killed but buds may stand 12 to 18 degrees of frost and bloom later. If treated as perennials, it is usually advisable to lift and split up the clumps every two or three years. Plants may be cut back and lifted in the fall. They may be potted up and grown as house plants or for cut flowers during the winter. They may also be stored in a cool, rather dry place for planting out or propagation in the spring. The spraying of such plants with Captan before storage has been beneficial. If left out of doors during the winter, the tops should not be cut back until late spring after growth is well advanced. The tops help hold the snow and still more important, assist in delaying early spring growth which is frequently killed by heavy late spring frosts.

Chrysanthemums will make a comparatively good showing in partial shade or full sun. If grown in full sun during very hot weather the colors will not be as good as during the cooler periods of the season. They usually do best in about half-shade or full sun where they do not have too much competition with the roots of trees and shrubs. A well drained medium rich soil is usually preferred. Good results are also obtained on light sandy soils.

The selection of suitable varieties for western conditions is most important. Greenhouse varieties and also many late-blooming varieties are not satisfactory under western conditions. During recent years many good early-blooming varieties have been introduced on the prairies and for the prairies. The following are a few of the better varieties at this Station. There are many more perhaps equally as good.

White — Glacier
Very light pink or white — Dr. Graham
Pink — Morden 56200, Sutherland Pink, Pygmae Pink (Dwarf)

Mauve Pink — Dr. Longley
Yellow — Morden Gold (Dwarf), Morden 56114, Sutherland No. 50

Reddish Bronze Gold and Yellow (this includes quite a large group of varieties) — Harmony, Maroon and Gold, Early Autumn, September Morn.

Red or Reddish — Redwing, Cree, Redwood
Purple or Mauve Purple — Welcome, Purple Star, Sutherland No. 51

A sturdy well-rooted cutting or plant division is essential to a good showing of bloom the first year. Frequently, plants are received that are tall, spindly or poorly rooted. Such plants are very slow to become established. They should be pinched off before planting and if there are many buds, most of these should be removed. This will give them a better chance to become well rooted and develop into sturdier plants. Some varieties tend to bloom very abundantly and early. If the bloom is removed as soon as it begins to fade more sun will reach the foliage and they will continue blooming until late in the season. Colors will vary considerably with the season, temperature, moisture conditions and length of time the bloom is open. Cool, moist conditions induce more and brighter coloration. The frequent picking of some stems for bouquets as well as faded bloom will usually result in more and better bloom.

THE USE OF FOLIAGE IN FLOWER ARRANGEMENTS

by MRS. G. K. PETURSON,
Fort Garry, Manitoba

Too often the new flower arranger overlooks the possibilities of foliage in arrangements. Mostly foliage is used to establish a basic line or an accent. For instance, it breaks the monotony of a mass arrangement or a very colorful one. Foliage may also form an entire arrangement by itself or make the line and form with only a few flowers used.

There are several sources for foliage. The florist shop, house plants, shrubs forced in early spring, the flower and vegetable garden, wild plants and grasses both cultivated and wild.

For past centuries the Japanese have leaned heavily on the foliage element to create their compositions. The symbolism which is so important to the Japanese arranger can often be expressed equally well with twigs, branches, shrubs, and other foliage material as with flowers.

The framework for the Japanese arrangement of flowers and foliage consists of three main lines which are symbolic of Heaven, Man and Earth. Another important symbolism is the passage of time indicated in their arrangements. For instance, in representing the past they would use blossoms in full bloom usually with pods or dried leaves. For the present they would use half open blossoms or perfect foliage material. To symbolize the future they use buds, suggesting future growth.

FOLIAGE FROM THE FLORIST SHOP

In the florist shop, of course, a variety of foliage plants are available.

HOUSE PLANTS FOLIAGE

A great variation in tints, tones and texture can also be obtained from house plants. Plant and leaf forms also vary greatly and make a striking contrast in arrangements, either all foliage ones or in combination with flowers.

Vines and trailers are old favourites. New varieties are on the market which are equally good for arrangements as

they trail gracefully from hanging baskets, brackets, planters, or an ordinary flower pot. The new modern home lends itself particularly well to the use of vines and trailing plants. Hallways, living rooms and kitchens have planters and special places adaptable for plants. In some cases these become a focal point in a room.

The cacti and succulents have also their place in arrangements and are popular for decorative purposes. Succulents are native to India, Mexico and other tropical countries.

A recommended soil mixture for them consists of two parts sand, one part peat moss and one part light soil. Water these plants lightly and allow them to dry before watering again. Most succulents are propagated by cuttings.

A striking informal arrangement can be made by using a Mexican pottery container filled with cacti and succulents with perhaps a Mexican figure to emphasize the theme.

FOLIAGE FRUITS AND VEGETABLES

Fruits and vegetables combined with foliage, perhaps some of them variegated in color, can make a most handsome centre piece. For example, fruits and vegetables with the silver dotted leaves of the popular Angelwing begonia are especially pretty when set off by a plain background with a light shining on the leaves.

CULTURE OF SEVERAL FAVOURITE FOLIAGE PLANTS

The following are a few of the more popular foliage house plants and their culture.

Aglaonema (chinese evergreen) is a native of tropical jungles in Asia. Partial light for this plant brings best results. It will grow in a wide range of temperature above 55 degrees F. The soil should be moist but not wet. It adapts itself well to ordinary home conditions.

Asparagus fern is a native of South Africa; thrives well at temperatures from 60 to 80 degrees F.; and grows well in winter sunlight but needs some shading in full summer sunlight both indoors and outdoors. This plant should be watered heavily and then left to become rather dry before watering again.

The Aspidistra plant is a native of China, a good sturdy plant and adapts itself to the average home condition. Good temperatures is from 55 to 68 degrees F. but grows well in

warmer places. Light is of importance. Direct light of low intensity is best.

Caladium is a native of the tropical regions in South and Central America. It likes a warm moist temperature around 70 degrees F.

Coleus is a native of Java, an old favourite, and can be obtained in many types and colors. It likes an average home condition for temperature, light and humidity.

Some other favourites in the home that have foliage suitable for arrangements are the following plants: dracaena, ferns, ficus (rubber plant), hedera (English ivy), pandanus (screwpine), peperomia, philodendron, sansevieria, scindapaus, syngonium (African evergreen).

FORCING OF PLANTS

In early spring, when we are anxiously waiting for new plant growth, branches of shrubs can be brought into the house for forcing. Pussy willows, forsythia, bridal wreath, high bush cranberries, fruit tree branches such as plum, crab apple, cherry and many others can be forced. Select branches that have the best shape for the particular arrangement you have in mind.

When shrubs with hard woody stems are cut, such as lilac, etc., the recommendation is to peel off the bark one inch or more from the cut end and crush with a hammer to help the plant to absorb water more readily. Submerge the branches in warm water overnight. Then treat like cut flowers and place in a semi-lighted, warm room. It takes from two to three weeks to force the shrubs, but what a delight to have a flowering branch in the house before there is any sign of any bloom outside.

FOLIAGE FROM THE GARDEN

As we move out of doors for foliage our gardens, of course, are the richest source for this material and we become more critical and conscious of such things as the suitability of the foliage, how it is going to enhance the arrangement it is meant for, and how it harmonizes with a particular container you wish to use. You also watch for such things as form, color, harmony and texture for suitability.

FOLIAGE FROM THE VEGETABLE GARDEN

The vegetable garden is another source of interest for the arranger. Such foliage as kale, chard, rhubarb, carrot greens,

etc., are most useful. Herbs are not to be forgotten and many sweet scented foliage plants are available. Lemon verbina and Rosemary are favourites. This field is rich in materials for miniature arrangements.

WILD PLANTS AND FOLIAGE

Lastly, we come to the treasure trove of wild plants. To mention a few shrubs there are the blueberries, dogwood, red elderberry, honeysuckles, chokecherries, snowberries, virginia creeper and many others.

The woodland wild flowers are limitless and are a boon to the city or apartment dweller who does not have an opportunity for a garden. In the fields and on the roadsides we come across such plants as milkweeds, meadow sweet, meadow rue, black-eyed Susan, Queen, Anne's lace, many types of grasses and so on. The foliage material is abundant in the fields and woodlands.

FOLIAGE IN DRY ARRANGEMENTS

Dry arrangements can be as decorative as fresh plant material and they give a lasting pleasure. Foliage plays an important part here. A pleasing arrangement is the result when foliage is artistically combined with any of the following: vegetables, flowers, evergreens, shrubs, cones, twigs, branches, leaves, grasses, vines, seed pods, ferns, wild plants, weeds and other material. Methods used for drying plant material are given in the Flower Arranging article in the 1958 issue of the Prairie Garden.

CONSERVATION OF WILD PLANTS

A word about conservation which all horticultural people are most conscious of. A selected branch from the wild, cut without damage to the bush or tree, or a flower, or a foliage plant taken where there are plenty more, is going to mean more in pleasure to the arranger than if that same plant were left untouched. At the same time it creates an interest and appreciation of our beautiful native plant material, which can be so effectively used in arrangements.

Planting the Perennial Border

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

It is not possible to present complete instructions on planting a perennial border, a subject on which books have been written, in the space available. However, a few notes on procedure in relation to local conditions can be presented.

The first steps should always be planning and preparation. The perennial border should usually be located along one side of the lawn or garden. It will appear to better advantage with a green background of shrubs but this will seldom be possible in the space available in home grounds. Since several of the better perennials grow to considerable size there is likely to be difficulty in locating plants in a border less than five or six feet in width. The outlines should be in long flowing curves for best appearance but if space is limited straight simple lines may be used.

We are fortunate in that most soils in the Prairie region are fertile and usually do not require extensive preparation. The area should be fairly free of weeds, particularly perennial species that might be more easily killed before planting than after. A heavy application of well rotted manure is usually beneficial and fertilizer may be used to advantage, especially on lighter soils.

Most perennials can be transplanted in April or May. Soil moisture conditions are usually favorable at this time and the plants can become established. There are, however, a number of species that must be planted in the fall such as Oriental poppies and tulips. Iris, lilies, peonies and other early flowering species will frequently transplant better in July to September if the soil is moist. Planting in dry soil should be avoided unless large quantities of water are readily available. A small amount of water applied around newly planted material is soon lost by evaporation or to the surrounding dry soil and there is little chance for satisfactory growth. Therefore, if a drought is being experienced at the recommended time for planting a species it is frequently best to postpone planting until a time when moisture conditions are favorable.

The source of plant material is important. Nurseries in milder climates list many species that are not adapted to our climate. Certain stores offer a few species with strong popular appeal at low prices. These too are frequently not

adapted to Prairie conditions and are often improperly handled and near death when sold. There are a number of nurseries on the Prairies that offer a good selection of plants which have been proved under local conditions. Also your gardening friends may have surplus plants.

The location of plants within the border should be given thought. Tall plants should generally be placed at the back of a border that will be viewed from only one side and near the centre of a two-sided border. Small plants should be planted toward the front but straight rows of tall or short plants should be avoided. Flowers are usually more effective in groups but the numbers within groups should be varied according to size of plants and size of border. In a small border a single peony plant would be sufficient but six to a dozen tulips or lilies would be required. Larger borders require larger groups while the same or similar groups may be repeated in the border. Groups may be of almost any shape excepting very narrow or angular ones.

Spacing between plants should vary with growing conditions but in any case should provide sufficient room for healthy growth. If the border can be watered or is being grown in a moist area spacing need not be as great as under drier conditions. In dry areas complete ground cover cannot be obtained without supplementary water.

It is hoped that these few notes might be helpful to those planning a perennial border. Bulletins containing more extensive information are available from your nearest Experimental Farm where lists of local commercial nurseries and of adapted species may also be obtained.

ANNUAL FLOWERS FOR SOUTHWESTERN SASKATCHEWAN

by C. W. CARLBERG, Head Gardener,
Federal Experimental Station, Swift Current, Sask.

Gardeners living on the open prairie areas of Western Canada often feel limited in the kinds of varieties of trees, shrubs, and perennials which will do well under our severe climatic conditions. Not so with annuals, for of this group it may be said that if they will do well anywhere else they will do as well or better on the Canadian Prairies and particularly in Southwest Saskatchewan. Our fertile soil along with long sunny summer days and cool nights provide ideal conditions for long periods of bloom with annual flowers.

Annuals, including certain tender perennials grown as annuals, have a great variety of uses in landscaping the home grounds. Along with a lawn, annuals may effectively form the entire landscape plan including substitutes for shrubs and hedges as well as the usual flower beds and window boxes. Nor must we forget the many annuals which make excellent cut flowers.

Some annuals require a long season to reach maximum bloom. These are called half-hardy annuals and must be started indoors in a greenhouse or hotbed. After danger of frost is past (about June 1) they are planted in beds and borders where they are to bloom. Hardy annuals are those which may be sown directly in the location where they are to bloom. A number of otherwise hardy annuals are started indoors in order to extend the season of bloom. Examples of this latter group are zinnias and marigolds.

The kinds and varieties of annuals which can be successfully grown have greatly increased in the past few years. The many varieties of petunias and marigolds alone are enough to confuse and discourage the beginner. The following kinds and varieties have performed satisfactorily at the Swift Current Experimental Farm.

Half-Hardy Annuals

Aster—Many gardeners have discontinued growing this lovely flower because of the ravages of aster yellows.

In seasons when aster yellows is not serious, Queen of the Market and Wilt Resistant Giants have been found most useful.

Calendula—Lemon Queen, Orange King, Pacific Giants.

Celosia—Pampas plume.

Cosmos—Radiance.

Dianthus—Westwood Beauty, Heddewiggii, double chinensis.

Dahlias from seed—Unwins and New Dwarf Hybrids.

Marigold—Crackerjack, Fandango, Glitters, Climax, Pot-O-Gold, Petite Gold, Naughty Marietta.

Nemesia—Large flowered.

Nicotiana—Dwarf, daytime flowering types.

Petunias—single—Red Satin, Pink Satin, Ballerina, Maytime, Celestial Rose, Rosy Morn, Carnival, Fluffy Ruffles, Dwarf Ramona. — Double—Colosal Shades of Rose, Canadian all Double.

Phlox—Dwarf Compact Mixed and Twinkles.

Portulaca—Double mixed.

Rudbeckia—Gloriosa Daisy (large but attractive).

Salvia—Blaze of Fire.

Salpiglossis—Dwarf Hybrids.

Snapdragons—Suttons Triumph Strain or other semi-dwarf varieties.

Stocks—Ten week, Trysomic are worth a trial.

Verbena—Sparkle, Marilyn.

Zinnias—New Giant Hybrids, Miss Universe, Treasure Island, Scarlet Fantasy, and others. Pompon zinnias are good for bedding and cut flowers.

Half-Hardy Annuals for Edging are as follows:

Ageratum—Blue Mink.

Alyssum—Little Dorrit (white), Violet Queen.

Lobelia—Mrs. Clibran Improved, White Lady.

Pansies—Royal Exhibition.

Viola—Scotch Strains.

Timing is important in growing half-hardy annuals. Plants started too early become tall and spindly. They are difficult to handle and usually produce poor results in the

garden. The following dates are suggested for sowing:

Third Week in March—Pansies, snapdragons, phlox, lobelia, petunias, dianthus, and salpiglossis.

Mid-April—Alyssum, asters, celosia, stocks, salvia, dahlias, verbena, nicotiana, portucala, ageratum.

Late April—Calendula, marigold, cosmos, zinnias.

Hardy Annuals

Sow these as early as possible:

Sweet Peas	Shirley Poppy	Alyssum
Clarkia	Centaurea	Candytuft
Larkspur	California Poppy	

Sow these after danger of frost is passed:

Swan River Daisy	Sweet Sultan	Babies'-breath
Bartonia	Morning Glory	Lavatera
Calendula	Cosmos	Scarlet Flax
Linaria	Godetia	Early Zinnias
Nasturtium	Bells of Ireland	Early Marigolds

My Experience in Growing Tree Fruits in Saskatchewan

by KENNETH N. HEAVER,
Baljennie, Sask.

I would like to pass on some suggestions that should be of help to anybody considering the planting out of a new orchard. It may help you avoid the mistakes I made.

It was suggested that I plant the more tender B.C. varieties. I did. Each year I anxiously waited for blossoms that never came. In six years they were all dead. I hardly need to mention my disappointment.

However, being of a determined nature, I started to plan a larger orchard of proven varieties, in a new location. This, I selected on higher ground with good drainage on a slope facing mainly north and east. The reason for this slope is that the ground doesn't warm up as quickly in the spring and there is less likelihood of the fruit buds or blossoms getting frozen because growth is held back.

I then set out to plant a shelterbelt 4 rows wide and inside this planted spruce trees. In the meantime, I had purchased some Siberian Crab and native plum seedlings which I set out in rows 6-8 ins. apart. I got scions and budded these. When the budded trees were 1 or 2 years old I set them out 20 ft. apart each way and 25 ft. from the shelterbelt. I allowed about 16 feet for plums and 12 feet for cherry plums. This may look like a long way apart when the trees are small but in a matter of ten years they will have pretty well filled in this space. A garden crop can also be grown between the rows for a few years, keeping your rows at least 4 feet away from the trees as it could stunt the trees in dry years. This wide spacing will allow tractor cultivation and extra moisture during dry periods.

I might mention here that I have seen quite a few orchard failures, due to too close plantings for by the time the trees are starting to bear fruit, they are already crowding each other. Town planting, especially where water is available, can be planted somewhat closer.

Now for varieties that have been satisfactory with us and are comparable to imported fruits both in size and quality. I will list a few varieties which have done very well here. There are many more. Crabapples: Rescue is the top. Dolga is small but hard to beat for jelly and is a good ornamental. Renown and Trail are good, although Trail is not

too hardy here. The following apples are more dependable here: Heyer No. 12, Heyer No. 20, Battleford and Reward. They have done very well here for quite a number of years. Plums: Bounty, Dandy and Pembina have done very well. Grenville is a very large hybrid plum up to 2 inches but is not too reliable. However, in a good season, it will produce a lot of choice fruit. Cherries: Opala, Manor. Pears: unreliable due to too early blooming. Apricots: I have had no success with these.

Our orchard is 12 to 14 years old, located in township 41, Range 15. It consists of six acres and in a good season produces 8 tons of apples, crabapples, plums, cherries and sometimes, pears.

Finally, a note of warning. Be sure you have a good shelterbelt. Native trees will do. Keep well cultivated.

A NOTE ON ROSES

by D. R. ROBINSON,
University of Saskatchewan

Because of their widespread popularity roses are grown in many prairie gardens. Where a protective mulch covering is provided in autumn some of the high quality roses can frequently be carried over winter out-of-doors. This procedure, however, has certain limitations and western rose breeders are endeavoring to develop good quality roses which are adapted to our prairie climate. A number of varieties possess considerable hardiness but have a short season of bloom and are lacking somewhat in quality. Others, with buds and flowers of a desirable form and a longer blooming period, are usually lacking in hardiness. A few varieties do combine these features to some extent and undoubtedly others will be developed in the near future. Two of the newer roses which should find a place in western gardens are Will Alderman and Thérèse Bugnet. Reports from the three prairie provinces indicate that both varieties possess considerable hardiness and they have relatively long seasons of bloom. Thérèse Bugnet was originated by Mr. George Bugnet of Gunn, Alberta, and was introduced in 1950. Rosa rugosa and certain other species enter into its parentage. This rose has large, double, deep pink flowers and attractive buds. Will Alderman was originated by Dr. F. L. Skinner, Dropmore, Manitoba, and was introduced in 1949. It is a seedling resulting from a cross between two rugosa hybrids. This rose has double flowers, rose pink in color and of hybrid-perpetual form.

NATIVE PLANTS IN THE GARDEN

by W. A. CUMMING,
Head, Ornamentals Section, Experimental Farm, Morden, Man.

The horticultural possibilities of our native plants are too often overlooked. A Jack pine growing in the Morrie Arboretum in Philadelphia is among their prized possessions. Its typical gnarled and irregular form gives it a picturesque value amongst the more symmetrical trees of this plantation. Here, we very seldom see this common native evergreen used in horticultural plantings. There is no doubt, however, that if it were used correctly, it could add much to the interest of an artificially created landscape. The old adage "familiarity breeds contempt" seems also to apply to plants.

Outside of street and boulevard plantings of trees such as American elm, box elder, green ash, cottonwood, American basswood and white spruce, the impact of native plants in landscaping our surroundings is hardly felt. There is, however, among our wild plants quite a number which have much to contribute to the garden, by way of color, form and variety.

Manitoba's flora is enriched by virtue of its geographical position where south meets north and east meets west in a zone of plant transition. In his "Flora of Manitoba" published by the National Museum of Canada in 1957, H. J. Scoggan lists 1,541 native plants. Approximately 10% of these make suitable garden subjects. Failure to establish native plants in our gardens is largely caused by a failure to recognize the special growing conditions demanded by the plant. A careful study of the environment under which the plant thrives in its native habitat and the artificial duplication of this environment as closely as possible, is necessary in order to successfully establish many of our native plants in the garden. Those which thrive under a wide variety of conditions in nature are of course much easier to establish when transplanted from the wild.

Here a word of caution in the interest of conserving some of our beautiful native plants may be in order. Unless you are prepared to go to considerable trouble to provide the necessary growing conditions, many plants are better left in their native habitat. A very beautiful member of the orchid family, the showy lady-slipper, is much less common in our native woods than it was a few years ago. In this case the bulldozer clearing land for cultivation has had far more effect

on their dwindling numbers than ardent gardeners digging up whole patches with the hope of establishing them in the garden. No doubt the armloads of this flower which were thoughtlessly gathered and carried home has assisted in depleting this species. How much more of a thrill it is to find, deep in the woods, a group of this aristocratic flower with all its native grace and beauty than to find them more or less wilted, jammed into a crock on the dining room table.

The showy lady-slipper revels in the shade of an aspen woods with its roots imbedded in a thick layer of leaf mold plentifully supplied with moisture. Shade, moisture and a soil rich in humus are primary requirements in making it a successful garden subject.

When we buy plants from a nursery, they are, in most cases, dormant and they are carefully packed to ensure freedom from drying out. How can one expect a native plant to survive when it is crudely rooted out or in some cases pulled out, quite often when in bloom, and thrown into the trunk of the car with little or no protection to its damaged and exposed root system? In addition planting is often deferred until some indefinite later date.

Plants are most vulnerable to disturbance at blooming time and should not be moved then. All their energies during this period are being utilized in the process of reproduction. A plant in bloom should be marked so that it can be found at a later date when it is dormant. You can then return at the proper time prepared to carefully lift, protect and transport it to your garden. Woody plants should be trimmed back in proportion to the amount of root which has been lost in the digging operation. In the case of most woody plants which are dug from their native habitat severe pruning back is necessary.

Some native plants are easier to establish by collecting seed and producing seedlings to transplant into the garden. Most prairie nurserymen list some native plants. Since nursery grown plants are much easier to establish than those taken from the wild, it will pay the gardener to purchase them when possible.

In a short article it is not possible to list all of the native plants which are potential garden subjects. A few examples will serve to emphasize the rightful place of our native flora in the development of pleasing home surroundings.

Trees (except those commonly used in boulevard and street plantings) — showy mountain ash, paper birch (grown as a clump with several stems), ironwood or American hophornbeam, larch or tamarack, pincherry and chokecherry.

Evergreens — white, red and Jack pines, balsam fir, white cedar, common and creeping juniper and Canada hemlock.

Shrubs — buffaloberry, nannyberry, highbush cranberry, saskatoon, willows, hazelnuts, false indigo, lead plant, smooth sumac, shrubby cinquefoil and silverberry.

Vines — virginsbower, bittersweet, Virginia creeper, riverbank grape, limber honeysuckle, hops, wild mock cucumber and cat briar.

For the herbaceous perennial border — sunflowers, cone flowers, heliopsis, gaillardia, sneezeweed, goldenrod, fall asters, goldaster, Lewis flax, milkweeds, prairie lily, pentstemons, blazing star, bee balm, meadow rue and alum root.

In the rock garden — prickly pear and pincushion cacti, gentians, pussy toes, hare bell, wild onions, hoary puccoon, Hood's phlox, prairie anemone and gayfeather.

In the bog garden and around pools — blue flag, marsh marigold, coltsfoot, pitcher plant and cat-tails.

