

THE 1977 PRAIRIE GARDEN

Western Canada's Only Gardening Annual

SPECIAL COLOR FEATURE:

*Indoor Gardening
& Flower Arranging*

Property of Horticultural Publications Inc.
NOT TO BE LOANED OUT OR REPRODUCED

THE PRAIRIE GARDEN . . . 1977

\$3.00

The Prairie Garden

WESTERN CANADA'S ONLY GARDENING ANNUAL

WRITTEN BY AND FOR WESTERN GARDENERS AND
HOMEOWNERS

A non-profit publication dedicated to the advancement of horticulture in
the prairie provinces.

Published by
WINNIPEG HORTICULTURAL SOCIETY

Winnipeg, Manitoba 34th Annual Edition, February, 1977

**1977 THEME —
INDOOR GARDENING
& FLOWER ARRANGING**

The Prairie Garden Committee

Chairman P. J. Peters
Editor Mrs. P. Thomson
Treasurer Roger Brown
Associate Editors G. S. Reycraft
G. Malaher, Dr. A. C. Ferguson, Gary Platford, Martin
Benum, John Walker, H. A. Craig, Reg Curle, Fred J. Weir,
S. Olver, F. Smith and W. J. Emerson

Consultants . S. Sheard, Horticultural Specialist, Province of Saskatchewan,
Regina, Sask.
P.D. McCalla, Head Horticultural Branch, Province of Alberta,
Edmonton, Alberta.
Dr. G. Collin, Director, Alberta Horticultural Research Centre,
Brooks, Alberta.

Price \$3.00 per copy

Special quantity prices to Horticultural Societies, Garden Clubs,
Commerical Outlets, etc.

Address inquiries, advertising and orders to:

THE PRAIRIE GARDEN, P.O. BOX 517, WINNIPEG, MAN. R3C 2J3

Table of Contents

Beautiful Art of Bonsai, The, J. A. Veliath	81
Cacti and Pseudo Cacti, W. J. Emerson	61
Care of Perennial Flowers, H. H. Marshall	12
Decorative Materials for use in Flower Arrangements, F. Partridge and M. King	138
Expanding Concept of Groundcover, The, R. Vick	14
Farm Home in Fisher Branch, A — Manitoba's Interlake, A. Pyziak	26
Flower Arranging from the Judge's Viewpoint, J. Jones	97
Flower Shows for the Young Gardeners, R. Paluc	134
Flowers — Fun — Hasti-Notes, A. Cornwell	58
Flowers to Express a Mood, M. B. Elliot	129
Foliage Plants for the Office, R. Brown	132
Gourmet Vegetables in an Allotment Garden, P. Beauchamp	24
Greenhouse, The Small, J. R. Almey	112
Greetings from Brandon, Brandon Hort. Soc.	37
Grounds Around Apartment Blocks can be Beautiful, The, A. Cornwell	108
Growing Disease Free Geraniums, G. Platford	116
Horticulture Helps to Heal, L. Dennis	94
House Plant Blues, L. Poff	120
Humidity Control for Healthy House Plants, J. D. Campbell	106
Insects and House Plants, A. J. Kolach	136
Interior Entrance Gardens, E. J. Walker	46
Keeping a Varied Collection of Plants in the Home, B. Thorsteinson	99
Memorium to Fred Weir, P. J. Peters	5
Orchids as House Plants, G. Lenover	49
Plant Propagation, Some Pointers on, S. Olver	87

Preparing Fruit for the Horticultural Show, P. J. Peters	114
Prevention of Winter Injury, L. Poff	127
Primulas in the Cold Greenhouse, G. Noden	33
Profit from My Mistakes, F. Smith	64
Skinner, Dr. Frank L., to the Canadian Agricultural Hall of Fame	140
Story of a President, The, M. Hughes-Caley	21
Story of "The Prairie Garden", The	92
Terrariums: Plants Under Cover, M. Dakins	43
Trees and Shrubs, J. Walker	39
Tub and Balcony Gardening, W. J. Emerson	54
University of Manitoba Conservatory, The, G. Findlay	119
Vegetable Gardening in the North, J. Thompson	123
Water, The Culprit, A. Chesney	31
Weir, F. J. (Fred) — Tribute	4
What's in a Name?, H. E. Harp	19
What's Wrong with My Tree?, M. Benum	110
Year Round Gardening on the Prairies, R. Vick	8

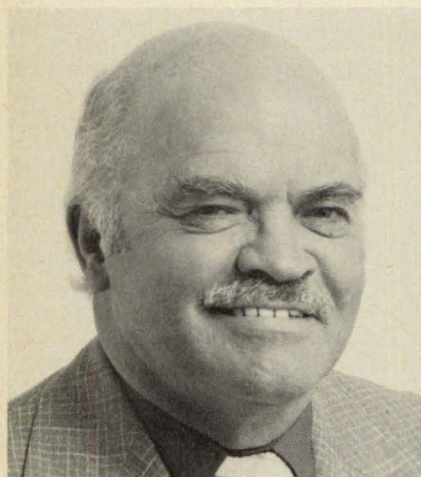
We Are Looking For Authors

The Prairie Garden Committee is looking for authors who are interested in writing articles for the Prairie Garden. We like articles from amateur gardeners telling us about their gardening experiences. They may cover any phase of horticulture such as house plants, ornamentals, flowers, fruits or vegetables. Articles on nature, wild flowers, birds and insects will also be considered. Where possible, black and white pictures will help to make the article better and improve the image of the Prairie Garden.

The Prairie Garden is a labor of love. Authors will receive a complimentary copy of the Prairie Garden issue in which their article appears. They will also know that they are contributing to the value of this publication.

So, if you like to write, or know of someone who does, let's hear from you. Send your contribution to The Editor, c/o The Prairie Garden, P.O. Box 517, Winnipeg, Manitoba, R3C 2J3.

F. J. (Fred) Weir



To our sorrow one of the most loved and productive members of The Prairie Garden group, Mr. F. J. Weir, passed away suddenly in September 1976. His contributions to the horticultural scene in Manitoba and all of Western Canada are legendary.

Fred came to Manitoba after the war years and assumed the position of Provincial Horticulturist, and immediately became active on The Prairie Garden Committee. For years the meetings of the Committee were called and chaired by him, and he wrote many of the articles himself. Because of his knowledge and acquaintance with horticulturists in other areas, he was able to obtain suitable articles from many authors

every year. His contributions helped in keeping the Prairie Garden alive and making it a useful vehicle for the extension of horticulture in Western Canada.

Fred's other contributions to horticulture and the province are too numerous to mention in detail. He was instrumental in the formation of the Manitoba Vegetable Growers Association and the Manitoba Nursery Trades Association. As secretary and ex-officio director of the Manitoba Horticultural Association he was able to establish many new horticultural societies in Manitoba. He was a Past President of the W.C.S.H. and the International Shade Tree Conference. The list of horticultural organizations in which he was an active member is a complete inventory of horticulture in Canada, and he was the recipient of many awards recognizing his contributions. This dynamic, friendly, capable and humorous horticulturist left an outstanding legacy to horticulture.

The Prairie Garden Committee and his many friends extend their sincere sympathy to his wife and family. Fred's memory and his good works will live on. The following poem, "In Memorium" was written by his long time friend and co-worker, Pete Peters.

Phyllis Thomson
Editor

In Memorium to Fred Weir

— a friend —

He's crossed the bar,
He's reached the final goal,
He is up there. Christ has prepared a
place
Where angels are
And heavenly cymbals toll:
It's there he'll meet his maker face to
face.

We'll miss the smile.
We'll miss the helping hand,
He was a servant who would always go
The second mile;
He gave unto our land
As fine a standard as we'll ever know.

There was so much
To this so tiny man:
Love for his wife, concern for family,
The human touch
Would lead our Fred to plan
A nobler life for all humanity.

He planned ahead
And future folks will see
For years to come the landscapes that
he planned.
Yes, this man had
An eye for symmetry,
For harmony . . . he beautified our
land.

And he inspired
So many a kindred soul,
He was a little colonel who could lead.
He never tired,
And many an honor scroll
Brought unsought honor for so many a
deed.

With music blessed
He touched the ivories
Expressing depths of feeling he could
show
His hands carressed
The organs tinkling keys
Setting the hearts of listeners aglow.
He loved to sing,
His voice was full and strong;
Yes, he found time to join the church's
choir.

And he could bring
A joy into a song,
It's joy like this that truly can inspire.

And he found time
To teach the golden rule,
To teach the precepts of a nobler goal:
Of life sublime.
He taught his Sunday School,
And he inspired new visions in so
many a soul.

Life was so full
Of beauty and of fun
And laughter was Fred's way to set it
free.
Yes, he could pull
So many a joke or pun
To fill his listening audience with glee.

And Fred could cry,
He was so full of care,
Tears of compassion often wet his
face.
And he would try
Another's grief to share,
To bring relief like that is heavenly
grace.

And yet our Fred
Showed deep humility,
He was not one to set himself on high.
The life he led
(A man of service he)
Is an example for which all should try.

And now he's gone,
We feel the void so much
Because there was **so much** he gave to
life.

His work is done.
No longer pain may touch

This wondrous man — this is the end
of strife.

God rest his soul,
And though our tears may fall,
We should be filled with joy and
thankfulness,
We should extol
The heavenly Lord for all
Fred gave so **richly** all our lives to bless

P. J. PETERS
September 17, 1976

Reference

Previous Flower Arrangement Articles

(For those who have kept their books)

Year	Page	Title
1967	33	Cacti and Other Succulents by H. H. Marshall
1967	84	Two for One . . . Air Layering by Gus Weiss
1966	106	Ten Musts in Flower Arranging by Mrs. A. W. Lyons
1964	65	Dried Arrangements by Prof. Lillian B. Allen
1964	67	There's Big Fun in Flower Arranging by J. P. De Wet
1963	4	Corsage Making and Garden Flowers by Mrs. B. Peturson
1963	76	Driftwood as an Arrangement Accessory by Ruth H. Goodhand
1962	88	Dried Material Arrangements by Mrs. Blanche Brown
1962	137	Flower Arrangement by Mrs. E. Campbell
1960	77	Flower Arranging by Mrs. L. M. Robinson
1959	25	The Use of Foliage in Flower Arrangements Mrs. G. K. Peturson

Reference Library

References on Indoor Gardening and Flower Arranging in Previous Editions of The Prairie Garden

INDOOR GARDENING

Year	Page	Title	Author
1969	98	Orchids Can be Grown by Anyone	Dorothy J. Jensen
1970	81	Fibrous Begonia — A Rewarding House or Garden Plant	Jack Nichol
1970	82	The Best Year-Round Treatment for Amaryllis, Gloxinia and Achimenes	W. H. Gray
1970	86	Geraniums for the House and Garden	Mrs. V. Peake
1970	90	Growing African Violets	M. E. Parkin
1970	100	Plants for Indoor Planters	
1971	69	Tips for Growing and Grooming African Violets for Show	Mrs. R. A. Lake
1971	70	Tropical Plants	W. H. Gray
1971	76	Christmas Plants	W. H. Gray
1971	80	Don't Throw Out Those Old Ferns — They Can Be Rejuvenated	Donald E. Fiddler
1972	113	Indoor Bulb Gardening	H. D. Matthews
1972	118	Propagation of House Plants	W. J. Emerson
1974	108	Calceolaries	D. R. Robinson
1975	8	Tuberous Begonias	F. Stan Gugin
1975	76	Tulips Indoors	Malak
1975	80	Control of Diseases Affecting Tulips, Hyacinths, Narcissus	G. Platford
1975	92	The Wonderland of Bulbs	C. A. Cruikshank
1975	95	Muscari or Grape Hyacinths	W. J. Emerson
1975	95	Paper White Narcissus	John Walker
1975	98	Amaryllis, Cyclamen, Gloxinia	Gordon Findlay
1975	104	Achimenes	W. H. Gray
1976	8	Home Horticulture with Artificial Light	Lorry Gans
1976	22	The Amazing Pelargoniums and All Their Kin	Ann Stacey
1976	61	Begonia Semperflorens — Blossoms Throughout the Year	John Walker
1976	62	Green Corner for Winter	V. Craig
FLOWER ARRANGING			
1970	35	Japanese Style Flower Arrangements	K. Chorneyko
1970	36	Corsage Making and Garden Flowers	Mrs. B. Peturson
1970	65	Selection and Preparation of Marigolds for Show	J. Robinson
1971	88	Dried Flower Harvest	
1975	106	Exhibiting Gladiolus	A. J. Strachan

Send for your PRAIRIE GARDEN INDEX, 1965-1974

Available FREE from:

Publication Section
Manitoba Department of Agriculture
200 Vaughan Street, Winnipeg, Manitoba
R3C 1T5

Year Round Gardening on the Prairies

ROGER VICK

Fluorescent Lights

With recent improvements in fluorescent lights, many Canadians are enjoying the foliage and bloom of tropical plants in their home all year round. Living plants bring a feeling of vitality and warmth to any house or apartment and, what better way to ease those long dormant months of a Prairie winter, than by setting up a few simple light fixtures and enjoying the relaxing hobby of INDOOR GARDENING.

What Kind of Light?

A combination of **Deluxe Cool White** and **Deluxe Warm White** fluorescent tubes is the latest recommendation of the Indoor Light Gardening Society of America. These tubes are both locally available (costing about \$2.40 per 4 foot tube) and give high light intensity for modest power consumption. Light from the red end of the spectrum is important and sufficient is obtained from the Deluxe Warm White, so that the era of the regular incandescent light bulbs (with their higher power consumption and undesirable heat emission) is now past — at least as far as most light gardeners are concerned.

The commercial tubes recommended above are less expensive than the special named plant-growth tubes and the value of these special tubes is still debatable.

How Much Light?

No light gardener has to concern himself with complicated formulas involving footcandles and lumens. All you need to know is that two tubes are needed for each foot of shelf **width**. Plants may be grown along the entire length of the tube, but there is a slight light loss at each end of the tube. Tubes rarely burn out, but they do lose their efficiency rapidly after nine months to a year of regular use. When you see black rings near the ends of a tube, check to see how long they have been in use. It's a good idea to mark the date with a waterproof marker on each tube as you install it. And it is best not to shock your plants by changing all your tubes at the same time.

How Many Hours of Light?

The hours of total darkness are just as important to plants as the hours of adequate light (with the exception of cuttings and seed) so light should **not** be left on continuously.

If you leave the lights on 14 to 16 hours a day, you will find this to be just fine for most flowering plants, and they will reward you by producing more flowers more often. African Violets can take even longer days, and it has been proven that they will double their bloom production if given 18 hours of light per day instead of 12 hours. Foliage plants, on the other hand, do very well under 12 hour light

conditions, but a longer light period will compensate, to some extent, for low light intensity.

Certain plants, such as the poinsettia, Christmas cactus, and many orchids will only bloom under short day conditions of 8 to 10 hours. (This is an ideal excuse to set up two separate light units in different rooms!). It would be a tiresome business to remember to turn lights on and off at the proper time, and for the modest cost of a timer (time-clock) the lights will automatically click on and off at your pre-determined settings.

Plants Close to the Lights?

Generally yes. Plants receive most benefit when kept within six inches to a foot of the tubes, but watch for the occasional plant that will show signs of bleached, curled or stunted leaves, and move it further away. Rather than raising and lowering the light unit, it is more satisfactory to move individual plants closer to the lights on upturned pots or mini-shelves, and lower the plants as they grow.

Just remember that plants vary in their light requirements, and it becomes one of the fascinations of light gardening to try various types of plants in different locations under the lights until all thrive happily.

Tubes are left uncovered, but the glare can be avoided by adding a valance.

What Kind of Light Fixture?

The most satisfactory fluorescent fixtures for our purpose come in two-, four-, and eight-foot lengths; with each fixture holding two tubes. The most economical is the standard 2-tube fixture, eight feet in length but, because of space limitations, the most popular is the four-foot fixture. Because light intensity drops off at the

ends of the tubes, the two-foot fixtures are only recommended for special effects in small spaces.

For the best value, choose the standard industrial fixture, which comes without a plug-in cord. If you don't know how to wire it (using a ground wire and 3-prong plug), get an electrician to explain it or do it for you. Qualified staff at reputable retail stores will be able to explain this simple but very important procedure.

More expensive fixtures are marketed that are already set up for growing plants. They may be equipped with legs for use as a standing unit, or designed as a series of shelves with light fixtures attached.

Reflectors for Good Value

Some fixtures may be purchased complete with reflectors, and these are fine for hanging over the plant area on chains. But most light gardeners prefer "strip fixtures" (without reflectors), as these can be attached to the bottom of shelves, etc., the shelf bottom being painted white and serving as the reflector with no loss of space.

Avoid dark surfaces that will absorb available light. Use matte white paint in the plant area, and the use of white pots and white stucco-chip base all help bounce the light around for the benefit of the plants.

A FEW TIPS ON PLANT CARE

A good fluorescent light unit will take you a long way toward successful indoor gardening, but the rest depends on good gardening practices. Green thumb gardeners are just people who have a natural instinct for creating an environment in which plants can thrive. With a little care, anyone can provide suitable condi-

tions for plants, and here are a few tips to get you started.

Humidity

Lack of adequate humidity spells death to more house plants than possibly any other single factor. Unless you have a good humidifier the air in your home will often be much drier than the recommended 50%. Once humidity drops below this level, many plants will be adversely affected, and most would be much better off with 60% humidity, or more.

It would be wise to keep an hygrometer in the plant area to indicate the humidity level, and try to keep the needle above the 50% mark. A tray of gravel or stucco chips kept constantly moist beneath the level of the pots is the easiest way to achieve this.

Misting of foliage two or three times a day is appreciated by most plants, but this is no substitute for proper air humidity.

Watering

The mystery of when to water a potted plant cannot be solved by a simplistic formula such as "every second or third day." Water when the soil begins to dry out (determined by sticking a dry warm finger into the soil, or by lifting the pot to check its weight). Then water thoroughly from the top so that water runs out through the drainage hole. For this reason saucers are not desirable under the pots in a light garden, as they often lead to soggy soil and roots starved for air.

If you can save rain (or snow) water, this is preferable to city tap water, but be sure to take the chill off before serving!

Feeding

Light gardeners are not usually growing a crop to be harvested, so

don't need to boost growth with large doses of plant food. In fact, one of the few complaints of the light gardener is that many fine plants soon outgrow their allotted space. Therefore, feeding should be at a fraction of the recommended dosage. Light but continuous feeding is best, alternating the fertilizer brands, and flushing with clear water at least once a month.

Soil

Ordinary garden "dirt" is not good enough for container grown plants. You can mix your own potting soil by taking equal parts of garden soil, peat moss and coarse washed builders' sand. Every light gardener eventually has his own pet recipe for a potting medium, and may vary the basic mix, depending upon the plant being potted. The above mix is a good starting point, however, as it provides fertility, moisture retention, and adequate drainage.

Temperature and Ventilation

The kind of plant that we usually invite into our home enjoys much the same temperatures as people — about 20-22 degrees C and a few degrees cooler at night. If you have a cool basement or room that remains about 12 degrees C, then you will be able to grow plants like cinerarias, azaleas, and cyclamen in it, instead of the tropics. Warm or cool, no plant collection should be subjected to either drafts or stagnant air.

As plant collections increase in size and number, there is a tendency to crowd them together to make room, but the light gardener should resist this temptation, retaining only the plants that really 'turn him on'. If they can be spaced so that they do not touch, this will aid air circulation and reduce the chance of insects and dis-

ease spreading through the collection.

Pests

There are relatively few insects that will attack your house plants, the most common being aphids, mealy bugs, scale, spider mites, and white fly. When any of these pests appear, many people turn at once to chemical warfare, but the wise indoor gardener learns to be on the lookout for the first signs, isolates the affected plant, and treats it before a little job becomes a major operation.

Washing plants in tepid water with a little mild soap usually clears the problem away, and this should be repeated every few days for a couple of weeks to catch any new pests hatching out.

Nearly all infestations start with the introduction of a clean looking plant that is not as innocent as it looks, so be sure to isolate any new plant for about ten days, and see what develops.

Going Away?

And you don't have a plant sitter? Your plants won't miss you too much if you water them well and cover the collection with plastic to reduce moisture loss. Set the timer for a six hour day (or leave the lights off as they prefer total darkness to continuous light) and turn the thermostat down to night temperature.

If you are going away for a week or so, wick each pot with acrylic rug yarn and crowd them together over con-

tainers of water. Test your system before you leave.

For More Information

It is a good idea to join the "Indoor Light Gardening Society of America" and receive as part of your membership benefits six copies of *LIGHT GARDEN* magazine each year. The annual membership is \$5.00, payable by Post Office money order made through a United States Post Office. The address for membership is I.L.G.S.A., 423 Powell Drive, Bay Village, Ohio, 44140, USA. It would only take a few keen growers to start a local chapter of this viable organization.

Several up-to-date books are available in most bookstores, or can be ordered with little delay. These include:

THE PLANT DOCTOR by Richard Nicholls (1975), Running Press.

THE INDOOR LIGHT GARDENING BOOK by George A Elbert (1973), Crown.

FLUORESCENT LIGHT GARDENING by Elaine Cherry (1965), VNR.

GARDEN IN YOUR HOUSE by Ernesta D. Ballard (1971), Harper & Row.

THE COMPLETE BOOK OF HOUSE PLANTS by Charles Marden Fitch (1972), Hawthorn.

THE COMPLETE BOOK OF GARDENING UNDER LIGHTS by Elvin McDonald (1965), Doubleday.



Care of Perennial Flowers

H. H. Marshall

The display produced by perennial flowers will reflect the quality of care received. A good display will only be produced by vigorous, healthy plants in a well tended border. Unfortunately, perennials are often planted with the idea that this will be a permanent solution to garden work. Such a border can be expected to equal an untended ditch in display quality. Much better results may be attained by thoughtful care.

Perennials, because of their year-round nature, are not limited to the May to September cycle or 'plant year' found in annual flowers and crops. Perennials that bloom in fall, such as chrysanthemums and asters, do follow this cycle and their plant year ends in late fall, however, those species that bloom in spring began preparing next year's bloom this summer and fall. In general, the plant year for each species ends with the production of mature seed.

Timing

Timing of many garden operations must coincide with plant year for best results. **Transplanting should be done at the end of the plant year and before the next year's growth begins.** The roots of early blooming species grow actively in the fall in preparation for a surge of growth in spring. Fall planting is necessary for results with tulips and similar bulbs, and highly desirable for

many others. Late spring planting will result in a lost year for the plant and the gardener. Late flowering species begin their year in spring and spring planting is right for chrysanthemum, asters, goldenrod and others.

Beginning — The plant year for each species should time other garden operations. Excellent growing conditions should prevail at the beginning when adequate moisture and fertility should be available to the young growing plant. Use manure or fertilizer at the beginning of the plant year and water when required. Do not allow weeds or other plants to compete with young plants, or future bloom will suffer. Insect and disease control are most important on young plants. Later attempts to repair damage will not be successful.

Later — Later in the plant year, still considering each species separately, a lower degree of fertility is acceptable as is some crowding by the now larger plants. High fertility, particularly nitrogen, may promote excess vegetative growth and reduce bloom. Pest control is still important and adequate water is necessary.

Staking and Tying

Staking and tying may be needed for tall growing plants. This should be done before wind damage occurs. Stakes and ties should be as inconspicuous as possible and still provide

necessary support. Good staking takes much skill and care. In windy sites it is well to avoid using delphiniums or other species that are likely to be damaged by wind.