In the pool — white water lily and yellow pond lily.

For naturalizing and special locations — wake robin, wild ginger, windflower, bloodroot, wood anemone, violets, Indian paintbrush, bedstraw, bunchberry, columbine, lady-slippers, shootingstar and ferns.

Selection, from among individuals of any one species, for some special characteristic is a common method of establishing new horticultural varieties or clones. These are propagated vegetatively so that they retain the special character for which they were originally selected. A very good example of this, in native plants, is the numerous varieties of plums which were selected in the wild and propagated for garden use by budding or grafting.

Native plants have been used successfully by plant breeders in producing hybrids in a number of plant groups such as — roses, lilies, poplars, willows, basswood, anemones, asters, hawthorns, Heuchera, plums, cherry-plums, raspberries, gooseberries, currants and strawberries. Native plants will continue to play an ever increasing role in the development of prairie horticulture.

JUST A FEW LINES

. . . ABOUT TREES ON THE FARM

by A. DICKSON,

Extension Forester, Department of Natural Resources, Prince Albert, Alberta.

Dear Mr. Farmer:

If you have trees on your land — or even if you haven't — I think you will find this letter interesting.

Perhaps when you were a small boy and you asked your mother for an extra few cents for something, you heard her retort: "Money, money, money! Do you think it grows on trees?"

The implied answer there, of course, is "No". But she was wrong. Money does grow on trees — all sorts of money: money in the form of lumber, pulpwood, poles, posts and fuelwood; money in the form of a steady water table and protection from wind; money in the form of beneficial birds and animals; and money in the form of a more beautiful countryside. Money, sometimes in a form hard to recognize or count, but real wealth nonetheless.

We have all been too susceptible to the idea that land is for farming and what can't be farmed is not worth consider-

The thinning of this black spruce woodlot in northern Saskatchewan yielded more than $50.00 an acre in fence rails and fuelwood.
Photo Courtesy Saskatchewan Govt.

ing. Because our ancestors thought that way we have deserts in many parts of the world. The Sahara was not always a desert, nor was the Dustbowl of the U.S.A. Man's greed and thoughtlessness gave us these legacies. The dirty thirties spoke forcefully to us of what the elements can do when their terrible forces are unleased.

Trees, now, are not a cure-all prescription; but they can help. They can in many cases render an idle part of your farm productive. If, for instance, you have land that is too steep, too stony or too light, spruce or pine may give you a remarkable return per acre in Christmas trees in no more than ten short years. Pine is also good for posts when treated with a wood preservative such as creosote.

If the land already has trees on it be very careful about clearing and breaking it. Many abandoned homesteads today bear quiet but effective testimony to poor judgment in the selection of soil for farming.

Two examples of how profitable woodlots can be readily come to mind.

A farmer I know who lives close to Prince Albert, Saskatchewan, cut seventy cords of sap-peeled pulpwood during a summer and was able to buy a long-wanted tractor with the proceeds. Since the trees he removed had been marked by an extension forester, the woodlot is in better shape today than it was before he carried out the cutting.

Also, a recent study in Ohio showed that while a dairy farmer derived 90% of his income from the sale of milk, he actually earned more per hour in his woodlot than he did in his dairy operations.

"Circumstances", as the old saying goes, "alter cases"; but there is no doubt whatever that if you have a productive woodlot, you will be able to supplement your farm income by working between your normal chores. It is especially good in the wintertime; for, then, you are able to make use of spare time and equipment that would otherwise be idle.

The growing of trees as a farm crop is certainly taking hold in Saskatchewan. Nearly two hundred farmers are cooperating with the Department of Natural Resources' Extension Forestry Service. Nine of these are certified tree farmers. That is, they belong to a group of dedicated men whose work has been recognized and honoured by the Canadian Forestry Association.

The real purpose of this letter is to say something about woodlot management. Perhaps, therefore, we should find out a little more about a woodlot and then see how we might try to manage it.

Contrary to popular opinion, a woodlot is not just any old piece of bush on your land; it has to be well managed

and productive. In financial terms, each acre should be producing interest on the capital invested in it. Some people think of woodlots as storehouses from which wood material is removed until they are empty. That is an utterly wrong conception. Actually the woodlot is a wood-producing factory, in which the finished product is the ripe tree ready for cutting. The ideal arrangement in a factory is to have the products in all stages of completion moving through the plant simultaneously. So, too, in a woodlot should we aim at continuous production with some trees just starting, some ready for cutting and many more at the various intermediate stages.

For a woodlot to be productive, it must not have too many trees growing on each acre, nor must it have too few. Only the right number will give the best results, and that number changes as the individual trees become older and larger.

In Saskatchewan, with which I am best acquainted, there are two types of woodlots — the one in which all the trees are of one kind and age (aspen, black spruce, jack pine, etc.) and the one in which the trees are of two or more kinds and of all ages (white spruce and aspen).

In the pure, even-aged type of woodlot, the aim is to grow the trees to a certain size, cut them all and start over again. However, as the trees need progressively more and more room as they develop, a certain amount of cutting has to go on all the time. This is called thinning and it removes the poorer trees so that the trees finally harvested are the best possible in size and shape.

Aspen usually ends up as fuelwood, a fibreboard ingredient, lumber or plywood. Black spruce makes good fence rails and pulpwood, and pine is used for lumber, poles, posts and fuelwood.

In an all-age, mixed woodlot, it is possible to be idealistic and manage it like the factory I mentioned. Some trees may just be starting when others are being removed. Thus, thinning and harvesting of the mature trees are going on at the same time. The larger aspen here may end up as plywood bolts, while the spruce will make lumber and pulpwood.

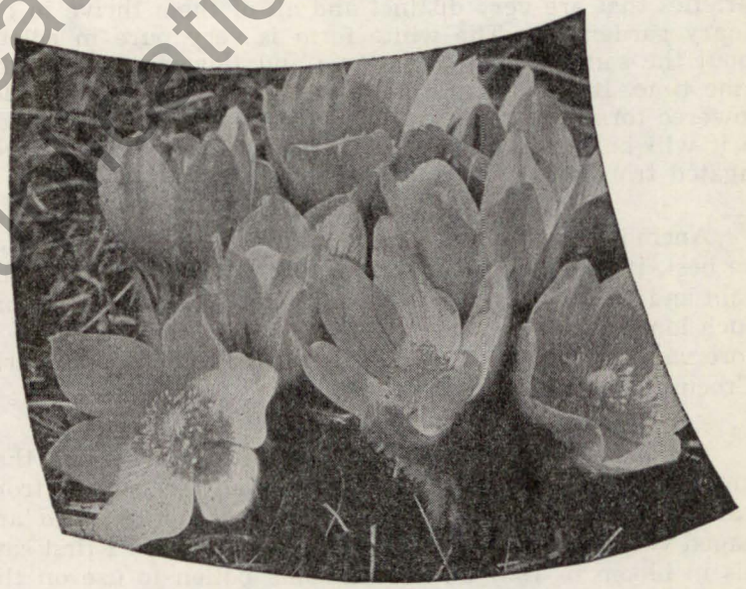
There is much more to this woodlot business, but I have given you the basic idea. It is good for you and your neighbours. Think seriously about it and if you would like to have some literature to help you along, write the Extension Forestry Service, Department of Natural Resources, Prince Albert, Saskatchewan. It has lots of useful free reading material.

Remember, trees can produce money for you in many ways if you will only let them.

Yours in farm forestry,
Alex Dickson.

MANITOBA'S EMBLEM AND ITS COUSINS

by F.L. SKINNER, M.B.E., LL.D.,
Skinner Nursery Limited, Dropmore, Manitoba



Pulsatilla ludoviciana: Prairie Anemone
Floral Emblem of Manitoba

Anemone patens, the Prairie "Crocus" is probably the most welcome of our wild flowers of early spring and it is very unfortunate that it is difficult to cultivate in rich garden soil. Here at Dropmore it grows wild within a mile of my home but will not live long in my garden unless planted in a soil that has been made up with a lot of sand or gravel and on a well drained site. However, its relatives from the Old World are more easily satisfied and here we have a number secured from various Botanic Gardens that take very kindly to our soil and will thrive and increase in beauty year after

year. Here are some of them under the names that we received the seed.

Anemone montana, very similar in size of plant and flowers as our native and flowering about the same time, the colour however is a dark blue both inside and out; it thrives well in ordinary rich garden soil.

Anemone pulsatilla, the European Pasque flower, in the ordinary pale blue form is much like our native form and I have not bothered propagating it very much but it has some varieties that are very distinct and all of them thrive in ordinary garden soil. The white form is very pure in colour about the same size as the native and flowering about the same time. It comes true from seed and in 1957 a double-flowered form appeared, seed of it was saved and germinated so it will be interesting to see if double forms can be propagated from seed.

Anemone georgica from the Caucasus region is one of the best, it comes into flower with our native but both the plant and the flowers are very much larger, it stays in bloom much longer than A. patens and the colour of the flowers is more varied and deeper. It just looks like a glorified Prairie "Crocus".

Anemone patens ochroleuca is a pale yellow form that is much more like a tulip than anything else when seen from a distance; the flowers are held stiff and upright and are shaped very much like a tulip. I got a thrill when I first saw this in bloom in 1957 and saved some pollen to use on the next variety which is the last to flower with us.

Anemone pulsatilla rebra. This varies in colour from a deep red of a mahogany shade to a deep red that shows shades of purple as the flowers begin to fade. We have selected a strain of the best reds and have given it the variety name of Brownie. This is very late in starting flowering and continues to flower until well into June. Seeds of this to the pollen of A. patens ochroleuca germinated well and may give us a few flowers by next spring or that of 1960 and it is more than likely that there will be pink or bright red forms eventually appearing. Pink and red forms have been mentioned in the Bulletins of the Alpine Garden Society and they have likely originated from the crossing of the two forms mentioned above.

FALL OR SPRING

When to Buy Hardy Plants

by D. BURKE McNEILL, B.S.A.,
Skinner's Nursery, Manitoba.

Mr. McNeill, as secretary of this well known nursery, gives valuable advice on when and how to purchase nursery stock.

A common question asked the commercial nurseryman is, "When is the best time to plant?". This is rather a controversial question as much of the plant material available in Western Canada can be planted either in the spring or fall.

Spring is the most natural time to plant for the soil is warm, there is plenty of moisture available from the melted snow and gardeners' enthusiasm is at a peak. However from the commercial nurseryman's point of view fall planting has many advantages and in some years is preferable.

In Western Canada our springs frequently arrive late, are of short duration and often temperatures of 80 - 90 deg. F. are experienced. Nursery stock should be planted when dormant but if these high temperatures occur in late April or early May many plants will come into leaf within a few days. Plants shipped in this condition require special care when planted for they deteriorate much more rapidly in transit than dormant stock.

It is important to the nurseryman that the plants he is shipping arrive in the best possible condition. Fall Planting is preferable to him for he is not as rushed, due to a longer season, which allows him more time to select plants and there is less chance of errors occuring. There is no danger of plants breaking dormancy in transit as the plants are dormant when shipped and will remain that way until spring. Of course, plants received in the fall must be planted in a well protected location and have a good supply of moisture until freeze-up. If these latter conditions cannot be met a most satisfactory alternative is to heel the plants in the ground until spring. When plants are handled in this way they remain in excellent condition until required for planting at the customer's convenience the following spring.

With few exceptions trees and shrubs can be successfully planted in the fall. The less hardy plants such as the hybrid roses must be planted in the spring so that they will be firmly established before winter sets in. Evergreens are best suited to spring planting but many of the hardier varie-

ties can be successfully transplanted in August or early September. Plants for fall planting should be ordered for delivery about mid-September and plants for Heeling-In should be ordered for delivery in October. Small plants are preferable for fall planting as they are soon buried with snow and are less exposed to the dry winter winds. Large trees and less hardier varieties should be heeled-in for the winter.

Perennials are best suited to spring planting but in many instances they can be planted in the fall, preferably early September. Root growth is very active at this time of year and the plants will become quite firmly established before winter sets in. In areas with heavy soils fall planting is not too satisfactory due to the frost heaving the soil and the plants being pushed out of the ground.

Lilies can be planted in the spring or fall but fall planting is preferable. This is due to the fact that many varieties commence growth very early in the spring and when shipped with this growth the chance of survival is lessened. Bulbs shipped in the fall arrive in good condition and commence to make good root growth before winter sets in. The tender varieties such as the centifolium hybrids are best planted in the spring.

Chrysanthemums should be planted in the spring only. They are not as hardy as we would like them to be but they do provide wonderful fall color and are therefore worth the extra trouble. The most satisfactory method of wintering 'mums is to start new plants, from cuttings in vermiculite or sand, during the winter. They can also be mulched with straw, etc., or they can be potted and used as attractive house plants. Chrysanthemums are usually shipped in late May as they are accustomed to greenhouse conditions and will not stand the late spring frosts.

Whether nursery stock is ordered in the spring or fall it is important to order early. Most nurserymen ship in order of rotation as orders are received. This means that early orders receive first consideration and the disappointment of plants being sold out is avoided. Where the customer wishes to pick up his order personally considerable time is saved if the order is placed in advance.

There are a great many problems involved in growing plants. Many of these are universal but many vary from one locality to another. Therefore consult your local nurseryman on your problems for he has the experience and knowledge of the plants best suited to your locality. He is more than willing to serve in the customer's best interest.

YOUR NURSERYMAN

by WALTER SHELMERDINE,
Shelmerdine Nursery, Varsity View P.O., Manitoba

Most nurserymen, especially those who manage to make a living at it, love their work and work at it twenty-four hours a day. They like to see things grow and get a thrill, for example, out of seeing close to a hundred percent catch on last year's budding or a similar catch on this year's cuttings. They are equally cast down when rabbits or mice destroy a saleable crop of plants that have been nurtured for two or three years, or when "damping off" destroys a high percentage of evergreen seedlings. Excessive rains can be harmful as well as too little moisture. Insect infestations are likely to occur at short notice and even hail can remove the bark completely from one side of young trees.

A good nurseryman also takes pride in his premises and wants to keep them neat and tidy and as up-to-date as his resources will permit. His sole aim is to make his place a convenient and comfortable place to visit and to deal.

The business is seasonable by its very nature. Most people get the planting urge in May and October. The result is — crowds at nurseries at these times. Those who want information must, of necessity, wait.

Nursery employees, who really know plants, must be employed the year round and paid well by the nurseryman to hold them. During the busy season the nurseryman must work long hours at considerable pressure.

We are constantly seeking ways of rendering more efficient service. Here are some of the ways nurseries are doing it.

Better parking facilities.

More efficient arrangement of stock and buildings.

Price list to enable you to shop by mail or phone.

Printed planting instructions.

Canned stock which may be planted during any day of the summer.

Landscape planning service more especially during the slack season.

A well informed staff.

On the other hand, here are ways that you can assure yourself of better service from a nursery and cause a smile

of pleasure to wrinkle up the face of the average nursery owner.

Do not visit the nursery on Sunday. Most nurseries are closed on Sundays as it is the only day they have to catch up on sleep. Plan to visit the nursery on week days and avoid the Saturday afternoon and evening rush.

By all means bring your children. There may be a swing or sandbox. They can learn a little about trees and shrubs.

Leave your dog at home. He kills evergreens.

Do not leave rubbish on the premises.

If you want landscape planning information, try to visit the nursery during the winter or during mid-summer. Avoid the period April 10th to May 31st and September 15th to October 25th.

You can usually take the nurseryman's recommendation as to plants best suited to your needs. Do not be influenced too much by the plant's present appearance. They each have their season of best appearance. Also the largest plant is not always the best buy.

Plants are not ordinary merchandise like sugar and bricks. They are living individuals and need special care. Read your planting instructions and follow them to the letter.

CONSTRUCTION OF PATIOS

by CLYDE B. BETHKE, Landscape Architect, Associate Member of the American Society of Landscape Architects, Winnipeg, Man.

After being forced to "hibernate" indoors for the duration of a Manitoba winter, one feels the need to live outdoors when the weather permits. A well-constructed patio makes this current trend toward outdoor living much more comfortable and pleasant. Houses that are "U" or "H" shaped have an advantage in that they have three-sided enclosure provided by the house; leaving only the fourth side to be closed off by a wall, fence, or "living fence" of shrubs and flower borders for more climatic protection and privacy. Patio is defined in Fund and Wagnall's College Standard Dictionary as: "Patio — The open inner court of a Spanish or Spanish American dwelling." Patio is often used interchangeably, depending on the degree of development, with the term terrace. Terrace is defined by Funk and Wagnall as: "An artificial raised level space, as of lawn, having one or more vertical or sloping sides."

The outdoor living area should be considered as a part of the house. To encourage maximum usage, the patio should be at least partly adjoining the house with a means of direct access. Size of the lot and house largely determine the location of the patio. A feeling of spaciousness and living outdoors can be achieved even in bad weather, if the patio is adjacent to the living-room. Sun, shade and wind exposure also influences the selection of the site. If the lot is wide enough, the patio can be built on the east side of the house for the morning sun and afternoon shade or on the west side for afternoon sun. The north side is the coolest and the southern exposure is the warmest in the summer. The ideal situation is to have a large enough site so as to have partial sun and shade throughout the day. Protection from chilling winds enable longer use in the autumn when the weather is otherwise comfortable.

The size and shape of the patio is best determined by planning it to scale on paper in relation to existing property lines, trees, garage, shrubs, etc. It is much easier to make changes on paper than after construction has been started.

Paving or surfacing materials should be selected next. Choice of surfacing materials can also influence the overall size and shape of the patio. A relatively recent idea has been

developed in California; that of building four foot by four foot skid-like sections of redwood to be changed at will for expansion or change of location. Overhead and moveable wall sections to match are obtainable. Oak blocks or cross section cuts from logs make an interesting surface. Bricks can be layed in many different color patterns and designs. Flagstone is ever popular as a surface material. Precast concrete blocks and forms can be found or made in almost any geometrical shape and various sizes. Poured concrete can be varied with color tinting and redwood stringers set in place in various patterns on edge before pouring. Aluminum nails are driven through the one by four or two by four stringers at right angles to the upper edge to hold the stringers in place and won't rust away leaving the strings loose. Brightly colored aggregate stone mixed in the concrete instead of crushed stone can be brushed when wet to give a rough, colorful patio surface.

Now we are ready to begin actual construction. First, measure and stake out the shape of the site and connect the stakes with heavy string or cord line. Second, dig out the area to a depth of eight inches plus one quarter inch per foot for drainage pitch away from the house. Third, fill the excavated area to a depth of between four and six inches, depending on the thickness of the paving material, with tamped gravel, coarse sand or cinders to avoid frost upheaval. Be careful to maintain the same drainage pitch when filling with gravel. Oak blocks or cross cut log sections can be layed and the cracks filled in with sand or soil and a hardy creeping turf. Bricks and stone blocks can be layed the same way or fill the cracks with a soupy mixture of cement and sand called grout. Flagstone remains level when the cracks are grouted. Poured concrete is a durable and easily maintained surface material that lends itself to many uses after it is properly set and cured.

With the above hints and suggestions in mind, a person can construct a patio suitable for individual site, needs and financial expenditures plus a sense of achievement and personal comfort.

Your Morning Smile

Mrs. Suburbia — What's a good thing to plant in thin soil on a ledge that doesn't get much sun?

Old gardener — How about a nice flagpole?

WHY NOT A LILY POOL IN YOUR GARDEN?

by L. H. COOPER, F.R.H.S., F.C.I.C.,
Calgary, Alta.

Mr. Cooper is an outstanding botanist and garden authority, a director of the Calgary Garden Club and the author of a garden column for the Calgary Albertan.

There is nothing that adds to a garden more than a lily pool. It is always a centre of interest, never needs weeding or watering.

The smallest garden can find room for at least one water lily so long as the position is in full sun. Water lilies do not like even part shade.

A white cedar tub is sufficient for a small garden and will accommodate one lily. Gloriosa, a free flowering red or Chromatella, a yellow, will be at home in a tub.

If you want to build a concrete pool it is not difficult. The size you build depends on the number of lilies you want to grow or the size of the grounds.

Our pool is 16 feet long, four wide and 18 inches deep. This has room for four lilies and various aquatic plants. If you want to grow one vigorous lily such as Gladstoniana, a white with yellow stamens, your pool should be four feet by four feet and 18 inches deep. There will also be room for one or two water plants.

For a small pool, the cement sides and bottom should be at least three inches thick, our pool sides and bottom are 4½ inches. The concrete mixture should be one part cement, two parts sand and three parts of one inch crushed gravel. The sand must be washed and free of clay and earthy matter. Only sufficient water must be used to make a smooth, easily running paste. There must be no excess of water. Reinforcing material such as chicken wire can be placed in the forms and the mix well tamped down. Bottom and sides should be run at the same time.

Boxes for the lilies should be 12 inches cube which leaves six inches of water above crown of the plants. We find this depth desirable for Alberta. Boxes should be made from

1 x 6 and remember to have handles on the boxes. This makes it easier to lift them out of the pool for winter storage. Also drainage holes one inch in diameter must be drilled in the bottom. If you do not do this your boxes will turn upside down when you put them in the water. Handles are essential because the boxes can get very slimy after a summer in the pool.

Water lilies should be stored in a cool frost-free place and never allowed to get too dry. We give our first watering about the first week of January and then at frequent intervals until placing in the pool about the middle of May.

Of the day blooming lilies, Gladstoniana does very well in Alberta and also Chromatella. The rose pink Marliacea rose is a lovely variety.

Soil for water lilies should be three parts of fairly heavy loam, and one part of thoroughly rotted manure. Crown of plants should be only just covered and finished off with about one inch of sand, which prevents the goldfish, these you must have to keep down mosquitos, from digging into the soil.

Another lovely water plant is Agonogeton distachyum (the sweetly scented water hawthorn). The perfume given off by the flowers reminds one of the English countryside in spring.

THE CERTIFICATE OF MERIT

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

In 1957 the Saskatchewan Horticultural Societies' Association instituted a new award to be known as the Certificate of Merit. At the 1958 convention of this association the two first awards were made — one going to Mr. P. C. Colquhoun of Maple Creek, the other to Mr. J. S. Kosa of Melville. The Certificate of Merit is awarded only to non-professional or amateur horticulturists and the terms of reference are essentially as follows: "to a resident who has achieved distinction in his community or province by outstanding success in horticulture, including production, selection, plant breeding, innovation, encouragement, influence or contribution to the good of horticulture in any way." A brief review of the accomplishments of these two men should be of interest to the readers of Prairie Garden, and may encourage our younger gardeners to persevere in their horticultural activities.

Mr. P. C. Colquhoun was born in Colquhoun, Ontario, in 1877. He came west with his wife and family and homesteaded near Maple Creek in 1910. The family engaged in mixed farming, including grain growing, cattle and hog production, also poultry and beekeeping. In 1912 Mr. Colquhoun planted 5,000 trees, made up of ash, elm, cottonwood, maple and caragana. Many of the elms are still living. That same year he was elected a director of the Maple Creek Agricultural Society and later served as president of the society for 25 years. It is worth noting that Mr. Colquhoun entered some exhibits at the local fair in 1910 and has continued to exhibit each year since that time. In the 1920's he assisted Dr. S. E. Clark of the Dominion Experimental Farm Service in the development of locally adapted strains of corn and he was a perennial winner in the corn classes at the provincial grain shows. A past president of the Saskatchewan Beekeepers' Association and the Beekeepers' Council of Canada, Mr. Colquhoun has been a prize winner at provincial honey shows, the Royal Winter Fair and, on one occasion, at a honey show held in London, England. He demonstrated that dairy farming could be carried on successfully in the "dry belt," and he was among the first farmers in southwestern Saskatchewan to recognize the value of crested wheatgrass as a forage crop and for the prevention of soil erosion.

In addition to the farm shelterbelt, mentioned above, Mr. Colquhoun found time to plant ornamental shrubs and flowers around about the home grounds. In 1933 he started

a farm orchard which was enlarged in later years to include more than 20 varieties of fruit. Apples were represented by Manitoba Spy, Haralson, Erickson, Wealthy, Spangelo and Hibernal. Crabapple varieties included Columbia, Silvia, Adam, Osman, Rosilda, Anaros and Toba. Plums were represented by Mordel, McRobert and Mordena, and the cherries and cherry hybrids by Champa, Oka, Sapa and Opata. In 1940 Mr. Colquhoun was instrumental in organizing an orchard project in his community. This project included the planting of several farm orchards. Fruits from his garden were among the prize winners at the first Saskatchewan Fruit Show, held in 1944, also at more recent fruit shows.

In 1945 Mr. and Mrs. Colquhoun moved into the town of Maple Creek where they continued their gardening activities. A new orchard has been planted and vegetables in variety are grown each year. Their urban grounds have been beautifully landscaped and on more than one occasion they have received awards in the Home Beautification competition sponsored by the Maple Creek Chamber of Commerce.

Mr. J. S. Kosa was born in Leles, Hungary, in 1898. He emigrated to Canada with his mother in 1901 and lived for a time at Fernie, B.C., and later at Frank, Alberta. Their family was one of the few to survive the Frank slide in 1903. Eventually, the family settled on a homestead near Melville in 1905. Mr. Kosa established his present farm in the Melville district in 1927. Since that time he has made a name for himself as an amateur horticulturist, and as a wood carver. His home grounds have been artistically landscaped and planted with a wide variety of trees, shrubs and flowers. The grounds are flanked by a fine shelterbelt of evergreens and deciduous trees. Two features not commonly found in rural gardens and which add greatly to the attractiveness of this farmstead are a lily pond and rockery. On the edge of the lily pond is the carved figure of a man with its feet in the water and a fishing rod in its hands. A number of the more common hardy shrubs are to be found among Mr. Kosa's plantings. These include lilacs in variety, honeysuckles — both climbing and shrub forms — rosybloom crabapples, mountain ash, spireas and roses. His skill as a gardener is attested by the fact that he is successful in growing a number of the finer quality roses. These are brought through the winter by the use of a mulch covering. Not content with growing only the recommended varieties, Mr. Kosa has established experimental plots where new and uncommon plants are tested. Here may be found such shrubs as the Red-leaved Japanese Barberry, Golden and European Elders and Hydrangea.

Although Mr. Kosa has devoted much of his time to ornamental gardening he has not neglected the fruits. (Actually one of the remarkable features of his horticultural work is the diversity of activities). His orchard is well planned and well cultivated. It contains more than 30 named varieties of tree fruits made up of apples, crabapples, plums and cherries. In addition there are several varieties of raspberries and strawberries, and even grapes and pears.

Mr. Kosa is a director of the Melville Horticultural Society and has contributed much to the improvement of horticulture in the community. For several years he has maintained a small plantation of shrubs and perennial flowers from which he supplies material for many of the gardens in Melville. A considerable number of plants are grown from seed and, with reference to the tree fruits, he is quite successful with budding and grafting. Needless to say his help is eagerly sought and freely given on questions relating to home beautification and fruit growing. Mr. Kosa's artistic skill is clearly demonstrated in the landscaping of his grounds. Further evidence of his skill may be seen in a large totem pole located near the shrubbery border. This totem pole was hand carved by Mr. Kosa from a poplar log and is quite unique.

The pioneer work of both Mr. Colquhoun and Mr. Kosa in the field of horticulture may well serve as examples to the younger generation.

If you would find a mind at peace.
A heart that cannot harden.
Go find a door that opens wide
Upon a little garden.

DECIDUOUS TREES FOR THE PRAIRIES

by R. H. PATMORE,
Patmore Nurseries Ltd., Brandon, Man.

Mr. Patmore operates a sizeable nursery at Brandon and is an outstanding authority on trees for the prairies.

Deciduous trees include a large portion of that wide group of woody plants which sheds its foliage in the fall. We arbitrarily call them trees if they reach heights of fifteen feet or more, and particularly if they are grown with a single stem. They form a large and important family, important to industry — all our hardwoods belong to it — and very important to the arborist and landscape man as ornamentals. They can be grown with clean lower stems or trunks, supporting a spreading or columnar head, without diminishing their effectiveness as ornamental or shade trees. Since these clean stems offer little obstruction to vision in traffic, their suitability for street and boulevard planting is obvious.

Not all the genera comprising this group have representative species that will stand up under prairie conditions. Beech and locust, to mention two, do not include any species that will survive here. This makes those species that are congenial that much more valuable to us.

Of all the deciduous trees that we can grow, the elm or genus ulmus is the most important and, of course, when we think of elm, we invariably have in mind the **white** or **American elm, ulmus americana.** This species is native to the eastern prairies, spreading along the river valleys of the southern half of Manitoba and Eastern Saskatchewan. It develops into a tall stately tree, reaching heights of 50 or more feet on the prairies. Where it has room for development, the head usually spreads out to form a broad fan-shaped crown. It is a long-lived tree. The wood structure is strong and tough, giving it considerable resistance to wind damage. It is a useful hardwood and is extensively used for boxing, veneer products, and even for furniture.

The qualities of the american elm, long life, resistance to wind damage, freedom from serious insect pests, long season of foliage, a root system that does not interfere with drains and water mains and that does not sucker, and above all, a handsomely attractive head, make this the leading

street and boulevard tree of the prairies. In fact it might be considered the **only** boulevard tree we have, as no other species has all these features which make it so desirable for this purpose.

When grown from seed it will have the wide variation in form and appearance, characteristic of all living things. Possibly half will be scrub elm, worthless for most ornamental purposes. The rest will be usable, but will lack uniformity. An occasional tree, possibly one in a thousand or even one in ten thousand will have a form exactly suitable for its purpose. For example a good boulevard tree will have an upright form with close head. Such forms are to be found in the american elm and fortunately the elm will graft. An avenue of such a selected type, grafted to ensure uniformity, enhances considerably the majestic effect of this magnificent tree.

In recent years another species of elm has grown in popularity on the prairies. This is an asiatic species known under various names, **Chinese, Siberian** or **Manchurian elm.** Different strains have been planted here, only one of which, that from central Manchuria has proved hardy. This strain has been named the **Dropmore elm,** a tribute to Dr. Skinner for his work with it. It is a small leaved variety as its name, **ulmus pumila** implies. It has a light airy foliage of a greyish green color. It does not make a tall tree, nor does it appear to be as long lived as the american elm, but since it is a relative newcomer, judgment in this respect might be suspended. We have not found it a desirable boulevard tree for a number of reasons, chief of which is the difficulty of growing it with a straight stem. In the nursery we are obliged to put a stake on every tree and tie the stem almost every inch of the way, as high as a straight stem is required. This does not affect its value as an ornamental, as the general direction of growth is upward. It is one of the best windbreak and background hedge trees available, but is possibly too fast growing for use as a foreground or low hedge. It would create a major trimming problem.

The **Hackberry, celtis occidentalis,** is a species closely related to the elm. It is native to an area extending from both sides of the Red River up to the International Boundary, but does not extend into Manitoba, except for a small native stand in the Delta area. It resembles the american elm in appearance although it does not grow as tall. It would make a useful boulevard tree, and is used to some extent in cities in Minnesota. It appears to be fully hardy on the prairies, as we have a stand of them at Brandon up to 35 feet in height.

Green Ash, fraxinus pennsylvanica subintegerrima, is one of our important native ornamental trees. A name like this would probably devastate the human psyche, especially that "sub". However, our extroverted green ash rises above this handicap without benefit of Freud or the psychiatrist's couch, and thrives aggressively on the prairies. It is native to the southern halves of both Manitoba and Saskatchewan. It does not grow as tall as the elm. It is a well foliaged rather long lived tree and can be grown with the straight single stem which makes it well suited for street and boulevard use. It is less popular than american elm for this purpose, however, because of its shorter season of foliage. Another objection, which I consider serious, is that when grown from seed half the trees will be seed-bearing producing masses of seed which hang on the trees well into the winter. They disfigure the fall color of the foliage, give the bare trees an unattractive appearance and the following summer send up masses of seedlings over a wide area. Grafted selections from vigorous male trees avoid this condition, and such grafted ash chosen for their desirable characteristics will probably replace ash grown from seed for street planting. **Manchurian ash, fraxinus mandshurica,** appears promising. It can be grown from seed, but will probably produce better specimens from grafted selections.

The maple has been widely grown on the prairies, particularly **Manitoba maple, acer negundo.** This family supplies some of our best ornamentals. While Manitoba maple has been widely planted it cannot be considered a desirable tree. It is not a long-lived tree and is very susceptible to aphid infestation. These insects infest the tree in millions, almost all summer and make it an unpleasant tree to approach. Another objection is its amazing fecundity. It sheds seeds in enormous quanties, almost all of which will grow, creating a weed problem. However, in the winter landscape, I do not know of any other tree which can approach this maple in the beauty of its limb structure. The stark symmetry of its black limbs, etched against a pearly winter sky creates a frustrating yearning for the descriptive inspiration of Shelly. The **Silver Maple, acer saccharinum** — no part of it, neither foliage nor bark is silver — also called the **Ontario Soft Maple** is not affected by aphids. It is fully hardy in Manitoba, and as far as I am aware has done well where tried further west. If exposed to high winds it is often subject to limb breakage. The **Sugar Maple, acer saccharum** is found in the Lake of the Woods area and further east, and trees from this source are quite hardy. It has not been widely tested on the prairies and may not respond well to unsuitable soils and lack of shelter. This is also true of the **Mountain Maple, acer spicatum,** a

Kildonan Park Municipal Golf Course 12th Green

A history of the beginning of municipal golf in Winnipeg

It took Winnipeg many years to establish a Municipal Golf Course. The first move in this direction was made in 1908 but it was not until 1921 that a municipal course became an accomplished fact. Lack of funds proved a perennial difficulty.

Several locations were considered and abandoned and after a course had actually been mapped out in Assiniboine Park, the City Council transferred to the Board in 1916 the present site of Kildonan Golf Course.

This fine piece of land of 94 acres had been acquired as an exhibition site but its value for this purpose was considerably reduced by permission being granted the Canadian Pacific Railway to run a freight cut-off across it.

The conversion of this site to an 18-hole golf course was no easy task. However, the job was finally completed, and Kildonan Park Municipal Golf Course was officially opened on June the 9th, 1921. A total of 33,160 players patronized the course during this first year of operation of 149 days.

The popularity of golf took such tremendous strides during the following years that on May the 2nd, 1924, work was commenced on a second 18-hole municipal course. Windsor Park, located 3 1/3 miles from city centre in St. Vital, was opened on July the 31st, 1925.

At the present time there are 16 Golf Courses in Winnipeg and District and when average daily attendance at the two Municipal Courses in 1958, which totals 440 players, is considered, it shows that the Windsor and Kildonan courses have lost little of their attraction after 35 years of operation.

Another Service of The Winnipeg Board of Parks and Recreation.

bush not a tree, which grows in the wooded areas of northwest Ontario, Manitoba and Central Saskatchewan. It has not done well in the open at Brandon. **Red Maple, acer rubrum,** is also found in the Lake of the Woods area as well as further east. Specimens of this tree are highly colorful especially in the fall, and it is the glory of the Eastern wood in autumn. Such specimens must be grafted to get them true to color, and soil conditions also appear to be a factor in this fall color. We have had maple develop a fiery scarlet in one location and the same tree when moved to another has remained a dull green until the leaves have fallen. We have selections of the red maple at present under test. The **Norway maple, acer platanoides,** and its named selections such as **Crimson King** have not stood up under prairie conditions. Two imported maples give us what I consider our best trees in this family. They are the **Amur maple, acer ginnala,** from eastern Asia, and the **Tartarian Maple, acer tartarica** from Eastern Europe. They are fully hardy, particularly the Amur, well adapted to prairie conditions and make extremely attractive dwarf trees, most of which are highly colored in the fall. They have no objectionable insect pests, and even their seed is colored and attractive. Both, and particularly the Amur, may have some limited use in boulevard planting. If a selection of silver maple can be found with limbs resistant to wind damage, preferably with a columnar head, it might make a very desirable boulevard tree. We have one such selection under test. Summing up for the maple family, its foliage is striking individually and in the mass. Most species have deeply lobed leaves, and that of the sugar maple in particular is well known to us as the Canadian emblem. A group of maple against any other background is a beautiful sight. In most species the fall coloring is unequalled in any other family.

Only one species of birch important as an ornamental is native to the prairies. This is the **Paper birch, betula papyrifera,** with its rather numerous sub-species such as Alaska Paper Birch. Its outstanding feature is a white bark with brown twigs and the bright yellow fall coloring of its foliage. It can be grown as a single stemmed tree, in which case it develops considerable height. It is often grown in clump form with three or more main stems. It contrasts well against an evergreen background, particularly of balsam fir. The birch, Silver Birch, as it is often called, thrills like a classical symphony. This is not mere rhetoric. The sight of a clump of birch, even denuded of foliage, refreshes one like a drink of sparkling spring water. It is a fine art, indescribably lifting. The other important birch, possibly our most prized deciduous tree is the **Cut Leaf Weeping birch, betula pendula**

Cutleaf. It also can be grown as a single stemmed specimen or multi-stemmed. It has white bark, but its distinguishing feature is its long drooping outer branches, with brown twigs and its deeply cut foliage which gives it a lace-like appearance, inspiring one of its officially lesser approved names, pendula gracilis. It must be grafted to get it true to form, and with birch this is a more difficult operation. Two other grafted birch not so widely known, but useful for definite purposes are the **Pyramidal birch** and **Young's Weeping birch.** Pyramidal birch grows with an exceedingly narrow columnar form, and is useful in formal plantings, particularly in restricted space. Young's birch has such a persistent weeping habit that it must be staked upright to get it to the desired height. Every branch persists in growing downward and a tree of six or eight feet in height is a veritable cascade of foliage, almost completely hiding the stem. It is useful for planting beside large pools or streams. If lateral growth develops too widely, the outer branches can be removed to keep it within bounds. The main stem of all young trees of birch is brown, turning white as they age. **Dwarf Arctic Birch, betula nana,** is a dwarf tree that might be considered a tall shrub. Bark on this tree does not become white, at least it has not done so on any of the older trees we have. The **Brown China Paper Birch, betula albo-sinensis septentronalis,** another species surely deserving something better of life than a name like that, appears well adapted here, even though it scarcely exists outside of a few test plantings. It is from West China.

The **basswood, tilia americana,** also known as linden or lime tree is not as widely known as it deserves to be. Its close relative, which it very closely resembles, the European linden **tilia platyphyllos,** creates the famous avenue of Berlin in Germany, known throughout the world as Unter den Linden. The American basswood is native in Manitoba in the Red River and Assiniboine valleys up to Portage la Prairie. While it is usually found in the river valleys, it is occasionally found on upland ridges in this area. Trees grown from this upland strain should do well in other parts of the prairies, as they have done wherever so far tried. The basswood is a long-lived tree, reaching a considerable height. It has large leaves which make it an excellent shade tree. It is completely free from serious insect pests; the one insect to which it is most subject, affects it very infrequently, is neither objectionable nor unsightly, and does no serious harm to the tree. In early summer it produces its characteristic yellow flower, which in some years covers the tree in masses. The bloom is very attractive to bees, from which we get basswood honey. In areas where it will grow, which tests may prove

to be anywhere on the prairies, it may be a tree equal to the American elm for boulevard and street use, especially in its more upright growing selections. We have a pyramidal form now under test. This species is difficult to grow from seed, which requires very careful handling in this area to get any germination, and this may be a reason for its relative scarcity.

A European species of the tilia genus, **tilia cordata,** the **Little Leaf Linden** or **Swedish basswood** has been grown in Manitoba. It appears to be of borderline hardiness but does well at Morden. It is a small tree, with small leaves and a brown bark which is attractive in winter. Under favorable conditions it can be considered a good dwarf tree. We have read of a columnar form of cordata which is said to be outstandingly attractive. So far we have not been able to locate any specimens of it, neither in arboretums on this continent, nor in Western Europe.

Of native popular only the **Cottonwood** are used, mostly for windbreak purposes, occasionally as ornamentals. The trembling aspen is attractive but suckers so persistently that it is considered a weed. The cottonwood grows very quickly, reaches great heights and resists drought well. There are two native species, **populus deltoides** and **populus sargentii.** The latter is usually available from commercial sources. Cottonwood is dioecious or unisexual and about half the trees produce seed contained in a cottony substance which fills the air for several weeks during midsummer. It is objectionable and can be avoided by planting only male trees which must be grown from cuttings. These root with considerable difficulty only as green cuttings in summer, under glass. Other poplars include the so-called **Russian poplars, North West poplar,** and **Griffin poplar,** all of which root readily from hardwood cuttings. Griffin is more columnar than others, but not so columnar as the attractive **Lombardy poplar,** a selection of **populus nigra.** Lombardy does not usually survive the winters on the prairies. A hardier form, **populus nigra thevestina,** the **Algerian Black poplar,** is at present under test. **Silver poplar,** a selection of **populus alba,** has leaves that really are silver, white on one side and silvery green on the other. It is often called **Silver maple.** It has a tendency to sucker more than some poplars. It is quite hardy on the prairies. **Bolleana,** a columnar selection of this same species, is not fully hardy here.

The willow is closely related to the poplar. None of the native species are useful either as ornamentals or windbreak material. Varieties introduced from abroad are much used. **Laurel Leaf willow, salix pentandra,** is a dwarf tree with lustrous dark green foliage. It is better adapted to areas with more abundant reserves of soil moisture. It is subject to

chlorosis in alkaline areas. The **Redstem willow, salix alba chermisima,** has attractive richly colored red shoots. As a mature tree it is covered in spring with long silvery catkins much prized in floral work. **Goldenstem willow, salix alba vitellina,** is also useful as an ornamental. These latter two varieties are often cut back to ground level every spring to permit only the highly colored young growth to appear. **Sharpleaf willow, salix acutifolia,** is a tree willow, possibly our best windbreak tree. It is fast growing, forms a dense screen and is fully hardy and drought resistant. It holds its foliage well into late fall or early winter. **Silver Leaf willow, salix alba sericea,** has silvery foliage useful for contrast effect. The **Coyote willow, salix exigua,** is a fascinating variety new to the prairies. It has long silvery leaves, silvery bark and a pendulus habit of branching. It is grown as a shrub rather than a tree.

There are three native species of **Mountain Ash** or **Rowan Tree** which are used as ornamentals. They are **sorbus americana** and **sorbus decora** both found in Eastern Manitoba and eastward, and **sorbus scopulina,** a western variety. Scopulina is considered a dwarf variety and is sometimes called sorbus nana, but under cultivation we have noticed no difference in the height of any of these three. **Sorbus aucuparia,** the **European Mountain Ash,** is more readily available from commercial sources on the prairies, and occasionally **Russian Mountain Ash,** a thicker stemmed variety of European is planted. The native species have thick sturdy stems and twigs, and although considered dwarf trees, they will reach a height of from 25 to 35 feet. We have never known scopulina to suffer from fire blight, and it is possible that decora and americana may be equally resistant. The European species has been affected at times with us, and does not appear to have as much resistance. Because of its attractive foliage, large flowers, red berries, and fall coloring the Mountain Ash is a highly prized ornamental.

The place of the apple in orchard and ornamental plantings is well known. We can pay tribute to **malus baccata,** the wild crab of northern Asia, for putting the required hardiness into the apple family and making it adaptable to our climate. Dr. Saunders at Ottawa gave us our first hardy crab apples, using this species in cross-breeding with higher quality varieties. Dr. N. E. Hansen of Brookings, South Dakota, gave us **Dolgo,** one of our leading ornamental crabs, and a producer of jelly crabs that is prized even in milder climates. In recent years a number of ornamental crabs with reddish foliage and pink to crimson flowers have been introduced. These include such varieties as Almey, Sundog, Strathmore, Leslie Copper

Leaf, Rudolph, Sutherland and others. They are crosses made by Miss Isabelle Preston of Ottawa, or derived from them. **Radiant,** a new variety from the University of Manitoba, is outstanding. Its hardiness is yet to be proved. Of these crabs the Leslie Copper Leaf is unique. The foliage is a coppery color all summer, and in late fall turns to deep crimson. It is one tree that we can use in place of the copper beech.

Only one oak is native to the prairies. This is the **Bur Oak** or **Mossycup Oak, quercus macrocarpa.** It grows in southern Manitoba and into Saskatchewan in the Qu'Appelle valley. **Red Oak, quercus rubra,** grows along the International Boundary east of the Manitoba border. On the prairies Bur Oak does not grow into a large tree, and makes a moderate sized tree only under favorable conditions. It has not been commercially available to any extent owing to its large tap root which makes it difficult to transplant. Root pruning overcomes this to some extent, but at the expense of vigor in the top. A combination of root pruning and artificial feeding with some irrigation might make this tree a commercial possibility, but an expensive one. **Mongolian Oak, quercus mongolica,** is a taller growing species here, imported from north China. Seed has not been available since World War II cut off access to seed gatherers in Manchuria and the only seed bearing tree we know of is on the Experimental Farm at Morden. This is an attractive ornamental, which holds its foliage dried on the twigs throughout the winter. We have one tree at Brandon which has so far resisted different methods of propagation. We hope that some method of grafting may solve this problem. Its range is yet uncertain. It is fully hardy at Morden and has so far done well at Brandon.

Most members of the prunus or plum family are low-growing and can be considered shrubs. One exception is **prunus maackii,** the **Amur Chokecherry.** It has an attractive glossy brown bark and reaches a considerable size, making a good dwarf tree. **Schubert cherry,** a purple leaved selection of the pin cherry, grows to a small tree of about 15 feet. Its deep purple foliage throughout the summer is useful for contrast.

SOME COMMON PLANT DISEASE PROBLEMS

by DR. BJORN PETURSON,
Plant Pathologist, Canada Department of Agriculture
Research Laboratory, Winnipeg, Man.

Introduction

Most, if not all, of the kinds of plants that we grow are subject to various diseases of plants. These diseases are caused by (1) Fungi (low forms of plant life); (2) Bacteria (primitive single celled plants); (3) Viruses (very minute disease producing entities); and (4) adverse environmental conditions (physiogenic diseases).

A few suggestions about controlling some plant diseases that commonly occur in Western Canada are given in the following paragraphs.

SEVERAL COMMON DISEASES CAUSED BY FUNGI

The fungi (singular fungus) cause a much greater number of diseases than any of the other disease causing agents. It is estimated that there are several thousand different fungi that attack plants and cause plant diseases. Fortunately, only a relatively small percentage of these disease producing fungi occur in any one area and a still smaller percentage of them attack any one plant species. Following are a few important fungous diseases that occur in Western Canada.

Damping-Off

Damping-off is a common fungous disease that every gardener who attempts to grow his own bedding plants encounters usually every year. The seedlings may be attacked and destroyed before they emerge or attacked at the soil line and destroyed after emergence. Damping-off is caused by a number of fungi that can live for long periods in the soil. The chief damping-off fungi are **Rhizoctonia** spp., **Pythium** spp. and **Fusarium** spp.

This disease can be controlled by observing the following precautions:

(1) Treating the seed with a good fungicide;

(2) Sterilizing the soil;

(3) Spraying the soil in which the seedlings are growing with a good fungicide;

(4) Keeping the soil surface as dry as possible; and maintaining temperature and light favourable for the development of the plants.

Soil can be sterilized easily by the use of formaldehyde. One bushel of soil can be sterilized by mixing 3 tablespoons of formaldehyde diluted in one cup of water with the soil and covering it for 24 hours. Seeds may be sown in this soil two days after it has been treated with the formaldehyde.

Aster wilt

Aster wilt is caused by a fungus, a species of **Fusarium**. This organism lives in the soil for many years. It does not attack any other plant. Therefore, other ornamental plants can be grown in soil infected with the organism that causes aster wilt. Many kinds of asters have been produced that are resistant to aster wilt. Aster wilt can best be controlled by soil sterilization and use of wilt resistant varieties.

Powder mildew

Many of our garden plants, both annuals and perennials, are quite susceptible to mildew. The main body (the mycelium) of the mildew is located on the surface of the leaves and feeding organs of the parasite penetrate into the cells of the attacked plants from which they extract food. Powdery mildew is rather easily controlled because fungicides can be applied directly to the external mycelium. In an article contributed by the writer on page 88 of the 1954 Winnipeg Flower Garden, it was stated that powdery mildew could be controlled by timely application of dusting sulphur. This statement is still valid. However, since that time, a fungicide (Karathane) has been developed which controls powdery mildew even better than does sulphur. Leading Canadian seed stores stock this fungicide.