Perennial phlox and lilies

Care

Dead and dying flowers should be cut off regularly as they often detract from the appearance of the border. If the flowers are shed cleanly this may not be necessary. Flower distribution in some species makes it impractical to cut dead bloom. A heavy crop of seeds will use much energy from the parent plant and seedlings of some species can be troublesome weeds. Seedlings of named cultivars are nearly always much inferior to the parent. Healthy foliage should always be retained to build up energy reserves in the plant for the next season's bloom.

Still later in the plant year it may become impossible to keep the senile foliage in acceptable health. The dying tops may be cut off, except possibly in late fall. Dead tops are an effective winter protection. Taller ones may be

broken over so that they are covered quickly by snow.

At the end of the plant year each species becomes dormant. In this condition they are resistant to unfavorable conditions and do not respond to fertilizer and water. They need only be protected against truly extreme conditions such as drought or cold. Early flowering species and lawns usually become dormant in mid-summer. In this condition they can survive considerable drought but are not beautiful. Late flowering species may be growing actively at the same time. It then becomes apparent that conditions in a mixed perennial border can only be a compromise among the best conditions for the species in that border.

Grouping Similar Plants

Another method which could give better control of growing conditions is to group plants according to time of bloom. This will result in blank areas at times, but since another area can be very attractive at the same time it will draw the attention. A very sunny, dry location may be a good home for early flowering species and at the same time be a draughty and unsatisfactory home for late flowering species. Similarly, a spot under trees may be a good place for certain early flowering woodland species like pansies, bleeding-heart and columbine, but be quite a bad place to plant chrysanthemums and most annuals.

Care of perennial flowers requires good timing of each phase of garden care from planting to cleaning up. The work load of gardening and the time of bloom are both spread over a longer period than for annuals. With good care, perennial flowers can be interesting or beautiful when annual flowers are just a memory.

The Expanding Concept of 'Groundcover'

"We want an attractive garden that takes little care, and we want it in a hurry!"

ROGER VICK

Mrs. Sedum was moderately interested in plants, or at least acknowledged their place in the home, for there was a ceiling high *Dieffenbachia* in one corner, and a pot-bursting *Sansevieria* in another. "Lots of groundcover plants might be the answer, because I don't intend to spend my summer weekends weeding, and I can't find anyone to come around once a week to do it for me."

These sentiments are often expressed by busy families, as well as by those with more time for gardening, but less inclination.

"I sent for a publication on groundcover," added Mrs. Sedum. "Perhaps you could tell me which we should use to keep the weeds down."

Turning to the end of the booklet (1) we glanced down the list of about twenty groundcovers, and received little inspiration. Only about eight of them were suitable for Alberta, and a closer look at the text revealed that the recommended plants were 'hardy at Ottawa'.

"Not much choice is there?" Mrs. Sedum frowned as we checked off the few suitable candidates on the list. "Surely there must be others we could try."

Surely there must be! But we would have to stretch our original notion of what a groundcover was supposed to be. Did it have to be ground-hugging?

Did it have to be soil-binding? Did it have to be fast spreading?

Types of Groundcovers

After some discussion of the problems of finding a wider selection of groundcovers for the local scene, I undertook to draw up a list of suitable plants, based on a fresh approach to the subject, and aided by the accumulated hardiness records of the University of Alberta Botanic Garden.

Finding a number of articles and books on the subject, a local public library revealed one book that finally provided that needed spark of inspiration. 'Plants for Groundcover' by G. S. Thomas, (8) includes a large number of plants that are not groundcovers in the usually accepted sense of the term. For example, *Tanacetum* (tansy), *Filipendula* (meadowsweet), and *Achillea* (yarrow) are much taller than the traditional groundcovers, but cover the ground nevertheless, and are particularly useful in holding the soil where erosion is likely to occur.

Thomas writes for British gardens so that, while his general principles and methods of groundcover gardening are viable here, his list of recommendations must be modified to include only those with a good chance of success in western Canada. He also includes such small shrubs as *Potentilla fruticosa*, which may be stretching the concept of ground-

cover just a little too far. How about the term 'space-filler' for those plants that are not quite acceptable groundcovers?

"Hold it!" Mrs. Sedum would say. "What do we want with more gardening terms? This is just a hobby for me. Let's keep it simple."

Right. But categories like 'groundcover' 'tree' and 'shrub' tend to simplify gardening by limiting the number of different plants that have to be considered. For example, if we are trying to decide on a suitable tree for the front of the house, it greatly simplifies the selection if trees are separated from the list of shrubs. If you are choosing a flowering tree and there is a separate listing under 'flowering trees,' then the task of selection is made easier yet.

If we accept this method of grouping (or segregation) we can add two more categories that are closely allied to 'groundcover' and which are already in limited use. These terms are 'space-filler' and 'soil-binder'.

Space Fillers and Soil Binders

Under 'space-fillers' would appear such small shrubs as *Potentilla fruticosa*, and the slow-to-spread Primulas. 'Soil-binders' would include the tall *Filipendula* and *Achillea* mentioned earlier. It is inevitable that some plants will appear on more than one list, like the ground-covering *Juniperus horizontalis* (creeping juniper) which is also a 'shrub' and of course an 'evergreen' or 'conifer'.

A greater problem is that, having selected the right plant for the job, we find it to be virtually unobtainable. This is where the nurseryman has to be convinced that there is profit in propagating and offering things like *Eriogonum* (umbrella plant) and *Potentilla anserina* (silverweed).

There is no reason why these native plants and others, couldn't be used successfully in the prairie garden.

There may yet evolve a type of garden unique to the prairies, with a style that does not attempt to imitate gardens of milder climes, but fully utilizes suitable native flora, and makes use of traditional garden plants in an un-traditional manner.

Groundcovers probably offer the highest opportunity to display this distinctive style, and to return to our original task of compiling a list of suitable material, we find it helpful to draw a few comparisons between groundcover plants for the sake of comparing their various characteristics. Some, for example, will spread so slowly the less patient gardener will take them on a one-way trip to the compost heap. Other plants can be so aggressive that they should only be started in areas where they can be confined, and a guard posted with strict orders to exterminate any that appear out of bounds. Anyone who has seen *Glechoma hederacea* (creeping charlie) escape into a lawn will understand the problem well.

Weeds in Groundcover

Before presenting the list and asking for comments and additions or deletions from experienced growers of our area, it would be wise to explode one fallacy. Groundcovers are not weed-killers. Most of us have found out the hard way that there is no substitute for initial clean cultivation. Once the soil is clear of all perennial weeds, and the groundcovers properly established, then (and only then) is the reward of greatly reduced weeding attained. From then on it should be only a matter of keeping a sharp eye open for any weeds that do show through the

groundcover, and promptly removing them.

Native Plants

While some of our native plants are quite able to hold their own in a garden situation, and in competition with introduced garden plants and weeds, other wild plants of our province are not at all robust. And although several texts recommend as groundcovers our native *Cornus canadensis* (bunchberry), *Maianthemum canadense* (wild lily-of-the-valley), and *Linnaea borealis* (twin-flower), they are very particular in their soil requirements, and here in their native land simply lack the basic drive and ambition to succeed as groundcover material.

Inert Materials as Groundcover

No discussion of groundcovers would be complete without mention of inert materials such as gravel, rock-chips, bark, and sand. In certain situations these can be aesthetically pleasing, not only in landscapes of the Japanese style, but also 'Wild Western' ones. Coarse sand planted with an upright boulder or two, a driftwood tree, and perhaps a bleached skull for instance. Particularly if used in conjunction with living plants, and in a suitable setting, this sort of groundcover can be very effective.

Soil sterilants can be used on inert groundcovers and for initial site preparation, but they must be kept well away from any desirable plants as the

chemicals move, to some degree, horizontally in the soil. With some chemical soil sterilants there is a waiting period following application so, as always, read the directions carefully.

Grass

Strictly speaking, by far the most popular groundcover in this country is grass; but the category 'lawn' is another story. And the high cost of good lawn maintenance is leading more people to consider alternatives, especially in parts of the garden where lawn grasses do not thrive.

One other group of plants is sometimes included in books on groundcover. These are the annual bedding-out plants sold so conveniently in handy packs every spring. So attractive are they, and so full of promise after the long bleak winter, that hundreds of thousands of un-gardeners get their fingers soiled every spring. Because they have to be replaced every season they have been omitted from the following list, and should rather be classed as space-fillers.

Here then is a new list of groundcovers suitable for the Edmonton area (and doubtless many similar climatic regions across the prairies) with a legend that will help in the selection of the right plant for the right place. From here on the prairie gardener must be prepared to practice trial and error until the variables of the particular garden, and the taste of the individual gardener are both satisfied.



LEGEND

A	Potential for Spreading	B	Preferred Situation	C	Habit of Plant	D	Blooming Season	E	Propagation Methods
	• spreads very slowly		O Full Sun		Gr Ground hugging		E Early		C Cuttings
	•• spreads steadily		/ Half Shade		Tr Trailing		Mid Midseason		S Seed
	••• spreads quickly		X Deep Shade		U Upright		L Late		V Vegetative division
	•••• invasive ... beware!		D Well Drained				F Foliage plant		
			M Moist Soil						

*More commonly available in Canada.

BOTANICAL NAME	A	B	C	D	E	COMMON NAME
Acaena (various species)	•••	O/	Gr	F	SV	Sheepburr
*Aegopodium podagraria variegatum	••••	X		F	V	Goutweed
*Ajuga reptans (and cultivars)	••	M		F	V	Carpet Bugle
Alchemilla alpina	••	O/		F	SV	Lady's Mantle
Alchemilla glaucescens	••	O/	U	F	SV	Lady's Mantle
Alyssum montanum	••	O		E	S	
Antennaria nitida (native)	•	OD	Gr	F	V	Pussytoes
Artemisia stelleriana	•••	O	U	F	V	Beach Wormwood
*Bergenia crassifolia	••	/	U	E	V	
*Campanula carpatica	••	M	U	Mid	S	Bellflower
*Cerastium tomentosum	•••	O		E	V	Snow-in-Summer
*Clematis (various cultivars)	•••	OM	Tr	Mid	CV	
Clematis serratifolia	••••	OM	Tr	F	V	
*Clematis tangutica	•••	OM	Tr	Mid	CV	Golden Clematis
Clematis virginiana	•••	OM	Tr	Mid	CV	Virgin's Bower
*Convallaria majalis	••	/X		E	V	Lily-of-the-Valley
*Coronilla varia	•••	M	Tr	Mid	S	Crown Vetch
*Dianthus deltoides	•••	O		E	SV	Maiden Pink
Dianthus fragrans	••	O		Mid	SV	Fragrant Pink
Eriogonum subalpinum (native)	••	OD	Gr	Mid	V	Umbrella Plant
Erysimum leptostylum	••	O		Mid	S	
*Fragaria (various cultivars)	•••	O		E	V	Strawberry
*Genista sagittalis	••	O/		Mid	SC	
Geranium sanguineum	•	O		Mid	SV	
*Glechoma hederacea	••••		Gr	F	V	Creeping Charlie
Gymnocarpium dryopteris (native)	•	XM			V	Oak Fern
*Juniperus chinensis sargentii	••	OD		F	C	Chinese Juniper
*Juniperus horizontalis 'Douglasii'	••	OD	Gr	F	C	Waukegan Creeping Juniper
*Juniperus sabina tamariscifolia	••	OD		F	C	Tamarix Juniper
Lamium maculatum (and var. 'Roseum')	•••	OM		EL	V	
*Lysimachia nummularia	••••	XM	Gr	Mid	V	Creeping Jenny
*Pachysandra terminalis	••	X	U	F	V	
*Parthenocissus quinquefolia	••••		Tr	F	C	Virginia Creeper
Penstemon procerus (native)	••	O/		E	V	

*Phlox subulata	•	O	E	V	Moss Phlox	
Potentilla anserina (native)	••••		F	V	Silverweed	
Prunella vulgaris (and var. 'Pink Loveliness')	••	OM	Mid	V		
*Saponaria ocymoides	••	M	E	S	Rock Soapwort	
*Sedum acre	•	OD	Gr	F	VC	
*Sedum aizoon	••	OD	U	Mid	VC	
*Sedum ewersii	••	OD		Mid	VC	
Sedum kamtschaticum (and var. 'Variegatum')	••	OD		F	VC	
*Sempervivum (various cultivars)	•	OD	Gr	F	V	Hen-and-Chickens
Stachys lanata	••	OD		F	V	Lamb's Ears
*Thymus serpyllum	••	O	Gr	F	V	Thyme
*Vinca minor	••	X	Tr	Mid	VC	Periwinkle

Common names used only where in common local use.

The above list is by no means static, and will be modified from time to time based on future recommendations, and further trials at the Botanic Garden. Comments and additions welcome.

FURTHER READING

Publication:

- (1) Oliver, R. W. *'Woody Climbers and Groundcovers for Canadian Gardens'* (Agdex No. 274/33) pub. 1017: Information Canada, Ottawa: Revised 1973.

Articles:

- (2) Knowles, R. H. *'Why Not Grow Groundcovers?'* in **'The Prairie Garden'**: Winnipeg: Winnipeg Hort. Soc.: 1966.
- (3) Leslie, W. R. *'Slope Binders and Groundcovers'* in **'The Prairie Garden'**: Winnipeg: Winnipeg Hort. Soc.: 1957.

Books:

- (4) Ashberry, A. *'Alpine Lawns'*: London: Hodder & Stoughton: 1966.
- (5) Atkinson, R. E. *'The Complete Book of Groundcovers'*: New York: McKay: 1970.
- (6) Foley, D. J. *'Groundcovers for Easier Gardening'*: Toronto: Ambassador: 1961.
- (7) Hottes, A. C. *'Climbers & Groundcovers'*: New York: De la Mare: 1947.
- (8) Thomas, G. S. *'Plants for Groundcover'*: Letchworth, Eng.: Dent: 1970.

"Alberta Horticulturist"
May 1975

What's in a Name?

H. E. HARP

HYBRID TEA ROSES

My first recollection of hybrid tea roses was in the garden of a lady who had once been a concert pianist. She was small, with white hair and perhaps not as old as I thought she was in those days. When I was twelve I spent Saturdays there cutting a small plot of grass, weeding flower beds and trimming a privet hedge.

At the back there was a round bed of roses and it was here that I became acquainted with that famous rose, Madam Caroline Testout. This rose was introduced in 1890 and was once planted by the thousands along the streets of Portland, Oregon. By modern standards it would not merit much attention these days, being superseded by any number of more colorful roses. But for me, it will always be a special favourite. Its sweetly-scented, satiny-pink flowers, whose fallen petals I gathered up and put in a basket as I listened to a Beethoven sonata played by the little old lady, I remember with more than a touch of nostalgia.

At the time I didn't know the name of the rose nor did I know that the music I was hearing was a Beethoven sonata. When I grew up I worked in a nursery where hybrid tea roses were propagated by the tens of thousands, and among the varieties was Madam Caroline Testout. And since then the

music of Beethoven has been a great comfort and joy.

In spite of the difficulties of growing the hybrid tea roses in prairie gardens, more and more gardeners are making the attempt with satisfying results. There are no short-cuts to success; it is a matter of commonsense to plant roses in freely-drained soil, away from the shadow of trees, and where the plants are sheltered from the drying north-west winter winds. Where the soil is high in lime, generous quantities of acid peat should be dug in or the plants will get the 'yellow sickness'.

While we often hear a lot about crop rotation in the vegetable garden we fail to realize that the hybrid tea roses usually spend their entire life-span in the same spot. When they die, which may be in five years or less, replacements are set out in the same soil. By this time the soil has become 'rose-sick' and it may be physically impossible to replace it with new soil so consider moving the site.

Hybrid tea roses are no more demanding than a lot of other plants we grow with comparative ease. They need fertile soil, adequate water in periods of drought and freedom from pests and diseases, which after all, are the normal requirements of all cultivated plants. From my observations I would be inclined to say that even the experienced gardener fails to give the

hybrid tea roses enough water, being deceived by the appearance of the topsoil which may be wet enough while at the one-foot level it is bone dry.

What does the future hold for the rose grower? New roses will continue to come and go and once in a while a super rose will make an appearance. The varieties Peace and Queen Elizabeth have not been superseded for their tremendous vigor. Twenty-five years ago a new departure in color was introduced with the variety Independence which has long since disappeared from the catalogues. However, it has left its distinctive coloring in Tropicana and Fragrant Cloud; both with a rich scent whereas Independence had none to speak of. Masquerade, the first of a new type of polyantha, has remarkable fecundity. One famous English rose breeder has said that the progeny of one plant of Masquerade in his hybridizing greenhouse exceeded that of all the other varieties.

It would appear that in the future the division between the hybrid teas and the several kinds of Florabundas will no longer be distinct. New hybrid teas will have the free-blooming qualities of the Florabundas which, in turn, will have the shapeliness of the hybrid teas.

The type of rose classed as a Grandiflora is not recognized as such in England where the name has been used as an alternative for Rosa gallica; the French Rose. We may well ask "What's in a name?" — apparently a good deal when it comes to selling plants.

Rose breeders will need new blood in their breeding lines to instill more resistance to disease, particularly mildew, which is so difficult to control. In any case, it is safe to say that roses will continue to give much pleasure to young and old and more especially to those who grow them and tend them with loving care.



Weeds in the lawn need not be a problem. Just use the proper weedicide.

The regular 2,4-D formulations will give excellent control of many common broad-leaved weeds such as dandelions and plantains. How-

ever, it has very little effect on other common lawn weeds such as chickweed, knotweed and clover, if you consider this a weed. To control these weeds a combination of 2,4-D and mecoprop and/or dicamba must be used. This formulation is generally sold under the name of chickweed and clover killer. One of the most common trade names is Kellex. This product will also control dandelions, plantains and other broad-leaved weeds.

The Story of a President

MARJORIE HUGHES-CALEY

On August 23, 1976, Mr. Frank Moore, Senior, President of the Prince Albert Horticultural Society, was presented with a Life Membership of the Saskatchewan Horticultural Society in recognition of his outstanding service to horticulture in the province, particularly in the area of vegetable growing. The presentation was made by Mr. Joe Zary, President of the Provincial Association.

Mr. Moore's life story is a most interesting one. He was born on July 24, 1907, in Hungary, where he received all his formal education. His father owned a ten acre vegetable patch and operated test plots for the Hungarian Department of Agriculture, but Mr. Moore is quick to point out that his mother taught him all his gardening skills, since the women do all the gardening in Hungary. He not only worked in the cultivation of vegetables but also accompanied his mother to the open markets where the produce was sold. During his high school period he had a chance to study horticulture, specializing in vegetables, fruit trees and grape production.

In his homeland young Frank had other interests besides Horticulture. He sang in his Church choir and eventually became its soloist. At seventeen he was a member of the Agricultural Society Glee Club and he also be-

longed to the High School Drama Club, playing leading roles in three major productions.

At the age of nineteen, attracted by steamship advertisements and the promise of cheap land, Mr. Moore emigrated to Canada. He began by working for two seasons on a farm at Asquith, Sask., where he gained experience with field crops and machinery. During the winters of 1928 and 1929 he attended a Mechanical Trade School in Saskatoon. His next move was to travel north to inspect the land which the Canadian government was offering at cheap rates. The bad roads and the isolation of settlements made the future market gardener turn down the offer. On returning to Saskatoon he heard that construction workers were needed for the Flin Flon railroad and decided to go there, but Cupid planned otherwise! When he stopped over in Prince Albert to visit Hungarian friends he met a lovely Hungarian girl and decided to seek construction work in that city. During the next few years, while still doing construction work, Mr. Moore bought a small house and two acres of land on the south bank of the North Saskatchewan river and started growing and selling high quality vegetables.

In 1931 Frank married the "lovely Hungarian girl" and with her help increased the size of his garden so



Mr. Frank Moore (left) holds the Life Membership Certificate which he has just received from Mr. Joe Zary, President of the Saskatchewan Horticultural Society.

that he could leave the construction work and concentrate on growing vegetables and raising a family. He recalls that he used to go round the city with a wagon and horses to sell his vegetables twice a week in each of three areas. The Moores have three children of whom they are justly proud. **Frank Junior**, a graduate of the University of Manitoba School of Architecture, now operates his own consultant business in Prince Albert. **Charlie** graduated with a Bachelor of Commerce degree from the University of Saskatchewan and is now a chartered accountant in Calgary. The Moore's daughter, Helen, took a business course and has been a computer operator in Calgary for several years. Also after World War II the Moores gave a home to a young Hungarian refugee and saw that he obtained mechanical training. The young man is now married and living in the part of Ontario where the climate is similar to his native Hungary. The Moores were happy to act as parents of the bridegroom at the wedding.

The market gardener's climb to success was not without its handicaps. During the dry years of the thirties he thought about the necessity of irrigation and applied for land on the river bank on the north side of the Saskatchewan river. It took him three years to obtain a plot of sixty acres in that area, which was partly Crown land and partly privately owned. Once he was established across the river Mr. Moore was able to plan irrigation schemes. His use of aluminum piping, a first in north Saskatchewan, was only made available in war time (1939) as a result of his

contract to supply local military establishments with vegetables. Through hard work and the production of high quality vegetables Frank Moore and his wife quickly built up a good trade and became so well known that they were asked to ship carloads of vegetables to various localities, including such places as Flin Flon, Calgary and Vancouver. Mrs. Moore added to the expansion of the business by growing annual bedding plants. To this day she wins prizes for cut flowers at the Prince Albert Horticultural Show, specializing particularly in petunias and pansies. Through the years Mr. Moore equipped his market garden with every type of machinery for seeding, cultivating, harvesting and storage.

Mr. Moore has now sold his garden and has more time for his work on behalf of the Vegetable Growers' Association, the Farmers' Market and other enterprises which aid those who grow the food we need. This well-known gardener is a member of the Prince Albert Chamber of Commerce and has belonged to the Canadian Club ever since he qualified to become a Canadian citizen after five years residence in this country. He also belongs to the Canadian Overture Concert Association and to various organizations connected with vegetable growing.

Above all, the Moores are friendly folk, unspoiled by success, always willing to help their neighbors and share their knowledge with amateur gardeners with less experience. This Canadian who began as a Hungarian gardener, and his wife, are good citizens who have brought honor to Canada.

Gourmet Vegetables in an Allotment Garden

PAT BEAUCHAMP

One of my first loves is gardening, that is vegetable gardening, possibly because I can so readily associate it with my gastronomical desires — I am very fond of vegetables. I often send for seed catalogues and browse through the pages during the winter months as do many other gardening fans; and early in the fall I had been on a visit to Ontario where I was always on the lookout for seeds and information. So, I obtained some of my seeds via seed catalogues, some in Ontario, and the balance right here in Winnipeg.

I am a morning person and there is nothing to compare with the therapeutic benefits of working in the garden in the early hours, just after sunrise. So this past summer I leased a patch of ground 60 by 100 feet and, besides growing all the ordinary varieties of beans, peas, carrots, beets, parsnips, etc., etc., I decided to concentrate on a few gourmet vegetables. Undoubtedly some of these vegetables are better suited to the areas where spring comes earlier and is somewhat milder — but just the same, you can meet with a certain measure of success.

Golden and Cylindra Beets

For starters I tried the Golden Beet — a double treat vegetable — the tops make far tastier greens than spinach and the golden colored beets

do not bleed and thus do not discolor the rest of your meal on your dinner plate, and they can even be used in salads. I also managed to grow a row of Cylindra Beets — probably the sweetest beet you will ever taste. This beet grows in an unique cylindrical form that provides tremendous productivity from very little space, and the shape is terrific both for pickling and slicing.