Rust diseases of ornamentals

Some of our ornamentals, particularly hollyhocks and some roses, are attacked by certain rust fungi. These diseases can best be controlled by (1) collecting and burning affected

plant parts in the fall; and by dusting the plants in the spring and early summer with sulphur, Zineb, Maneb or Fermate, most of which are available from local dealers.

BACTERIAL DISEASES OF PLANTS

Well over a 150 different kinds of bacteria cause diseases of plants. Bacterial diseases of plants are much more difficult to control by fungicidal sprays than fungus diseases. Many of them are seed-borne and can best be controlled by using disease-free seed and by appropriate seed treatments, which in case of many of these diseases are very effective. Obviously, it would be impossible to deal with all the bacterial diseases that occur in the Prairie Provinces in one short article. Therefore, a very few of the most important ones are dealt with hereafter:

Fire blight

This is a bacterial disease of plants that occurs throughout the Prairie region. It attacks pears, apples, crab apples and several other ornamental plants.

It is best controlled in crab apples by using fire blight tolerant varieties, by severe pruning out of affected branches, and by spraying several times in the spring, from the time that 10% of the flowers are open, with Agristrep or Bordeau mixture at a strength of 2-4-40, that is, half the ordinary strength. Two more sprays should be given at 10-day intervals. For a list of suitable fire blight tolerant varieties, write to Mr. R. Ure, Morden Experimental Farm, Marden, Manitoba, who is an authority on matters concerning fire blight. For control of this disease, write to the Dept. of Agriculture, Research Laboratory, Winnipeg, for Dr. W. A. F. Hagborg's pamphlet on fire blight control. Dr. Hagborg is our foremost authority on bacterial diseases in Western Canada.

Bacterial diseases of beans

These diseases are seed-borne. So far as the writer knows, they cannot be controlled satisfactorily by means of fungicidal sprays. Some years ago, it was claimed that Agristrep could control bacterial diseases of beans, fire blight of apples, etc. I have seen many experiments conducted in attempts to control these diseases by means of sprays of Agristrep, and I failed to see any appreciable benefit from its use in Manitoba.

So far as the writer knows, the bacterial diseases of beans can be controlled by use of disease-free seed. Some

years ago, the writer and Dr. W. A. F. Hagborg imported some Cal. Approved Beans from an area in California where much bacteria-free seed is produced because the climate in that area is very adverse to the development of bacterial disases. This seed was given to about 200 gardeners in the Greater Winnipeg area and produced in most cases a good crop of beans free from bacterial disease.

We are now trying to locate an area in Canada where beans free of bacterial disease can be produced.

Bacterial disease of tomatoes

There are three bacterial diseases of tomatoes that occur in Western Canada. In order of prevalence in the Winnipeg area they are: bacterial spec; birds' eye disease and bacterial spot. So far as is known, none of these disease organisms can live over winter in the soil in Manitoba. All of them are seed-borne and can be controlled by hot-water seed treatment or by using disease-free seed. If the tomato seed is obtained from home-grown tomatoes and fermented in the juice of the tomato for about 72 hours, it will be free of bacterial disease. The home grower can easily rid tomato seed of bacterial organisms by placing the seed in a cheese cloth bag in a thermos bottle for 25 minutes at a temperature of 122 deg. F.

Bacterial diseases of cabbage and other crucifers

These diseases are often prevalent in our area. Spraying and dusting for their control is not of much use. However, they can be effectively controlled by using disease-free seed or by hot-water treatment of the seed.

Disease-free seed can be obtained from certain areas in the U.S.A. where bacterial diseases do not usually occur. Infected crucifer seed can be rid of bacterial disease by soaking the seed in water for 25 minutes at 122 deg. F.

There are many more bacterial diseases that occur in the prairie region and many of them over winter in crop debris and in or on seed. They can be controlled by crop rotation and by using disease-free seed or suitably treated seed. With respect to the cabbage disease discussed above, both seed treatment and crop rotation must be practiced and futhermore, all the growers in an area must observe these precautions to obtain effective disease control.

Virus diseases of plants

Virus diseases differ somewhat from plant diseases caused by fungi, bacteria and unfavourable environmental conditions. These diseases have one thing in common, they are all

caused by an infective principle so small that it cannot be seen with the best of ordinary microscopes. This infective principle is called a virus. The viruses have certain properties associated only with living things. Namely, they multiply greatly, or perhaps as some say, are duplicated by the infected cell. They also can be concentrated to form crystals, a property usually considered to be typical of certain non-living chemicals, but not of living entities.

However, whether living or dead, the viruses cause some of our more troublesome plant diseases. Some virus diseases are spread only by insects as aster yellows which is spread by the six-spotted leaf hopper and closely related leaf hoppers. Others are spread by contact with infected plants and still others can be transmitted only by grafting.

Spraying or dusting virus infected plants has no beneficial effect, except insofar as insecticidal sprays may control the insects which spread viruses. Viruses, with few exceptions, are not spread with the true seed of plants. They, however, are very readily spread in bulbs, corms and tubers of plants. If a plant becomes infected with a virus, it usually remains permanently affected.

Some plants may be rid of a virus infection by heat treatment, but heat treatments are difficult to carry out and can usually not be used by the layman.

In some cases, for example in dahlias, a disease-free plant can be obtained by establishing a new plant taken from a cutting made from the tissue of the growing point.

Viruses are best controlled by use of certified disease-free seed. This is particularly true of potatoes.

ENVIRONMENT (PHYSIOGENIC) DISEASES

Physiogenic diseases are caused by unsatisfactory environmental conditions. These are: (1) too high, or too low light, temperature or moisture conditions; (2) over-abundance of non-availability of certain chemicals; or (3) improper soil conditions, etc. Following is a discussion of two such diseases common in our area:

Lime-induced chlorosis

One of the most common plant disease problems in the Winnipeg area and in other areas in Western Canada where soils are high in lime, is a yellowing of the leaves, due to failure of chlorophyll to develop normally. The affected plants are unthrifty and in severe cases succumb to this

condition. This disorder is due to lack of iron. In high lime soils, the iron becomes unavailable to plants and hence this condition is referred to as lime-induced chlorosis. This condition can be rectified by foliage sprays containing iron. Such a spray contains 1 oz. of iron sulphate in 2 gallons of water to which 100 grams of citric acid has been added. To be effective, the plants must be sprayed early in the spring before the leaves are fully grown. Another remedy for this condition is the application of iron compounds such as, Sequestrine or Versinol to the soil.

Blossom-end rot

Very often, the blossom-end of tomatoes turns black, due to the death of the plant cells in that part of the fruit. No living organism is involved in this condition. Heavy application of nitrogen make the plants more susceptible to blossom-end rot. Plants that have been growing fast and have had a good supply of water are very likely to develop blossom-end rot, if the water supply is suddenly reduced for a considerable period of time. To avoid this condition, the gardener should use nitrogenous fertilizers sparingly, and give the plants an even steady supply of water. Mulching helps to control this disease, but may delay ripening.

FOXGLOVE

Digitalis lanata is a Foxglove from central Europe that is not only hardy but perennial. It is figured in Curtis' Botanic Magazine 1159 and Bailey's Cyclopedia describes it as a fine species. At Dropmore it grows about 18 to 24 inches tall. The flowers are white with yellow and brown markings. The perennial Foxgloves should provide a good field for plant breeders in the prairie regions.

DIGITALIS

Digitalis ambigua, a native of central Europe and west Asia, has also proved a hardy perennial at Dropmore. The flowers are almost as large as those of the common Foxglove but the colour is a pale yellow. It grows to a height of about 18 inches with us. Another Digitalis with yellow flowers that is hardy and perennial with us is Digitalis orientalis from Asia Minor. This species grows fully two feet tall and the long spikes of yellow flowers are not quite as large as those of Digitalis ambigua.

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

TRANSPARENT PLASTICS AND THE GARDENER

by **HOWARD CASH,**
Winnipeg, Man.

There are surely many home gardeners who contemplate the purchase or construction of a small greenhouse, but are deterred, in the first instance, by fears of the cost involved, and in the second, by the difficulties of the "do-it-yourself" method, where the handling of glass is concerned.

There are now available various transparent plastics which may be used instead of glass, are easier to handle, and lack many of the disadvantages of the older material. They take several forms, but one of the latest to appear on the market is one of an almost rubbery consistency which, if pulled out of shape by the application of considerable force, recovers its original appearance in a few hours' time. It is packed in rolls of 100 linear feet, in various widths and thicknesses, and may be plain and completely transparent, or frosted. Whitewash or standard shading compounds may be used on the plain form, if desired. A very high percentage of the sun's infra-red rays are transmitted through such material, much to the benefit of the plants. The transmission of ultra-violet rays is checked by means of an "inhibitor," as a measure of protection for the plastic; but nevertheless, is higher than with glass. It is immensely strong, of light weight, and hail resistant; and wind flutter noise is much reduced in comparison with some of the older forms of transparent plastic. Its indicated life expectancy is of several years, and so structures on which it is to be used should be built on the basis of permanency, as the material is easily replaceable.

In construction, the framework should be painted, **before** attaching the plastic, with regular greenhouse paint. "Cuprinol" is satisfactory treatment for wood frames, but creosote, phenol and certain solvents must be avoided. A framework strong enough to bear anticipated snow loads is an obvious prerequisite.

Bar spacing should not exceed 20½". The material should be unrolled parallel to the bars, working from the top of the building downwards; and it should be secured firstly with galvanized nails or staples at 12" distance apart. Then, the entire length of each bar should be covered with

wooden battens, secured at 4" intervals with galvanized or aluminum nails, or screws. Adhesives must never be used.

Plastic materials are more air-tight than glass, so that the design of the greenhouse must permit adequate ventilation.

Scissors, or a knife and straight-edge, may be used for cutting; if ever repairs are necessary as a result of accident the material may be patched with the use of a solvent.

Extremes of heat and cold do not affect such plastics, except that over very long periods of time it may be that material exposed to consistently high temperatures will not have so long a life as that used in a more moderate climate.

Finally, modern transparent plastics may be used for the low-cost construction, not only of greenhouses, large and small, but of storm sashes, and cold and hot frames, and to replace glass in poultry houses, summer cabins, beach cottages and garages.

FRANCIS MEILLAND

by HECTOR MACDONALD,
Winnipeg, Man.

The "Prairie Garden" joins with rose lovers all over the world, in paying its respects to the memory of Francis Meilland, who passed away at his home in France, June 16th, 1958, aged 46.

Mons. Meilland devoted his life to breeding roses, he had a great love for them from his earliest years, and his ambition was to create a perfect rose.

During the war years he raised PEACE. Much of the original stock was taken to Germany during the occupation, however, enough was left to introduce it to Britain and America in 1945. Originally he named this rose, MADAME A. MEILLAND, but later, it was called PEACE. Perhaps he reached a standard of perfection in this rose that may never be excelled.

In his short life, he gave us many wonderful roses, ALAIN, named after his son; MICHELE MEILLAND, for his daughter; EDEN ROSE, with its lovely perfume; CHARLES MALLERIN; HAPPINESS; GRANDMERE JENNY and many others.

PEACE, however, is his masterpiece, grown and loved everywhere, even on our Prairies, and remains a beautiful memorial to the memory of Francis Meilland.

What Is New in the Department of Horticulture, Saskatoon, As the Year 1959 Begins

by C. F. PATTERSON,
Head, Department of Horticulture,
University of Saskatchewan

The discovering of new things has a great appeal to most people. The realization that things new and capable of helping mankind lie hidden within the universe, awaiting discovery, offers a great challenge to the enquiring mind and few people find it easy to resist this challenge. Discoveries of great value are being made daily both with inanimate things and with things living and there appears to be no end to such discoveries. Even the horticulturist shares in these challenges

A NEW PEAR FOR THE PRAIRIE

Pears on a well laden tree in a plantation of the Department of Horticulture, University of Saskatchewan. This seedling pear, a cross between the Siberian Pear and Bartlett, bore 157 pounds of fruit in 1958 as its first crop. The tree stands sixteen feet high and is hardy and the fruit is of good size and of very acceptable quality.

PHOTO—Courtesy Saskatoon Star-Phoenix

and in these discoveries and he too is endeavoring to make a contribution toward improving man's lot in a changing world. The way is long and tortuous and the travelling is often difficult but the reward for genuine and unremitting effort is exceedingly great.

One of the interesting and important discoveries made by the Department during the past year was that of a few very promising pear seedlings in a seedling pear plantation of the Department. About the mid-thirties a project to develop hardy pears of quality was undertaken by the Department. At this time trees of the Siberian or Ussurian pear that had been planted in the University fruit plantation in 1924 were beginning to flower and to fruit. The fruits were small and of poor quality and had little to commend them beyond the hardiness of the plant. It was decided to endeavor to combine with this characteristic of extreme hardiness the large size and high quality of the fruit of some commercial pear variety. An early variety was considered desirable as a parent and the variety Bartlett was finally chosen for this purpose. Through the generous co-operation of Mr. R. C. Palmer and Mr. A. J. Mann of the Dominion Experimental Station, Summerland, B.C., pollen of this variety was made available for use on the flowers of the trees of Siberian pear in the University plantation. The pollen was taken from trees growing at the Summerland Station, was prepared there and was shipped to Saskatoon in suitable containers. The effort put forth in 1936 and 1937 gave no return because of heavy frosts occurring soon after the pollinating was done and destroying the flowers. In 1938, however, such frost did not occur and a good set of fruit from the crossings made was obtained. From the fruits harvested in the autumn of that year the seeds were taken and from these seeds seedlings were grown. From the hybrid seeds thus harvested in 1938, approximately 925 seedlings were grown and these were planted in the field in the spring of 1942. Most of these seedlings showed some tenderness from the beginning and have killed back repeatedly over the years. Even now a large percentage of the trees are mere bushes a few feet high as a result of the killing back that has taken place each year. A few, however, have withstood the test of years and have shown no appreciable winter injury. A number of these bore fruit in some quantity for the first time in 1958. One tree which stands sixteen feet in height produced 157 pounds of fruit. The fruits from these seedlings differ a good deal in size and quality both for eating out of the hand and for preserves. At least four of these will be propagated and released as soon as possible. These have not been named as yet but will be properly designated when the time of release arrives. It should be noted that these trees are growing in the field at Saskatoon and have never been irrigated.

The year 1958 proved to be a good year for making observations on apple seedlings that had been selected in earlier years and propagated for re-testing purposes. A number of these, it was definitely decided, will be released in the very near future. These comprise a variety of material in season of maturing, in size of fruit and in general appearance. Quality has been emphasized in making the selections and all possess this in good measure. Among them is a high quality bright red large crabapple that was harvested on July 29th in 1958, which is from ten days to two weeks earlier than Silvia, one of the earliest varieties hitherto grown. Unlike that of Silvia, fruit of this seedling retains its firmness of flesh for considerable time after harvesting. This seedling has been named Early Redbird. Others with fruits up to two and one-half inches in diameter, grown without irrigation, are in the list to be released.

The largest and the best crop of new potato seedlings grown indoors by the Department was harvested in December 1958. This crop approximated 13,000 separate and distinct seedlings which were grown individually in three-inch flower pots. The parent plants were grown in large flower pots under glass during the winter of 1957-58; the crosses were made during March and the early part of April and the fruits harvested in May. The seeds from the fruits thus harvested were sown the last week in June and the seedlings transplanted individually to pots late in July and early in August. More than the usual amount of sunlight during the late summer and fall months favored the growth and the tuber development in the seedlings and the tubers harvested were larger than those of previous crops. The parentage consisted almost entirely of University seedlings and these numbered 140. Prominent netting was a prerequisite in the tubers of the parents used and a large percentage of the seedlings resulting possess this characteristic. Resistance to Common Scab, resistance to Late Blight and resistance to Bacterial Ring Rot are present in some of the varieties from which the seedlings used as parents are descended. Netted Gem is the source of netting in all the seedlings grown.

Certain potato seedlings from crosses made in earlier years continue to make a strong bid for a place among potato varieties for the West. One of these has a white skinned, well netted and somewhat spherical tuber with shallow eyes, white flesh and good quality. It is moderately early and a good

yielder and is a descendant of Earlaine, Netter Gem and Teton. Another promising seedling has a pink-skinned tuber with a generous covering of fine netting and with snow-white flesh. It, too, is a good yielder and is moderately early. It is descended from Earlaine, Bliss Triumph and Netted Gem. Others too are showing up well.

Four new varieties of lilies were introduced in the autumn of 1958. These have been named **Fuchsia Lady, Primrose Lady, Bronze Queen** and **Red Torch.** The first three were selected in 1948 and the last one was selected in 1946. The names indicate the color. **Fuchsia Lady** is fuchsia-pink in color with its thirty to forty reflexed and pendulous flowers borne on a stem up to four feet in height. **Primrose Lady** is pale primrose in color with up to thirty reflexed and pendulous flowers on a four-foot stem. **Bronze Queen** grows to a height of six feet with up to thirty bronze, pendulous and reflexed flowers on a strong stem. **Red Torch** has an inflorescence somewhat torch-shape with its twenty-five upward and outward facing light red flowers on a three and one-half foot stem. All are complex hybrids with Lilium cernuum entering into the parentage. **Primrose Lady** has an infusion of L. aurelianense and from this it presumably gets its color. Numerous selections were made during the year and some of these, with others selected during the past few years, may eventually be added to the list of introductions.

The Department has multiplied its gladiolus seedling 4791 to the point where its introduction in the spring of 1959 will be possible. This seedling is a very fine large **Decorative** having a beautifully ruffled rosy-mauve floret with a cream throat. It is superb as a gladiolus for vase and basket arrangements. Its pedigree is Picardy x University seedling.

A few observations on woody plants might be added. Royalty lilac continues to make a vigorous plant but Redwine continues to be a consistently weak grower. These two varieties are often listed together in catalogues and a customer may be tempted to select the latter rather than the former on a basis of flower color. The Japanese tree lilac makes a magnificent tall growing shrub and should be grown much more than it is at present. The Thérèse Bugnet rose is deserving of general recognition and should be included in one's collection of good hardy roses. The Korean Barberry (Berberis Koreana) a shrub that was introduced to the Saskatoon area by seed imported from Asia in the early thirties by the late Dr. H. D. Weaver, and which has been grown here for over twenty years is worthy of a place in any

planting of hardy shrubs. The plant is hardy and its colorful autumn foliage makes it a good substitute for some of its tender near relatives. Cut branches of the shrub retain their leaves well and make excellent winter decorations for indoor use. **Carmine Queen,** a University of Saskatchewan seedling, is a "must have" for anyone interested in growing red-flowered honeysuckles. The plant of this variety is of the Tatarian type; it is a good flower and the flowers are redder than the flowers of any other red-flowered Tatarian honeysuckle that the writer has seen. The color is deeper than that even of Carleton. It is regrettable that the Swiss Stone Pine (Pinus cembra) has not been used in ornamental plantings in the Canadian West to any extent. It makes a good tree, a much better tree than that of Scotch Pine, and is well adapted to prairie conditions. Obstacles to its free use have been the shortage of planting stock and its rarity on recommended lists of plants. The policy of not recommending a plant because the plant is not readily available, which is far too common, cannot be considered to be in the best interests of horticulture.

Our Department has had good success for two years using Dowpon in suppressing the growth of quackgrass in rows of apple trees under field conditions. When the chemical is applied late in the spring after the grass has made considerable growth the blades turn brown and no further growth is made during the season. The grass resumes growth the following spring when the treatment is repeated. No visible injury to the trees from the use of the chemical has been observed to date. The chemical, which is a powder, was dissolved in water at the rate of one pound to twenty gallons. Application was made with a watering-can, provided with a fine rose, and the minimum amount of solution required to moisten the parts of the grass above ground was applied. Care was taken to avoid wetting the trees with the solution.

Finally, one faces the future and wonders what it holds in new things for horticulture. One wonders what the year 1959 will bring forth. Past years have never failed us. New things in horticulture will surely continue to come each year. May we be strong in the faith that will never let us down!

PEST CONTROL IN THE HOME GARDEN

by R. J. HILTON, Department of Harticulture, Ontario Agricultural College, Guelph, Ontario

The value of this brief article will depend upon careful use of the information in the tables which appear below. It is true that these tables contain only a few of the hundreds of compounds sold today for plant spraying and dusting. But these are the ones which are most easily purchased, and most safely handled, for home garden use. They have been tested and proved over a wide range of conditions, too, which is an important consideration before the hopeful gardener sallies forth of an early evening to deal the death blow to the pests that threaten his precious plants.

A word anent this death blow dealing; don't let it be to yourselves. No chemical is proof against thoughtless or careless use. All of those listed are safe enough to be used without the bother of a gas mask, but I still wouldn't advocate their use in place of brown sugar on your morning porridge. In other words, be careful. Especially if spraying or dusting in windy weather, make certain that you wash face and hands carefully when you are through.

Concerning spraying procedure, always remember the "stitch in time" adage, and depend more on having protection on the plants, than on trying to "burn out" a disease or blast off a healthy batch of bugs, after they have become well entrenched. Also, many of the most troublesome insect and disease pests are most at home on the **undersides** of leaves, so care in the application of the chemicals is especially important. There is little point in obtaining a good sprayer and just the right material, if it isn't properly applied.

Just one more word of caution. Do **not** use your regular garden sprayer for 2,4-D or 2,4,5-T to control weeds on your lawn. You will not be able to clean these persistent herbicides out of the tank and nozzle, and will be plagued by 2,4-D injury and abnormalities every time you spray roses, grapes, tomatoes, petunias, cucumbers and such susceptible plants.

Table 1. **Insecticides for Garden Insect Control**

Chemical	General Use	Level Tablespoons for 1 gallon water
Aldrin (25%)	Cutworms and maggots in garden and Lawn Soils.	14 (per 1,000 sq. ft.)
Aramite (15%)	Mites (e.g. Red Spider)	1
Arsenate of Lead	Chewing Insects (e.g. most caterpillars)	6
Chlordane (40%)	Carrot Rust Fly Maggot and White Grub.	1½
Derris (Rotenon) (5%)	General (non poisonous to humans)	4
DDT (50%)	Caterpillars, thrips, flies — but not mites	3
Malathion (25%)	General — toxic to almost all insect life	4
Nicotine Sulphate (40%)	Similar to malathion but spray must be soapy	1 (use care)
Pyrethrum	Similar to Derris — safe to use on foods	*

*Use as directed.

Notes:

1. Most of the materials listed above are available also in dust form. In humid climates or when dew is heavy, dusts are about as effective as sprays. When air is dry or windy, they are difficult to use.

2. Chlordane for carrot rust fly should be applied to the soil and worked in just before planting. If used after plants are up, the roots may have an oily taint.

3. For large areas, follow dosage rate recommended on the container.

4. Malathion and derris will be found of general enough use for most garden plant insects except root maggots. Currant fruit fly however is best controlled with DDT at late blossom stage. Do not use malathion within 5 days, or DDT within 7, of harvesting food.

5. Bulbs and corms for over-winter storage should be dusted with a DDT 5% dust, plus a fungicide such as thiram.

Table 2. **Fungicides for Effective Control of Garden Plant Diseases**

Chemical	General Use	Level Tablespoons for 1 gallon water
Actidione	Turf diseases, cherry leaf spot	
Agrimycin	Bacterial diseases (as fire blight on apples, etc.)	
Basic Copper Sulphates	General Fungicide. Many formulations	3
Bordeaux Mixture (Prepared)	Old reliable fungicide for general garden use	20
Captan	Leaf spots, apple scab, grey mold, cedar rust, blights	1½
Copper oxide	Disinfectant, spray or drench for "damping off"	
Dichlone	Apple scab, rose black spot, brown rot	
Ferbam	Especially useful for cane fruit diseases	2½
Glyodin	Apple scab, cherry leaf spot, rose black spot	
Lime Sulphur	Old time fungicide, use when plants dormant	32
Maneb	Gladiolus diseases, some leaf spots and blights	
Organic Mercury	Turf and tree diseases, Eradicant use	
Sulphur, wettable	Mildew and apple scab	3
Thiram	Turf diseases, blights, damping off of cuttings	
Ziram	Leaf spots and general tree diseases	2½

Notes:

1. All materials not provided with a concentration figure should be used carefully as directed on the containers. Determine the amount needed by reckoning that 1 quart = 2 pints = 4 cups = 32 fluid ounces = 64 tablespoons = 192 teaspoons. And 1 fluid ounce = 2 tablespoons.

2. For general spraying purposes(blights, spots and cankers) use prepared Bordeau Mixture or Captan.

3. Most of the above compounds are sold under several trade names and may be obtained ready for dusting, or for mixing sprays. The label will tell you which effective ingredient it contains. Often a combined material can be purchased and used effectively; e.g. malathion and captan; or DDT, sulphur and malathion, etc.

PANSIES, VIOLAS and CARNATIONS

by P. VOGELS, Gardener,
Assiniboine Park, Winnipeg, Manitoba

The season of 1958 is over before we realize it. When we look back to a dry, cold spring, and a late summer, we can still be thankful for the color beauty the flowers have given us.

With the short summer we get here, we like to have bloom from early spring till late fall. We need perennials like peonies, iris, and others for early spring blooming and chrysanthemums and perennial aster for late blooming.

Plants that give us early flowers and keep on till hard frost are — pansies, violas and carnations. Started early inside, they can be set out about two or three weeks before the other bedding-out plants and can stand cold weather quite well.

Carnations planted early bloom in August. When planting them out for cut flowers, do not plant them too far apart, because a heavy rain or wind will break them down. To get bigger blooms take the side buds off.

For pansies it is best to have a bit of shade while violas can stand more sun. It is quite simple to grow them, they should not be planted too far apart, because closer planting gives more color effect. We have to watch out in dry, warm weather for red spider, but with a spraying of Malathon now and then and regular watering, there won't be much trouble.

One important thing is to have the dead flowers removed every three or four days. This keeps them in bloom until late fall and they can stand three or four degrees of frost.

SABIOSA CAUCASICA

Sabiosa caucasica, with its blue, mauve or white flowers is not only one of our best hardy perennials but also one of our best flowers for cutting. The large flowers, they measure over two inches across, last a long time in water, they have nice long stems and you may expect them to be in bloom from midsummer until severe frost.

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

MANITOBA'S VEGETABLE INDUSTRY

by W. DAMEN,
Gardeners Sales Ltd., Winnipeg, Man.

Production of vegetables on a commercial basis in Manitoba commenced at the turn of the century. A few Pioneer market gardeners operated small holdings along the banks of the Red and Assiniboine Rivers. In those early days, the rich soils and attendant natural shelter belts provided a combination conductive to good yields of high quality vegetables.

The growers of that day marketed their crops by selling direct to consumers. The horse and rig laden with attractive vegetables was a common sight on city streets.

As the population of the city of Winnipeg expanded, so did the demands for potatoes and vegetables. This encouraged increased production in other areas around the suburbs and later into other parts of the province.

With the expansion of production came a need for better distribution. Dealers soon stepped in to meet this demand, supplying restaurants, meat markets, and grocery stores with supplies bought from growers at the wholesale markets.

The first vegetable growers organization of any account, in Manitoba, was the Bird's Hill Potato Growers Association. This group operated from 1918 until 1922 and exported potatoes to Minneapolis, St. Paul, and Chicago.

Various other grower organization followed with varying success until 1946, when the group of growers represented by the Manitoba Truck Farmers Co-operative decided that there was a need for a growers marketing organization to serve the local wholesale trade as well as to develop other markets. This group organized the Winnipeg Gardeners Co-op Ltd. Land was purchased, a building erected and equipped, and was financed completely by the grower members.

Sales volume of Manitoba Grown vegetables handled by the Co-op, grew steadily over the years and last year surpassed one million dollars. The assets of the company kept pace with sales volume. The demand for washed, graded, and

packaged produce has been met by installation of modern equipment for that purpose.

In June of 1956, a new growers company was formed operating under the name of The Gardeners Sales Ltd. Trading style was changed from a Co-operative to a joint stock company to facilitate the merger of growers from Winnipeg Gardeners Co-op Ltd., Manitoba Vegetable & Potato Growers Co-op, and other growers outside the two Co-ops.

The Gardeners Sales bought the assets of the two Co-ops, which includes warehouse equipment, graders, washers, inventories, and a fleet of highway transport trucks and trailers. The latter equipment is used to deliver Manitoba vegetables to Saskatchewan and North Western Ontario points.

On the national level, the industry is represented by the Canadian Horticultural Council. Both the Vegetable Growers Association of Manitoba and The Gardeners Sales Ltd. are members of Council. Manitoba has gained considerable recognition in the past few years at the annual convention of this National Organization.

The future of the Vegetable Industry seems to be fairly bright. Expansion of population in our country will undoubtedly create greater demands for produce. Industry's demand for property in Eastern Canada plus the appropriation of valuable farm land by the Seaway project will result in a movement of Canneries from that area to Western Canada. This trend is already apparent and will undoubtedly continue.

PINE NEEDLE SCALE AND ITS CONTROL

by HOWARD CASH,
Winnipeg, Man.

The gardeners of Winnipeg can boast of many splendid ornamental trees, not least of these being such evergreens as spruce and pine, of which the beauty is threatened by the Pine Needle Scale, an insect which, if unchecked over the years, will so discolour and defoliate these trees that they will lose their decorative value, and eventually be so weakened that they will succumb to the assaults of other agencies. The Spruce is particularly affected by this pest.

The bug's presence is easily detected — a close look at the needles will reveal small white scales. Under these the eggs overwinter, to hatch usually in early June. The nymphs then feed on the sap, and the females pass through two moulting stages before secreting the scale-covering under which egg-laying begins about mid-August.

Nature provides, by the agencies of predators, parasites, and extremes of heat and rainfall, a measure of control of the Scale, but the heavy and widespread attacks now prevalent in the Winnipeg area indicates that other assistance is needed, and that the gardener will do well to avail himself of the weapons science has provided to check this pest.

Government scientists have shown that the insecticide called Malathion is highly effective in killing the Scale, and they recommend two applications in the growing season. The first should be made at the completion of hatching, which usually occurs in early June, but is delayed by cool, wet conditions; and speeded by hot, dry weather. The first, and very important spraying kills the newly-hatched nymphs before they feed extensively; and it should be followed by a second application in mid-August, to deal with any survivors before they begin to lay.

Malathion is available as a 50% emulsifiable concentrate, and as a 25% wettable powder. The concentrate should be used at a rate of 1 3-5 pints in 40 gallons of water; the powder

at 4 lbs. to 40 gallons. A spruce tree 15-20′ high will require about 2 gallons of one or other of these spray preparations.

The chemical is poisonous to humans, and the recommended precautions should strictly be observed. Because of this, large trees require the use of a powerful spray projected to a considerable height, and because of the necessity for continuous agitation of the liquid during treatment, many gardeners make use of the tree-spraying services offered by local firms which have the necessary special equipment.

It is difficult to say how often such treatment should be repeated for complete control, but moderate infestations have yielded to spraying over two consecutive years. In any event, no more effective check on the ravage of this pest has as yet been evolved.

SO YOU WANT TO GROW ROSES!

by MRS. W. M. WILKS,
Regional Director, Canadian Rose Society, Winnipeg, Man.

Well, it's easy, it's stimulating and it's fun. There is a lazy way of growing roses, and there is the "sheer hard work" method which leaves you little leisure to enjoy the results. A happy medium is preferable, so let's try that.

First, remember that roses need a plentiful supply of water but they do not like to stand in it. It is generally considered that the ideal soil structure is a good loam topsoil, subsoil with some clay in it, and then a thin layer of sand or gravel for good natural drainage. However, do not brood too much over this. I like to believe those experts who say that soil which will grow good corn, cabbages, or even grass, will grow good roses. It is a sound idea — if you know that you have good productive soil — to leave it alone. The rose is a rugged plant and, contrary to a fairly general belief, it does not need to be treated like a delicate little creature.

Now, having disposed of all that back-breaking labour, there is the location of the rose-bed to be considered. Roses should have six or more hours of sunshine daily; if this is not possible, it is wise to place them where they will receive morning sun and afternoon shade. This will allow the early morning sun to dry up the dew on the foliage before evening. The bed should not be near any trees or shrubs which will send out roots to take up moisture and nutrients from the soil. The weeping willow, Lombardy poplar, Maple and Chinese elm are the chief offenders in this respect.

Having chosen your location you must now decide how you are going to arrange your roses. Some people like to plant them in a bed or border with other plants; others give the roses a place to themselves. Personally, I recommend the latter, if you have the space. It is easier to keep your roses free of pests and disease, and it is easier to tend the bushes; you have room to get down on your knees to work with them, if you enjoy that. (So many of us do.) In this method of planting, the roses should be 18″ - 24″ apart; more or less according to variety.

The arrangement is your choice and, when you have decided, get pencil and paper and draw a plan. It could be to scale, if you wish; say 1″ to 1 ft. for a small plot. It's a lovely pastime, during the winter months, to get your garden on paper. Make a plan and when you have chosen the roses you prefer, mark them on the plan according to size, colour, etc.

You may change your mind a dozen times before you actually plant, but think of what you will have learned about roses by then!

Now is the time to study the spring catalogues, and it is a good idea to buy from one of the well-known nurseries. The bushes for spring planting will be dormant, pruned and ready to set out as soon as the soil is ready; and, should any not be as advertised, these nurseries will always replace them. Your choice of roses will be influenced by what the grower says about them and by your own preference as to fragrance, colour, etc.

Last year the Rose Section of W.H.S. took a vote to learn which roses were considered most successful in this area, and the result appeared in the 1958 Year Book. In case you have not seen it, here the names in order of preference

(1) Peace HT
(2) Crimson Glory HT
(3) Frau K Druschki HP
(4) Independence F1
(5) Fashion F1
(6) Orange Triumph F1

In this connection I have at hand a Rose Analysis which represents the cumulative appraisals of 31 experienced growers across Canada. It is interesting to note that they placed Peace first in (A) roses for exhibition; (B) roses for general gardening, (C) autumn blooming roses. Crimson Glory was 3rd in Group A, 2nd in groups B and C; then 1st in the groups of most fragrant roses and bedding roses. This would confirm the opinion of our local rosarians.

Now it is spring, and planting time. Never expose rose roots to the air until you are ready to plant. The hole you dig for each bush be wide enough to allow the roots to be separated and spread out naturally; and it must be deep enough to allow the bud or union to be about 1 inch below soil level. Opinions vary a little on this 1 inch depth, but it is generally acceptable in this area. When the hole is deep enough a small cone-shaped mound of earth is built up in the centre of it. On this the root system is spread out, the hole is partially filled with loose soil to a point where the top-most roots are covered, and then water is poured in and allowed to seep through the soil. Some gardeners use foot-pressure to firm the soil and remove air pockets before watering but using water at this point should achieve the same end. A few drops of B-1 added to the water will assist the bushes to a good start. The last step in planting is filling the hole completely, and mounding soil up around the stems to retain moisture until the roots have become established. After about 2 weeks the mound may be removed when the sun is not too hot.

Now is the time to apply a 1½" - 2" mulch around your roses; this checks weed growth, retains moisture, conditions the soil and, on hot days, keeps the soil cooler. Mulch could be peat moss, buckwheat hulls, or even lawn clippings; but the latter soon deteriorate. There are many others, of course, but these are not so easily obtained in Manitoba.

It should be noted here that chemical fertilizers should not be used during the first year; slower-acting organic fertilizers may be used sparingly — but only if necessary. This is important, because the use of fertilizer, especially if it contains nitrogen, may actually restrict the growth of new roots.

You have your roses planted, but you have not quite finished the operation. Those tags on the bushes must come off — they may damage the stems — but you do need to identify your roses. Your best plan is to obtain wooden or aluminum tags, and to set these in the soil in front of each bush. Should you have in your neighbourhood any busy little helpers who may remove your tags, your plan will always tell you where your roses are. And do keep a record of performance, and notes on how you treat your roses. Whether you have few or many roses, it adds to your interest and your knowledge. You learn which roses are disease-resistant which bloom best, which spray or dust is most effective, when it should be used and so on.

There are many other points to cover, of course, but space does not permit. The more you go into the subject of Rose growing, the more fascinating it is and the wider your horizon becomes. Come on and join us — you will be in good company.

NOTE:

Should any of our readers have problems, the Rose Section of W.H.S. will supply the answers on request. Letters should be channelled through Mrs. W. M. Wilks, 174 Baltimore Road, Wpg. 13.

VEGETABLE GARDENING TIPS

by T. A. SANDERCOCK, Vegetable Specialist,
Dept. of Agriculture, Province of Manitoba, Winnipeg, Man.

The modern trends in home building leaves little space for the home garden. After the flower border is planted around the outside, the garden area is reduced to not much more than a postage stamp. Therefore, it is very important that we make maximum use of the space that is available.

Perhaps at this time we could spend a short time discussing ways of increasing the returns from our limited space.

Quality vegetables can only be grown on productive soils that have been well cared for. A regular application of manure will maintain your soil at a high productive level.

Preparing your garden well in advance of planting will ensure a satisfactory seed bed for successful germination of the small seeds. Heavy soils should be worked in the fall allowing the freezing and thawing conditions of winter to break down the soil into a fine seed bed. Light textured soils can be worked in either fall or spring, as long as care is taken to preserve all available moisture. Harrowing as soon as the land is ready in the spring will help warm up the soil for early growth and prevent excessive evaporation of moisture.

Time spent planning your garden will pay large dividends. Early crops should be planted in locations where they are protected from the cool spring winds and have access to total sunlight. To utilize your space more fully, late crops such as cucumbers, cabbage, cauliflower, carrots, etc., can be planted between rows of vegetables such as radish, lettuce and green onions which are harvested before the end of June allowing the later crops to spread out. Successive plantings of individual crops will lengthen the harvest period of crops of corn, radish, lettuce and peas. The harvest period can also be extended by selecting varieties that have different maturity dates. Farthest North tomatoes generally ripen fruit a week to two weeks earlier than the main crop varieties of Manitoba, Mustang, Stokesdale and the Beef Steak varieties. They are small but of good quality. Vegetables purchased early in the season are always expensive. Early maturing vegetables can do much to reduce the grocery bill.

For the more heat-loving crops like tomatoes, cucumbers, canteloupe and watermelon, hot caps and hot tents offer

great assistance in getting your transplants established much earlier in the garden. Transplants of the above mentioned vegetables can be planted out two weeks earlier if hot tents or caps are placed over them to protect them from late spring frosts and cool spring winds that retard development. These operations bring on an earlier maturity date as well as increased yields.

Experimental work carried out on the use of polyethelene as a mulch shows great promise in the production of vine crops. Black polyethelene is fastened down and either seeds or seedlings planted through holes made in the appropriate places. The polyethelene absorbs heat and prevents the evaporation of moisture as well as controlled weed growth. Vine crops thrive under warm soil conditions and black polyethelene used as a mulch has made it possible to mature a satisfactory crop of canteloupe and watermelon. Cucumbers also have responded very well to this treatment.

The use of chemical fertilizer has improved quality and hastened maturity in many crops. Corn, tomatoes, potatoes and cabbage crops have shown noticeable response to the addition of chemical fertilizer. Care should be taken not to place the fertilizer in direct contact with the seed or roots of transplants burning will result.

Disease and insects have taken a greater toll of the home garden than any other single factor. They retard growth to a considerable extent and in many cases completely destroy the plants. With the aid of modern chemicals now on the market control of most insects and diseases is possible. Prevention rather than control should be stressed. Regular applications at ten day intervals of sprays or dusts containing insecticides and fungicides will avoid many disappointments.

Besides harvesting a plentiful supply of vegetables, many enjoyable hours of relaxation can be spent in the quiet of one's own backyard.

Salad Vegetables In Your Garden

by CHAS, WALKOF,

Experimental Farm, Morden, Man.

Salad vegetables rate high among the currently most popular foods in general use today. On the basis of seed sales to home gardeners salad vegetables are 3 to 1 favorites when compared to other kinds of vegetables. Similarly, vegetable displays in supermarkets and roadside stands guided by consumer demand show a predominance of salad type vegetables.

The reason for this notable popularity of salad vegetables is the desirable color and freshness they impart to a meal and the vitamins they contribute to the diet. Various shades of green are provided by lettuce, celery and cabbage; orange and yellow by carrots and yellow tomatoes and red by beets, tomatoes and radishes. These are pleasing to the eye and serve as appetizers. Vitamin C commonly found to a marked extent in tomatoes and vitamin A in carrots have been noteworthy factors in popularizing vegetable salads.

KINDS OF VEGETABLES FOR SALADS:

The list of salad type vegetables that can be grown in the prairie garden is quite long and impressive but the kinds used mostly are tomatoes, cabbage, lettuce and celery. With the exception of celery all can be grown with relative ease. Two kinds of tomatoes are suitable for salads, namely, the small-fruited **Farthest North** and the larger-fruited **Mustang, Meteor, Manitoba** and **Morden Yellow** varieties. The small tomato is used whole for garnishing salads as well as for contributing food. Farthest North may be grown from transplants started indoors and will ripen a considerable amount of fruit even in the short season garden after it is planted out June 10 to 15th. In the longer season localities of the southern prairies Farthest North seed can be sown directly in the garden from May 15 to 25th. In experiments conducted at Morden from 50 to 200 ripe fruits can be harvested per plant grown from outdoor sown seed.

The **Mustang, Meteor** and **Manitoba** varieties are of the slicing type of tomato and when grown in the prairie sun provide a good source of vitamin C for a salad. They should be grown so that the plants derive the greatest benefit from exposure to the sun. Plant spacing is important and according to findings at Morden the plants should be spaced 3½ feet

apart each way. Closer spacing tends to crowd growth and may cause excessive shading of the fruits. Morden experiments have also shown that tomatoes ripen earlier on plants spaced apart 3½ feet or more. It does not seem to matter much how deeply tomato plants are set when they are transplanted in the garden. They have ripened as early when set deeply as when set shallow at Morden. However, deep setting is an advantage when the plants are tall and spindly or when strong winds tend to break the plants.

The **Morden Yellow** tomato is used much for salads because of the color variation that it contributes. It is a large fruited variety and is usually sliced for use.

CABBAGE:

Among the numerous varieties of cabbage available for salad purposes the early **Golden Acre No. 84** and the mid-season **Bonanza** are particularly suitable. Both varieties will develop good heads on plants grown from seed sown in the garden on May 10 to 15th. These varieties have heads of thin folded leaves that are closely spaced and accordingly shred well. In Morden tests, the quality of the shredded cabbage has been rated highly. Try growing **Early Red Acre** cabbage for use in salads. This variety will impart a desirable color to a shredded mixture.

It is important when growing cabbage to be on constant guard for leaf eating insects. These may appear soon after the plants appear above ground. Any DDT formulation will control insects on cabbage until the plants are full grown. However, once the heads have begun to form insecticides with a derris base, such as Atox, should be used.

LETTUCE:

Leaf and head lettuces are basic components of many vegetable salads. Leaf lettuce often used primarily for garnishing is available in a pale green, simple leaf as in the **Slobolt** variety, in a deep green, very frilled leaf as in the **Salad Bowl** variety and in a red, frilled leaf as in **Ruby Queen.** These three are easily grown from seed sown in the garden. The only important thing to remember is to plant the seed shallowly, ½-inch deep, and place it in moist soil. Otherwise there may be difficulty in obtaining satisfactory germination.

Head lettuce may be more difficult to produce in the home garden than leaf lettuce. Best results are obtained by sowing the seed indoors on April 15th and transplanting the

seedlings to the garden May 10 to 15th. The heads develop best when the weather is cool. **Early Great Lakes** and **Sweetheart** are two varieties that have given good results in Morden tests. Both produce large, heavy and compact heads of good quality.

CELERY:

The dark green varieties of celery have been highly popular in recent years. The **Top Ten** and **Ten Grand** varieties which were selected from the Utah celery have given excellent results at Morden. These varieties tend to grow tall and generally develop solid stems of good quality.

Celery must be seeded in flats indoor about March 25th and grown under glass for two months before it is set in the garden. This can be done successfully by the home gardener. However, certain specific methods of growing celery seedlings must be used. These are outlined in Publication 1033 entitled "Growing Vegetables in The Prairie Garden". The publication may be obtained free by applying to the Experimental Farm, Morden, Manitoba.

OTHER SALAD VEGETABLES:

Among vegetables that are used raw and are excellent components of salads are carrot, radish and beet. One of the best carrot varieties for this purpose is **Long Nantes.** The roots of this variety are brittle, crisp and sweet. To grow carrots well a deeply worked, friable, soil is required. If manure or compost is used for fertilizer it should be thoroughly decomposed. It is advisable to plant carrots at several times during the season to provide a succession of roots in good condition from summer to late fall. The first seeding can be made in late April and the last in mid-June.

Two varieties of radish, **Cherry Belle** and **Champion,** are well adapted to gardening in the Prairie Provinces. Both are heat resistant and usually produce solid-fleshed roots. As a rule, Cherry Belle is best when the roots are of thumb-nail size while the quality of Champion is good even when its roots approach the size of a golf ball. In growing radish it is important to dust the seed or the soil around the seed at planting time with Aldrin or Heptachlor to prevent root maggot damage. After the seedlings have emerged the gardener must be on guard for flea-beetle damage and dust the plants with DDT for beetle control.

Beet roots are sometimes included raw or cooked in salads to provide intense red color. However, in raw form

they do not contribute good flavor and usually are flat tasting. A new beet that has been crossed with the sugar beet and which has a sweet flavor when eaten raw will soon be available to gardeners. A pale rooted selection named **Sweetheart** with sweet flesh is listed in some catalogues. However, progress is being made in developing a sweet, red-fleshed strain and this should be available generally within two or three years.

Vegetables of a pungent nature are sometimes used in salads to provide a substantial flavor. Onion, garlic and horse radish are in this category. The **Fiesta** hybrid onion has consistently given the best results when grown from seed outdoors in Morden tests. It is a sweet Spanish type. Fiesta is well adapted to transplanting and yields large, one to one and one-half pound bulbs in a season. When small bulbs of Fiesta are planted the greens obtained are mildly pungent and pleasant. A firm, moist, deeply worked and rich soil produces the best onions. Aldrin or Heptachlor must be dusted on the seed at planting time to control root maggots.

Very little garlic is required for salads. Wiping the salad bowl with a garlic clove is adequate for imparting a desirable flavor to the salad constituents. Accordingly, a half-dozen plants are all that the average garden requires. The bulb of the garlic plant is composed of five to seven small dime-sized sections known as cloves. These are planted singly, 2 to 3 inches apart and one inch deep. At harvest time, usually mid-September, garlic bulbs are placed in a warm and dry place to cure.

Horseradish grows "like a weed" after it has become established in a garden. New plants are obtained by cutting the root of a mature plant into sections 6 to 8 inches long and planting these 3 to 4 inches deep. The leaves of horseradish are used by some gardeners in making dill pickles.

All vegetables used in making salads can be grown successfully in most localities in the Prairie Provinces. Accordingly, the gardener has the assurance of being able to provide fresh home-grown material for a salad at any time during the summer.

Some Notes on Vegetable Gardening

by W. A. RUSSELL, Horticulturist,
Experimental Farm, Indian Head, Sask.

The prairie gardener has in his environment certain factors which favor the production of vegetable crops. He has good soil, long warm days and bright sunshine. Not all is bright, however, since strong winds, scarce moisture, and a short season are difficult problems. The early settlers solved some of these by building shelterbelts and selecting early maturing varieties. The farm dugout supplies a small amount of irrigation water. Continuing selection and breeding by research men has steadily increased the numbers of adapted varieties and improved the quality of vegetables for the prairies.

A few years ago every gardener tried to grow all the vegetables needed by himself and his family both in season and for storage. Today excellent quality vegetables are available, at reasonable prices, throughout the year. An abundant supply of first quality in-season vegetables is, therefore, of first importance. Perhaps only few vegetables will be grown for storage.

Changes in modern homes have also changed the emphasis given to various vegetables by the modern vegetable grower. First, basements now house the home heating plant and have become too warm for storing most vegetables. Secondly, with the advances of electrification the home freezer is becoming increasingly common. Fewer bulky vegetables that have to be stored in cool basements are grown. More easily frozen and less bulky vegetables are preserved by freezing for winter use.

Bearing the above discussion in mind, we will now look at vegetables as they are grown and used throughout the year.