Lemon Cucumbers

My lemon cucumbers provided a delightful surprise for all my friends. The fruit is shaped and colored identically to the lemon and, while tasting like a cucumber, has the added sharp acid tang of a lemon. It can be used for slicing for the table, or in salads, or pickled, and it produces abundantly.

Baby Carrots

The baby carrots were my pride and joy. The superlative quality of various kinds of baby carrots has long been recognized in Europe. I grew the Parisien Baby Carrot — ready very early — completely round (as an onion) about $\frac{3}{4}$ to one inch in diameter (never gets any larger all summer). It is extremely sweet and a real gem for adding color and interest to the dinner plate. N.B. — (Only to be cooked whole.) Possibly not a large return for your seed but a gourmet's

delight and a conversation piece at any dinner table.

As you will recall, last summer God's great natural force, "rain" was in very short supply and since there was no water available on the prairie where I planted my garden, very early in July I spent a Saturday on the end of the hoe hilling up every plant to prevent sunburn to the roots. This could not have been accomplished later because, owing to the dryness, the ground became so packed and hard it was the consistency of concrete. Done in good time, however, it "saved the day" and the dry soil produced to the point where I scarcely had time to pick everything!

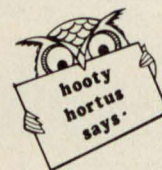
Incidentally, I chose the Red Pontiac Potato knowing that it never fails in this part of Manitoba regardless of the weather. The ground was so hard that it was a man's job to break the soil away from the big beautiful spuds after digging them. As a matter of interest, I noticed that in many cases where others had planted the white potato varieties, they simply left them in the ground, since a dry rot had set in because of the lack of moisture. A further indication of the severe dryness of the soil was brought home very forcefully when I discovered roots on the parsnips well over a foot

long — they had been struggling all summer to reach some moisture.

You might say it kept me very busy, but I feel it was time well spent and, in addition to a freezer full of home grown vegetables picked at their tender best, I was able to enjoy them to the fullest in season and also supplied many friends and neighbors with their requirements.

Sorry I have to report one failure — Butternut Squash — one of my favorites. It seldom is found in Manitoba but is grown in abundance in Ontario, although I did spot a few at roadside vegetable stands here this summer. I tried the Waltham variety butternut since it is known to surpass all others for its very fine quality and flavor, which it retains throughout winter storage. However, I didn't net even one squash, partly because the gophers and rabbits recognized its savory qualities in the early green stages. This, however, was my only disappointment.

If you are one of those people who does not want to join the "rat race" on the highways on summer weekends, perhaps you'd find pleasure in experimenting with a little vegetable garden. Try it! It's most rewarding.



'Prairie Dawn' is a hardy shrub rose, replacing Prairie Youth which is similar but less hardy. Both these roses are releases of the Canada Research Station at Morden, Manitoba. It is an upright bush growing to a height of about six feet, with dark green leaves. Its flowers, borne on current year's wood, are semi-double and bright pink in color. Its peak blooming period is in July, with intermittent bloom into early autumn.

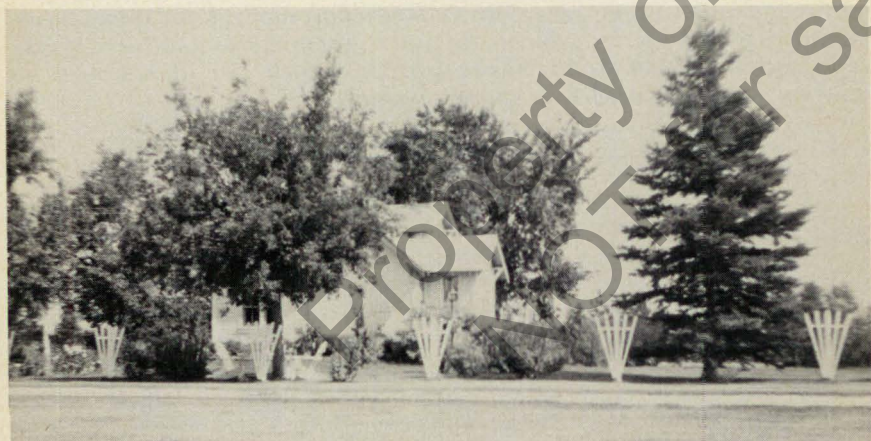
A Farm Home in Fisher Branch Manitoba's Interlake

by MRS. ADELE PYZIAK



Mr. and Mrs. Pyziak and their home in May 1947.

SEPTEMBER 1975 — a time for gathering in the grain. The combine should be humming across the field and I should be manning the grain trucks, but all is silence. Instead we look out at fields of ripe grain standing deep in water, as they have been for more than a month now. Alfalfa hay bales are rotting in the fields and summerfallow that should be black in readiness for next year's seeding is lush with green growth. Frustration reigns supreme! And then I take a walk around our farm yard that we have landscaped, planted, and beautified over the thirty years we have lived here, and it is like balm to a throbbing wound.



The same home and grounds in 1974.

Border

Along the flagstone walk that leads from the kitchen door to the 'big' yard rose carpet asters and lemon drop marigolds have been in full bloom for a long time. Back of them, clumps of white matricarias glisten in the sun. Chrysanthemums in rusty yellow, red and pink (from a sister in B.C.), and in mauve, fuchsia, white and yellow are starting to bloom. The rusty yellow is a spoon mum and quite different from the ordinary chrysanthemums.



Flower border along the flagstone walk.

A double white shasta daisy brought back from Victoria, B.C. has survived two winters here, blooms almost continuously from June to October, and has been shared with friends. Prairie Dawn rose at one end of this border and a white lugosa at the opposite end have provided bloom on and off all summer too. A deep rose perennial phlox, that carries such large flower heads, is still blooming, though the white and mauve ones finished some time ago.

This same border has provided color since the first tulips bloomed in June followed by a soft yellow day lily, purple campanulas and a deep rose peony. Shadow Valley carnations bloom here all summer. Yellow ladyslippers, rescued from a road allowance being bulldozed, have thrived

and bloomed here too. Some have made their way to Summerland, B.C. where they have brought back memories to my sister of a childhood spent on a Manitoba farm — she had not seen ladyslippers for forty years.

Then there are the lilies — which to me are the aristocrats of the flower garden. Dr. Skinner's Centifolium hybrid trumpet lilies have done exceptionally well here in the interlake for quite a number of years. The pure white ones are lovely, but so are the softest yellow ones. Then there's an 'almost' green one and some flushed with pink — all very large, fragrant, and so beautiful!

Some of the lilies were originally grown from seed when it was still available from a Manitoba nursery. Apricot Glow is a good early lily that blooms here every year without fail. Lemon Queen is worthy of a place in any garden. Rose Cup, though a nice lily, is a disappointment as it is neither rose colored nor cup shaped as described in the catalogue. Red Torch does well too.

A lily bulb catalogue arrived in August 1974 from a grower — such tantalizing descriptions! For days I agonized over lily bulbs versus a pair of much needed shoes, until in a moment of weakness an order went off for bulbs, and this summer we were well rewarded. Barber No. 23 (now Lady Dawn) is different from any lily grown here — a deep rich old rose with a cream throat. Pink Champagne and Rosalind were lovely. Enchantment — a soft orange was a joy to look at. Orchid Queen and Duchartrei did not bloom — something to look forward to next year. Occasionally, grocery money goes the way of the shoe money. The day may yet come when I shall find myself chewing on a bulb when lunchtime rolls around.

Front Garden

In our large front yard a circular flower bed is centered with a peony that blooms profusely every year. The bed was colorful with tulips in the spring; now mahogany red, orange and yellow marigolds and orange calendulas are putting on a show, bordered with silvery cerastium.

Foundation Planting

Around the house the foundation planting consists of cotoneaster, silver leaf dogwood, rose althaica (which put on a lovely show of bloom — though briefly), native potentillas and junipers. Between the shrubs, peonies bloom early, followed by geraniums which bloom most of the summer on the sunny sides of the house.

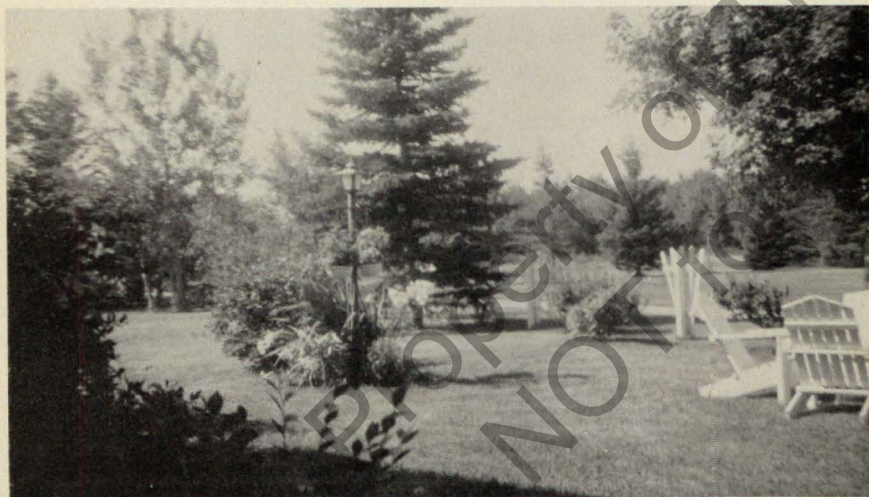
Now chrysanthemums are in bloom, and soon the mauve fall asters will open and bloom until the snow flies. The north side of the house

shades native ferns, a bleeding heart, as well as the variegated leafed impatiens and some orange-red lilies that lost their identity long ago.

Trees and Shrubs

Tall elm trees on the east side reach high above our upstairs bedroom window. Many a summer night we have been kept awake by a whippoorwill sitting on the tree singing until dawn — when the robins take over. Should we be annoyed at being kept awake or shall we rejoice at the free concert?!

A long shrub and perennial border separates the house yard from the garden and orchard. Here cedars, Russian olives, currants, salt bush, lilies, Hansa, Austrian copper, Prairie Youth and Prairie Dawn roses, as well as junipers and potentillas rub shoulders with a great variety of perennials, with groups of colorful annuals along the curving edges.



Hybrid trumpet lilies around the lamp to the south west of the house.

There are two useful ornamental post lamps and around the back yard lamp are tall irises which produce nondescript blooms but have foliage that is lush and tropical in appearance, often reaching four and one half feet. They retain their deep green color all season — unlike the more elegant irises that have lovely blooms but have foliage that is an eyesore by mid-August. The lamp on the southwest of the house is surrounded with rosy red malope and white trumpet lilies for early summer bloom and now is a mass of fuchsia colored chrysanthemums which will be followed by mauve fall asters.

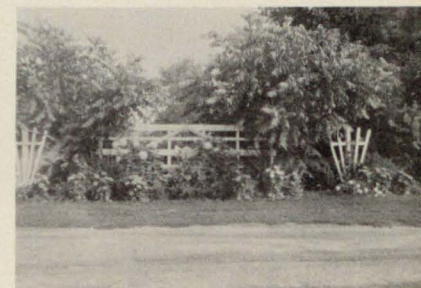
The hanging baskets are colorful with red geraniums and yellow chrysanthemums with sedums and cerastiums trailing over the edges. In winter the baskets are filled with pine and spruce branches and wild rose branches bright with red hips, adding a cheery note to the winter landscape.

Bright red Lady Bird poppies look striking against the white trunks of the paper birches. Baby Fronteneau dahlias camouflaged the very useful hotbed. Park Princess cactus dahlias bloomed profusely and are preferable since they do not require staking.

A red roofed bluebird house swinging from a poplar branch above the hot bed has never housed bluebirds, but each spring is occupied by a family of squirrels. Then in June when they move to more spacious quarters, the wrens arrive and for days there is a flurry of angry housecleaning. Then one day we'll see dry twigs sticking out of the entrance — the new tenants have moved in! This squirrel-wren cycle has been repeated every spring for quite a number of years.

Mountain ash hung heavy with berries until robins and cedar waxwings stopped by and systematically strip-

ped them off. Chokecherries went the same way. They are now on the cotoneaster but we don't mind, the birds give us so much pleasure. We have even provided 'our birds' with a pool which, during dry spells in summer, is a very busy place. At any one time you may see half a dozen different species of birds drinking and splashing together. Obviously no racial discrimination there! Tall cat-tails grow in the pool for added interest. Early one July morning I watched as a ruffed grouse led her flock to water. Not a very common sight in one's yard!



Butternuts, flowers and fan fence separating the back yard from the 'big' yard.

In the back yard two butternuts planted in 1966 are now about nine feet tall. They suffered no winter injury and one has bloomed twice but, so far, no nuts. One butternut sheltered a nest of cedar waxwings and when the fledglings left the nest, one perched on the chestnut tree and begged to be fed. Of course we complied and had one very well fed baby waxwing — it even allowed itself to be perched on our fingers and carried around. The following day it left, presumably to rejoin the other fledglings.

Lawn chairs and tables built during slack time in winter, create an atmos-

phere of leisurely country living that city people dream of and farm folks haven't time to indulge in. A white fence separating the house yard from the big yard adds to the overall picture.

The balance of our yard is a variety

of fruit trees and a vegetable garden, important parts of the farm scene. But it is now time to go in. The grain is still in water but somehow, after a walk around our lovely yard, things look brighter.



There is nothing worse than having a border with the different plants dotted about singly like lone sentinels. In the olden days the word 'clumps' was used. The plants of scabious were perhaps put in 18 inches apart and in a round group. Today the word 'drift' is used far more, because instead of a group of scabious being planted in clumps they are planted so that they drift on; the plants are the same distance apart of course, but if they drift they look more natural.

W. E. Shewell-Cooper.

The Culprit — Water

ARLENE CHESNEY

As might be expected, the majority of horticultural inquiries during the winter revolve around house plants. Normally the problems are cultural, and in most cases could have been solved at the time of potting. The basic trouble with many plant owners is too much love demonstrated by the use of too much water. It must be remembered that living tissues require air as well as moisture to survive. If this air is eliminated from the growing media by an over-abundance of moisture, the roots of the plant will suffocate and soon die. If sufficient drainage is supplied, allowing for adequate removal of excess moisture, overwatering is not as serious a problem. In my mind, extra care at the time of potting will eliminate many later problems.

Drainage

Regardless of the amount of gravel or pebbles placed in the base of the container, they do not substitute for a proper drainage hole. It is only by access to the outer environment that excess moisture can successfully be removed. A drainage space, that is the area provided by a layer of gravel, will accumulate moisture not absorbed by the soil. If you are inclined to overwater, the accumulated moisture will increase, soon resulting in the lower level of soil being constantly moist. It is possible to grow plants in a container without drainage, but certainly

overwatering tendencies have to be checked.

Container

The next consideration is the type of container and the material from which it is made. Porous materials allow air exchange at all surfaces of the soil, not only at the top of the pot. Although this usually increases the frequency of watering as the soil dries out much more quickly, it does prevent the accumulation of excess moisture. Clay pots are porous whereas plastic containers are not. It's not unusual to remove a plant from a plastic pot where the upper soil surface is dry only to discover the lower layers are excessively wet. Soil texture will also determine drainage, the less the space provided between soil particles the greater will be the tendency of the soil to hold water. Sand has the largest pore space thus the least moisture holding capacity. On the other hand clay has the smallest pore space so may have a tendency to become water-logged. Therefore, choose a potting soil that provides adequate drainage characteristics.

Symptoms of Over-Watering

Although visible signs of disorder are not specific, any one foliar symptom may reflect a number of physiological disorders. There are certainly symptoms that may indicate

over-watering. Symptoms to be aware of include:

1. Yellowing of lower leaves and eventual dropping.
2. Wilting stems and leaves.
3. General leaf discoloration.
4. Retarded growth.
5. Total plant collapse.

The second of these symptoms can be misinterpreted as underwatering and result in a complication of the problem. It must be remembered that when over-watering occurs to the extent that roots begin to deteriorate, they are no longer able to supply the upper portion of a plant with the required moisture, although it may be available. Therefore, wilting may not be an indication that more water is needed, rather just the opposite.

If you are aware that your plants are suffering from over-watering, immediate measures can be taken to stimulate new root growth. Remove as much soil as possible from the roots without damaging them and repot the plant in a very porous media — sand is ideal. Being porous, drainage is adequate and new root development is not hampered. Under the circumstances care will have to be taken that adequate water is supplied. When the

plant begins to respond it can be repotted using a standard potting media. This time taking precautions to provide conditions suitable for the removal of excess water.

Have a Regular Schedule

Other questions relating to house plants usually result from the lack of regularity of care. As any living organism, plants require a regular schedule of watering, misting, fertilizing and lighting. It is also important to be aware of the conditions provided for plants within your home. It is far easier to purchase plants that will thrive in a particular environment rather than trying to alter already existing conditions. Refer to the many books readily available on house plants and become familiar with the requirements of your plant.

I would also warn people against having an over abundance of plants. Individual attention is important and it is difficult to supply when your efforts are unduly divided. Above all, take every effort to provide the correct environment right from the beginning, at the time of potting, through the entire life of the plant.



Flowers will last longer when cut at certain stages of their development. This is usually just before full bloom. There are exceptions, such as peonies which should be cut just as the outer petals unfold, iris when the first and second

blooms are on the verge of unfolding, and gladiolus just as the first buds open fully.

Primulas in the Cold Greenhouse

G. NODEN

Of the hundreds of species, hybrids, and varieties found in the genus **primula** there are a number suitable for cold greenhouse culture. Primulas that I have grown in my greenhouse include **P. malacoides**, **P. obconica**, **P. veris**, **P. polyanthus**, and **P. auricula**.

The Asian species **malacoides** and **obconica** are tender, but will not stand frost, and can be considered as florist's flowers only. **Veris** and **polyanthus** are probably marginally hardy outdoors in Calgary but are much better treated as a greenhouse subject. Although the **auricula** is fully hardy throughout Western Canada, it, too, makes a fine greenhouse plant.

Culture of the Asiatic Primulas

P. malacoides and **P. obconica** are similar in appearance and culture. The former flowers in candelabra fashion with many half-inch florets in each spike. There may be five to ten spikes flowering at the same time. **P. obconica** is much the same except that the florets are perhaps twice as large, and there are fewer spikes. Both plants have oval, hairy leaves that sometimes can be as large as a man's hand. The foliage of **obconica** is said to cause skin irritation when the plant is handled but I've had no problems of this kind. The color range for **malacoides** is white, through lavender, to pink and rose, to a deep red. **P. obconica** has essentially the same spectrum with dark blue added.

Both species are propagated from seed and the plants are usually discarded after their first blooming period is past. I find it takes about eight months to produce a blooming **malacoides** and ten months for the **obconica**. Assuming an early July seeding the **malacoides** can be expected to bloom beginning in February and the **obconica** in April. The blooming period is quite extended and can last from four to six weeks or more.

Culture

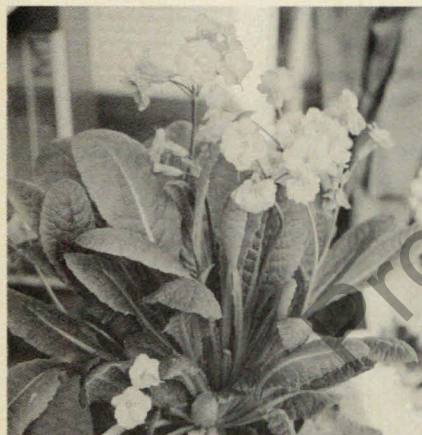
While there are, no doubt, many successful methods of culture, the one described here works well for me.

At the end of June or first part of July, I make a seeding in small flats that are filled with nothing more than dampened sphagnum moss. The fine seed is sown as thinly as possible and pressed into the surface of the sowing medium. It is not covered. The flats are placed in plastic zip-lock bags and put in a light (but not sunny) location at 17° to 20°C. The microclimate thus produced makes it unnecessary to water until germination begins in three to five weeks. At this time the plastic bags are removed and the flats placed under gro-lights or directly in the greenhouse. In the latter case sunlight must be avoided, although strong filtered light is fine. In either case an attempt should be made to

maintain a temperature ranging from 12° to 15°C.

The seedlings are left in their flats until the third leaf stage and are then transplanted to 12-inch Jiffy strips using a soil mixture consisting of one-third loam, one-third leaf mold or compost, and one-third sand. (Peat moss is **not** recommended due to its acidic nature.) When root growth through the Jiffy strips is evident and the plants are somewhat crowded they are again transplanted, this time into 4-inch pots. The soil mixture is the same. The growing temperature is reduced to 10°. Filtered sunlight, or at the most, morning sun, is required. When the plants become somewhat root bound they are transplanted one last time. Six-inch pots are used and the soil mix does not change.

About this time a fertilizing schedule may be initiated but I do not regard this as essential. A half strength feeding of 20-20-20 might be given every three or four weeks up to but not including the blooming period. Moisture levels should be checked daily. It is permissible to let the plants



P. Veris "Giant Bouquet"

dry out slightly, but primulas are moisture loving plants and it is probably best to maintain a slightly moist condition at all times.

Culture of *P. Veris** and *P. Polyanthus*

P. veris (cowslip) is of European origin and, along with the common primrose (*P. vulgaris*), is the parent of the hybrid *P. polyanthus*. Because of this close relationship *veris* and *polyanthus* are very similar although *veris* tends to be a somewhat coarser plant and does not have the color range of the *polyanthus*. The spectrum of the latter is very extensive and includes pure white, many pinks and reds, yellows and oranges, blues and purples, along with many bicolors. In both *veris* and *polyanthus* flowering occurs in the form of a truss which originates at the crown of the plant and rises well above the surrounding foliage. Sometimes there is only one large truss, and sometimes several smaller ones, depending on the particular strain. The foliage is usually bright to deep green and is very attractive.



P. Veris "Giant Bouquet"



P. Polyanthus "Victorian" strain

I normally seed both *veris* and *polyanthus* in late June for first bloom in March and April of the following spring. Prior to seeding most growers either cool the seed at near freezing temperatures for 48 hours or actually freeze it for one or two weeks. Either procedure is designed to break dormancy in the seed. I have tried both methods with inconclusive results. Germination is often quite sparse and I blame this chiefly on the fact that it is difficult to obtain fresh seed. Except for the cooling or freezing the seeding method is similar to that just described for *malacoides* and *obconica*. Germination occurs in from four to five weeks depending on the variety and on the freshness of the seed. When the seedlings show a mature leaf they are ready to be pricked out into Jiffy strips using the same soil mix as for the Asiatic primulas. As the plants become crowded in their Jiffy strips I transplant

to five-inch pots. This is the final potting for *polyanthus* but the *veris* may require six-inch pots later on.

Plants which have bloomed in the spring may be summered over in a cold frame located in a cool, shady spot. In late September they are knocked out of their pots, then divided and re-potted in five-inch pots. Most old plants will have from three to four identifiable crowns by fall, hence will yield an equal number of divisions if required. The divisions so treated are then grown in an identical manner to that discussed previously.

Culture of *P. Auricula*

This primula, sometimes called the mountain primrose, is a native of the Alps. It has distinctive, leathery foliage and is considered hardy throughout Western Canada. The color range is more restricted than is the case of many primulas, but does include



P. Auricula

many pastels as well as such unusual colors as brown, grey, and a very dark purple. Greenhouse treatment is much the same as for **P. polyanthus** except that the minimum temperature during the growing period can be as low as 5° and some slight frost may be tolerated. In fact, I accidentally allowed some young plants to freeze when the temperature in one corner of the greenhouse dropped below

zero one January night and they recovered to bloom later that spring. Judging from experience, if auriculas only were to be grown in the cold greenhouse, a night time temperature somewhat less than 5° might be feasible in the interest of fuel economy.