Rhubarb with its most noted variety, MacDonald, is first ready in spring and is easily and frequently frozen for out of season use. Many gardeners will grow and freeze asparagus, Mary Washington.

First of the annual vegetables, Saxa and Cherry Belle radishes, abound in every garden. The yield of lettuce for several years has been poor because of the aster yellows disease. Early sown or transplanted lettuce has a better chance of success than later plantings. Grown under plastic or under fine screen, it escapes aster yellows. Spinach has not gained popularity even though the Longstanding varieties have pro-

longed the season by two weeks or more. For those who like cooked greens, Swiss Chard, a cut and come again vegetable, is partially replacing spinach with Lucullus a favorite variety.

Perhaps the most changed of all vegetables by modern processing methods is the garden pea. Peas freeze easily and provide a brand new flavor for winter use. Such varieties as Lincoln and Selkirk are good for main crop with the early Little Marvel and the late season Stratagem to lengthen the fresh use period.

Beets and carrots are grown more for use when young and tender than they are for storage. Of the beets, Crosby Special and Flat Egyptian are better for early use with Detroit Dark Red standard for storage. Many new carrot varieties are excellent eaten right from the garden with Red Cored Chantenay still the best for storage.

Of the bean varieties, Round Pod Kidney Wax and Pencil Pod Black Wax have remained as outstanding wax beans while great improvement in green podded snap beans have been made with Top Crop, Tenderlong and Tendergreen replacing the old Stringless Green Pod types. These new green podded varieties are much meatier and retain their good quality for longer periods.

A large number of cabbage varieties are available to provide excellent salads from the first week of August on. The trend is toward smaller size — a one-meal cabbage for a modest size family. The earliest variety, Canadian Acre, is only about two pounds with the latest variety, Danish Ballhead, weighing under five pounds.

Cauliflower varieties, such as Super Junior and Snowball M, have been joined by another similar vegetable, broccoli, a cut and come vegetable that continues to produce late in the growing season after most other vegetables have been killed by early frosts. Such varieties as Purple Cape and Green Sprouting Calabrese could be tried.

No vegetable provides as many uses nor as long a season as the onion. From the first sets that turn green in spring until the last pickle is eaten, onions garnish the table. The new hybrids yield well and are usually well worth the extra seed cost. The root maggots must be controlled to ensure successful results. Although onions grown for bulbs must be carefully thinned, a thick row of seedlings assist in keeping pickling onions small to maturity.

Potatoes are grown in a new light for most prairie gardeners. The most important are those that are ready to eat early in the season. Less importance is paid by the home gardener to potatoes for storage. The variety Waseca is light

yielding but matures very early. It is followed by Warba, the early variety with excellent flavor. Commercial growers favor Pontiac for main crop mainly because of its pleasing appearance and heavy yield. It lacks the quality of the old stand-by, Irish Cobbler.

Sweet corn has advanced in popularity more than any other vegetable. It lends itself well to modern living. A few small rows provide abundant eating during the growing season and corn, on or off the cob, freezes excellently for winter enjoyment. A large number of early varieties, Seneca 60, J-6 Hybrid, Golden Beauty, Spancross and Sugar Prince, to name a few, have contributed greatly to this new appreciation. Commercially sweet corn is one of the most popular vegetables for the market gardener.

Of the vine vegetables, only the cucumber has remained popular with the home gardener. Squash, pumpkin and vegetable marrows are losing popularity for several reasons. They occupy a large space in the garden. The fruits are mostly large, hard to handle and fussy to prepare. Muskmelons and watermelons are bordering on the limits of their adaptation and often fail because of a slow season or early frost. The ever-popular Straight 8 remains the best slicing cucumber and as immature fruit it is still one of the best picklers. Other good slicers include Burpee Hybrid and Cubit. Pickling cucumbers include Mincu, Green Thumb and Double Yield. Only small fruited pumpkins such as Small Sugar are recommended. The bush type squash with the nutty fruit, Uconn, is well liked along with the trailing vined Perfection and Golden Hubbard. Black Bush Zucchini and Long White Bush vegetable marrows are favored. Farnorth muskmelon is the only melon of quality which matures fruit. Early Canada, Sweet Sensation and New Hampshire Midget watermelons sometimes bear mature fruit of fair quality.

Tomatoes, long a borderline crop with prairie gardeners, have become very popular with the new, early maturing, non-staking varieties. The earliest of these, Earlinorth, can be grown well in the most difficult garden locations. Better quality, larger fruit and heavier yields are obtained with Early Chatham, Meteor and Mustang. Modern tomato varieties start producing excellent food until freeze-up. Fruit picked green at that time and stored indoors continues to ripen until early in November.

The garden season may be extended late into the fall with broccoli, previously mentioned, and still later Brussel Sprouts.

Few vegetable gardens would be complete without some

herbs and garnishes. Most common of these in prairie gardens are dill, summer savory and parsley.

Prairie gardeners combine their natural ingredients of good soil, long days and bounteous sunshine with built-up shelters, water from dugouts and the experience of three generations of their forerunners to produce vegetable gardens equal to any place and better than most places in the world. Changing needs to meet modern age developments are changing the emphasis on gardening and in doing so, are bringing to the gardener increased food value and enjoyment. Ever changing varieties are meeting these needs and are leading to better gardening.

LILIES ARE MY FAVOURITES

by J. P. DE WET

Winnipeg, Man.

Lilies are my favourites for a number of very excellent reasons.

They are sure croppers and mostly are prolific multipliers. They are pretty free from diseases, except sometimes mosaic and botrytis, and from insect pests. They are hardy and frost-resistant, and withstand a fairly long period of drought because they are planted well down.

They are not specially fussy about the kind of soil they want, except that it should be well drained, and not be low-lying and subject to flooding in the spring. They can be had in great variety; they offer a long season of bloom — from mid-June until well into September if frosts are not too severe.

And above all, lilies are my favourites because of their charm in colour and cheerfulness, and generally because they are lovely flowers.

Colours run from white and cream, through shades of yellow, orange, pink and red. Blossoms are upright and outward facing, or nodding with reflexed petals, or star-shaped, or trumpet-shaped. Some even have a delightful scent.

There are lilies that prefer partial shade, like Henryi, and others like the Martagon hybrids that thrive in full shade or nearly so, but mostly lilies like lots of sunshine. Over thirty different lilies may be seen in bloom in Assiniboine Park, Winnipeg, during the summer months. Another thirty or so are on test in the park's trial plots.

While lilies in general, as I said before, are not fussy about soil, they do respond to a bit of extra care in soil preparation. For the heavy, clayey Winnipeg soil, I dig in, to the full depth of my fork, plenty of coarse sand (not playbox sand) and acid peat moss. The sand is for drainage; the peat moss supplies organic matter. The two together help to lighten the heavy soil and improve its structure, and the peat moss provides the acid reaction in which lilies give of their best.

Very well rotted barnyard manure also will improve soil fertility and structure but should not be used around lilies.

Any good chemical fertilizer is useful when applied in the quantities recommended by the manufacturers. A handful of powdered sulphur may be scratched into the top soil.

Lilies like dry feet but also cool feet. To keep their feet dry set your bulb on a cone of sand in the bottom of the hole where it is to go. Small plants close to the lily clumps will shade their feet from the direct heat of the sun: a mulch of peat moss also is good. Tiger lilies (Lilium Tigrinum) do well planted among peonies and give a second blooming season for that patch of the herbaceous border.

Plant your lilies in small groups of the same kind in the herbaceous border. Depth of planting may be five to six inches — that is, cover them with five to six inches of soil, up to eight or ten inches for stem-rooting varieties like Henryi. A mulch of dry litter three to six inches deep is recommended for the first winter after planting, just before the winter sets in. The litter should be removed about the end of April, or sooner if necessary, in any case before the shoots appear above the soil surface.

Twelve to fifteen inches apart in the groups will give plenty of room for healthy growth and for multiplying. Every three or four years dig up the bulbs — you will find that they have multiplied plentifully and should be separated and replanted. When they are dug up, the roots of the new bulbs will be tightly intertwined; wash off all adhering soil and gently separate the bulbs, taking care not to damage the roots more than can be avoided.

Many growers suggest setting the bulbs at an angle when planting, the idea being to prevent surface moisture penetrating the bulb scales and causing rot; but after several seasons in the same place the bulb will be found to have straightened itself up. Fall planting is advised, though some gardeners like spring planting.

Lilies have lent themselves very co-operatively to hybridization. Thus there are the Philadelphicum hybrids of the prairie lily, the Martagon hybrids, and the Wilmottiae hybrids. The last include the six lilies, developed by Miss Isabella Preston at the Dominion Experimental Farm in Ottawa, and named after the stenographers in the office there. They are known as the Stenographer lilies: Grace Marshall, between grenadine red and crimson, has the Royal Horticultural Society's Award of Merit.

Dr. Frank Skinner, of Dropmore, Man., also has originated Wilmottiae hybrids, notably among his recent introductions, Lemon Lady, a bright yellow, Amaryllis, pale red, and Dunkirk, blood red, which has had Awards of Merit of both the Royal Horticultural Society and the American Lily Society. Glow, reddish orange, and Azalea, brilliant apricot, are prairie lily hybrids. Maxwill, nodding, bright orange red, a cross between Wilmottiae and Maximowiczii, and a very popular lily, won the Horticultural Society's Award of Merit in 1933.

Prof. C. F. Patterson, head of the Department of Horticulture, University of Saskatchewan, Saskatoon, has originated distinctly new shades in cream, pink and rose. Apricot Glow, Jasper, Rose Cup, White Gold, Pink Charm and Rosalind are among his successes: the names suggest the colours. His Edith Cecilia, a very dainty, pink lily, in 1955 was awarded the Reginald Cory Memorial Cup by the Royal Horticultural Society. White Gold, introduced in 1950, probably was the first white lily fully hardy on the prairies.

Another prairie hybridizer is A. J. Porter, Parkside, Saskatchewan, whose recent introductions include Earlibird and Rusty, both very early bloomers; Rosabelle, a Tigrinum-Scottiae hybrid; and Golden Jubilee, a rich golden yellow lily with flowers facing up and out, named in honour of the province's golden jubilee celebrated in 1954. Earlibird is apricot in colour and faces outward; Rusty is a rich rusty orange facing upwards; and Rosabelle has large, star-shaped, soft crimson flowers facing up and out. This grower also offers nursery-raised bulbs of the prairie lily.

Also of Saskatchewan is Percy Wright, Sutherland. His Moose Range hybrids are a special strain of deep to blackish red lilies of much merit. Nubian lily is a dark red turkscap, similar in colour to Dunkirk, but with pendant blossoms. Old Glory is a rich red, with secondary buds; and Will Millar is a very strong, glowing red lily.

Late comers are the Aurelian hybrids, trumpet-shaped in pinks and yellows and sweetly perfumed; they combine the hardiness of Henryi with the white trumpets of the Creelman and the Regal lilies and are sold by T. & T. Seeds Ltd., Winnipeg. Centifolium, trumpet-shaped and with a sweet scent, is an old favourite that comes now in pink as well as white. Mid-Century hybrids are a new group that are being tested for prairie hardiness; some of these show much promise.

When buying lilies, and the bulbs may run from fifty cents to five dollars each, accept only varieties that have been tested for hardiness on the prairies; Regal and Madonna are not among these. Then you assure yourself of flowers that will be the envy and the admiration of your friends.

DIANTHUS (Pinks)

A lovely border and rockery plant

by A. MUNRO, F.R.H.S.,
Calgary, Alta.

Mr. Munro is Superintendent of the Parks Department, City of Calgary. He is also a director of the Calgary Garden Club and a horticulturist of wide experience.

The writer of this article feels that something must be said about the charming and fragrant plants known as Dianthus or Pinks. The Dianthus is essentially a European genus, there being but one of the species found native on this continent known as Dianthus alpinus found in the high northern regions and in Europe. Among the gems of the genus are various pretty little alpine tufted sorts as Dianthus neglectus, Dianthus glacialis, Dianthus Delioides, and Dianthus alpinus, all of which are of dwarf, close habit, not exceeding three to six inches in height and having lovely, single flowers of the brightest colors. These are suited only for rock gardening. During this past season, I am sure many of our readers saw some of these lovely Pinks or Dianthus' growing on the P. Burns Memorial Gardens on the 10th Street Hill.

Dianthus love a light, warm soil, and one that will not become too wet at any time, and especially in the fall where the perennial kinds are grown as they are often killed not so much from the cold as from too much moisture around them. All Dianthus are readily propagated from seeds sown in a light, compost of soil, but the double kinds are reproduced from cuttings alone to be sure to have them true, and in the early fall month, August to be definite. Cuttings of the double kinds are easily rooted if taken with a heel or a part of the old stem adhering to the base of the shoot so that to make cuttings, it is best to strip the leaves off rather than to make them with a knife. It will be found also, that if cuttings made from plants growing in the open ground do not root readily, but seem to dry up in the cutting bench, if the plants to be increased are carefully lifted and potted, placed in a temperature of say 50 degrees until the growth shows signs of starting, every cutting taken off at this stage will root easily. The transition from outdoors to the propagating bench should not be too abrupt. Another method of propagation is by layering, and with the garden Pinks or forms of Dianthus

plumarius it is the easiest and surest. After hot weather is past, stir the soil around the parent plant, also mixing sharp sand into the soil. Take the shoots that have a portion of naked stem, make an incision half-way through and along the stem for an inch, and peg this down in the soil without breaking the shoot off. Roots will be formed and good strong plants will be the result long before winter sets in. The layering method is especially suitable to such species as Dianthus Plumarius, Dianthus Caryophyllus and the double forms of other double kinds.

Other types of Dianthus grown successfully here in Alberta are Allwoodii Rock Pinks, a new race of hardy annuals suitable for the Rock Garden or flower border. One of the most popular Pinks is Dianthus Caesuis, commonly known as the Chedder Pink because it grows wild on the cliffs of the Chedder Gorge in England. It is a charming little tufted plant, six inches tall, and bears a profusion of rose colored blooms. Dianthus Arenarius, the sand loving Pink, six inches tall with white flowers marked with carmine ring on the petals, is another.

The Sweet William which is named Dianthus barbatus, a wild flower of the Mountain Meadows of South Eastern Europe is a biennial and belong to the Pink family also. The Sweet William was, for a long time, a favourite flower of the old fashioned garden and still is, and today in its numerous shades or rich colors, is one of the most popular of hardy summer flowering biennials. Seeds provide the easiest and best means of propagating Sweet Williams, but a plant possessing special merit can be increased by layering and by taking cuttings. As a rule, plants raised from seeds are more vigorous and flower more freely than plants propagated by other means.

Chinese Pinks or Indian Pinks, as they are often called and which are descended from Dianthus Chinensis are very showy plants which bear large fringed flowers of various bright colors in the summer months, and are used for planting in the summer flower beds. They are treated as biennials and are raised fresh from seeds each year. These plants reach a height of nine to twelve inches and bloom freely all season long. These come in various shades and colors.

The Japanese Pinks, varieties of Dianthus Heddewiggii, grow nine to ten inches tall and bear a profusion of large fringed flowers of varied coloring from July to freeze-up. They are usually treated as half-hardy annuals and raised

from seeds sown in a heated greenhouse in February or early March.

These plants mentioned will flourish in various kinds of soils if the following advice is followed. When your soil is light, sandy and poor, spring planting is recommended so that the plants become established before hot dry weather begins. The advantage of light soil is that the Dianthus plants will have free drainage during the fall and winter months and begin to grow earlier in spring. Cultivating the soil once a week in bright, dry weather will help to keep the roots cool and moist. Frequent top dressings of peatmoss and lots of sharp sand fine pea gravel is most suitable for them. Dianthus should never be planted in a heavy clay soil but if clay soil is prevalent in your garden it can be made suitable for these plants by working lots of sharp sand and slaked lime.

It is advisable and desirable to keep your plants compact. To do this, the old blooms must be removed as soon as possible after flowering: Cutting them back immediately above the cushion foliage that surround the stems.

It is important that all Dianthus be mulched over with strawy litter after the first hard frost to protect the persistent foliage, that is to say, that the green crowned leaves that stay above the soil level.

I trust that this article will encourage our gardening friends to try and grow these beautiful and dainty plants in their borders and rockeries.

DO IT YOURSELF — FROM SEEDS

by WM. H. GRAY,
Florist, Conservatory, Assiniboine Park, Winnipeg, Man.

Mr. Gray is the man responsible for the annuad display of Chrysanthemums in the fall at the Conservatory and the lovely Easter shows.

One of the best known phrases of our day is, "Do It Yourself", and I don't think you can find a better Do It Yourself project than home gardening. It is true that most of us can buy all the plants we require at a fairly reasonable price from the market gardeners, but there is a wonderful feeling of pride when in showing off our gardens to friends to be able to say that you grew it from seed. Most of us are not in a position, either through finances or the lack of space around the home, to own a small greenhouse, but even so, by utilizing such space as window ledges, sunrooms, etc., we can still manage to fulfill our hopes and requirements.

The best soil for most seeds is a mixture of 2 parts rotted sod, ½ part leaf mold, and ½ part coarse sand; some people use manure in this mixture but it is not necessary because the seedlings should be transplanted as soon as they are large enough to handle. Some of the larger seeds such as Dahlia, Pansy, Salvia, etc. can be sown right in pure Vermiculate with very good results, following the same procedure as when using a soil mixture, but they must be watched very carefully as they tend to "Damp-Off" if not transplanted immediately they become large enough. In growing Begonias whether it be the Tuberous or Fiberous-rooted varieties the same soil mixture as above should include extra leaf soil and peat moss, enough to make the soil feel light and soft to the touch.

In sowing seeds there are a few points to remember, the pot, tin or box to be used should be thoroughly cleaned of all traces of soil previously used, the soil should be firm but not packed too tightly in the container and a space of at least 1 - 1½ inches left between the soil and the top of the container; the soil should be well watered before the seed is sown, the seed should be sown very thinly and covered very lightly with soil; the container should then be covered with a piece of glass for heat and covered with a paper to keep it absolutely dark, as soon as the plants appear, remove the glass and paper and bring into full light. Transplant the seedlings into the larger pots or boxes as soon as they become large enough to handle. The seeds should require very little water although the seedlings should not be allowed to become too dry once they have started to grow. Most varieties of perennials will

germinate more quickly if the seeds are frozen for 48 hours before being sown, and many varieties if sown early in January will bloom late in the first summer. A temperature of 70 deg. or over is best for most annuals to germinate. As soon as the weather permits, the plants should be placed in a cold frame, remembering that it is necessary to give them as much air as possible so as to harden them off to the climate before they are planted outside.

Some dates for sowing flowers indoors on the prairies are as follows:

January 15—Begonias, Perennials such as Delphiniums, Pyrethrum, Shasta Daisy, Sweet William, Aquilegia, Heuchera, Hollyhocks, Cerastium, Verbena bipinitifida, Coreopsis and Gaillardia.

February 15—Verbena Venosa, Carnations, Dahlia Unwins.

March 1—Lobelia, Pansies, Castor Oil Plant.

March 15—Gomphrena, Nierembergia, Annual Pyrethrum, Chrysanthemum Bridal Robe, Nicotiana Sylvestris, Antirrhinum, Rudbeckias My Joy and Kelvedon Star.

April 1—Portulaca, Dianthus, Ageratum, Salvia, Anchusa, Heliotrope, Blue Salvia, Double Petunia, Verbena and Nicotiana.

April 7—French Marigolds, Petunia, Coreopsis, Tomatoes, Asters, Scabiosa, Balsams, Amaranthus, Sunflower (cut and come again), Phlox Drummondi.

April 17—Alyssum, Larkspur, Stocks, Celosia and Cockscomb, Cosmos, African Marigold and Zinnias.

It should be noted that Nasturtium, Amaranthus, Zinnia and some Marigolds do just as well when sown right outside in their spot in your garden.

Gardening is one of the most controversial professions I know of, there is several ways of doing each thing, and although we do not all agree on the methods, we all seem to get pretty much the same results in the end.

NOTES ON HOUSE PLANTS

by D. A. TYSON, N.D.H.,
Manager, Glasshouse-Crop Research,
Division of Plant Science, University of Manitoba

There are two principal ways of thought concerning most people's attitude to house plants. One is that of the person who likes plants for their own sake and grows them for the pleasure he gets from them. The other is typified by a person who does not love plants but appreciates their decorative value in a home and requires first rate house plants because he realizes more than anyone that a poor specimen, or sickly plant, detracts from the beauty of a home.

The first group of people may (a) interest themselves in a miscellaneous collection of plants that happened to take their fancy or (b) they might specialize in one or more interesting groups of plants or (c) devote their interest to certain projects, i.e. Terrariums, Bowl-gardens, Wardian cases, or even growing plants under artificial light.

I think people in group (a) should be a little more discriminating and if they truly desire a miscellaneous collection, should first decide upon which window-sill they would like plants and choose them accordingly. Below are a few common plants listed under their exposure direction:

Northern (Eastern in winter)	East or West exposure
Peperomia maculosa	Saintpaulia (African Violet)
Philodendron	Gloxinia
Ficus (rubber plant)	Achemenies
Schefflera digitata	Fuchsia
Ferns	Begonia (but not Rex)
Sanseveria (snake plant)	Ivies
Pothos	

Southern Exposure

Cacti and Succulents
Crotons
Jerusalem Cherry
Geraniums

People in group (b) who like to specialize a little, may form a collection of Cacti and succulents, or a keen person may collect plants of one genus but different species, and on this, advice should be sought because some genera are very large indeed. Among cactus, Mammillaria is suitable as also

are Crassula and Echeveria. Collecting different varieties of African Violets is a hobby to many and this can also be done with Geraniums (Pelagoniums) and Fuchsias.

Group (c) people can use their artistic abilities in Terrarium designs remembering to plant in the same terrarium those that are compatible for temperature and humidity and those that do not grow too vigorously to crowd out the others. Artistically designed bowl-gardens can be a beautiful asset to a sitting-room. Cacti are used extensively in these creations — Cotyledons, Echeveria, Crassulas and Opuntia, or Philodendron, Pothos and Dracaena sanderiana.

The hobby of growing plants under artificial light is spreading, and many enthusiasts are turning basements into Winter-Gardens but before undertaking anything of this nature, much reading is necessary. To begin with, I would recommend Peggy Schultz's book "Growing Plants under Artificial Light" in which she outlines what really can be done and is being done with house plants in every part of the home and in fact just where they are to be most decorative. Dr. Wesley Davidson's book "Foot-Candles and Green-Leaves" is a report on work done at Rutgers University and gives much valuable information. Fluorescent Light is considered the best for house plants, but a combination of fluorescent and incandescent is being used with much success.

We now come to the people who appreciate house plants for the extra decorative value in a home. My view is that for these people, one or perhaps two plants tastefully displayed in the average sized living-room is sufficient. It seems to give an air of luxury and prosperity. Large rooms can of course accommodate more but a small room full of plants is not what is wanted.

Floral decoration on the dining table makes a wonderful addition to its appearance if arranged with taste and care. The important point is to use only low-growing plants. It is undoubtedly better to use delicate-looking plants with finely divided leaves or on the other hand, brightly coloured ones, such as young coleus.

So far we have seen how tremendously interesting and useful house plants are but it is not easy to maintain plants in good health in the home and it is not surprising that many people have difficulty in this. One of the most important factors in house plant culture is correct watering; the aim must be to maintain the soil uniformly moist, never dry as bones, or sodden — unless you are growing bog plants. Experienced people use a little wooden hammer to tap the pots with, the note of the ring gives an accurate indication of

soil moisture throughout the pot, providing of course that the pot is not cracked. This method gives a better indication of soil moisture than feeding the top soil in the pot because all you know then really, is the condition on the soil surface.

The problems of pests and diseases are always cropping up. Most of the trouble stems primarily from poor cultural conditions — the pests attacking weakened and sickly plants. Fortunately house plants do not normally suffer from serious diseases. One that sometimes causes concern is Mildew. There are two recent chemical introductions for combatting this, however — (a) Karathane, which is very effective against powdery mildew and (b) Fungtrogen. Two old standbys — Flowers of Sulphur and Bordeaux Mixture are reasonably effective but they make the plants look unsightly — the former with sulphur and the latter with a copper coating. Karathane leaves a slight deposit.