Propagation — is by seed or by division of old plants. Seed may be sown in May or June for bloom early in the following spring. Culture is similar to that for the **polyanthus**. The final potting may be in four-inch pots since the **auricula** is not a large plant. After the plants are finished blooming they may be held over and divided in the fall to bloom once again during the early spring in the greenhouse, or they may be planted directly outside to become a permanent feature of the rock garden or perennial bed.

* See Color Section



Cuts and wounds on oak trees, when properly treated with lanolin (wool grease), heal in half the time required by untreated wounds.



of $\frac{2}{3}$ calomel and $\frac{1}{3}$ bichloride of mercury, at the rate of 3 ounces per 1,000 square feet in the late fall. Semesan applied at the rate of 2 pounds per 6,000 square feet also has produced excellent results in the control of snow mould.

J. H. Boyce.

SNOW MOULD. If the characteristic white cottony growths appear they should be broken up immediately by raking or by brushing with a stiff broom. On lawns where the disease is known to be prevalent, it is a good policy to add a mixture

Greetings from Brandon

BRANDON HORTICULTURAL SOCIETY

The Brandon Horticultural Society, with Charter No. 1, is the oldest horticultural society in Manitoba. The application for charter was made March 1, 1893! The name on the charter is Brandon and Western Forestry and Horticultural Society.

The purpose was to supply information, encouragement and inspiration related to the planting and growing of trees, shrubs and home gardens, and for protection and beautification of the city and whole area. The fact that the Dominion Experimental Farm was located near the city was a considerable help, and some of the staff offered great encouragement and example to those interested.

Accomplishments of the Society include the provision of an association for persons interested in gardening, through meetings of an educational and social nature; tours to places of horticultural interest; home grounds and gardens competitions; demonstrations; shows and exhibits. The annual flower show has grown through the years from a single room in a downtown business place to filling the common area of the Brandon Shoppers Mall when our Society held its 83rd annual show in August 1976. Each year a major effort is the revision

of the prize list to bring it up to date and applicable to current interests. The present revival of interest in home decorating with plants was evident in an excellent showing of hanging planters and terrariums at the last show.

And speaking of accomplishments — back in the 1920's, Mr. James Topham of Kemnay district (father-in-law of our president, Mrs. R. G. Topham) grew a pumpkin that weighed in at 80 pounds! Mr. Henry Marshal (now Dr. Marshall), a life member, gave inspiration (and plants and cuttings) as he developed some of his "Brandon" line of hardy chrysanthemums, "Assiniboine" and "Cuthbert Grant" roses, "Monarda", and "Coral Bells", while he was at the Brandon Research Station. Another member, Mr. Gus Hendzel, writes a very interesting and informative column, "Our Kind of Gardening", for the Saturday edition of the Brandon Sun, and is always ready to share his experiments and vast store of information.

A concern of our Society is to encourage the provision of more government monies for horticultural research and development. There is a need for additional research staff at

the Morden Research Station for work on fruit varieties suitable for the prairies. This information would be valuable to commercial fruit growers as well as to many persons who grow fruit for home use, and as a hobby.

A challenge of the future for our Society is to expand interest in horticulture among young people, and support of Junior Gardeners' groups at Brandon and Griswold is an impor-

tant part of our program.

Horticulture requires discipline, dedication, hard work. It is not a passing pleasure enjoyed through the acquisition of material possessions. It has a lasting value in the creation of beauty, the satisfaction that comes from productive labor, the joy of sharing a seed, a root or a flower, and the resolve to do better next year.

Good Gardening!



See the accompanying photo. It is of a relatively new hardy strain of perennial *Monarda* developed by Dr. Henry Marshall, Canada Research Station, Morden, Manitoba. It was created by crossing native species of this plant with more tender and attrac-



tive varieties grown in the eastern United States.

You have three selections of this lovely new hardy perennial to choose from — *Souris* with deep reddish-purple flowers, *Minnedosa* with white blooms, and *Neepawa* with lovely double pink blooms. I believe *Neepawa* is the most attractive of the three.

The *Monarda* blooms in July on plants about two feet in height. They do best when planted in a sunny location in a good open soil. Being of the mint family they also have aromatic leaves.

Monardas have a root system consisting of a large number of stolons or roots that extend out from the plant producing new plants at the tips of these roots. Because of this growth characteristic the plant clump tends to become crowded. This, in itself, can be used to advantage, for each May divisions can be readily taken from parent plants and moved to new locations in the garden.

Trees and Shrubs

Uses Other Than for Farm and Field Shelterbelts!

JOHN WALKER

Readers may recall a trite saying: "We can sit in the shade of trees planted by our fathers, but our responsibility should be to plant for the next generation to enjoy". The message in the following statement has a similar implication: "If the world or society has treated us well our obligation is to leave it improved through our being part of it."

Kind of Plantings

First, consider home surroundings in town or city, or cottage at the lake. Here, unless the area is very large there will be limited use, **and space** for trees especially the larger ones, but greater scope for planting smaller trees like amur, chokecherry, Japanese tree lilac, mountainash, nannyberry and, in evergreens, — pyramid cedar and Rocky Mountain juniper selections. The various functions of these in the home lot will be to provide privacy, a screen, some shade, and be attractive features in the home surroundings. One should complement these with small shrubs like cotoneaster, dogwood, flowering plum, hardy roses, spirea, and lower-growing evergreens — mugho pines, cedars and junipers.

Landscape Plan

To derive the greatest degree of satisfaction and pleasure from the use of all ornamental plants, help should be sought from your nurseryman, landscape specialist or extension horticulturist in the preparation of a suitable, but **simple landscape plan**, and for advice on the most suitable plants to use. One need not attempt to complete the suggested plantings in one year, but there should be no delay in making a start this spring. If ordered in spring, plants wished may still be available for spring planting, but orders placed with your nurseryman in the fall are more likely to be filled with the specific plants requested.

Boulevard Plantings

For boulevard planting in areas where Dutch Elm Disease is a problem, the choice in larger trees includes black ash, green ash, pyramid basswood and silver maple (hardy strains). Spring planting is usually most satisfactory around May 1, and this also applies to container-grown materials. The claim is made that container-grown plants may be planted at any time of the growing

season without suffering much setback. One should realize, however, that **early spring is the time of active root and stem growth**, and that is the best time to plant this material to permit the early development of new roots in the soil of the new location. It might be well to point out that plants which have been kept in containers for a number of years, **and have compacted root systems**, may not manifest much development in their new locations for the first year or two.

Home Lot

In the home lot where we can provide conditions favorable for growth and survival, such as adequate shelter, soil preparation, watering, control of diseases and insects, and the most suitable exposure (N.S. etc.), we can with assurance select and plant more tender and perhaps less vigorous kinds than are planted in shelterbelts. They are usually more expensive also because of special means of increase such as grafting, cuttings, etc., as illustrated in 'Royalty' rosy-bloom crabapple, 'shubert' chokecherry, 'scarlet trumpet' honeysuckle. We should also be prepared to pay the price where only a few plants are needed. By using these improved selections also we pay tribute to plant breeders: W. A. Cumming, H. F. Harp, W. L. Kerr, H. H. Marshall, A. J. Porter, R. Simonet, P. H. Wright and others.

Varieties and kinds of planting material available today are a far cry from those available in the early days on the prairies, and we should be interested in using other than the more or less pioneer kinds like common caragana and tatarian honeysuckle; consider especially selected centennial plants as are listed in 'The Prairie Garden', 1970 edition.

Another point I wish to emphasize is that because of the trend today for people to travel a great deal, the most useful materials for beautifying home grounds are **woody ornamentals**, rather than flowers which require full season care. The woody ornamentals can provide a greater year-round interest than flowers, and help to create a woodland environment on a small scale at home!

Isn't it true that many people flock to the country and away from the city to find this environment, and also the reason why there are many demands for the preservation of natural prairie and woodland sites? Surely a lot can be done along this line in one's own backyard!

Roadside & Community Parks

Another use of trees and shrubs is for planting in roadside and community parks. These are usually maintained by some public authority, local horticultural society or community club and, in many cases, may be treated by individual citizens with less concern as compared with plantings in home lots; there are often problems with pests and vandalism.

The purpose of park plantings is to create shady and separate areas in the park where families may relax and find interest and simple enjoyment in the surroundings. The best possible types of plants, including native kinds and evergreens, should be used to give long-lasting effect and year-round interest. Individual plants like rosy-bloom crabapple should be given sufficient space to develop naturally.

One drawback is that in these park areas, when given a minimum of maintenance and dependence on

rainfall for moisture, **growth may be relatively slow at first**, and plants may not be fully developed for many years. Therefore, it is important that there should be adequate soil preparation **before any planting is done** by deep cultivation and summer-fallow for at least one year; irrigation should not be overlooked, if needed. Plantings in parks should demonstrate the desirable features of the kinds used, e.g. attractive foliage and fruits as specimens or in association with others. They should be properly labelled to foster continuing interest on the part of the people using the parks.

You may be visualizing a small park in your own home town but for larger functions, such as community health programs, festivals, golf, sports tournaments and other activities, including a swimming pool, should you not be thinking of an **area complex** where several municipalities and towns pool their resources to create a larger, carefully planned, well designed and possibly more efficient facility with safety features established, for which maintenance grants may be available from sources beyond the participating communities. There is a place for trees and shrubs in such a development.

Such a plan as described would not only serve a larger community but would eliminate unnecessary duplication and, through consultation, priorities can be established in the promotion of worthwhile projects for which the services of qualified instructors can be obtained. Communities already work together in some areas of mutual interest, e.g. fire fighting, and with escalating costs expansion of this type of cooperation would seem to be reasonable.

Transportation between communities is no problem nowadays so that people from a wide area can easily enjoy or participate in summer and winter events at nearby centres.

You have much the same situation with reference to tree planting in school grounds as the consolidation of schools (and school districts) has taken place. This area-type of tree planting can be much more meaningful as compared with what may be done at widely-separated small school units. What can District School Administrators do with a project of this kind? Properly directed it could create in children a respect for trees and reduce vandalism — ideas to consider!

Plant Selection

Your question may be — what can I do to make a wise selection of plant materials for my personal use? Your nurseryman can help. But there are outstanding collections of trees and shrubs at most federal and other research stations, at universities, as well as at the P.F.R.A. Tree Nursery, Indian Head, Saskatchewan, and at other nurseries. Officials responsible for park tree planting and development should check these collections (organize a group), so that the usefulness of new and different selections may be observed and their desirable characteristics evaluated — **preferably in summer**.

The preservation of natural areas is a worthy project but new material, perhaps different species of the same genera, should be added to increase their interest and influence.

What about tree planting in sandy areas? I have in mind the area near Mortlach, Saskatchewan, approxi-

mately 160 acres in size, containing more or less drifting sand where the Forest Nursery Station, Indian Head, Saskatchewan began a tree planting project in 1945. I was able to visit the project in 1969 — 24 years later. Best development had been made by Scotch pine and poplars, but others like spruces, Siberian elm and a few fruit-bearing *Prunus* species had succeeded. I would consider this planting a wildlife haven, and it can provide a splendid research project — "Pattern of Tree Root Development".



To Think is to Flower Arrange!

Robert Serbin

There aren't any mysteries to making a flower arrangement. Most gardeners are fortunate enough to grow more flowers than they need to make their arrangements. So what is the real problem? If you take it all down to basics, the answer is — you!

Flower arranging is broken down to a few rules and mechanics which the beginner must adhere to while first learning. After this basic trial period of practising (and this is the key to success in flower arranging) just think back to anything you have done. You had to do, and re-do, over and over again until you satisfied your instructor or yourself. Actually, most people are artistically inclined, have some sense of color and know what they like or dislike. We all can arrange flowers in a bouquet but it takes a little more interest to create an arrangement just a little different.

Let me explain exactly what I mean. You have grown three beautiful red roses, and you want to make a special

arrangement because you are expecting company for dinner. You want to place this arrangement on your coffee table so that your guests may enjoy its beauty. Now this is where you must use your imagination. Simply look around your home for a suitable container which is low enough, and then to your garden of flowers and foliage. Be on the look-out for unusual foliage of a contrasting color and irregular shapes. Also, flowers small enough that dazzle when you see them. Just imagine a fantasy of movement. Now that you have the materials to create your masterpiece, sketch a small outline of your arrangement on paper or just in your thoughts if you wish. Your incentive will be the pleased response your company will make when they first see your creation — an absolute masterpiece!

Why would this arrangement be any different from other arrangements you have done in the past? There is only one answer. You took the time to think out something different, unique. You dared to be imaginative, and to make the best possible arrangements, you must dare.

Terrariums: Plants Under Cover

by MAGDALENA DAKINS

Terrariums are not new, over one hundred years ago, an English surgeon and botanist by the name of Dr. Nathaniel Ward experimented with them. He found that if plants in containers had enough light and humidity they required little care or fresh water. His discovery led to the development of the greenhouse. Subsequently we obtained the miniature greenhouses we call today — Terrariums (Terra meaning Earth, and Arium meaning Home).

In a terrarium, you can create a landscape in miniature, and it will certainly give you hours of enjoyment along with your gardening hobby. A terrarium will keep your plants free of dust, have constant humidity and a stable temperature.

Where to Place

Once you decide on one, find the right spot for it.

They prefer good indirect light, close to a window facing north. Avoid direct sunlight — it will scorch the plants. A sheer curtain acts as an acceptable sunlight filter if the rays are too strong. If placed in a room with no windows, 15 hours a day of

artificial light will be required to equal the sunlight it cannot have. When planting a terrarium, one must consider from which side it will be viewed. Tall plants are always the focal point, with smaller ones placed around for an attractive and interesting arrangement.

How to Begin

Always be sure to start with a dry terrarium and dry materials. Otherwise, the soil will cling to the sides and will be difficult to clean. The basic planting area should be approximately one quarter of the overall height of the container.

Laying the Base:

1. First Layer — this will be the drainage material. It can consist of small pebbles, a mixture of sand and gravel, broken clay pots or perlite chips. Depth to be not quite one-third of total base planting area.
2. Second Layer — This will help keep the soil above from seeping into the first layer. This layer should

be made from sphagnum moss or peat moss. One-quarter of an inch maximum.

3. Third Layer — this is used to keep the potting soil smelling sweet. Charcoal chips are used to a maximum depth of one-eighth of an inch.
4. Fourth Layer — this is the final layer. It consists of potting soil and is two-thirds of total base planting area. You can buy it pre-mixed at any gardening or department store. If you wish to prepare your own soil, mix one-third coarse sand, one-third peat moss and one-third good loam with some perlite. Allow extra soil if you wish to create some hills.

Planting:

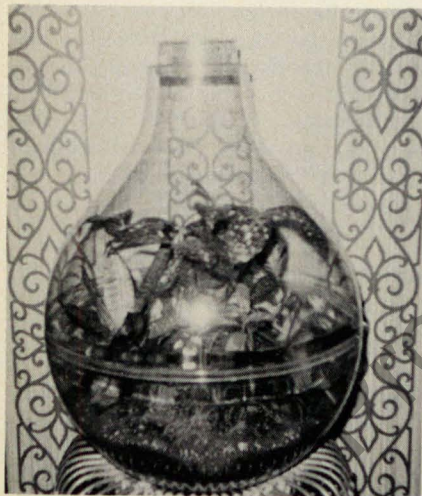
Select plants with a variety in

height, color and texture. Plants that enjoy high humidity and moisture content will thrive in terrariums. Do not mix with those plants that prefer dryness.

When planting, take a pointed stick or iced teaspoon and dig out the area in the soil where you want your plant. Remove the plant from its pot by striking the pot against a hard surface.

Gently shake off the excess soil, but do not damage the roots. Set the plant in its designated spot and press the soil around the roots carefully.

Follow these same steps when planting all of your plants, being sure not to put in too many. Please remember that the plants will grow and may crowd each other. Also, terrariums are great to start slips of plants in as they will root very fast under these conditions.



Floor or table model



Floor model showing bottom section only.

Suggested Plants Ideal for Terrariums:

SMALL	MEDIUM	LARGE
Creeping Fig	Begonia Iron Cross	Spider Aralia
Strawberry Geranium	Begonia Rex Miniature	Snake Plant
Peperomia	Velvet Plant	Umbrella Plant
	Gold Dust Plant	Kentia Palm
	Birdsnest Sansevieria	Miniature Date Palm
	Wandering Jew	
	Aluminum Plant	
	Silver & Bronze	
	Friendship Plant	

Above are proven suggestions. Why not experiment with others?

Decorations can be used very effectively to dress up and add color to a terrarium. Items such as large stones, driftwood, shells of all types, moss, or statues. You can use your imagination here!

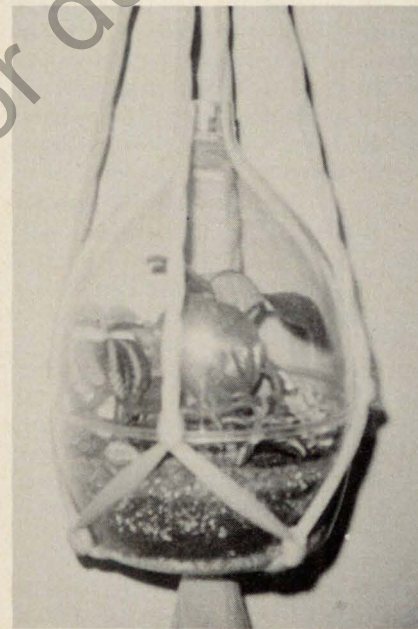
Water

When finished planting, give your terrarium it's first watering. Water that has been allowed to come to room temperature should be used. Rain water is ideal. Do not overwater! Give each plant a small drink close to the roots and gently mist the foliage. Now place the terrarium in a cool spot away from windows for about twenty-four hours. This allows the plants to rest and become accustomed to their new home. Check once a month for dead leaves and if any of the plants require pruning. Only light watering may be necessary. Some useful tools for the maintenance of your terrarium are scissors for pruning, a mister or atomizer for the leaves and a kitchen bulb baster for getting water to those hard-to-reach areas. The baster also prevents water from splashing on the inside walls of your container.

Cleaning:

Remove top of container, flush with water and sponge gently with soap or detergent. Rinse, blot dry with clean cloth and replace onto base.

Terrariums can be fun, add color and moisture to your home and probably turn your brown thumb into a green one!



Hanging style terrarium

Interior Entrance Gardens

E. J. WALKER

With the advances in material technology relating to building cladding and mechanical equipment for controlling environment, it has become feasible and fashionable for contemporary structures to provide interior landscaping using living plant material. This plant introduction permits a visual linkage between the exterior site development and the indoor working space. As a result of the cultural needs of living plants, the quality of spaces for human functions has been greatly improved with brighter, fresher, more humid conditions prevailing.

Construction

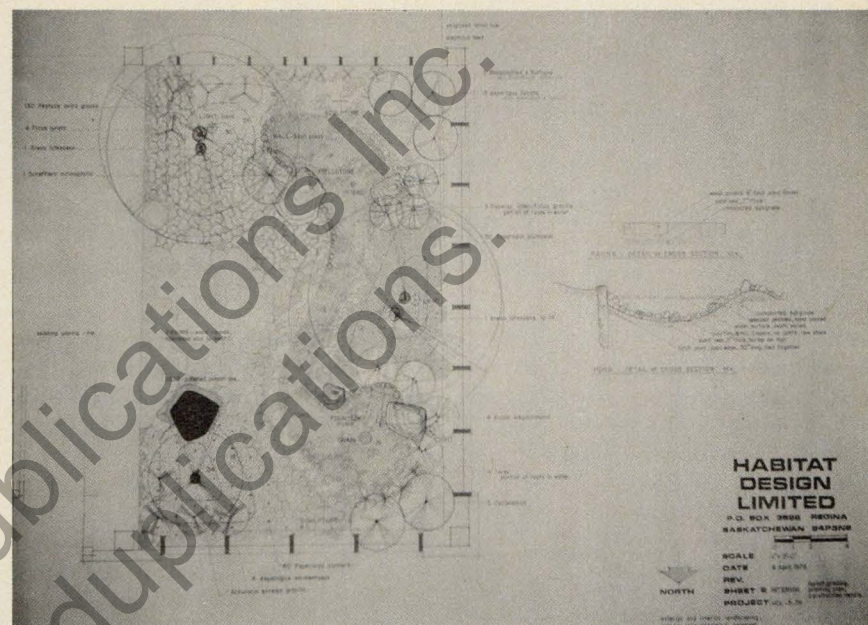
Several major indoor gardens have recently been installed on the prairies. Their success will depend on knowledge, and initial consideration, of plant requirements. If, for example, the garden is to be located on a supported slab, the weight of soil (approximately 130 pounds per cubic foot unless lightweight mixes are used) must be designed into the building's structural system. Drainage of excess water through soil must be recognized as a mechanical problem. Extensive areas of glass must be provided to assure proper growing of the introduced plants and the associated

problems of heat loss, heat build-up and condensation, solved by non-draft ventilation.

Example of Indoor Garden

The project illustrated here by plan is situated in the main foyer — a reception area of the Management Centre of the Saskatchewan Economic Development Corporation in the City of Regina and was designed by Habitat Design Limited and installed by Andrew Kaytor, landscape contractor.

The space designated for landscape development posed few major cultural problems. The interior garden has a northern exposure with extensive glass on the east, north, and west sides. The space is approximately 20 feet high, the heating can be controlled independently from the rest of the building; the plants have been placed directly in the ground in a mix of open topsoil enriched with peat moss and underlain by a four-inch layer of crushed rock which provides excellent drainage; drafts from exterior doors opening in the winter have been effectively reduced and redirected by a double door arrangement that opens away from the plants.



Design

The design requirement was to provide:

- a pleasant space of orientation and information for visitors and clients;
- an interesting point of arrival for staff personnel; and
- a landscaped linkage with the exterior site landscaping and internal office landscaping of free-standing plants and dividers.

A small free-form pool and single jet fountain was placed between three small mounds raised to provide sufficient soil depth to anchor large Butterfly Palm (*Areca lutescens*) and Norfolk Island Pine (*Araucaria excelsa gracilis*). The latter relates to the form and texture of the Colorado Spruce (*Picea pungens*) planted outside the entrance.

As the available indoor space for landscaping was very small, an attempt

was made to visually increase the apparent depth of space by placing larger-sized paving material (in this case cedar rounds cut four inches thick), and coarser-textured plants of Australian Umbrella Tree (*Schefflera actinophylla*) and Fiddleleaf Fig (*Ficus lyrata*) closest to the viewer. In the distance, small washed rock blends into the pool water and the fine-texture of Florist's Fern (*Asparagus plumosus*) and *Aralia elegantissima* relate to the outside plantings of juniper and birch.

Contrast

Closely viewed plant combinations present different degrees of contrast. Maximum contrast is achieved by locating coarse green and white *Peperomia sandersii* under Norfolk Island Pine. Similarity of leaf form but maximum size contrast is illustrated by planting Maidenhair Fern (*Adiantum spp.*) as a ground cover

under Fiddleleaf Fig. Fine-textured Florist's Fern was planted as a slope protector under the strong vertical trunks of a multi-stemmed Butterfly Palm. Ground mounted waterproof light units are located within the Florist's Fern cover and silhouette the texture of both palm and fern. **A total list of plants used is indicated on the plan of the interior entrance garden.**

Pool

For ease of maintenance of the area, hose bibbs were strategically located so that hoses are not dragged around the area with possible contamination of the pool. The pool was

constructed by hand shaping. A two-inch layer of sand was then added on which were placed a layer each of burlap and six mil polyfilm. After a drain line connection was made, large boulders and birch post edges were installed. The entire pool surface was then covered with selected pebbles of two to four-inch diameters.

Consultation

It is essential, when anticipating the installation of an interior garden, that consultation between the building architect, engineers and plantsmen occur in the conceptual stages of structure design.



The Hoya or Wax Plant is an attractive indoor vine with dark green fleshy leaves covered with whitish specks and, if handled correctly, will produce beautiful exotic bloom clusters. It can

be trained to grow up a small trellis or allowed to hang down over the side of the pot. In summer, when it blooms, the clusters of star-shaped, fragrant, shiny, pale pink blooms are most unusual. The flowers appear to be made of wax, with each small flower exuding small globules of sugar syrup.

Many growers have trouble getting the Hoya to bloom. The secret to success is good light with all the sunlight you can give it. Water it well during spring and summer and make monthly applications of a water-soluble plant food. Then, during the plant's winter resting period reduce watering. It flowers best when it is pot-bound.

Do not cut off the long leafless stems it send out. They will soon produce a number of small leaves, followed by bloom clusters — that is, if growing conditions are right. The photograph shows one Hoya cluster in full bloom; the other about to open up.

Orchids as House Plants

GERRY LENOVER

Orchids are members of the Orchidaceae, the largest family of plants in the vegetable kingdom. Found in nature in almost every part of the world, they reach their greatest development in the tropical regions of both hemispheres. They are among the most highly evolved plants, and have attracted the attention of botanists for several centuries. There are thousands of different kinds of orchids; estimates of the number of species occurring in nature range from 15,000 to 30,000 or more. In turn, hybridization by man has produced another 30,000 or so artificial hybrids.

Two genera often used as house plants are the Cattleya (CAT-lee-uh) and the Phalaenopsis (fal-en-op-siss). Orchids have special requirements that make them more difficult to grow under average prairie house conditions than most house plants. If these requirements can be met to a reasonable degree, however, they will grow and produce flowers.

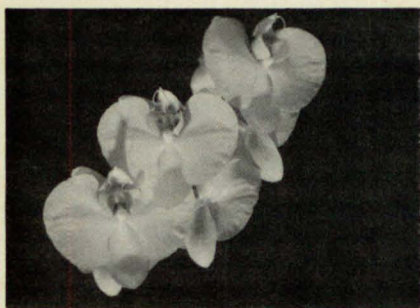
CATTLEYA ORCHID

In nature, living regally high up in the trees in the foothills and mountains of Central and South America, the cattleya has been rightly called, "Queen of Orchids". And sometimes wrongly called a parasite, that is they do **not** obtain their nourishment from

the host plant upon which they live. The tree, rock or even telephone pole or mail box, simply affords a high support where the orchid has ready access to moving moist air and sunlight. They will obtain their nutrients from rotting vegetation caught in the bark of the tree, dead insects, bird droppings etc. They are slow-growing plants, in nature averaging seven years from seed to flower. Because they are epiphytes (EPH-i-fights) . . . air plants . . . they need air about their roots. In pots, the roots will rot quickly if the potting medium stays wet and soggy.

The cattleya is known to most of us through its use in corsages. Its ease of culture and numerous, magnificent flowers are unrivaled elsewhere in the orchid world. Cattleyas are excellent orchids for the beginner's first attempts at orchid growing, for these sturdy plants can endure many of the initial mistakes we all will make, and the flowers they readily produce under adequate cultural situations are a wonderful reward for both beginner and expert alike.

Potting — Osmunda, chopped bark or tree fern fiber are the major potting media for cattleyas. Osmunda retains moisture longer than do other media, and it provides nutrients which are lacking in bark, thus sim-



Phalaenopsis 'Champagne Lady'

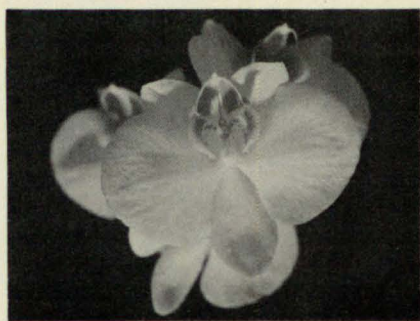
plifying the fertilizing problem. Bark, however absorbs water less readily, providing a greater margin of safety should overwatering be an initial practice. Repotting is necessary when either of two factors is present: one, the plant has outgrown its pot such that the next growth will reach out over the edge; two, the potting medium has broken down and soured.

Drainage — Proper drainage is essential. Fill the lower third of the pot with clean, broken pieces of "crock". The plants thrive best when the TEMPERATURE is between 18° to 24°C. They will take daytime temperatures up to 35° for short periods of time if the air is humid, and night temperatures between 13° and 16°C. In the fall and winter, when vegetative growth slows, the night temperatures should be lower in order to initiate flower buds.

Light and Shade — Cattleyas need abundant though not intense light in order to grow and flower well. About 2,000 to 3,000 footcandles is satisfactory. Too much light results in burns, a brown or black dead area on the leaf, surrounded by yellow markings. If the leaf feels definitely warm to the

touch, or if it turns yellowish, it is probably getting too much light. A light green leaf color indicates adequate light; a dark green, too little.

Location — A south or southeast window is best, and an east window next best. A west window will do, but the plants do like that morning sun. A north exposure is almost certain to be deficient in light.



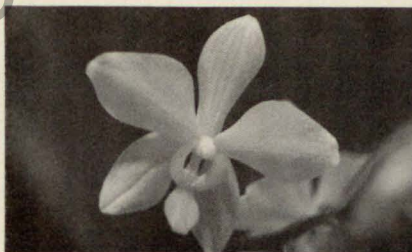
Phalaenopsis Lillian Hozaki x P. Doris x Dos Pueblos

Watering — Cattleyas should be allowed to become almost dry between waterings. It does not harm them to remain dry for a few days. Experiment by poking your finger down into the potting mix to determine if it is still damp. A general rule to follow; if in doubt about watering, don't. Wait one more day. Do not use water that has gone through a water softener. Ordinary tap water is usually satisfactory. Rain water is even better.

Air Movement is essential at all times to keep leaf temperatures low and to bring carbon dioxide to the leaves and to prevent disease. It is almost impossible to ventilate them too much, but avoid drafts of cold or hot dry air.

Fertilizer — Orchids potted in a bark mix must be fertilized because the bark contains very little nourishment. It is best to use a high nitrogen fertilizer such as 30-10-10 (30 percent nitrogen, 10 percent phosphorus and 10 percent potassium) applied twice a month in dilute solutions. Cattleyas potted in osmunda may benefit by a dilute balanced fertilizer such as 10-10-10 given once or twice monthly.

Summer Care — It is suggested that you take the orchid plants outdoors for the summer as soon as the nights are warm. Do not set the pots on the ground; slugs and snails will eat the roots. It is best to hang the plants in a tree or in a frame made of poles or slats, so positioned that they will get sprinkled sunlight. Bring the plants in again to the window sill, sun porch, enclosed bay window, plant room or Wardian Case before night temperatures go below 10°C.



Phalaenopsis 'Betty Lee Burke'

PHALAENOPSIS ORCHID

Phalaenopsis come mainly from the low elevations of the Asiatic tropics, principally the Philippines, Indonesia and the Malayan Archipelago where the weather is constantly warm and humid. They also grow epiphytically, where their long sprays of white to pink flowers, arching from the trees at dusk, resemble flights of tropical



L. C. Royal Venus

moths, explaining their more popular name, the "Moth Orchid". Their culture is similar to that of cattleyas, and many people grow the two side-by-side. One basic difference is that cattleyas are sympodial; that is, they grow by putting out successive growths which "walk" over the surface of the potting mix. Phalaenopsis, on the other hand, are monopodial (one-footed). They grow upward on a single stem.

Another difference is in the flower spike. Cattleya spikes are relatively short — rarely over 20 to 30 cm and bear only a few flowers. Phalaenopsis spikes on a mature plant are usually at least 45 cm long and spikes of 90 to 150 cm are not unusual. Each spike will bear numerous flowers, any-



where from six to eight on the big flowered varieties, to a hundred or more on some small-flowered types.

A third difference is the roots. *Phalaenopsis* roots are quite thick, tend to be long, and do not branch as freely as *Cattleya* roots. They will wander down into the pot, out again, and often invade a neighboring plant's territory. Whereas *cattleyas* normally bloom once a year, *phalaenopsis* often bloom twice a year and occasionally more often. Several differences in *Phalaenopsis* culture include:



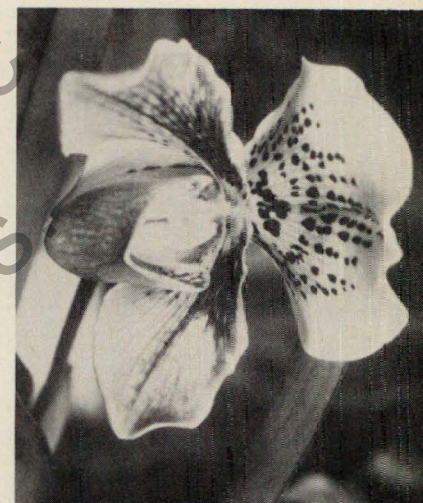
C. Skinneri

1. The need to be grown several degrees celcius warmer than *cattleyas*. Day temperatures between 26° and 30° are ideal, with night temperatures between 18° and 22°C.
2. *Phalaenopsis* thrive in shaded conditions, about 1,000 footcandles, or enough light intensity so the leaves are a firm, succulent, dark green. Since the plants burn very easily, shading must be provided at all times.



3. They are more insistent on high humidity than *Cattleyas*. Percentages of 60 to 70 are ideal, however, they will tolerate lower humidity.
4. Because they have no pseudo bulbs (**soo-doh-bulbs**) in which to store water, *phalaenopsis* should not be allowed to dry out. The potting medium must be kept moist at all times, but never soaking wet. As the crown or growing tip of a *phalaenopsis* collects water readily and is subject to rot, you should tilt or hang your plants at an angle so that any surplus water will run off quickly.
5. *Phalaenopsis* are ideal for growing under fluorescent lights. The tubes can be put on about 12 cm centres. Keep the leaves at least 14 cm away from the tubes, and add ventilation of some sort to prevent heat build-up from the lights. When the flower spike gets too close to the lights, remove the plant to a window sill or some place where it has room to develop.

The above information of ideal growing conditions may frighten you away from trying to grow orchids as house plants. Yes, they do require special conditions and take more care



than ordinary house plants, but if you follow in the footsteps of the many prairie orchidists who have taken up the hobby, you will be getting into a new world of enjoyment. The blooming of your first orchid will thrill you in a way which you will never forget. After you have achieved a modest degree of success in your orchid growing, do not expect your hobby to retire to a quiet corner of your life. Instead, it will expand and overflow into new channels. You may expand from window sill culture to plant

room or greenhouse culture and new orchid friends will be added to your *cattleya* and *phalaenopsis* collection . . . *dendrobiums*, *cymbidiums*, *vandas*, *odontoglossums*, *miltonias*, *laelias*, *brassavolas* etc. And let's not forget the vine-like plant and the only genus in the vast Orchid Family of economic importance — The Vanilla Orchid. The entire orchid world is yours to explore and exploit for the rest of your life.

Jerry Lenover
MANITOBA ORCHID SOCIETY



Tub and Balcony Gardening

W. J. EMERSON



Tomatoes and flowers in same tub.

Many plant lovers who have moved to apartment buildings feel that now they must give up their gardens. If the building has balconies, however, this need not be the case. Although your garden will not be as extensive as one on a home lot, you can still have flowers and, to some extent, vegetables. The possibilities are unlimited as to material that can be grown, except

for those unfortunate enough to have north-facing balconies.

Some protection will be needed to shield the plants from strong winds, and many materials will come to mind. Canvas curtains, fibreglass or plastic sheets, are some that could be used. Whatever it is, it should not block off the sunlight; some shielding may be needed on south-facing bal-

conies to protect from the sunburn; however, this is not a great problem if plants are kept well supplied with water.

Containers

Containers for your plants come, or can be made by you, in many materials; wood is the easiest to work with or make; asbestos cement — the most durable; plastic or clay pots, metal containers of one kind or another, the larger the container the more soil and plants it will hold and will not dry out as fast.

Soil for containers should have a fair portion of humus — peat moss will supply this: two parts good soil, one part peat or more if soil is heavy, sand or perlite to make it porous. Weight might be a factor on some balconies — remember, soil weighs about 100 pounds per cubic foot.

All containers, except asbestos cement and clay, will benefit by being lined with five to seven sheets of newspaper, which acts as an insulation and, in the case of wood, a preservative. Two to four inches of rubble in the bottom, a layer of peat moss about one inch and fill with soil.

Plants for Containers

Material for your containers will be the most difficult to decide on. Fragile plants, such as tuberous begonias, may be discarded as they are readily broken by wind for instance. Some suggestions for tomato lovers — plant tomatoes — the new patio varieties alone, or a staking type such as beefsteak. One tomato in the centre of the container planted around with petunia, marigolds, trailing obelia, makes a good combination — the larger the container the more you can plant in it. Perhaps you like cucum-

bers? They do well trained up a trellis on an apartment wall or over balcony railing, with flowering plants as described for the tomatoes. Leaf lettuce, radish, green onions (from sets), cress or some salad greens will do well in window box types of containers.

Evergreen type trees do not do well. They give great satisfaction the first year but do not winter well due to the soil drying out; also the exposure to sun and wind dried out the foliage. If one wants an evergreen for winter, I suggest a cut Christmas tree set in the container will add color. Canna lily will make a striking tub plant also, but let your preferences be your guide — experiment with different material.

North-facing gardeners are very limited unless they get five or six hours of sun. Vegetables will not grow well, nor will most flowers. Begonias (if sheltered), impatiens, browallia are a few of the plants which might grow with a north light. Most locations will be too windy for ferns, some experimentation with shade loving plants would be in order, as various north exposures may receive more light than one expects, due to reflection, etc. from other buildings.

Watering of balcony gardens is very important; it should not be excessive nor should the plants be allowed to dry out. Weather conditions outside will govern the amount. Just because it rained, do not think that your plants received a soaking. The foliage may have directed the water to the floor and the roots received none. Check soil by feel, rain or shine. On hot days they may require water twice a day, especially later in the season when the plants have reached their maturity and have filled the soil ball with roots.

Do not let tomatoes become alternately wet and dry, as black spot will develop on fruits.

Fertilizing is also important as the soil will not contain enough nutrients for plant growth; a good soluble fertilizer is best — do not feed when soil is dry. Follow directions on package. You have two options — daily feed or weekly feed. Directions for both will be on fertilizer package. Follow it exactly!

Insects may also be a problem. Mites and aphids can be a nuisance. Pay close attention to the condition of the foliage and if mites are noticed, use an appropriate spray — Miticide for mites, and Malathion Black Leaf 40 for aphids, or one of the all-purpose insecticides. For the control of insects, carry out regular ten-day spray program. Spent flowers should be removed, and some staking may be needed — do not wait till plants are broken to stake.

Hanging baskets can also be used on balconies, but the variety of containers is more limited. Wire and plastic mesh containers are most widely used. If wire or open mesh baskets are used, they should be lined with either long sphagnum moss, several layers of paper, or a plastic film cut and trimmed to fit. A hole should be made in bottom of plastic film to allow drainage. The soil for tub containers can be used and general rules also apply to baskets as to containers.

Soilless Culture

A chapter on soilless culture should be mentioned because as good soil becomes hard to get, more and more gardeners are turning to the so-called 'soilless'.

Soilless growing medium is made up of the following:

- one part milled peat moss
 - one part vermiculite or perlite
- To two gallons of above, add:
- $\frac{3}{4}$ teaspoon superphosphate
 - $5\frac{1}{2}$ teaspoons of 5-10-5 fertilizer
 - $3\frac{3}{4}$ teaspoons of agriculture lime (ground up calcium carbonate) (NOT hydrated lime).

If I use vermiculite, I also use some perlite, as it does not break down and allows for better drainage. When using a soilless mixture, particular care must be taken when watering as it is very easy to overwater, and if allowed to dry out, it is extremely hard to re-moisten. The above mixture should be well mixed and thoroughly moistened before filling containers. After planting and during growing season, regular feedings with a soluble 10-10-10 fertilizer will be needed, a weak solution every watering would be best.

Any vegetable or flower can be grown in soilless medium. Most vegetables such as cabbage, cauliflower, tomatoes will need staking to keep them from falling over but root crops, such as beets and carrots, will not.

Containers

Any container will do, such as nurserymen use for containerized trees and shrubs, or they can be window boxes or old wash tubs. They all must have one thing in common — holes in the bottom or near bottom on sides, for drainage. Seeds can be sown direct as you would in a regular garden, or plants can be transplanted. Seeds of many vegetables will need to be sown directly, beets, carrots, peas, beans, etc., which do not take kindly to transplanting. One ten-inch container will provide a meal or two of

carrots, beets, and many a salad of onions, lettuce, radish. It is possible for a small balcony to keep you in many treats of fresh vegetables during the summer.

Always start with fresh soilless medium the next year. This medium

is only good for one season. Keep notes on your operation to help correct your mistakes the next year, or to remember your successes. Let your imagination run riot and bring nature's wonders to brighten your apartment living.

Name	Tub Plant	Combination	Hanging Basket	Full Sun	Light or Partial Shade	Shade
Ageratum		X		X	X	
Begonia	X	X	X	X	X	X
Browallia		X	X		X	X
Caladium	X				X	X
Canna	X	X		X		
Coleus	X	X	X		X	X
Dusty Miller		X		X	X	
Fuchsia	X	X	X		X	X
Geranium	X	X	X	X		
Impatiens	X	X	X		X	X
Lobelia		X			X	X
Marguerite	X	X		X		
Marigold	X	X		X	X	
Petunia	X	X	X	X		
Salvia		X		X	X	
Sweet Alyssum		X		X		
Thumbergia			X	X	X	
Tomato	X	X		X		
Verbena		X		X	X	
Vinca	X	X		X		
Zinnia	X	X				



Horty-Hortus says: "Salads taste much better made from fruits and vegetables you've grown yourself!"

Flowers — Fun — Hasti-Notes

MRS. ALMA CORNWELL

The beauty of the garden need not die when the frosts of autumn quietly descend on us some cold night. It can be kept alive with a creative hobby that will bring endless hours of joy, and an attractive, personal, finished product. A creative hobby is often a veritable therapeutic need for many of us.

This interesting pastime is making hasti-notes from tiny leaves, flowers, etc. gathered from our garden during the summer. The florets, etc. are pressed and are made into various designs for hasti-notes. You can make book-markers and pictures, but our interest for now is hasti-notes. In one way this hobby adds another dimension to gardening.

Materials Required

- 1) STATIONERY — You will require informal, good quality, plain hasti-notes that fold over to size approximately 3½ inches by 4½ inches. Envelopes are included.
- 2) MATERIALS TO GATHER — Collect small leaves, tiny plants, blooms with small petals, grasses of various colors and contours, stamens and pistils from gladioli, and other specimens of nature's beauty such as geranium blossoms, antirrhinum, sweet peas, asters, phlox,

etc. Because of the complexities of nature it would be impossible to compile a complete list. You will find many interesting items on your own.

All material must be picked and pressed when fresh, and some specimens retain their color better than others. Experience will teach you to discern which little plants to gather. You are now ready to start pressing your collection.

- 3) THE PRESS — A catalogue or some similar book is excellent as it is large and will accommodate your material. Next, put a piece of facial tissue between two pages of your catalogue, lay as many flowers, petals, etc. as you can on half of the tissue, then fold the other half over your treasures, and continue until all material is tucked away.

Your next requirement is the press. We use two pieces of plywood the same size as the catalogue. Press your catalogue between the two boards and secure with two strong screw-clamps to apply the necessary pressure.

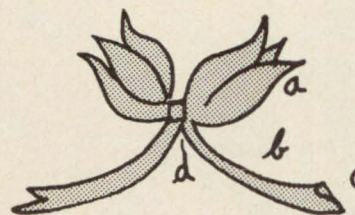
- 4) PRESSING TIME — It usually takes between four to six weeks to press your collection.
- 5) DESIGN — When your material is

thoroughly pressed, fold the hasti-note paper where it is marked, then remove a few folders of the tissue with your plants from your press. Open the folders on the table and pick out a few pieces needed to make your design. This keeps the material organized and your hobby neat.

Now here is where you become creative and imaginative. You can create designs for all occasions, including Christmas. The Christmas motifs are most attractive and decorative because the colors, red and green, are so bright and fresh.



Take a few appropriate green sprigs, form them into a spray and tie with a very gay, bright red bow. To make this bow, take two florets from a pressed flower-head of salvia. Use the floret with the tubular projection (b). This is the protective covering for the two stamens



and one pistil. Sometimes there is a wee stamen (c) peeking out. Handle carefully as this adds to the beauty of your card and is very delicate. The next step is to remove gently the protruding part (b) from (a) which is used to make the rest of the bow or Christmas bells. To construct the bow put the two (a's) together, then add the two (b's) and assemble them as in the sketch. A small remaining bit of the flower is added to make the knot (d).

If you are making a spray, put the greenery in place on your card first, then glue lightly. Now add the bow.

There are other motifs for Christmas, Valentine's Day, bridal wreaths, etc. Be sure to make butterflies on some of your cards as they add life and interest.

Now that you have your design organized you are ready to start gluing.

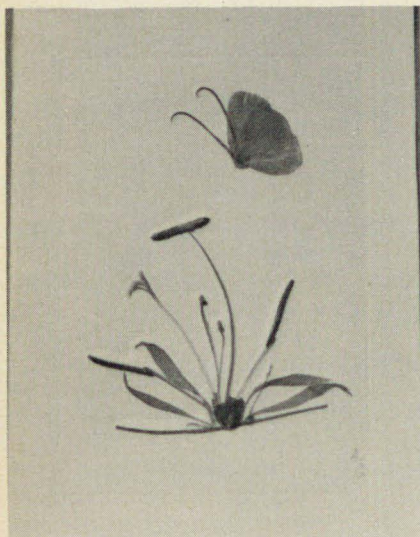
- 6) GLUE — The glue required is Le-Pages Bond Fast. Put a small amount on a piece of paper and use the smaller end of a toothpick to apply the tiniest bit of glue to the back of each flower, stem, leaf, etc. you are using to make the design. Having completed your motif, it is now time to put on the protective cover.

- 7) THE PROTECTIVE COVERING — Use clear Mac Tac. Cut it out a little larger than your card to allow for errors. Lay your card on a clean piece of paper on the table, then peel the back off the Mac Tac. Hold it a few moments to allow the static electricity to dissipate, then carefully lay it on the card so that it completely covers the design. Now with your right forefinger or thumb

press your card lightly. Carefully cut off the surplus Mac Tac and press your card again with finger until the surface is very smooth. You may need the rounded end of a ball-point pen or similar object to secure the covering smoothly.

Now your card is un fait accompli! In life we often have to wait until

evening to see how glorious the day has been; so with our floral hasti-notes we may have to wait for the chill of winter to see how beautiful our garden has been. This is a fascinating hobby, and there is always the marvellous assurance that in the spring, life will awaken once again with promise of renewal and growth.



Hasti-notes made from material from our garden.