A major weapon in controlling insect pests can be to give the plants a weekly bath with water in which a few drops of **soft soap** has been added. The foliage should be sponged lightly but do not get much water into the pot. This also cleans up the foliage, removing dust that would otherwise be clogging up the stomata. It destroys insects before they get established and also their eggs. Hairy leaved plants should not be bathed. If pests have become established then a suitable insecticide is the only solution, so remove them from the window to a location where the spray will not damage paint-work, etc. and deal with them in the following manner:

The first principle of pest control is that a stomach poison sprayed on the leaves is best against leaf-eating insects and a contact poison against sucking ones. Most insects attacking house plants are of the sucking kind and these include Aphids, Red Spiders, Thrips, etc. Occasionally leaves will be eaten by caterpillars, and here the stomach poison is called for, so spray with Lead Arsenate. It goes without saying that if you merely have one or two caterpillars on one or two plants, it is much simpler and better to pick them off.

Aphids are no longer a worry as they are easily destroyed by spraying with Malathion at one teaspoonful to a gallon of water. Mealy Bugs — sluggish, pinkish insects covered with cottony clumps can also be sprayed with this or if only a few are present dab them with a paint brush that has been dipped in Alcohol. Mealy Bugs are partial to African Violets, Fuchsias and cacti.

If the leaves are streaked or striped when they should not be, it is an indication that Thrips are attacking. To combat these spray with DDT or Lindane. Red Spiders simply love

a hot dry atmosphere, so a weekly bath does much to keep down this dreadful pest. They detest water, but unhappily appear very resistant to most insecticides used at strengths that would not harm the plants.

One last thing — I would not advise buying house plants in the winter; they have been grown in carefully controlled temperatures and humidity in greenhouses and suffer from the change when brought into the home. I would value more an Azalea bought at Easter, than at Christmas.

MINIATURE DAHLIAS

by HECTOR MacDONALD,
Supervisor, Assiniboine Park, Winnipeg, Man.

LITTLE DIAMOND, GERRIE HOEK, MARKET GLORY, LITTLE LEMON DROP

If you grow Dahlias and haven't got these it's time you got to know them. If you don't grow Dahlias start with these four and enjoy their colourful beauty.

Miniature Dahlias, according to the book, should not exceed four inches in diameter, however, this rule is rather loosely applied and often includes varieties up to six inches in width, and we are going along with that.

In this group we have a full range of Dahlia colours and types, from singles to incurved cactus and the lovely water lily types. The plants range in height from two feet to four and a half feet. Most all are early flowering. Planted like potatoes about the tenth of May, the first blooms will open from eight to ten weeks later, and as the plant develops it will become a mass of colour till frost cuts it down. They are unexcelled as cut flowers, and make lovely arrangements and table decorations.

The flower stems are long, twelve to eighteen inches, carrying the blooms clear above the foliage, and the flowers are placed at right angles to the stem, all making for a colourful display in the garden.

Cultivation is similar to the large type Dahlias. We prefer to grow them to single stemmed plants, removing the side shoots for one-third of the mature plant's height. Disbudding is unnecessary. Staking, of course, to protect the plants from storms.

Lacking only in perfume, miniature Dahlias are tops for home grounds.

COMPOST FOR THE HOME GARDEN

by J. A. MENZIES
Division of Plant Science, University of Manitoba

For the home gardener, compost is to a large extent the answer to this problem of maintaining the organic matter content and physical condition of the soil. Organic matter improves the physical condition of the soil and serves as a storehouse for plant nutrients which are released as it decays. Inorganic fertilizers are a valuable supplement but cannot replace organic matter.

A variety of materials can be used for making the compost pile. Leaves, lawn clippings and other plant materials are usually easy to obtain. Sod and manure, if available, are valuable additions. Table scraps should not be used as they may develop offensive odors and attract flies.

Nitrogen fertilizer should be added to supply food for the organisms which break down the plant materials. Generally the home gardener will find it most convenient to use prepared complete fertilizer. The phosphorous and potash as well as the nitrogen will add valuable plant nutrients to the compost. The use of a compost activator containing dormant bacteria, which is absolutely harmless to humans, animals or birds, will increase the rapidity of decomposition.

Building a compost pile is relatively simple. First, a layer of compost material about one foot, then just enough fertilizer to cover, and finally about an inch of soil. Add enough water and/or some stock solution of a compost activator to each layer to make it moist but not wet. In most home gardens materials slowly accumulate and the piles build up during the year. The method is the same as the above. When one foot of material has accumulated, sprinkle with fertilizer and cover with a layer of soil.

Moisture is necessary for decomposition of the compost material and the pile should be watered occasionally. Excessive water should be avoided as it will cause leaching of plant food and delay decomposition. Mixing the compost by shovelling it from one pile to another once or twice during the season will also aid decomposition.

Compost has many uses. It is mild in composition and will not harm seeds or plants. It makes an excellent lawn dressing. It is useful to mix with soil for starting plants. It can be worked into the garden, flower beds, and used as a mulch around shrubs and other plants. Compost is valuable wherever it is used and especially for the home gardener whose soil is often low in organic matter.

FERTOSAN
COMPOST ACCELERATOR
TURNS GARDEN RUBBISH INTO RICH MANURE IN 5 to 6 WEEKS

Get Fertosan from your local seedsman or hardware.

Fertosan is packaged in sizes to treat 1, 4, 20, 100 and 1,000 tons at a time

MYCO COMPOST ACCELERATOR: This is similar to the Regular Compost Accelerator, it is made up and used in the same way but is six times stronger

Sole Agents for North America

MACDONALD & WILSON LTD.
562 Beatty Street, Vancouver, B. C., Canada

Simple and complete instructions are contained in each envelope and once the "stock solution" is made up and stored in an **uncorked** bottle, it will keep indefinitely.

Once the compost heap is made you just wait five to six weeks in summer (longer in cold weather), and then spread the composted material on the garden or greenhouse benches.

No smell, no forking-over, no work.

A very small area in an out-of-the-way corner of the garden will take care of all your garden rubbish at much less than $1.00 per ton. Home gardeners are becoming more conscious of this wonderful product with its ease of application and very low cost and buy upwards of 50,000 packages from us each year.

Fertosan is packaged to treat 1, 4, 20, 100 and 1000 tons.

Sole Agents for North America

MACDONALD & WILSON LTD.
562 Beatty St. **Vancouver, B.C.**

SEPTIC TANK CONDITIONER

Thousands of Home Gardeners are now familiar with the wonderful results obtained from the use of Fertosan Regular and Fertosan Myco Compost Accelerators.

Their low cost and ease of application make them a boon to all people who are interested in making a cheap but very valuable organic manure from their garden waste—weeds, leaves, spent annual plants, grass clippings, etc.

Now Fertosan Ltd. has made available another valuable product "Septosan" which is dormant bacteria, activated by merely adding hot water and when introduced into the septic tank by way of wash basin, sink or toilet flush, will keep the tank clean, clear and free from objectionable odours.

The above procedure applies to Septic Tanks that are operating normally. Where, however, clogging and blockages have already occurred, a second treatment should be injected into the system, fourteen days after the first treatment, when unclogging will occur.

If the treatment is followed at regular intervals of three months your Septic Tank will remain in a free flowing condition.

Septosan is NOT affected by any of the modern detergents and no advantage is gained by repeating treatments at shorter intervals than the three months already stipulated.

Clear, simple instructions are contained in each packet.

Sole Agents for North America

MACDONALD & WILSON LTD.
562 Beatty Street, Vancouver, B.C., Canada

Free Horticultural Publications

Alberta, Saskatchewan, Manitoba

Available from: **Extension Service, Department of Agriculture, Province of Alberta, Edmonton, Alta.**

Publication No.

111 A Guide to Successful Tree Planting.
92 Alberta Horticultural Guide (Published bi-annually).
19 Judging Standards for Horticultural Shows.
2 Lawn Building and Maintenance.
50 Home Vegetable Growing.
54 Small Fruit Growing in Alberta.
55 Insects of the Alberta Farmstead.
58 Woody Ornamentals for the Prairie Provinces.

Available from: **Extension Department, University of Saskatchewan, Saskatoon, Sask.**

(Available Free to Saskatchewan Residents)

Bulletin No.

95 Vegetable Gardening in Saskatchewan (60 pages).
121 The Preparation and Judging of Horticultural Exhibits (8 pages).
123 Fruit Growing in Saskatchewan (43 pages).
127 A List of Flowers, Shrubs, Vines and Trees (16 pages).

Available from: **Publications Branch, Department of Agriculture, Province of Manitoba, Legislative Building, Winnipeg 1, Man.**

Publication No.

233 Lawns — Their Preparation and Care.
234 Strawberry growing in Manitoba.
240 Raspberry Growing in Manitoba.
244 Preparation of Vegetables, Fruit and Flower for Exhibition.
245 Bulb Culture Indoors and Outdoors.
256 Culture and Care of Gladiolus.
267 Recommended Perennials for Manitoba.
264 Vegetable Disease Protection Calendar.
266 Fruit Insects and Their Control.
271 Insects on Ornamental Trees, Shrubs and Flowers and Their Control.
275 Annual Flowers.
279 Vegetable Insects and Their Control.
293 Growing Hybrid Roses in Manitoba.
Recommended Horticultural Varieties and Zonation Map.

GROWING AFRICAN VIOLETS FROM SEED

by MRS. J. S. MULLAN,
Winnipeg African Violet Society, Winnipeg, Man.

In growing African Violets from seed the first thing to decide is whether to buy seed or propagate your own. If you wish to buy seed, you may find it advertised for sale in several of the home and garden magazines. However, for those who have the patience to wait six or seven months, it is not a difficult task to raise your own.

The African Violet is bi-sexual. This means that every flower carries both the male and female elements: that is, the pistil and the stamens. In practice this means that you may take the pollen from the stamens of any one plant to fertilize the pistil of any other plant. The stamens are the two little yellow lobes below the opening of the flower. To obtain the pollen it is necessary to break open the stamens of a fully mature but fresh flower. With the thumbnail or a fine bristle brush, this pollen should then be transferred to the pistil of the other parent plant. The pistil will be recognized as a fine rod-like extension from the centre opening of the flower. The pollen will adhere readily to the end of the pistil. Immediately label the flower stem which has been pollenized, showing the date, the male parent and the female parent. Labelling is most important, as the pollenized stem must remain on the plant until the developing seed pod matures. Within a few days after fertilization has been made the flower will drop, and over the next few months the seed pod will grow to the size of a small bright green bean. It should not be removed from the plant however, until the stem and the seed pod have dried. When taken from the plant the dried seed pod, stem, and label should be kept in a dry air-tight container until you are ready to plant.

There are many methods of growing violets from seed. One of the simplest methods is to use Vermiculite as a growing medium in a container with a transparent cover. We have found it convenient to borrow one of the refrigerator dishes which normally contains left-overs. The procedure is as follows: In the sterilized container first put a half an inch of charcoal, then about one and a half inches of Vermiculite as it comes from the package, covered with a thin layer of very

finely crushed Vermiculite. This is made level, and then water is gradually added at one corner until the surface becomes moist.

Now take your precious dried seed pod into a well-lit and draft-free room. Over a white sheet of paper on a level table break open the pod, and for goodness sake don't sneeze! With a little luck, and a bit of shaking, you will see from one hundred to five hundred specks of dust on your paper. This is your African Violet seed. With great care crease your paper and gently tap until the seed is gathered into the fold of the paper. Now take the paper and distribute the seed evenly over the surface of your prepared container. Put on the transparent cover and attach the label for identification.

Place the container where it will get reasonable light and consistent warmth, but not direct sunlight. No further watering should be necessary until the seeds germinate which should be within two to six weeks. Unless you have very sharp eyes it would be advisable to have a magnifying glass handy to watch for the very minute seedlings, much smaller than the head of a pin when they first appear. Once germination has begun, make sure the surface does not dry out. The seedlings vary considerably in their rate of growth, and as they grow to a size large enough to work with, say about a quarter of an inch across, they should be pricked out and planted several to a pot containing a fifty-fifty soil-vermiculite mixture. When the young plants start to crowd, it is again time to transplant; one plant to a two and a quarter inch pot. These young plants should now be grown according to your usual method of growing African Violets.

What can you expect from your home-grown seed? Almost certainly most of your seedlings will be no better, if as good, as either of the parents. But there is always the hope, and the possibility, that you may come up with a dream plant, something new, something different, and above all something you alone have created, with the help of God.

WINNIPEG AFRICAN VIOLET SOCIETY

Novice, or expert, if you are interested in African Violets, you are cordially invited to attend the meetings of the above Society. Meetings are usually held the first Wednesday of each month, in Theatre "A", Government Bldg., Osborne and Broadway, Winnipeg, Man. For confirmation of time and place, phone Mrs. W. Tanner, LE 3-2402.

THE PROPAGATION OF AFRICAN VIOLETS FROM LEAF CUTTINGS

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

The production of young african violet plants from leaf cuttings is one of the most fascinating and enjoyable parts of the hobby of growing african violets. As in most things, there is a hard way and an easy way of doing it!

Rooting leaves in water only has varying success. Roots developed in water have to reform into growing roots. Many die off and the stem has to produce more roots thus causing considerable set-back and delay. The african violet plant is something different in its requirements. The growing roots must have air. Most everyone has had that sinking feeling when seeing the leaves suddenly droop on a mature plant that has been doing nicely. When the pot is taken out of the decorative container, we found "too much water". Then root-rot and crown-rot are synonymous.

The writer has had so much success with the system as outlined here that he finds one has to steel oneself not to attempt to take care of all the plantlets produced from most cuttings. Of course, this article is intended for the growers that like to have new plants coming on of several varieties or the reproduction of choice new varieties quickly. Many varieties can be brought into bloom within six months from leaf cuttings. Loss of leaves is quite rare.

The first step is to secure a terrarium, aquarium or a large fish bowl will do. The same results can be obtained with saran wrap over bent wire using a deep refrigerator dish as the container. Put into the container to the depth of about two and one half inches, your growing medium. The writer's preference is zonalite that has been thoroughly moistened with soft water fertilized at the rate of one teaspoon to the gallon of the soluble fertilizers now on the market that are high in phosphate. 15-30-15 can be highly recommended. Do not pack the rooting medium. Leave it light and airy. The open container then is covered with glass or any clear transparent material. The site is as you would give young growing plants, that is, warm and well lighted. There is no better spot than under your fluorescent lights. Failing this, a twenty-five watt incandescent lamp over or under your container will supply ample warmth. Keep the humidity high

by manipulating the cover. It is well to give a complete change of air every other day, say for ten minutes. Do not let the leaves touch one another or the sides of the container. Condensation will gather and surplus water is always harmful to african violets.

From this point on, all one needs do is add the leaves and see that the rooting medium is kept moist (not wet) with tepid unfertilized water. Rain or snow water is preferable. If you use water from the tap, let it stand overnight to allow the chlorine gas to escape.

The selection of leaves to be used for propagation is a natural, not too old, not too young, that is those that have just reached maturity will give best results. They are usually the second row of leaves from the bottom. Take the leaf right out from the main stock. Do not leave a stub end. Then trim the stem down to about one and one-half inches with a good clean slanting cut. Insert the stem in the rooting system right up to the base of the leaf. This then will leave the tip of the stem about one inch from the bottom of the container which is insurance in the event of too much water gathering and rot starting up. Do not pack the medium around the stems. Here it would be as well to insert a word of caution. Too much water is always a bugbear of african violets. If it is there it must be removed. A common practice with most of the larger growers is to place a metal or plastic tube on end, resting on the bottom in the center of the container before adding the rooting medium. This then enables one to see the bottom of the container and if water is there, the tube provides a handy way of getting it out. The container should be leveled up if the tube is placed in the center, but if at an end, the opposite end should be raised slightly to drain towards the tube.

The reason for inserting the stem to a depth of about one and one-half inches in the medium is that when the plantlets that form on the edge of the cut stem come to the surface, they will be approximately one and one-half inches long and usually well rooted along their stem and they are naturally much easier to handle for separation and replanting. A leaf will root and send out plantlets without stem but the plantlets are usually quite short in stem, consequently harder to handle. If though, one wants to root a leaf that has very little stem, insert it to half its depth and when plantlets show up, pot the leaf with the plantlets attached, then break them apart when they do reach handling size. The results will be like separating a multi-crown plant.

But there is a much better way of putting a valuable leaf into production that may have been accidently broken off without stem. Using a sharp knife, cut upwards into the leaf

on each side of what remaining stem there is, then out to the edge of the leaf sufficient to make a substitute stem, say about three-eights of an inch long. Trim the broken end smoothly. Insert the leaf in the rooting medium below the cut edges. The edges will heal and plantlets will form as on a normal stem.

It is common practice to put rooted cuttings back into the rooting medium after taking off the plantlets or just take off the larger ones and grow the cutting again until the smaller plantlets reach a more convenient size. The larger plantlets can be labelled, put back in the medium to a depth of their leaves for further rooting or potted immediately in two-inch pots.

For those who just want a few plantlets from each cutting, a good practice is to cut off the parent leaf just as soon as two or three plantlets come to the surface with one or two open leaves. Then they are on their own and seem to develop quicker. This conserves valuable space since the stem and leaf in most instances grow considerably from the time when first put in to produce.

It is well to have extra space in your container where you can put the newly potted plants for a few days. Since you are creating ideal growing conditions, why not give the little plants the benefit? The writer has had unqualified success in using the extra space to root fiberous begonias, gloxinia leaves and various foliage plants.

Further to the selection of leaves for propagation. Some varieties are very prolific, while others are shy producers even though thoroughly rooted. If one wants to get one's stock up quickly, it would be well to put more than one leaf to work and be firm in the disposal of the surplus plantlets.

One fertilization for each batch of leaves is usually quite sufficient to bring the plantlets up to handling size. However, in actual practice some leaves produce sooner than others and you will find you are filling the blank spaces where leaves have been removed with new leaves. At about that time then a new watering with fertilized water is in order. The rooting medium can be used for many batches of leaves but it must be kept sterile. Don't carry economy too far. Warm humid conditions are conductive to the growth of moulds, some of which might be harmful. Experts and authorities of our hobby continually warn us to keep our contacts with the african violet as sterile as possible. It would be as well to pay attention. With this in mind, the medium should be renewed when it loses its nice fresh appearance. Also at that time, wash out your container, using a mild disinfectant. It is good housekeeping.

DUTCH BULBS

by H. F. HARP, Head Gardener,
Morden Experimental Farm, Morden, Man.

Prairie Flower Grower:

The term 'Dutch Bulbs' is given to Tulips, Daffodils, Hyacinths and a few other species of less importance that are obtained mostly from Holland. Tulips are used extensively in prairie gardens to provide colorful beds and borders in May. The Daffodils, Narcissi and Hyacinths are not reliably hardy. However, they are esteemed for use as pot plants in late winter reminding us of spring when that season seems a long way off.

The indoor culture of Dutch Bulbs is easily understood. No special soil mixtures are require; no special containers. Ordinary flower pots will serve well and garden soil, with sand enough added to ensure good drainage, will grow Dutch Bulbs satisfactorily.

It is important that bulbs be obtained from a reputable seed house as soon as they are available; this is usually in early October. They should be potted without delay, as exposure to hot, dry air will rapidly impair their quality.

A quantity of clean flower pots, ranging in size from five inch to eight or nine inch, is required. Tulips are best planted six to a five inch pot. Hyacinths either singly in a five inch pot or three bulbs in a six inch pot. Daffodils and Narcissi are best in pots large enough to contain from seven to ten bulbs. Daffodil bulbs potted singly are never very effective.

Varieties:

The following varieties have been satisfactory over a long test period at the Experimental Farm, Morden:

Narcissi.

Trumpet Daffodils — Golden Harvest, King Alfred, Insurpassable, Mount Hood, Beersheba.

Bicolors — Queen of the Bicolors, Spring Glory.

Large Cup Daffodils — Scarlet Elegance, Duke of Windsor.

Double Daffodils — Von Zon, Texas.

Poetaz — Cheerfulness, Geranium, Actaea, Thalia.

Hyacinths — L'Innocence, Grand Maitre, La Victoire, Queen of the Pinks, Jan Bos, Wendy.

Lesser known species — Muscari, Scilla, Cheanodoxa, Crocus.

Tulips — Single Early, Van de Nees, Ibis, Keizerskroon, Olympiade, Prince of Austria.

Double Tulips — Electra, Schoonoord, Scarlet Cardinal, Peach Blossom.

Some good Tulips for outdoors — Ivory Glory, Clara Butt, Eclipse, Niphetos, Alice Keith, Don Pedro, Louis XIV, Golden Beauty, Golden Harvest, Smiling Queen, Queen of the Night.

Potting:

If new pots are used they should be soaked in water for several hours then allowed to dry. Old ones should be washed clean. Drainage is provided by placing several pieces of broken pottery over the drainage hole. Soil is added to half-fill the pot. The bulbs are spaced evenly on the soil allowing half an inch between each bulb. The pot is then filled with soil which is gently pressed down with the fingers. Packing the soil too firmly will cause the bulbs to heave. When completed the bulbs should be just showing above the soil. This applies to all the Narcissus species and Hyacinths. Tulip bulbs should be lightly covered with soil.

Bulbs in fibre:

A special bulb fibre is obtainable for use in ornamental bowls. It is clean, sterile and satisfactory. The effect of well grown bulbs in various colored bowls can be charming.

Water Culture:

Special glasses for Hyacinths were once popular. Nowadays they are rarely seen nor are they missed. Bulbs in pots or bowls are far more effective. The Chinese Sacred Lily and Paper White Narcissus may be grown satisfactorily in bowls of water with sufficient crushed rock or coarse gravel added to keep the bulbs in place. It is not necessary to store these bowls in the basement during the period of rooting.

Cellar Storage:

When the bulbs have been potted they should be carried to the basement, placed on the floor and given a thorough watering. Regular inspection must be given from now on to see that the pots do not lack water at any time nor should they remain saturated for long periods. Frequent causes of the flower buds failing to develop normally is a lack of water and too high a temperature while in the basement. A temperature of about fifty degrees is suitable.

A period of ten weeks or so is usually sufficient to ensure a good rooting system. However, this will vary according to the maturity of the bulbs, humidity and temperature in the

basement. The top growth should be an inch or more in height and the pots well filled with roots before they are removed. Better prolong the cellar storage a week or so if there is any doubt of the state of development. When the pots are taken to the warmer quarters of the living room they should be covered with a sheet of tissue paper for a day or two in order that the tops be gradually inured to the increased light. Tulips and Hyacinths should be kept in a very warm, dark cupboard for a few days when they are taken from the cellar so that the flower stems will lengthen.

Plentiful supplies of water are needed when the flower buds show. The pots can be partially immersed for an hour or so each day. It is good practice to remove potted bulbs to a cool room at night if possible thereby prolonging their freshness.

By a careful selection of varieties and a planned program of removing just so many pots from the cellar each week, it is possible to have pots of flowering bulbs from Christmas to Easter or even beyond.

Staking Potted Bulbs:

The flowering stems of forced bulbs need some support as they reach full development. Daffodils and Narcissi can be supported adequately by placing a few thin sticks around the edge of the pots using raffia or soft string for tying. Hyacinth blossoms when fully expanded are heavy and must be supported. One of the best and least conspicuous ways is to take a length of No. 14 wire and carefully work it down between the florets as close to the main stem as possible thrusting it into the heart of the bulb. A neat raffia tie at the base of the flower stem will secure the spike.

What to do with potted bulbs after they have been forced poses something of a problem. The best advice is to discard the Daffodils and Hyacinths but save the Tulips to plant out in the open ground in September. As soon as the Tulip blooms have faded they must be cut off preserving all the foliage and continuing to water the plants as required until the leaves are yellow and dead. The pots are stored in the basement until planting out time comes.

Some lesser known kinds:

Snowdrops, Crocuses, Grape Hyacinths, Jonquils and Chronodoxas, may be grown with a fair measure of success if they are not subjected to high temperatures. They are all small bulbs and are best planted in six inch pans keeping them in the basement until the top growth is well advanced and the flower stems showing.

Why Not Junior Horticultral Societies

(Flower growing versus juvenile delinquency)

by J. H. MARTIN, Medora, Man.

Having had several years' experience with 4-H garden clubs, I scanned the 1958 edition of the Prairie garden, wondering if any mention was made of our youngsters. Sure enough, Mr. T. E. Newman referred to junior garden competitions. Ellen Michie charming expresses the joy on a child's face, when her zinnias won a prize.

We read of our Chambers of Commerce and our Junior C of C's, our ladies' Church Groups, and our Junior CG's, so why not Junior horticultural societies? They could have a section of the flower show set off for junior competition.

Sometimes, as I walk along the streets of our residential districts, it's appalling to see weed infested gardens or just an untidy litter where gardens should be. Usually too, you will see a mob of untidy youngsters playing amid the litter. If you ask why these people make no effort to beautify the place, the answer is always: "The children overrun the place and every dog in the neighbourhood wants to help in the irrigation of the project." The funny part of the story is though that a couple of doors down, there is a home, (note) I said home not house, for to me there is a vast difference. Well, this home has a neat fence around it, flowers blooming in the borders, and probably two or three kiddies playing on the steps, and all this accomplished under the same hazards.

Here we have children from the first home knowing nothing of the wonders and beauties of nature, while the children from the well-kept "home" have been taught to respect property, enjoy the brightness and perfume of the lovely flowers. Now tell me, which group of children are the most likely to respect other people's property?

Do you know, readers, that I can hardly imagine teenagers working among flowers in their own little plot in the afternoon or evening, and then ganging up after dark, to conk an aged person over the head, burglarize a store, or race down the highway in a hot rod, endangering their own, and perhaps our lives, things that are happening every day.

For us flower lovers to combat this deadly peril, I would suggest forming a junior section of your horticultural society, after the plan used by the church groups, i.e., let them appoint their own provisional officers, governed by the constitution,

with one senior member of the sponsoring group attending all their meetings, acting as advisor and kind of liaison officer.

Although I live miles from the nearest horticultural society, I hear the thought expressed, it's so hard to hold the group together. Well, just scan the sports page and you will find that professional football, baseball and hockey have found out that they have to have their junior quarterback clubs, etc., in order to exist, and I am certain the youngsters' enthusiasm would rejuvenate any club, and I am also certain that the youngsters would bring you more than you can give them. So why not give it a try.

RED DEER AND DISTRICT HORTICULTURAL SOCIETY

Red Deer, Alberta

After a lapse of 21 years they were reorganized in 1958, and in their first show, held last August, they had 750 entries. Congratulations to Mr. J. Neilson, president, and Mr. Pat Smith, secretary-treasurer, and other members of this society for their good work. It is not hard to understand the reason for this renewed interest in horticulture when you realize that Mr. H. Clay also lives in Red Deer, Alberta.

Mrs. Costigan, Sec'y., Stettler (Alberta) Garden Club, writes as follows: "Stettler Garden Club holds its show every year in August, about the 21st or 22nd. For the past three years, Mr. H. Clay of Red Deer, Alberta, has driven from Red Deer to Stettler, a distance of 70 miles, to enter his flowers in the show.

In 1958 he won 17 prizes, a cup and the grand aggregate. He rose at five o'clock to finish his work of packing his flowers for the journey. He brought his own containers and arranged his bouquets himself.

Some years ago Mr. Clay retired and found time hanging heavy on his hands. Finally, he became interested in Gladioli growing. He started in a small way to grow this lovely flower. Then as he became more interested, he rented a lot in Alberta and grew more "Glads" each year. Last year he had a thousand "Glads" to choose from for the show. He also grows Dahlias and other flowers."

Mrs. Costigan also states that Mr. Clay competes in the flower shows at Lacombe, Rumsey and Alix as well.

Congratulations to you, Mr. Clay.

Give Those Tomato Plants a Chance

by G. A. KEMP,
Horticulturist, Plant Breeding
Experimental Station, Lethbridge, Alta.

Those who grow tomatoes, whether for the home garden or for field production, should be aware of the many pitfalls they can encounter, so that their plants will not suffer too many early setbacks. Proper handling during the early stage of a tomato plant usually results in earlier ripened fruits and heavier yields.

To get the tomato plant off to a good start, it is important that it receive the best care right from the beginning. Seeding is usually done in late March or early April. Any type of container for the soil can be used as long as the seedbed consists of a good compost sand mixture, usually made up of two parts of rich compost and one part of sand. The seed is covered lightly with sand and watered from below. The seed container should then be placed in a warm location and covered with a piece of glass and paper to provide optimum conditions for germination. Keeping the soil moist is important. As soon as the seedlings emerge, the glass and paper can be removed. The young seedlings should be allowed to develop until they are large enough for easy transference to a larger container in which the plants will be given more room for development.

When the young plants commence to produce their third or fourth set of true leaves, the temperature of the air should be lowered gradually, if at all possible, to a range of 60 to 65 degrees Fahrenheit. At the same time, the young plants should be provided with plenty of light. Under the conditions described above, a sturdy, stocky plant with well-coloured foliage may be expected. Plants developed as indicated will be better able to withstand the shock of transplanting to the field. If high temperatures are allowed to persist, the plants will become long, spindly, and succulent, making them unfit for field planting.

Tomato plants are best transplanted during the last week in May or the first part of June, when dangers of frost are usually over. When transplanting, a good practice is to pour a small quantity of water around the roots of each plant so as to aid the plants in getting a good start.

The use of paper cloches such as Hot Kaps or other frost protective devices makes it possible to transplant the plants one or two weeks early than normal, thus giving them an additional boost. If such a practice is going to be used, it is desirable to start the seed a week or so earlier than recommended above.

TIPS ON LANDSCAPING

by W. R. LESLIE, B.Sc.A., LL.D., F.A.A.A.S.
Winnipeg, Man.

HOME GROUNDS

Beautiful home grounds mean a great deal to those who live on them. Moreover, they gratify the owner by being his personal contribution to general atmosphere and attractiveness of the community.

Factors in the successful development of a pleasing estate are mainly, neatness; use of adapted hardy, healthy trees, shrubs, vines and flowers set in well-prepared soil; a moderate range of different materials but at no time a menagerie i.e. many distinct and non-blending single specimens; and a choice of materials which will maintain a continuously interesting outdoor picture throughout the year.

It is readily possible to achieve a pleasing landscape setting during Spring, Summer, Autumn and Winter. We must recognize the value of bright cheerful colors in the dormant season, as well as during the flowering months. Play safe by getting your supply of ornamental stock locally. You will be pleasantly surprised at the diversity in charming varieties now available. In contrast, import stock from abroad, and from the milder east and west, is likely to prove sadly disappointing.

FRONT GARDEN

Treat this area lying from the house to the street simply. It is the portion of the home grounds that is shared with the public. Restrict the kinds of shrubs to from 5 to 7 specimens. They will usually give a more dignified effect than a complex planting of 10 to 20 types.

Plant so that the passer-by, on the street, has his vision screened out from the rear garden. This involves use of materials which will grow to eye level, or higher, out from the two sides of the residence. The rear garden is the Private Area and deserves full privacy.

Limit planting zone to a distance of two-thirds the way from the house front to the sidewalk. This imparts a more spacious effect than does planting right to the front of the property.

The front area is more cheerful and welcoming when left mostly open. Plant about the foundation and let the shrubbery extend outwards and forward along the side boundaries for

the desired distance. Plantings across the front tend to box the place in, limit the outlook and lessen space.

Flowers are most fittingly placed in the nooks or bays of shrubberies, rather than in unsupported beds on the lawn. A background of shrubs and trees retains interest and continues to enhance the scene after the herbaceous flowering plants have faded and browned.

Choose woody plants which are fine in texture for the front or Public Area. Limit your materials to those wearing green leaves rather than those with unusual coloring such as gold, yellow, red, silvery or variegated. We never tire of Nature's normal color, which is green. Enjoy plants having different shades of green to attain variety.

Restrict the planting of spectacular trees, such as Weeping White Birch and Colorado Blue Spruce, to the rear garden. They are lovely possessions, but dominate the scene. In the front they command the spotlight, robbing attention from the main feature of the landscape, which must always be the residence.

Maintain a spread of lush lawn. It is the carpet about which you instal your ornamental plants.

Set the shrubs so there will be 2, 3, or 5 in a group. Space them so that they are about one-half their ultimate height apart, therefore, a 4-ft. shrub would be about two feet from its neighbour.

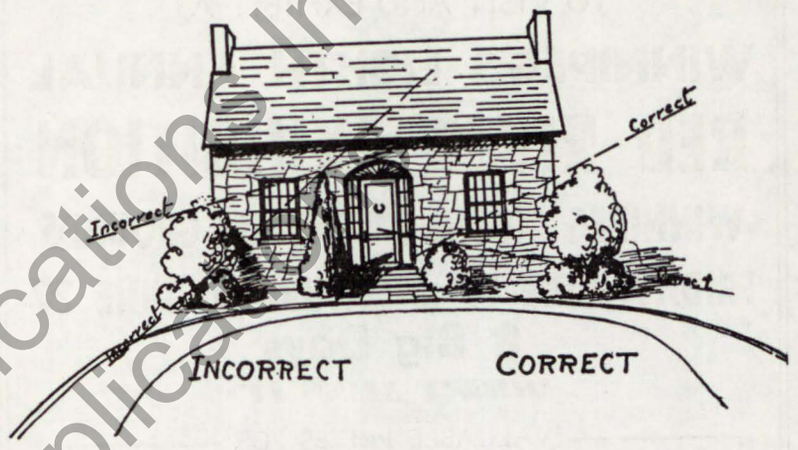
Shade trees are often set as individual specimens. They take considerable room. Keep the tree a fair distance from the house so the roots will not injure the foundation, nor its branches the windows or roof.

FOUNDATION PLANTING

The main single feature is the front entrance. Place a neat bright shrub at each side of the doorway. Examples of suggestions are: Pyramidal White Cedar; Globe White Cedar; Wares White Cedar; Bush Dwarf Pine; Rocky Mountain Juniper; Globe Caragana; Erect Sweetberry Honeysuckle; Cherry Prinsepia; Treelobe Spirea; Turkestan Euonymus; Alpine Currant; Japanese Barberry; F. J. Grootendorst Rose; Bush Cinquefoil (Potentilla); and Arrowwood.

Across the front of the foundation place shrubs of different heights and textures to avoid monotony and rigid formality. Have low plantings under picture windows, and higher types at the house corners. Leave at least a small space where

the whole face of the house, from the ground upwards, is exposed in unplanted view. This opens the scene and enhances size.



It is desirable to have ground cover plants growing between the foundation shrubs. They clothe the surface, covering sight of soil, and blend in with the lawn. Among such plants are Lily-of-the-Valley, Sedums, Thymes, Periwinkle, Evergreen Candytuft, Japanese Spurge, Canby Pachistima, Creeping Juniper, and Ground Ivy.

REAR GARDEN

This is the Private Area or the Outdoor Living-room. Here let your dreams come true by planting your favorite woody and herbaceous plants freely. There are no restrictions as to colors and types. The only limitations are those of hardiness, soil preferences, space, upkeep and expense. Include pools, seats, bird bath, bird feeding stations and nests, and other desired outdoor furnishings. This is the setting for the main flower borders, pergola, rose garden and rock garden.

The cottage garden and home orchard will flank the area, being screened off by plantings from the Outdoor Living-room. Here will be grown flowers in rows for supplying cut flowers.

INFORMATION

Confer with your Provincial Extension Service, or University Horticultural Department, about any special problems. Read the Garden Columns in your daily papers for seasonable news and suggestions on garden activities. Clip out and save articles which may be of recurring use.

Winnipeg's Red River Exhibition Flower Show

Plan now to enter your exhibits in this year's Flower Show at the Red River Exhibition, June 10 - June 27, 1959.

There will be classes for house plants, cut flowers, bouquets, arrangements and vegetables.

Substantial cash prizes are awarded. The show is open to everyone. There is no entry fee. Prize lists and entry forms will be available soon.

There will be three complete shows. The displays will be set up Thursday, June 18, for Friday and Saturday, June 19 and 20, Monday, June 22 for Tuesday and Wednesday's show and finally Thursday, June 25 for the Friday and Saturday show.

Kindersley Horticultural Society

Kindersley, Sask.

was organized in 1920. Their first exhibits were shown in conjunction with the local Agriculture Fair; later affiliating with the Provincial Organization in 1941. An active horticultural program has meant a steady increase in membership, to a total of 328 in 1958.

Kindersley, on the bald prairies, with a limited water supply at times, has had its ups and downs; but the annual shows have been surprisingly successful even in dry years. The discovery of gas and oil nearby, and several years of "bumper" crops on the farms, have spurted Kindersley's population. Many new homes have been built, and there is keen interest in planting lawns and landscaping grounds. The Horticultural Society, for a number of years, has sponsored competition for the best town and country grounds, boulevards and back lanes. We like to feel that we have played a part in making Kindersley a more attractive place to live.

In 1958, we sponsored a three-night short course in Horticulture with special speakers from the Extension Department of the University of Saskatoon. Two such meetings have been scheduled for the winter months this year, with helpful films and speakers.

To encourage younger gardeners, we have sponsored special competitions for school children and 4/H members.

Money for prizes is provided through the annual membership drive and donations from local residents, business firms, clubs, and Town and Municipal grants. Each member is given a premium in the form of bulbs or seeds, and there is usually a special competition for the premiums at the annual show each August.

SETTING THE STAGE . . . WITH CONCRETE

Many horticulturists, unfortunately, are faced with the problem of too little space in which to grow and display their flowers to best advantage. However, new developments in concrete masonry easily provide the solution, by outlining and highlighting planting areas.

Don't be dismayed by the word "concrete". Today's concrete products are designed to be easily handled by the amateur, or installed by a professional at extremely reasonable cost. Modern processing methods have made possible a lightweight concrete, which makes construction even easier.

Even the totally inexperienced garden lover can install standard building blocks, patio block, pre-cast sidewalk slabs, beautiful Split Rock, or other attractive concrete shapes to "frame" each garden area. In many cases, no mortar is necessary; merely setting the block in place — sometimes planting right in the hollow block core — is all that's required. With just a little care, or by employing an experienced bricklayer, there is no limit to the beauty you can add, with retaining walls, planters, garden dividers, etc.

Another important use of pre-cast concrete is to provide neat attractive walks for the garden. Pre-cast patio block or sidewalk slabs are available in several different colors, as well as natural grey, to contrast with your garden, or remain unobtrusive.

The uses of these pre-cast concrete products are extremely flexible — limited only by your imagination. Does your lot slope excessively? Concrete masonry will let you build retaining walls and terraces in many pleasing designs. Is a high house foundation your problem? A raised planter bed will seem to lower it and tie the house in with the grounds. Masonry garden walls can give you privacy and protection, yet can be built to harmonize more completely with the home than most other types of fences. You can use brick or block painted, if you wish, with one of the many excellent concrete paints now on the market; or use Split Rock, a rough-faced block available in many different colors.

Various booklets and ideas on beautifying your garden are available merely for the asking, from Supercrete Limited, manufacturer and supplier in this area for a wide range of pre-cast concrete products. Start your planning now — the building can be done in early spring — then, this summer, enjoy the benefits of an outstandingly beautiful garden!

REGISTERED NURSERIES IN MANITOBA 1958

*Aubin Nurseries (L. J. Aubin), Box 289, Carman ..... GENERAL
*Boughen Nurseries (R. M. Boughen), Valley River ..... GENERAL
*Evergreen Nursery (Charles S. & F. B. Stevenson), Morris ..... EVERGREENS
H. M. Fast & Son (H. M. Fast & A. Fast), Kleefeld ..... SMALL FRUITS
Gaybird Nursery (Ed. Robinson), Wawanesa ..... GENERAL
Glenelm Nursery (Wm. Oakes), Miami ..... FRUITS, GENERAL
*Glenorchie Nursery (H. M. Orchard), Box 23, Group 2, R. R. 1, Winnipeg ..... GENERAL
Harrison's Nursery, Inglis ... STRAWBERRIES, RASPBERRIES, PERENNIALS
Hunt's Nursery (J. A. Hunt), Box 171, Carman ..... SMALL FRUITS, ORNAMENTALS
J. Koop Nursery (J. Koop), Kleefeld ..... GENERAL
*Maison St. Joseph (Brother T. Laflamme), Otterburne ..... GENERAL
Morden Nurseries (Njord Spangelo), Morden ..... FRUITS, GENERAL
Mountain Nursery (J. H. Enns), Morden ..... GENERAL
*Patmore Nurseries Ltd. (R. H. Patmore), Brandon ..... GENERAL
*Poole's Nursery (R. Poole), 1304 - 21st St., Brandon ..... PERENNIALS, FRUIT TREES
Portage Plains Nursery (A. H. Young), Portage la Prairie ..... GENERAL
*Sadok Nursery (S. Juskow), Box 63, Group 3, R. R. 1, Winnipeg ..... GENERAL
Sayer, R. L., Lot 73, St. Norbert ..... STRAWBERRIES, RASPBERRIES
*Shelmerdine Nursery (W. Shelmerdine), 3612 Roblin Blvd., Charleswood ..... FRUITS, ORNAMENTALS
*Skinner's Nursery Limited (F. L. Skinner), Dropmore ..... GENERAL
Strachan Seed Co. (A. J. Strachan), Carman ..... STRAWBERRIES, RASPBERRIES
*Van Dungen's Nursery, Lot 137, St. Mary's Road, St. Vital ..... STRAWBERRIES, RASPBERRIES
*The Wallace Nurseries Ltd. (S. Bodnaruk), Island Park, Portage la Prairie ..... GENERAL
*Wenham's Nursery (Mrs. Jean Wenham), Lot 50, St. Mary's Road, St. Vital ..... GENERAL

*Member Manitoba Nurserymen's Association.

We sincerely regret that although requests were made to the Nurserymen's Associations in each of the three prairie provinces, some time ago, we have received, at time of going to press, only a listing from the Manitoba Nurserymen's Association.

Winnipeg's Fourth International Flower Show

Winnipeg's Fourth International Flower Show will be held August 19th and 20th, 1959, in the Civic Auditorium, Winnipeg, Man. Entries sent to this address prepaid will be accepted and staged for competition.

Flowers, African Violets, Fruits, Vegetables and Commercial exhibits feature this show which annually draws an attendance of over ten thousand people.

STARTING TUBEROUS BEGONIAS

Tuberous begonias are increasing in popularity as garden subjects year by year. The tubers are roundish on one side and the other is concave. The shoots arise from the concave side so the tuber must be planted with this side up. The best way to plant is to take a tuber and twist it into the soil or moss until it is level with the surface. It is a mistake to plant too deep.

The best way to start the tubers is to use peat moss in a flat. After the tubers show shoots they can be potted in soil. During the starting period, no light is necessary but it will do no harm. As soon as the shoots begin to grow, they should receive fairly bright light, i.e. beside a window. The tubers will start best at a temperature of about 75 degrees. After they are potted, the temperature should be 50-60 degrees F. for sturdy plants.

After planting the tubers in peat moss, a thorough watering is necessary. Then examine the peat daily for moisture. When the peat is light in color, more water will be needed. When watering, avoid wetting the crown of the tuber because this is often the cause of the start of diseases.

If the plants are intended for planting out, they should not be started before April 1st. Starting too early results in plants that are too big. Short, stocky plants are the best for planting out.

INDEX OF ADVERTISERS

	Page
Aubin Nurseries, Carman, Man.	108
Ballerina Flower Shop, Winnipeg 4	97
Bardal Ltd., A. S., Winnipeg 2	98
Blackwoods Beverages Ltd., Winnipeg 12	78
Blossom Florists, Winnipeg 12	104
Brett-Young Seeds Ltd., Winnipeg 13	130
Broadway Florists, Winnipeg 2, Edmonton, Calgary	60
Burns & Co. Ltd., Winnipeg, Regina, Prince Albert	150
Calgary Exhibition & Stampede, Calgary	6
Canada Safeway Ltd.	24
Canadian Johns-Manville Co. Ltd., Winnipeg 3	118
Canadian Organic Developments Ltd., Calgary	94
Canadian Publishers Ltd., Winnipeg 2	151
City Hydro, Winnipeg	46
Connery, D., St. Vital, Man.	115
Connery & Son, J., St. Vital, Man.	42
Cropp's Reliable Seeds, Winnipeg 2	94
Crown Cleaners & Launderers, Winnipeg 9	42
Cyanamid of Canada Ltd.	112
Dixon-Reid Co. Ltd., Toronto	60
Dominion Carbon & Stencil Supply, Winnipeg 2	98
Elmwood Cemetery Company Ltd., Winnipeg 1	36
Florists Supply Co. Ltd., Winnipeg 3	42
Fluorescent Sales & Service, Winnipeg 13	98
From, J. H., Winnipeg 3	118
Glenorchie Nursery, Old Kildonan, Man.	42
Green Cross Products, Winnipeg 2	146
Hannas Seeds Ltd., Lacombe, Alta.	56
Holland Bulb Gardens, Toronto 9	112
Honeywood Nursery, Parkside, Sask.	22
Ibbott & Leonard, Winnipeg 2	34
International Flower Show, Winnipeg	2
Investors Syndicate of Canada Ltd., Winnipeg 1	68
King & Company Limited, C. C., Winnipeg 3	148
Kresge Co. Ltd., S. S., Winnipeg 1	118
Kroeker, Walter, Winnipeg 5	148
Line Elevators Farm Service, Winnipeg 2	16
MacDonald & Wilson Ltd., Vancouver	124, 125
Maison St. Joseph Nursery, Otterburne, Man.	115
Manitoba Co-operative Honey Producers Ltd., Winnipeg 2	59
Manitoba Sausage Mfg. Co. Ltd., Winnipeg 4	86
Manitoba Farmers' Union, Winnipeg 2	74
Manitoba Telephone System	14
McCabe Grain Co. Ltd., Winnipeg 2	86
McLean Electric Ltd., Chas., Winnipeg 10	59
McLean-Melnyk Ltd., Winnipeg 2	10
Melady, Sellers Securities & Grain Corporation Ltd., Winnipeg 2	86
Mestery's Radio & Electronic Service, Winnipeg 1	85
Modern Dairies Limited, St. Boniface, Man.	68
Patmore Nurseries Ltd., Brandon, Man.	60
Paulin Chambers Co. Ltd., Winnipeg 2	26
Perron & Co. Limited, W. H., Montreal 9	98
Perth Dye Works Ltd., Winnipeg 1	26
Piano House Ltd., Winnipeg 12	68
Polyethylene Bag Mfg. Co. Ltd., Winnipeg 5	78
Portage Plains Nursery, Portage la Prairie, Man.	100
Pound Ltd., F. C., Winnipeg 9	92
Powell (Canada) Ltd., K. A., Winnipeg 2	118
Prairie Nurseries Limited, Estevan, Sask.	30
Quinton's Ltd., Winnipeg 13	34
Red River Exhibition, Winnipeg	144
Salisbury House Ltd.	34
Sargent Florists, Winnipeg 3	29
Shelmerdine Nursery, Charleswood, Man.	52
Silverwood Dairies Ltd., Winnipeg 2	112
Skinner's Nursery Limited, Dropmore, Man.	46
St. Regis Hotel, Winnipeg 1	78
Supercrete Limited, St. Boniface, Man.	146
Swift Canadian Co. Ltd., St. Boniface, Man.	20
Thiessen Bus Lines Limited, Winnipeg 13	108
Thompson Garden Supplies, Winnipeg 2	34
Thomson Chapels, Winnipeg 1	56
United Grain Growers Ltd.	10
Van Dungen's Nurseries, Tod P.O., Man.	112
Wallace Nurseries Limited, Portage la Prairie, Man.	32
Winnipeg Board of Parks & Recreation, Winnipeg	64
Winnipeg Central Heating Co. Ltd., Winnipeg 9	70
Winnipeg Laundry Limited, Winnipeg 2	30
Winnipeg Supply & Fuel Co. Ltd., Winnipeg 1	14
Yetman's Limited, Winnipeg 2	134

T&T's

ADVENTURES IN GOOD GARDENING FOR '59

FREE

ONE OF EACH OF THESE NEW BEAUTIFUL CALIFORNIA

Hanging Basket Begonias

WITH YOUR '59 ORDER

GIANT CALIFORNIA TUBEROUS BEGONIAS

Giant Ruffled *Giant Rose Form* *Giant Picotee*