*I remember, I remember
The fir trees dark and high
I used to think their tender tops
Where close against the sky.
It was a childish ignorance,
But now 'tis little joy
To know I'm farther off from heaven
Than when I was a boy*

(poet Hood)

Cacti and Pseudo Cacti

W. J. EMERSON

Cacti and pseudo cacti make excellent houseplants, especially in our warm, dry modern homes, and providing their special needs are met.

Cacti and pseudo cacti are sun lovers and should be treated as such. Their whole life is governed by light to such an extent that the amount they receive determines how much heat and moisture they can utilize. In the summer when cacti are growing, they should be exposed to all the sun possible. They can stand any amount of heat! However, they require ample

watering twice weekly during this time.

Cacti Outdoors

When putting your cacti outdoors in the spring, great care should be taken to insure that they do not become sunburned. Introduce them gradually, just as you would yourself, gradually increasing the amount of sun and water daily. Shading them during mid-day sun for a week or two at first would suffice, then they can take the full sun.



Collection of Cactus.

Most people think that because cacti are desert plants they should be kept hot all the time. Not so — in winter and even in summer, desert temperatures drop quite low at night. Cacti go to rest during the winter months and require less water. The rest period should be November to March. Water once or twice a month, depending on the dryness of your home, they should not be allowed to shrivel or have the roots dry out completely during this time. The temperature during rest period should be 6 to 10°C.

Cacti usually flower with coming of spring, with more sun and water. They will not flower, however, without the 6 to 10°C rest period. In the home a window sill over a hot radiator or in line with a hot air duct certainly is NOT a good place for them. A shelf suspended half way up a window with heat source shut off would do, provided the overall room temperature was kept between 18 to 20°C. One solution would be an unused room which could be kept above freezing. They do not require much light during their rest period. Most cacti will stand temperatures of 4°C without harm.

Drainage

A two-inch layer of coarse gravel in the bottom of a container is wise, and the soil mixture should be quite gritty and drain well. Plants, where set outdoors in summer, should have their pots surrounded by sand. A wooden planter such as a child's sand box, filled with sand and the pots plunged to the rims in it, would work well. This precaution is most important in our heavy Red River gumbo soil.

Soil Mixture

— Three parts good garden soil (preferably a clay loam);

- one-half part washed sharp sand;
- one-half part crushed brick or turface;
- one-half part crushed limestone (will not be needed if soil used is high in lime).

A pinch of powdered limestone and tobacco dust per pot or 2½ inch flower pot per bushel of soil, the same amount of fritted trace elements, may be added also, but no other fertilizer. Peat moss should NOT be used at any time, but a small amount of little leaf soil which can be collected in the bush, should be used. Brushed brick, which will hold water and still allow good drainage, can be prepared by breaking a brick with a hammer into pea size pieces. Dried and powdered cigarette or pipe tobacco can be substituted for tobacco dust, it serves as a mild fertilizer and guards against root aphids which often affect cacti.

Cacti which have been growing in these pots for two years can be fed with a weak solution of complete soluble fertilizer at a rate of about one teaspoon per gallon, used once a month.

Transplanting

Cacti in the wild spread their roots for many yards, and after two years in confined pots they have exhausted the soil and should be repotted. If not, their roots will begin to die and, when in that state, if the cactus is watered freely it will rot. If not watered (they should not be watered when not growing), the plant will shrivel and topple over. In these cases they must be repotted for they will not make new roots in soil which they have exhausted. They must be treated as sick plants.

The fresh soil must be left dry and the cacti should be placed in a

scooped out hollow filled with washed, clean sand so that the cacti does not touch the soil. To prevent movement cacti can be tied down with two strings crossed over its top and tied under the pot. After three or four days, sand should be gradually moistened a little by allowing a few drops of water to trickle down along the cactus plant. Repeat this every three or four days. If done correctly, cacti will gradually become plump again and the crest will change color, showing signs of life. We know that it is making new roots. Soil can now be drawn over the sand and watered more freely. In this manner one can save a specimen although the scars caused by enforced drainage will always remain.

To guard against this, fine specimens should be repotted as a matter of course every two years. By removing as much old soil as possible, cactus can be returned to the old size pot (wash before re-using) if larger one is not indicated.

Propagation

Propagation is usually accomplished by offsets or shoots formed at the bottom or side branches which can be used as cuttings after seasonal growth is finished. Sever them with a sharp knife from parent plant at very bottom. With some plants, pups or satellite plants will break off easily when plants are in their rest period. Such cuttings are treated in the same manner as plants which have lost their roots. Cut ends are dipped in powdered charcoal to prevent rotting. Cuttings are then inserted in dry sand to which a small amount of soil has been added. For the first two or three weeks sand is kept dry, after which it is moderately moistened

from time to time. When cuttings show growth at their tips (a sign that they have rooted) water more freely until ready for potting.

A foot-long piece from the top of the cactus can be rooted, but allow the cut lower end to dry for two to three weeks. A couple of sticks to support such a tall piece will be needed until it is well rooted. They are then handled the same as above.

Christmas, Orchid Cacti and Epiphyllums

These cacti are not desert dwellers but usually grow on the branches of trees or cracks in rocks where humus has collected. They require a richer and looser soil. The amount of leaf mold given in the above recipe should be increased to two parts. Crushed limestone should be left out, powdered limestone and tobacco replaced by dehydrated sheep manure and bone meal in approximately the same amounts as limestone and tobacco in the recipe.

Christmas and orchid cacti should not be exposed to full sun. In summer, partial shade outdoors under open branched trees is good. When brought indoors in the fall it is advisable to syringe their leaves with water several times a week. One can also prepare large pebble filled saucers in which water should be kept. The pot is set on the pebbles but not touching the water. This will humidify the air around the plant and also add moisture to your room. Humidity is needed for them to develop their flowers. The change from humid outdoors to dry indoors is often the cause of bud drop. The rest period is not as pronounced in these South American cacti as in North American ones.

“Profit from My Mistakes”

(When Exhibiting)

FRANCES SMITH

Perhaps some of the things I've done wrong, or some of the things I've omitted to do will help someone who is exhibiting for the first time. These things have a tendency to stick in your mind so that you are not apt to make the same mistake again.

For instance there was the time a peony arrangement pleased me so much when I put it on a show bench. What a sad thing it looked the next morning when the judges came on the scene, and what an eye-sore for the public to look at. I'd forgotten to put any water in the container!

There was the time when the rules called for an arrangement of native grown material only, and some grasses from a florist's arrangement looked interesting. They were not Manitoba grown so that arrangement went by the board. Then, too, there was the arrangement calling for the use of one to three flowers. I had no sooner reached home than I realized three flowers and a bud had been used, automatically disqualifying the entry. There was the beautiful “arrangement” on which the judges commented, “that's not really an arrangement. That's a bouquet”. It was a lovely bouquet, but an arrangement should have distinction and originality, and it hadn't much of either one. Then there was the time I almost used foliage which had been conditioned in glycerine in the class for “naturally” dried material.

You will think from these words that I've never done anything right, but I've been fortunate to win a few awards and to gain a great deal of satisfaction out of competing.

Things to Avoid

One or two other pitfalls to avoid are —

- be sure an arrangement is correct as to size, remembering that some flowers such as calendulas and snapdragons have a tendency to straighten up over night, so be on the safe side;
- Be sure the mechanics, oasis, wire, etc. are well covered;
- Use no dyes, sprays and the like, unless the rules specify they may be used.
- Be sure your arrangement is firmly put together, and if it is made up of more than one component, i.e. arrangement, figurine, rocks, and so on, anchor it all on one base as it is sometimes necessary for those in charge to move an arrangement and it is very distressing to have it topple over or fall apart.
- Be sure your entries are in the right class, with the tags clearly made out and firmly attached.
- Read the rules, do the best you can with what you have available, have fun and leave the rest to the judges. You may not always agree with them but they will judge the entries fairly according to the rules and as they see them.

COLOR SECTION

Indoor Gardening & Flower Arranging

Driftwood is fascinating.





Good use of material, perhaps a larger base would be an improvement.



A miniature arrangement under six inches.



Many flowers are not necessary.



Tints, tones and shades of one color, triangular.



Mass arrangement.



Christmas time.



Simplicity.



Harvest bounty.



Naturally dried materials.



Cup and saucer arrangement.



Philodendron (Monstera deliciosa).



Amaryllis (Hippeastrum).



Hydrangea.



Poinsettia (Euphorbia pulcherrima).



Aralia (Fatsia japonica).



Collection of cacti and succulents.



Begonia (Cheimanthus) Lady Mac.



Aucuba japonica variegated.



Calceolaria.



Gloxinia.



Christmas Cherry (*Solanum Pseudo-capsicum*).



Rubber Plant (*Ficus elastica* 'Decora').



Schefflera (*Brassaia actinophylla*).



False Aralia (*Dizygotheca elegantissima*).



Orange Tree (*Citrus tartensis*).



Impatiens.



Collection of Bromeliads.



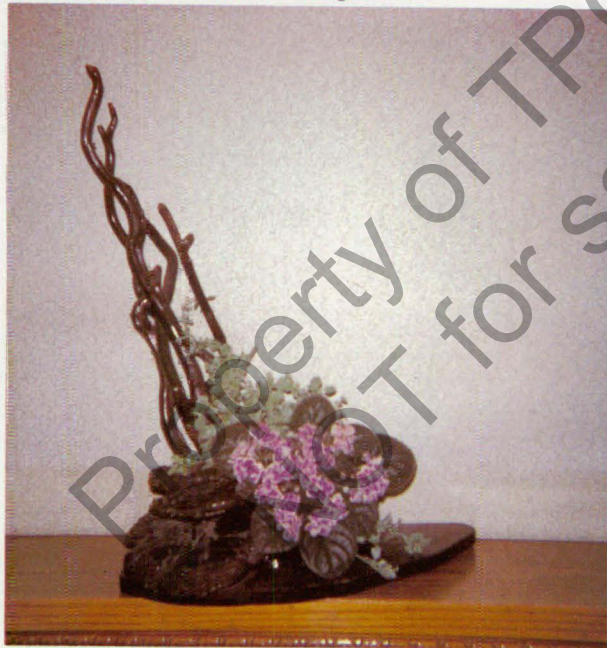
Orchid.



Orchid (SLC Naomi Kerns).



A collection of house plants grouped to form an arrangement.



An arrangement incorporating a house plant.



Gesneria (Smithiantha).



Christmas Cactus (Zygocactus).



Juniors at work



The proud results. East Kildonan Horticultural Society.

The Beautiful Art of Bonsai

JOHN A. VELIATH

It sounds like a zephyr sighing through a grove of swaying bamboo culms. Bon-Saiii . . . Yet the image it evokes is of the truculent north wind, laden with the arctic, battering relentlessly against some hapless pine, gnarled and weatherbeaten, poised precariously at the edge of a rocky precipice. You expect the pine to be blown to oblivion any moment — but it is still there when you return the next time.

When I first heard the word "bonsai" about fifteen years ago, my interest in it was strictly phonetic and etymological. I looked it up in a biological dictionary and learned that it was the Japanese art of growing miniature trees and shrubs, the word itself literally meaning "tree in a pot". I was unimpressed, then in the summer of '69, it happened. I was traveling by bus to Toronto via the picturesque Lake Superior route, when somewhere between White River and Wawa, with the sky flushed a soft sienna of twilight, I caught sight of what looked like a very old conifer, unbelievably contorted, clinging tenaciously to the sheer face of a bluff. It was just a fleeting glimpse, but the picture of that doughty conifer silhouetted against the darkening sky is etched indelibly in my mind. It was perhaps at that enchanting moment I grasped the true meaning of the word "bonsai".

I became engrossed by the idea of bonsai, and roamed about in libraries, devouring every relevant scrap of literature I could find. The written word confirmed my initial inkling of what it was all about. Two popular misconceptions need clarification. Firstly, one is not obliged to start with a species that normally grows into a gigantic tree; it is considered quite cricket to use plants that are genetic dwarfs. Secondly, one does not have to wait years in order to possess a bonsai of sterling quality. What is important is the **impression** of age. If you can make a ten year old Hinoki Cypress appear as though it were 100, you can be justly proud of your wizardry. The bonsai image, to most people, goes no further than this. However, there is much more to it than growing oldish-looking miniatures. To see a truly beautiful bonsai is to view the entire landscape of which it might have been a part; to feel, smell and taste the raw elements which moulded it. The scene may be pastoral and peaceful, but more characteristically it is one of savage splendor with wild winds, rock and surging surf. Bonsai is, above everything, an art.

What Type of Plant?

Once fortified with theoretical know-how, I was all agog to start. But where was I to begin? I sorted things

out logically. I was living in a basement apartment and hence could not grow any of the tropical species since they needed wintering indoors. However, my landlady had kindly consented to let me use a portion of her backyard, and so hardy species would do.

But not all hardy species are bonsai subjects. In order to be suitable for bonsai culture, a species should be woody, the size of its leaves should be in proportion to the size of the finished bonsai, and it should be able to weather well the traumatic effects of pruning and training. Those are the three basic requirements. Currently, there is a trend towards the use of non-woody or semi-woody species such as the jade plant and cascade chrysanthemums. While there is nothing wrong in this, I personally consider them pseudo-bonsai. To be authentic, a bonsai has to be woody.

How to Dwarf a Tree

Before being carried away by my own exploits, let me mention the question I have been asked most often — how do you dwarf a tree? This is rather easily answered, since most experts employ basically the same techniques. It is a combination of pruning the roots and shoots and, at the same time, constraining the root system within a small container. However, the query — why do these methods cause dwarfness? — is not as easily dealt with. There appear to be as many explanations as there are bonsai pundits. My own theory follows. Consider, for example, a one year old Scots pine seedling in a three-inch pot. Even if nothing else was done, the pine could never attain the stature that it normally does. Hence, restricting the roots to a small volume of soil is in itself a dwarfing

process. Unfortunately, the pine would deteriorate with time and eventually die. This is because the roots would girdle themselves, deplete the soil of nutrients, destroy its physical structure and, in general, be incapable of meeting the water and nutrient needs of the shoot. The problem is remedied by periodic root-shoot pruning. The pruning of larger roots promotes the growth of fine feeder roots, which are better adapted to small spaces and hence are more efficient. Removal of a proportionate amount of leaves and branches, aside from being an instant dwarfing technique, balances the demands of the top growth with the supply potential of the roots. Thus the root and shoot coexist in harmony. The result — a happy, healthy dwarfed tree.

Natural Bonsai

Now, back to my bonsai story. Once I was conversant with the basic principles of the art, I was ready to acquire the raw plant material for training. Of course, I wanted a bonsai in the shortest possible time. This eliminated the possibility of starting from seeds; it was just too time-consuming. Other methods of propagation or plant acquisition such as cuttings, air-layering, and buying container grown stock from nurseries were much faster. However, there was yet another avenue — I could make trips to regions conducive to the growing of natural bonsai and ferret them out for myself. This is undoubtedly the most exciting way of obtaining bonsai plants; it really fired my imagination, and many of my hardy bonsai were acquired in this manner. They include an arctic willow and a beautiful alpine larch that Dr. Longton of the Department of

Botany, University of Manitoba, was kind enough to bring me from Churchill, Manitoba. Moreover, I own a black spruce and a Canada hemlock, both of which I discovered during fishing trips to Redditt, Ontario. I can still remember my excitement when I first came upon the hemlock on the side of a steep cliff.

All these are natural bonsai, wholly sculptured by the elements, and did not require any training whatsoever. I do, however, prune about a third of their roots in early spring, just before growth starts, and at the same time remove some of the errant branches. In addition to these, my collection includes creeping and rocky mountain junipers, Black Hills and blue spruces, ginnala maples and Siberian elms. These were in gallon containers when I first got them, and are at present in various stages of training. I do not as yet possess any pines, but they are classical species for bonsai culture, especially the Japanese black and white pines, and the Mugjo pine. These hardy bonsai are left outside throughout the year. During the winter months, a Nanking cherry bush nearby serves as a fine snow trap and that is all the protection they need.

Tropical Species

While increasing my collection of temperate zone bonsai, I was aware of several tropical species that were superb bonsai subjects. However, I had neither the means of acquiring, nor the indoor facilities to grow them. Then, about four years ago, I got a part-time job watering plants in the Botany greenhouse at the university on weekends and, suddenly, I was in clover! Here were exotic plants such as pittosporum, dwarf pomegranate, citrus, gardenia, azalea — a veritable

eden for bonsai lovers. I went wild in those orchid-trellised, jasmine-scented precincts and started taking cuttings from anything that faintly held bonsai promise. Soon I had a large number of rooted cuttings.

Lest you get the impression that one is free to visit the greenhouse and help oneself to snippings with impunity, let me nip that notion in the bud. This is strictly taboo. I got approval from the greenhouse supervisor, Mrs. Susanne Olver. This kindly lady is a plant lover in general and an orchid nut in particular. It is no wonder, then, that not only did she allow me to help myself to cuttings, but generously provided me with space in which to grow them. Moreover, she and another kind lady who works there, Donna Sanford, water and care for my bonsai five days of the week. Needless to say, without their help, none of this would have been possible.

Dwarf Pomegranate

I am now going to single out just one bonsai — a dwarf pomegranate — and narrate its story from start to finish. The pomegranate (see photo) was my very first tropical bonsai. I potted the rooted cutting in a three-inch pot and just let it grow for a month or so. I then pinched off the growing tip at a height of about three inches. It promptly sprouted branches and, as these grew, I nipped them off as well, leaving only a single internode of growth on each. This continued for several months in the course of which the plant branched out profusely.

I looked the plant over from all angles and examined the arrangement of the branches closely. The pattern of the branches partly suggested what it was best suited for, and

I decided to train it into a low branching, globe-shaped dwarf about seven inches high. I was attempting to create the impression of bucolic peace — a dwarf pomegranate squatting calm and content on cool, moss-covered earth. That settled, I knocked the root ball out of the pot, trimmed away approximately one-third of it, and placed it back in the same pot, filling the empty spaces with fresh soil. Simultaneously, I cut many of the wayward branches, thus bringing the root to shoot ratio into better balance. In the following months, I continued to prune the top when required, but the roots were pruned on only two other occasions prior to final potting.

Bonsai Styles

There are three basic styles of bonsai training — upright, slant and cascade — with several variations on these basic themes. Bonsai training usually involves a combination of pruning and the bending of branches to desired form with the aid of copper wire twisted around them. Many people think that a bonsai cannot be trained without elaborate wiring and twisting of branches, but this is not so. I have created several highly acceptable bonsai by judicious pruning alone.

Returning to the pomegranate, it was adapted to an informal slant style and was tailored almost entirely by pruning. However, the two lowest branches were a little too upright and I had to use wires to bend them down a little.

Potting

In about fifteen months, the pomegranate was ready for planting in a bonsai pot. The pot is an important part of the total bonsai image. It

is generally shallow, and its shape should complement the form of the bonsai. Before beginning the operation, I had to decide where exactly in the pot the plant was to be placed — the the centre or off-centre, towards the front of the pot or back. The style and shape of the bonsai generally renders this decision rather easy. Having decided, I knocked the plant out of its pot and gave it the root-shoot pruning treatment again. I then planted it in the chosen spot, heaping the soil above the rim of the pot and packing it in so as to get a gentle slope from the plant in all directions. I covered the soil surface with moss, watered it thoroughly and there, finally, was my finished dwarf pomegranate bonsai — just as I had pictured it all along during its making. A thing of beauty, indeed.

Creations

The pomegranate described above was a relatively simple bonsai. Later, as I began to get the feel of this esoteric art, I became more ambitious. An *Ochna multiflora* cascade, with its two main branches contorted incredibly to the right, was intended to create the impression of prevalent winds whipping across from the left. The pomegranate on the rocks was made by first anchoring a suitable rock in a shallow container full of soil. The roots of a five-month old pomegranate plant were carefully washed free of soil, the plant was seated on the rock with its roots spread over it, and the roots and rock were covered with a plaster comprising three parts peat to two parts clayey soil. After eight months of patient waiting, I was able to strip the plaster away and reveal the stout, serpentine, knobby roots snaking their way down the rock and into the soil in the bowl



Punica granatum nana (Dwarf Pomegranate) trained at an informal slant, and Fuchsia 'Little Isis' at a formal slant.



Dwarf pomegranate on the rocks!



This Azalea was once a bushy gift plant. Judicious pruning of unwanted branches and roots brought about this remarkable transformation.

below. What a thrill! However, that is hardly the end of the drama. I am currently working on an even more challenging project — to create a landscape composition replete with hills, valley and lake, and a grove or two of dwarf *Leptospermum* trees derived from a single parent plant. It sounds impossible, but it should be a tangible reality by the time you are reading this.

Bonsai isn't always hard work and patient waiting. The magnificent azalea in the photograph was once a large, highly-branched gift plant. The striking metamorphosis was achieved very simply by gradual removal of unwanted branches. Actually, this plant could have been converted into a bonsai in one step, but at the time I was too hesitant. I became more confident later. I remember a fuchsia 'Little Isis' in the greenhouse. On inspecting it closely, I could sense, amidst the chaotic labyrinth of tangled branches, a perfect bonsai. I bought it and had that lilliputian fuchsia pruned and planted in its bonsai pot in one day, and it is an exquisite specimen. An instant bonsai!

Greening of Potatoes

A number of instances are reported each winter of potatoes becoming green or "sunburned" in storage. The only way in which this can occur is for the tubers to be exposed to at least some light and even a very weak light will cause greening eventually. This greening is detrimental to the eating quality of the tubers. At the very least, they must be deeply peeled in order to remove the green flesh and normally the remainder of the tuber will cook yellowish and will likely also have a bitter taste.—D. H. Dabbs, *Department of Horticulture*.

Care of Bonsai

My bonsai — hardy as well as tropical — demand a little more tender, loving care than most other potted plants. They require watering almost daily during the summer months, and must be fed with a complete fertilizer every other week. In addition, many of the tropical species, such as bougainvillea and fuchsia, benefit from a period of rest in winter. All that this entails is placing the plant in a cool place (45 - 50°F), cutting down on water, and discontinuing the application of fertilizer. Of course, all bonsai must be root pruned at least once a year, usually in spring.

Bonsai has a way of growing on you. Once you get interested, you're hooked for life. Every tree, every shrub takes on a special significance, and the wind lashing at the groaning branches of a tall larch, brings haunting visions of some craggy northern cliff and clinging mightily to it a contorted conifer, totally sculptured by the hostile elements and in perfect rapport with them, a little of the northwind flowing along in its sap.

Some Pointers on Plant Propagation

SUSANNE OLVER

One of the most satisfying tasks for the gardener is that of growing new plants. There are various ways by which plants can be propagated. These can be divided, roughly, into two basic methods; by seeds (or spores in the case of ferns); or vegetatively by cuttings, divisions or others.

The propagation by seed is particularly important for the outdoor gardener who wants to grow his or her own annuals or perennials, but also for the indoor gardener who wants to enlarge his collection by growing interesting plants from seed.

We will discuss methods in general, not dealing with specific plants. Seeding-out methods remain more or less the same although there are variations as to time, temperature requirements or later treatment.

To Sterilize Soil

One of the most important conditions for seeding out is to prevent disease and to do that we have to start with a sterile seeding out medium. To sterilize soil, we simply spread damp soil on a cookie sheet, bake it in a

180°F oven for 45 minutes, and let it stand at least a day before using. Do not use soil which contains a recently added manure.

Soil

When the soil is ready, mix it with equal parts milled sphagnum peat and sharp, clean sand or perlite, and sift it through a quarter-inch screen. The top layer should be sifted again through a fine screen to provide an extra fine bed for the little seedlings.

As containers, shallow bulb pans or other low pots are good, but small boxes can be used too, as long as they haven't been contaminated. Some stones or broken pieces of crock, placed over the drainage holes, will prevent the soil from running out of the pot after it has been soaked.

Next, the pot should be filled up to within two-thirds of an inch of the rim. The surface should be levelled nicely, so that the seeds can be covered evenly. A jar or clean pot can be used to press the soil down lightly — but do not press too hard, or the roots will have difficulty pushing into the soil.



Seeding out. Note fine screen in background.

Seeds

The seeds should be distributed evenly over the whole surface of the pot, and great care should be taken not to seed them too closely. Some seeds, such as begonias, petunias, gloxinias, are very fine and should not be covered at all, but they can be pressed down gently for better contact with the soil. Larger seeds should be covered with sifted soil to about one or two thicknesses of the seed. Then place the seed pan into a water basin, to about the same depth as the soil level. If the water level is too high, the water in the pan will rise above the soil surface dislodging the seeds. When the soil is thoroughly moistened, remove the pan and let it drain.

After draining you can slip the seed pan into a plastic bag or cover it with glass, and put it into a warm place. The best germinating temperature for most seeds lies between 75 and 80°F. A good place in the house can be found on top of the refrigerator, towards the back, where the heat from the motor rises. Do not put your seed pan into the bright sun.

Emergence

As soon as the seedlings emerge; the pan should be moved away from

its warm place, the cover first opened and then removed. Some seeds come up so quickly and elongate that you have to remove the cover within a day, some take longer. Never let the little plants get spindly, and weak. A bright place near or at the window, but not in full sun (at first at least) and cooler (65 - 70°) will be right for most seedlings. If they are on a windowsill, give the pan a quarter turn every day for even development.

Transplanting

The seedlings should be transplanted when they are still very small, before the first true leaves appear, using the same sterilized soil mixture. It may sound tricky to some, but there are some advantages to this — firstly, a tiny seedling has not had time to develop a large root system, therefore is easier to transplant without injury. Secondly, the dreaded damping-off disease develops much more easily in a crowded pot of seedlings than in a well-spaced flat of transplants. Any clean container can be used for transplanting or pricking out, but it should have good drainage. Fill it right up to the top, firm the soil, pressing it in around the edges. Make a little hole for each seedling (a pencil is a good tool), make sure the roots are straight down, then firm the soil back into place around the roots. When the flat is planted, give it a sharp tap against the table to settle the soil around the roots, water gently and move the flat into a bright place. If it is a hot day, a newspaper laid lightly over the flat for a day helps to prevent wilting.

Timing is important for seeding out, particularly for annuals. To choose the right time, consult the pamphlet published by the Manitoba Government, called 'Recommended

List for Annuals and Perennials in Manitoba'. Some of the tropicals are very slow germinating, so don't give up on them. Rarer seeds can be started on cotton wool or blotting paper dampened with fresh boiled water. This method, which reduces chance of rotting from bacteria or fungus attack, is useful for slow germinating seeds and you can easily keep an eye on them. When germinated they can be placed in the soil with tweezers. Often seed packets have special instructions, such as freezing to break dormancy, or soaking overnight. These should be carefully followed.

Propagation

To propagate hybrid perennials and many houseplants, it is necessary to use the vegetative form of propagation. This is not more difficult than seeding, but produces fewer individual plants, which however, are identical to their parents. Also you start out with a larger plant, and the advantage for the home gardener and collector is that most other gardening friends will be willing to give you cuttings from their plants.

Runners

The easiest is the propagation through runners, like the strawberry of our garden or the so-called strawberry geranium on the windowsill. A plant reaching maturity will start sending out runners, at the end of which little plantlets appear. The best way to get new, strong plants quickly is to provide pots around the mother plant, into which the little plantlets are allowed to root. To keep them in place they can be pegged down. Then when the new plant is strong enough, it can be cut off. Some other plants which can be grown this way are the

Boston fern (*Nephrolepis exaltata*) and the spider plant (*Clorophytum*).

Bulbs

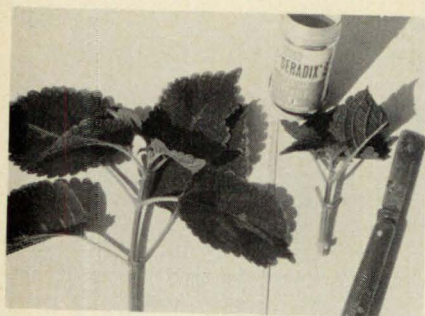
Most bulbs can be propagated from the young bulbs which rise from the base of the mother plant. These can be removed at the time of transplanting and raised to maturity. Amaryllis (*Hippeastrum*) can and will produce many young bulbs, which will produce flowers identical to the mother plant. (Seeds obtained from the new giant Amaryllis will grow up into inferior varieties.) Young Amaryllis bulbs should not be rested during the growing-up period as they will mature faster and often bloom after the second year.

Some plants — Tiger Lilies, the charming Begonia sutherlandii, the Mexican hat plant and members of the pineapple family (*Bromeliads*) develop bulbils or small plants at their stems, leaf axils, or even along their leaves. Remove these and plant them either right away or after an appropriate resting period.

Cuttings

There are many plants which can only be propagated from cuttings — under our conditions, anyway. Geraniums and Impatiens have been grown from cuttings for a long time. Most people put these into water and wait until roots have developed. If you have propagated certain plants this way with success, go on doing so. Most gardeners find, though, that starting cuttings in rooting mixture is more successful as the roots developed in the mix are stronger and the cuttings do not rot as easily.

The Coleus is an example of a plant which can be easily propagated through cuttings. Choose a strong, healthy, non-flowering shoot with



Preparing a Coleus Cutting: Left, shoot as taken from the plant. Right, the trimmed shoot.

about four pairs of leaves on the stem. Using a sharp knife or razor blade, make a cut almost directly under the lowest of the four pairs of leaves. Then remove two pairs of leaves and, if the top leaves are rather large, shorten these. Too much leaf surface will cause the cutting to lose too much water through transpiration. It will then wilt and might die. After preparing the cutting, dip it in a softwood rooting hormone, then plant it in a pot filled with a rooting mixture. It is advisable to prepare a little hole into which it is placed, rather than forcing it into the ground, thereby injuring the freshly cut surface. Some cuttings, for instance Geraniums and Cacti, have to be allowed to dry before planting, most have to be planted right away.

Rooting

There are various media which can be used for rooting. Some plants will grow in all or even unsterilized soil, while others are more particular. Consult a book when in doubt. Some of the more common mixes are: peat and sand; peat and perlite; vermiculite alone; peat and vermiculite; peat and turface. Since none of these mixes contain soil, they do not need

to be sterilized. Some sand — the sand box variety, is an exception. It should be thoroughly washed and sterilized in the oven. The pot or pan for the cuttings should also be clean.

After the cutting has been planted in the moist rooting mixture it should be watered gently, then covered with a plastic bag. Geraniums, Cacti and other succulents should not be covered or kept too moist, and do well with a fair amount of sun, but not so much as to dessicate them. Other plants, those in plastic bags, need good light, but not direct sun or they get overheated. Most like it warm to root, gentle heat from below speeds up rooting in most cases.

Besides stem cuttings, there are leaf cuttings, for instance, the African Violet. It roots very well in a handful of sphagnum moss which is tied up in a plastic bag. Many begonias can be grown from leaf cuttings. In some cases, for instance the Rex Begonia, the leaf can be cut up into sections, each producing a new plant.

Air Layering

Air layering is a variation of the stem cutting. Here the cutting re-



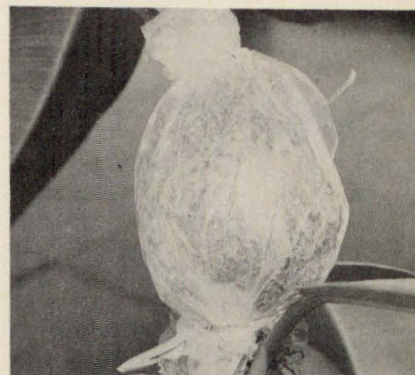
African Violet leaves in Sphagnum moss.

mains on the plant until roots have appeared. The home gardener can propagate the rubber tree better by this method than any other. To air-layer a plant, start with a top or side-shoot at a section between leaves, the so-called internode region. Girdle the stem, removing a one inch ring of bark right down to the wood. If even a thin layer of green remains new bark will grow and all efforts would be in vain.

Some rooting hormone can be applied to the stem just above the girdled area. In the meantime, a couple of handfuls of fresh sphagnum moss, a piece of plastic (an opened plastic bag is fine) and some twist-ties have been prepared. The sphagnum should be wrapped around the girdled area, covered with the plastic and tied into place at the upper and lower end. If the air layering has been attempted in winter it might take a long time to grow, while in spring rooting takes place very rapidly. The sphagnum has to be checked once in a while so that it does not dry out.



The Sphagnum moss is put into place.



The Sphagnum moss covered with a plastic bag.

When the roots are a couple of inches long the piece can be cut off and planted. Enclose the new plant with a clear plastic bag until it has rooted well in its new pot. I prefer this method of air layering to the other, often described way of partially cutting through the stem. It seems to work better, and there is little danger that the whole shoot would break off accidentally.

Many details about propagation have had to be left out — whole books have been devoted to the subject, but I hope this little article will give the reader a few pointers towards success in this interesting field.



The stem with its bark removed.

The Story of "The Prairie Garden"

The publication, The Prairie Garden, started life as the voice of the Winnipeg Horticultural Society. The Society was organized in 1931 with 455 members, and soon after complaints were voiced that the Canadian Horticulturist publication was not too suitable for western Canadian conditions, and thought was given to producing a year book suitable for the prairies.

The Winnipeg Horticultural Society always has been a very active group, involved in fruit and vegetable competitions, beautifying homes and public grounds, establishing children's competitions. The Society also sponsors the International Flower Show held in Winnipeg each year and which includes the provincial fruit and honey shows. The first Year Book of their activities was published in 1937, and contained the various addresses presented at meetings of the Society. Prof. R. W. Brown was then President and John Walker Secretary-Treasurer. Committee members responsible for the Year Book were F. C. Cave, Dr. Bruce Chown, C. J. Edwards, and John Walker. Mr. Walker is still a very active Board member. The printing cost of the 1937 edition was \$113.56!

The popularity of the Year Book soon became evident, reaching an ever widening audience. Other horticultural societies began requesting

copies, and the University of Saskatchewan purchased a supply in 1953. It continued to grow.

In 1955 the name was changed to 'The Flower Garden', and a committee formed, separate from the Horticultural Society, with Mr. Glad. Reyecraft as editor and chairman of the committee.

The name was again changed to the present 'The Prairie Garden' in 1957, with Mr. Reyecraft continuing as editor and also heading the standing committee, which now included members from Alberta and Saskatchewan.

In 1970 the functions of chairman and editor were separated and Mr. Pete Peters became chairman of the committee with Mr. Reyecraft carrying on as editor, and with a Constitution established.

AIM — The aim of The Prairie Garden was listed in the 1957 edition (first edition under that name) and still holds very true today.

"We dedicate this book to Western Canadian horticulture and offer to garden lovers from the Great Lakes to the Canadian Rockies the only current publication supplying informative and interesting articles by Western Canadian horticultural experts and successful amateur gardeners, on all phases of horticulture, strictly under our western growing conditions."

Because of other writing commitments, Mr. Reyecraft relinquished the position of editor in 1974, after 19 years of dedicated service. Mr. and Mrs. Reyecraft handled the distribution of the books up to this time as well. A new editor was appointed in 1974, Mrs. Phyllis Thomson, and Mr. Roger Brown took on the job of

book-keeping and distribution with the assistance of his wife Dorcas.

Fifteen thousand copies are now printed each year, and this annual publication is a labour of love and a source of pride to all the authors, editors, and committee members involved.



Care of Nursery Stock

Nursery stock should be ordered in the late fall. Generally speaking, spring planting before growth starts is recommended. If planting is done in the fall, there is danger that the plants will be heaved out of the ground by the freezing action of the soil in the winter. Evergreens can be moved quite satisfactorily either in the early spring or in late August or September.

When nursery stock arrives, plants should be stored in a cool, moist room, out of the sun and wind. If there is some delay before planting, the packages can be opened and the plants "heeled in" in a well drained area. When planting is being done, care should be taken that the roots are kept covered with damp sacking at all times to prevent the roots from becoming dried out from exposure to air or sun.

Plants should be set in the ground a little deeper than they were when grown in the nursery. Holes for the plants should be large enough to accommodate all the roots when they are spread out fully. Good garden soil should be used to cover the roots, and it should be firmed well to fill up all air spaces. Plants should be watered adequately.

Immediately after planting, shrubs and trees should be pruned to give the roots a chance to become established. All branches should have the top third cut off. This is not necessary with evergreens.

When evergreens are delivered with the soil and roots wrapped in burlap, be sure that the ball of soil is not disturbed. The plants should be set in the ground with the burlap intact but after the soil has been firmed around the ball of roots, the burlap can be loosened at the top. Evergreens should not be pruned. Each fall before freeze-up evergreens should be watered well.

Horticulture Helps to Heal

LYNN DENNIS

Plants, therapeutic and healing potentials, for centuries have been tapped by man for helping man. Early interest in plants was centred on their healing properties, and many of the earliest horticulturists were physicians who sought to grow plants of medicinal value. The Oxford University Botanic Gardens was established in 1621, primarily to strengthen the faculty of medicine with their endeavours to cure the ill. Early therapeutic values were realized about the year 1806 in Spain when hospital staff noted that poor patients who were required to assist in agricultural and horticultural chores often recovered before wealthy patients not required in these activities.

In the 20th century we are still concerned about the healing properties of plants. Dr. C. F. Menninger of the Menninger Foundation Hospital in Topeka, Kansas, walked and invited patients to accompany him through the gardens of the institution. These walks were later regularly assigned as part of the therapy program. Dr. Menninger taught the patients how to identify plants and to use the botanical as well as common names. Today, the importance of natural beauty and plants to man's mental health is inescapable, as concrete jungles and in-

dustrial wastes encroach on our shrinking areas of natural beauty.

How then, is gardening and horticulture therapeutic?

To be therapeutic something must prove to be successful in tending to cure a condition or disease.

One example of apparent change in a condition, using a horticultural activity, was with a man who suffered from a stroke. He showed little response to any former treatment and was assigned to our horticultural therapy session by the occupational therapist in charge of his case. We watched him as he smiled, moving the fingers in his good hand as he touched and smelt the texture and fragrance of fresh mint leaves, lemon balm and lavender.

This summer at the Royal Botanical Gardens' Children's Garden, we have a group of mentally retarded young men and women who visit weekly to enjoy the fresh air and sunshine, and feel the warm soil as they plant seeds, weed, and harvest vegetables from their gardens. Giving each other showers with the garden hose is, of course, a fringe benefit that highlights their visits and is lots of fun. The social aspects of being around other children and adults is another



Students from the MacNeill Centre for the mentally retarded, in Hamilton, enjoy their vegetable garden at R.B.G. Children's Garden.

benefit of their gardening experience.

Just to see the expression on the face of an elderly woman who has completed a flower arrangement that she constructed herself, even though her hands are badly damaged by arthritis, shows in more than a tangible way the effectiveness of horticulture.

For those of us deeply involved in horticulture, either as a profession or hobby, there is a challenge. People in the helping discipline for example, occupational therapists, teachers of special education, professionals and volunteers working with the mentally retarded, and instructors for the blind and deaf are looking for people with practical gardening know-how, and with a keen interest in helping the handicapped to establish programs in gardening and horticulture.

Holbrook Rehab. Unit

During the past three years I have been conducting horticultural therapy at the Holbrook Rehabilitation Unit, Chedoke Hospital, Hamilton, Ont. In assisting me in this program, volunteers from the community, members of area horticultural societies, and hospital staff members are taking a keen interest in using horticulture as a therapeutic medium. Garden practices and floral art are now regularly weekly 'happenings' at Holbrook.

A maximum of twenty patients come to the garden workshop each Thursday afternoon. The number of patients is minimized to enable as much individual attention as possible with the volunteers, occupational therapists, and myself. The five sessions include Fresh Flower Arranging, Plant Propagation, Herbs Using our

Senses, Bulb Forcing (autumn) and craft projects using natural materials. This season, construction and planting of an outdoor raised garden for ambulatory and wheel chair patients has been completed with the assistance of hospital grounds staff and volunteers from local horticultural societies. Concern for such attributes as plants that root easily, have herbal qualities, fragrances, and are hardy in this area, all had to be considered in developing the gardens. It will be used by patients and their relatives and friends as an educational area for outdoor practical gardening and plant studies, and as a possible area for relaxation and enjoyment.

Modified tools have been developed to ease the work in garden activities. Such items as the Baronet Flower Gatherer, the long-handled weeder, and the Woodman EASE-pick up, are now commercially available in Canada. These and other tools can be obtained from the following commercial outlets. Equipment Consul-

tants and Sales, 2241 Dunwin Drive, Mississauga, Ont. L5L 1A3, and Weall and Cullen Nurseries Ltd., R.R. No. 1, Milliken, Ontario.

There is a growing movement utilizing horticulture and natural sciences in therapy. Among the places already involved are the Nuffield Orthopaedic Centre, Oxford England; Clinton Valley Centre, Psychiatric Hospital in Pontiac, Michigan, U.S.A.; and the Melwood Horticultural Training Centre, for the mentally retarded in Upper Marlboro, Maryland, U.S.A. To many confined to hospitals, nursing homes and other institutions, horticulture can be an avenue of overcoming depression and frustration as they develop an exciting new hobby. To others it paves the way for jobs and productiveness in society.

One of our greatest challenges is to develop the potential of the human resource. Horticulture should be used more than ever in helping to meet this challenge.



The Baronet pick-up is especially useful for gathering cut flowers, and weeding. Note raised garden with padded bumpers.

Flower Arranging from the Judge's Viewpoint

JOAN JONES

When I was asked to judge flower arrangement classes for the first time, it was for a large show in Wales. I felt pleased and rather important, however, after judging I was mingling with the public when I heard a woman say, "The judge must need her head examined — she hasn't a clue about flower arranging." I left feeling very deflated, but I soon learned that no one can please everyone. One just does the best possible job and although it can be very difficult, it is always enjoyable. It's a lovely way of meeting people — at the large shows such as Manisphere and the International and at the smaller shows held in towns and villages.

One never knows what to expect! Many of the arrangements are very beautiful and are works of art. On the other hand, I recall an "arrangement" which consisted of a squashed bunch of flowers tied with string, poked into a large glass jar. Most people like to have the judge write a few notes about the entry, and in this case I was very tempted!

What Judges Look For

Here are a few examples of what the judge looks for:

- 1) All the entries entered in the correct class.
- 2) Not to have to re-judge a class because of a late entry. (I used to be weak about this but no longer!)

- 3) The stewards to be there for assistance, but would like them to refrain from giving their judgements before the judge!
- 4) The containers to be leakproof and (hopefully) topple proof. It's rather disconcerting to have the arrangement disintegrate when touched.
- 5) The name of the entrant to be completely hidden.

Principles in Judging

The seven main principles used in judging are: design; color harmony; suitability to purpose as shown in schedule; condition of flowers and foliage; harmony of the materials used; originality; and relation of arrangement to the container. The entry must interpret the wording of the schedule, otherwise it shouldn't be considered. For example, if the class is for a centrepiece for a dining table and one entry is a tall, one-sided, triangular arrangement, it should not be considered as it obviously is not a centrepiece for a dining table. Or, if the class states "flowers, foliage and driftwood", make sure the entry contains all three.

The arrangement should be the right size for the container and the materials used should be in scale. When judging an upright arrangement, the height of the arrangement should be at least one and a half times the height of the container. In a shal-

low container the height could be approximately one and a half times the **width** of the container.

Balance & Design

If you draw an imaginary line down through the centre of the arrangement, both sides should balance each other visually. Color can achieve balance by using the dominant color in the centre, low down. Design is most important. Does the arrangement have scale, balance, rhythm, harmony of materials, and do the stems appear to radiate from a central point? Is the fine material used at the outer edges and the dominant material as the focal point? If the schedule calls for an arrangement for a happy, jolly occasion, a bright color should be used — red/orange/yellow. Blue and violet would be wrong as they are subdued colors.

If the schedule calls for a perpendicular arrangement then obviously an arrangement in a low squat container would look wrong. If driftwood is used, complement it by using 'woody' materials — maybe fungus and flowers on a wooden base. Driftwood and moss would be incorrect on a silver tray.

Freshness

It is often the case that a beautiful arrangement is ruined by just one not so fresh flower or leaf. It immediately loses points. All stems should be in water or wet oasis. Flowers and foliage don't have to be perfect specimens but must be in fresh, good condition. Originality does not mean freakishness. It's surprising what turns up in some classes. I remember one entry which consisted of a walking cane and a jam jar of water with one bullrush in it!

Tips for the Judge

After being invited to judge at a

show the judge should study the schedule carefully and if any part is not clear it should be explained clearly by the secretary so that the exhibitors, committee and judge are all agreed. The judge should underline appropriate wording in the schedule; for example, "An arrangement in antique type container". The important words would be "antique type container". Or "a miniature arrangement not more than six inches in any dimension" — underline "not more than six inches" and "any dimension".

It is a good idea to take a quick look at all the classes before starting. Then go to the first class and note the arrangements which attract you, not forgetting all the principles involved. Go over the class again to make sure that you haven't missed anything. Next, try to place first, second and third prizes checking that they follow the wording of the schedule. If you find yourself undecided between two or three entries which seem equally good, use the points system which is as follows:

design — 20 points,
color — 20 points,
originality — 15 points,
suitability
to occasion — 15 points,
harmony
of materials — 10 points
relation
to container — 10 points,
condition
of flowers
and foliage — 10 points,
making a total of 100 points.

A judge must be strictly fair, experienced, sometimes very tactful but also encouraging so that people who are just starting flower arranging will not be put off and lose interest.

Keeping a Varied Collection of Plants in the Home

BETSY THORSTEINSON

Over the past few years there has been a considerable upsurge of interest in house plants. Windows of homes and apartments are filling up with green growing things, and stores dealing exclusively with plants are springing up everywhere. People are discovering how fascinating plants are; how astonishingly diverse and inventive the kingdom can be. Plants are being treated as individuals with personality, not just as boring masses of foliage.

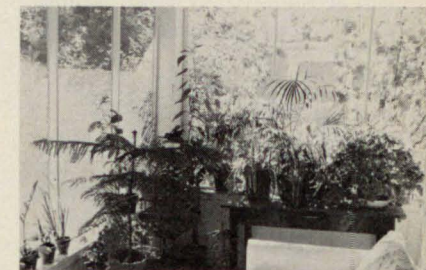
Having perhaps kindled your interest in plants on the more readily available tropicals, you may be ready to try growing the more uncommon ones. With a little attention to their specific growing conditions many plants usually considered "Botanical Garden Exotics" can be grown in the home. You have to be adventurous and a little bit ingenious at times but you can get first hand acquaintance with some marvelous green "creatures". It's not really hard to do. You need to find out what the plant requires (humidity, temperature, light, soil) and this means acquiring a few books on the subject, using the local library.

The plants usually grown in the home are ones of iron constitution. Give them low humidity, sporadic watering, poor light, and they will still survive, but give them proper condi-

tions and they will reward you by flourishing.

Temperature

Most exotic plants require a temperature range from 60° to 75°F. This is very conveniently the temperature range at which the average home is maintained. Most plants also like a drop of 10 degrees at night which may be accomplished, at least in part, by turning the thermostat down at night. The temperature in houses is in any case not constant, it is generally colder close to the windows and there are cool and warm corners. It is very useful to acquire a thermometer and shift it around the house to discover these various warm and cold spots (microclimates). With this knowledge you may find you can accommodate more easily plants growing at the



House plants enjoying the summer weather on a screened front porch.

cooler or warmer ends of the temperature range.

Humidity

Humidity is more of a problem in prairie homes, but there are many ways to deal with it. Grouping plants together automatically raises the humidity. In their life processes plants are constantly releasing water, so the more plants you grow the less your humidity problem is. It is also more humid in the kitchen and bathroom and if the light is good they can make excellent growing places. In winter the cooler air close to the window is also higher in humidity. To increase humidity, I grow many of my plants over galvanized trays of water. These are easily and inexpensively made up to any size at a local sheet metal shop. The sides of these trays are usually 2 - 2½ inches high. I fill these trays with insulation grade vermiculate (Zonolite) or perlite to increase the surface area for evaporation. I have found that gravel or pebbles make the trays heavy and awkward. I place the plants above the trays on overturned pots or cans or, alternately, on redwood slatting, or the plastic "egg crating" used as light diffusers in fluorescent lighting. I prefer standing the plants on pots because I can then adjust for the individual height and light requirements of the plants, especially those under fluorescent lights. If you find humidity is still low, it can be increased by small room humidifiers. A very useful thing to have is a humidity meter, which is easily and cheaply acquired. Another method is to grow plants in terrariums, and this can be applied particularly to fern growing.

Light

Light is very important in growing

plants well. It is a disservice to a plant to treat it mainly as a home decorating device and not consider its light needs. A window full of healthy plants is a lot more appealing than an artfully arranged grouping of plants on a coffee table or dark corner, straining for light and obviously declining. If you want to display a plant for a while it will not suffer for a week or so in subdued light, as long as you return it to its proper place in the light.

It is useful to know the term foot-candle, a measure of illumination. Most plants barely survive at 50 foot-candles. Many foliage plants are quite happy with 200 to 250 foot-candles and luxuriant with more. The range from 250 to 650 foot-candles will please flowering plants like African Violets and others of that family (Gesneriads). Over 650 is good for growing more light demanding plants like many florist flowering plants, some of the orchids, for instance. A south window on a sunny day can be 2,000 foot-candles, but it is amazing how little light there actually is at many windows. A window sill on a dull day in winter can have as little as 25 foot-candles. The light varies with the season and the number of sunny or cloudy days. Tree shade in summer, double glazing, winter's shorter days, the proximity of other buildings, all diminish light intensities. Even at a south window the intensity of light drops off quite quickly further into the room. One happy factor about living on the prairies is that we have a fairly high percentage of sunny days which improves light conditions on sills. The sunniest and most useful exposure is unobstructed south, followed by east, west, and finally north. East and west are sunnier during the summer; south is less

sunny in summer because the sun is higher and can't angle into the room as much. Southern exposure is better during winter, early spring and fall when the sun is lower. To grow plants well it is important to make some evaluation of the particular light qualities of each window to take advantage of it properly, or supplement if necessary. If you have or can borrow a light meter, or camera with through the lens metering, the following is one method of measuring light intensity:

Place a piece of white card paper on the sill and set the meter to ASA 10 and shutter speed at 1/100 of a second. Hold the camera or meter close to the surface of the paper to read reflected light. At F3.5 the intensity is 400 foot-candles; F4, 500 foot-candles; F4.5, 650 foot-candles; F5, 800 foot-candles; F5.6, 1,000 foot-candles; F6.3, 1,300 foot-candles; F8, 2,000 foot-candles; F9, 2,400 foot-candles. You will probably find many of your readings below 400 foot-candles, but from this scale you can still make a rough estimate of how much light the plant is actually getting.

The best way to increase light for your plants is to use fluorescent light, either to supplement natural light, or as a sole source of light. One four foot, two bulb fixture gives light intensities ranging from 250 to 500 foot-candles, about a foot from the bulbs. This is a popular and quite successful method of growing plants and there is an increasing amount of literature on the subject.

I live in a shaded old house and generally the windows are not bright. I use fluorescent lights to supplement natural light on a heated sun porch with a partially obstructed north-west exposure. I also have two other set-

ups entirely using fluorescent light fixtures with two or four bulbs. I am quite successful with a combination of Cool White and Wide Spectrum Grow-Lux in a one-one ratio. The fixtures are hung over galvanized pans of water and partially enclosed with plastic, depending on humidity.

Incandescent light will supplement natural light, and foliage plants, particularly ferns grow quite happily with that little extra light.

If you are lucky to have a front porch on your home by all means take advantage of it as a summering place for your less tender house plants. They will enjoy the fresh air and broken sunlight. Apartment balconies can serve the same purpose as long as you provide shelter from the blasting sun. Remember, sunlight at high noon can be 20 times as strong as light indoors, and unprotected leaves will scorch. The shelter of trees is useful to disperse the sunlight. Outside, plants will grow stronger and sturdier and, in part, compensate for the months of lower light and slow growth during winter.

Soil

Soil is another major factor in the maintenance of healthy plants. I use a standard soil mix produced by a local nursery. I vary the standard mix by adding more dampened peat moss, perlite, or sand, depending for which plant I'm preparing the soil. It is important to know the soil requirements of each plant, whether sandy or rich with humus, acidic or alkaline. Some plants get along in just about anything; some have very specific requirements that can be discovered by a little reading and research. However, make sure the soil is sterilized. A lot of the soil sold in stores is not. You can sterilize soil yourself by plac-

ing it in a large aluminum foil pan and thoroughly soaking it (some water standing on top). Preheat your oven to 185° and bake soil for ¾ hour. The steam produced sterilizes the soil.

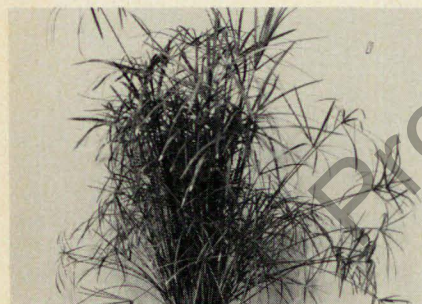
I use both clay and plastic pots, but when using plastic pots, I make the soil mixture more porous, to prevent it from remaining too soggy. If the soil in plastic pots is not loose, the dry soil ball has a tendency to pull away from the sides of the pot, making it difficult to re-wet.

Fertilizing really depends on a lot of factors: light, season, an individual plant's food requirements and speed of growth. The encapsulated, timed release fertilizers are the easiest to use and are quite good, although some do not have trace elements.

So far I've given a general guide to setting up the growing conditions for house plants; now I would like to suggest ways of obtaining uncommon plants and some interesting ones to try.

Kinds of Plants

Occasionally, if you're vigilant, unusuals can be found in plant stores, or they can be ordered. The cheapest and sometimes only way to acquire exotic plants is in the form of seeds. Plants found in stores may be



Cyperus Alternifolius "Umbrella Palm".

weakened by mistreatment, or may harbour infesting insects. With a little patience, it's not hard to raise healthy plants from seeds.

Some plants that grow easily from seed, and make good house plants are:

Exacum affine A member of the Gentian family with waxy, neat leaves, and constantly covered with blue long lasting flowers.

Cyperus alternifolius (Umbrella Palm) In a short time from seed this rush makes a magnificent plant, that is graceful and uncomplaining. It likes to be standing constantly in water.

Tetranema mexicanum (Mexican Foxglove) A beautiful little plant always producing delicate purplish slipper-like flowers.

Punica granatum nana (Dwarf Pomegranate) A miniature pomegranate tree with brilliant red flowers followed by little fruit.

Musa coccinea A dwarf banana plant that grows to four feet and has red and yellow flowers.

Ferns

Ferns, belonging to a more primitive division in the plant kingdom, have an elegant and mysterious presence, invoking ancient, lush places and times. Even if they didn't get around to evolving flowers, their enormous diversity of leaf forms compensate magnificently.

Ferns grow best in shade or filtered light (200 - 600 fc) in temperatures ranging from 65° - 80°F. People often say they have difficulty growing ferns. The trouble is usually with low humidity and watering. I've already mentioned ways of increasing humidity. The watering requires special attention. Ferns like constant moisture. If you forget to water them they either die outright, or are severely set back.

On the other hand they don't like constantly soggy wet soil. Feel the surface of the soil. If it is getting dry or is dry, its time to water.



A small sampling of the variety of ferns that can be grown.

To keep potted ferns from drying quickly they may be double potted, with the space between the pot walls filled with coarse sphagnum or sand.

If you can't provide the humidity but want to grow ferns, try a fern terrarium. Use an old aquarium. These are cheap and easy to obtain second hand. It should be over 15 gallons, and the sides of the tank have to be at least one and a half times as high as the width in order to maintain high local humidity. In the bottom put a two inch layer of coarse gravel, with a finer grade layer on top to catch the soil. The soil mix to use is a combination of two parts potting soil, one part peat moss, one part vermiculite, and one part perlite.

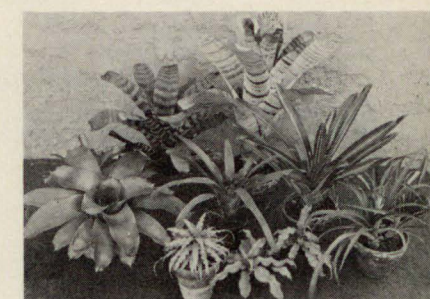
There are lots of ferns being sold now in plant stores but after you buy them check them over carefully for pests. Their most common pests are scale and aphids.

Ferns are touchy about insecticides. Their fronds are easily damaged by some of the more common insecticides. The one I have been most successful with is Cygon, used half strength as a soil drench. It becomes effective in about three weeks,

but it does not damage the ferns.

To get more uncommon ferns, you have to grow them from spores. It is not hard to do, although they don't grow the same way as seeds. They have a two-part life cycle, producing first a flattened heart-shaped green prothallus, and then from a corner of the heart, a baby fern.

To obtain the spore from a plant, you first have to find a frond with more or less regular patches of rusty brown on the underside. These are clusters of capsules holding spores. Put the piece of frond on an envelope and let it dry for a week. You will find a fine brown dust at the bottom of the envelope. Sprinkle this dust thinly on a commercial peat pellet, which has been expanded with boiling water and allowed to cool. Put the pellet in an empty margarine container and cover it with one of those clear plastic disposable glasses. The pellet will be constantly moist by keeping a little water in the bottom of the container. Put it in subdued light and in two weeks or more the pellet will be covered with prothalli. If you spray these occasionally from above, small ferns will start to appear. When they are big enough to handle, cut the netting of the pellet and transplant the baby ferns to a potting mix.



Some Bromeliads Easily Grown in the Home

Bromeliads

Another group of exotics that adapt very well to the home, are the bromeliads (the various relatives of the pineapple plant). There are 2,000 species of bromeliads, all from tropical America. Although their flowers last for only a few days, the floral bracts and berries are decorative and long lasting. Their leaves are often tinted and barred in beautiful color combinations.

Generally the softer leaved ones, from shaded moist parts of the forest, require less light and more humidity. The ones with stiffer, often grey leaves, need more light and can be grown in a dryer atmosphere.

Bromeliads are mostly air plants, growing on branches of trees in their natural habitat. They don't have well developed root systems. In fact many of them catch water and nutrients in their leaf rosettes, and use their roots only to anchor themselves. Grown as house plants they should be under-

potted in a porous, well draining medium.

Easy ones to grow are *Cryptanthus* sp., *Aechmea fasciata*, *Vriesea splendens*, *Neoregelia carolinae* var. *tricolor* and *Gusmania* sp. All of these bromeliads can be found in plant stores from time to time, or if you are very patient they can be grown from seed. The seed is sown on peat pellets, covered with a plastic bag and put in a warm, light place.

Carnivorous Plants

The last and perhaps most amazing group of unusuals are the plants that are adapted to catch and digest insects. Most people are familiar with the Venus flytrap, but there are also Sundews and pitcher plants. Sundews capture insects on leaves covered and glistening with tentacles tipped with a sticky fluid. Pitcher plants drown insects in water held in their "pitcher" like leaves.



Left to right: *Drosera Binata*, *Drosera Spathulata*, *Drosera Capensis*.

They all grow easily under lights in pots of live sphagnum moss standing constantly in water. You can find sphagnum moss growing in wet poorly drained sites throughout the prairies. Carnivorous plants have to be watered with distilled water or rain water. Tap water has too many dissolved salts in it. They can be grown from seeds sown on sphagnum moss. The seeds can be obtained from companies specializing in carnivorous plants and also from some bigger

seed houses.

The sundews usually grown are *Drosera capensis*, *Drosera binata*, and *Drosera spatulata*. The pitcher plants usually available are *Sarracenia purpurea*, and *Darlingtonia californica*.

In this article I've only discussed a few of the thousands of plants that can be grown in the home. To learn about others here are a few excellent books to read. Good Luck!

Some Useful Books

ELBERT, Virgine E. and George A. *Fun with Growing Odd and Curious Houseplants*. Crown Publishers, Inc., New York. 1975
 GRAF, A. B. *Exotica Series Three*. Roehrs Company, Inc., Rutherford, New Jersey. 1974
 HOSHIZAKI, Barbara Joe. *Fern Growers Manual*. Alfred A. Knopf, New York. 1975
 MENAGE, R. H. *Gardening for Adventure*. Phoenix House, London. 1966
 SCHWARTZ, Randall. *Carnivorous Plants*. Praeger Publishers, Inc., New York, N.Y. 1974

A List of Sources

Thompson & Morgan Inc.
 P.O. Box 24
 401 Kennedy Boulevard,
 Somerdale, N.J. 08083
 Geo. W. Park Seed Co., Inc.,
 Greenwood, S.C. 29647
 C. A. Cruickshank Ltd.,
 The Garden Guild,
 1015 Mount Pleasant Road.,
 Toronto, Ontario, M4P 2M1
 Major Howell's International
 Seed Collection,
 Major V. F. Howell,
 Fire Thorn, Oxshott Way,
 Cobham, Surrey, KT11 2RT, England.
 Velco's Bromeliad Nursery
 2905 Washington Blvd.,
 Marina Del Rey, California, 90291

*"There's a pine built lodge in a rocky mountain glen
 In the shaggy breasted motherland that bore me;
 And the West wind calls, and I'm turning home again
 To the hill*

*The West — "Where the lake laughs blue while the dipping paddles gleam
 Where the wild geese are following their leader
 Where the fish leaps up from the silver of the stream
 And a buck strikes his horn against a cedar."*

Arthur Ginterman

Humidity Control for Healthy House Plants

J. D. CAMPBELL

Introduction

During the most severe period of winter in Western Canada, the air in our homes can become extremely dry. This contributes to discomfort and respiratory problems in humans. Under this condition, plants tend to transpire (lose large amounts of water) at an increased rate.

Relative Humidity

The amount of water vapour held in the air varies according to its temperature. Warm air holds a relatively large amount of moisture; cold air holds much less. When the outside temperature reaches a low of -40°C , for example, without humidity control, this air when heated to 20°C becomes as dry as that of the Sahara Desert. To bring it up to a more comfortable level at about 30-40% Relative Humidity (R.H.) can be done only by adding moisture.

For human, and plant comfort, dry air feels cooler than moist air at the same temperature. With the increasing cost of heating, it therefore makes good sense to take steps to provide extra moisture in all homes, offices and work places during Canadian winters. The ideal way to control humidity is to build it into all hot air furnaces. The optimum R.H. can be maintained automatically by means of a humidistat.

Where steam, hot water, or electric heating (base of heating cables) is used, portable humidifiers must be used.

To control R.H. in a limited area where you have many plants, a small, low cost atomizer type humidifier can be used. This costs less to operate than a humidifier which produces steam.

Plants vary considerably in their requirements for humidity. The following information was taken from "Plants in Your Home."¹

Plants for low humidity

Philodendrons	(<i>Philodendron</i> var.)
Snake Plant	(<i>Sansevieria</i> var.)
Peperomia	(<i>Peperomia</i> var.)
English Ivy	(<i>Hedera helix</i> var.)
Rubber Plant	(<i>Ficus elastica</i> var.)
Fiddle-leaf Fig	(<i>Ficus pandurata</i>)
Jade Plant	(<i>Crassula arborescens</i>)
Kalanchoe	(<i>Kalanchoe</i> var.)
Assorted Cacti and Succulents	

Plants that suffer in low humidity

African Violet	(<i>Saintpaulia</i> var.)
Chinese Evergreen	(<i>Aglaonema simplex</i>)
Begonias	(<i>Begonia</i> var.)
Caladium	(<i>Caladium bicolor</i>)
Fittonia	(<i>Fittonia verschaefeltii</i>)
Maranta, Prayer Plant	(<i>Maranta bicolor</i>)

Another listing of plants which prefer humid air are listed below.²

1. Cool foliage plants ($15^{\circ} - 20^{\circ}\text{C}$).
Boston Fern.
2. Average temperature plants (about 20°C).
Baby Tears, Silver Lace Fern, Wandering Jew.
3. Average to warm ($20^{\circ} - 25^{\circ}\text{C}$).
African Violet, Aralia, Caladium, Episcia, Fancy-leaved Begonia, Fittonia, Gardenia, Pineapple, Polypody Fern, Prayer Plant.

¹By Hoag & Holland, Bulletin No. 440, 1962, Pub. by Dept. of Horticulture, Agr. Exp. St., North Dakota State University, Fargo, N.D. 58102, U.S.A.

²Taken from "Foliage Plants for Modern Living", 1974. Pub. by Merchants Pub. Co., Kalamazoo, Mich. 49001, U.S.A.

Humidity and Soil Mixes

In earlier times, soils used for house plants were often low in organic matter and poorly drained. This contrasts with the present trend towards much better drained soils such as shown below.

Standard Soil Mix for House Plants

- | | |
|--------|---|
| 1 qt. | of sterilized garden loam or pre-packaged potting soil. |
| 1 qt. | peat moss or leaf mold. |
| 1 qt. | perlite ³ or clean sharp builders sand. |
| 1 tsp. | high phosphorus fertilizer such as Triple superphosphate, 11-48-0, 11-55-0 or 10-52-17. |

This type of soil media reduces the danger from overwatering. When more water is added, more moisture will escape from the soil surface which will provide a better condition of humidity around the plants. If a number of plants are spaced near each other, the air in that immediate area will be favourably influenced.

Humidity and Light

During the summer, light intensity increases. This results in more transpiration and increased rate of growth which calls for more plant nutrients and water.

Growing in Planters

There is a trend towards the use of planters; metal, wood, or plastic, waterproof trays. The R.H. can be significantly increased by placing an inch or two of gravel in the bottom. Add water to keep the level below the bottom of the plant pots. If algae becomes a problem, it can be controlled by adding a teaspoon of Clorox to a gallon of water added to the tray.

Misting

There are now many types of mist sprayers such as brass, plastic and even electrically operated foggers which are being used to mist plants. Some enthusiastic gardeners mist as often as twice a day. Care should be taken never to mist in the late afternoon. If plant leaves are damp during the night, diseases such as powdery mildew or gray mold (*Botrytis* fungi) are encouraged. Dr. D. G. Hossayon⁴ pointed out that one should never mist leaves exposed to the hot sun. Misting has the added advantage of keeping the plant leaves clean. Also, moisture discourages the troublesome spider mite. Some enthusiastic people are now combining misting with foliar feeding. Care must be taken not to exceed the rate of fertilizer over that specifically recommended for foliar feeding.

³Brand name by Grace Construction Co.

⁴"Be Your Own House Plant Expert", 1974. Pub. by Pan Britannica Ind. Ltd., Waltham Cross, Herts, England.

The Grounds Around Apartment Blocks can be Beautiful

ALMA CORNWELL

Plants, the greatest panacea for man's ills and the greatest joy to all who view them, are wanting in areas where the high-density population is extremely concentrated in our cities — the apartment blocks.

In most cases these high-rise structures are masses of brick and concrete with little or no thought given to green areas or the delicate beauty of flowers. This is the complete antithesis of nature's way of life, however, with a little thought and ingenuity we can still have flowers and enjoy their beauty and fragrance.

Balconies

Most apartment homes have balconies and no matter in which direction they face there are plants and



A view of our balcony from another suite. We have a red carpet that cannot be seen in picture.

flowers that will flourish in this environment. Here is where you can become an exponent of innovation. There are attractive boxes for windows, and containers that can be fastened very easily to the balcony railings. Bright geraniums, gay Cascade petunias, and colorful begonias are favorites here. These add color and privacy to your own balcony and may be enjoyed by other tenants too. Hanging baskets are also very attractive and pots or planters can be attached to the walls. If there is enough shade, the Belgian hanging begonias are superb. Now, with a little carpet on the floor, you have a beautiful outdoor extension to your home.

Ground Level

At ground level the garden area will vary in size and shape, but no matter how small, it can be very attractive. Light, shade, and the quality of soil will largely determine the variety of



plants used. Always work with a color scheme in mind. Now, all that is required is enthusiasm and a will. For simple aesthetic pleasure there is nothing like a garden.

Sometimes there is a small strip of earth along the side of the building. If you have the right soil and light there are many plants that will grow well there. The Jackmanii clematis is a real eye-catcher, and trumpet lilies are excellent as well. Besides being very beautiful many have a delightful fragrance. Some of the better varieties are Silver Sunburst, Green Magic, Regale (we had 30 blossoms on one stalk), Jamboree, and Black Dragon. The heat from the basement wall will offset the severity of the winter climate.

Roses are a delight, but do require constant attention, so plant only the best varieties and just as many as you can care for easily and properly. Two of the best varieties are the yellow Peace and Queen Elizabeth.

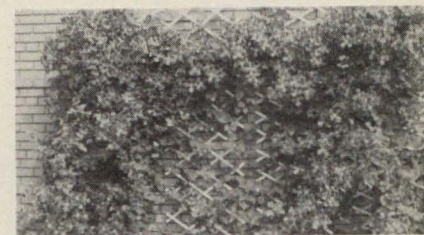
Peonies, clematis, and phlox are colorful perennials requiring little care. Cannas, dahlias, begonias, and gladioli are beautiful, but have to be lifted in the autumn and stored under suitable conditions during the winter.

Do not forget the early blooming bulbs. They are as fresh as spring itself and require very little space. The Darwin tulips are excellent and come in a great variety of colors. Daffodils and other early flowering bulbs are also great harbingers of spring. Then, of course, every garden needs a few annuals. We grow gladioli and the giant antirrhenum for floral arrangements. We also tuck in a plant or two of gypsophila, either pink or white, to add a dainty touch to our arrangements.

For color masses petunias, salvia, and geraniums are among the best. Then sweet alyssum and other edging plants add a special trim and charm to



Hanging Begonias on our balcony.



your beds. Plants not only give pleasure to all who pass, but also enhance the sights and sounds of our environment by attracting birds and other small creatures.

The home should always be a place of peace and comfort and, as a consequence of these amenities, life in the apartment-home can be very pleasurable.

What's Wrong with My Tree?

MARTIN BENUM

This question confronts the Arborist time and again these days. The question is spoken with concern. But the answer frequently lies in obscurity. The problem with the specific tree may be related away back in its history. It may lie in many areas — its birth, ancestry, planting, where and how it is planted, the occurrences during the successive years since it was planted, the treatment and care it may or may not have received, the abuse on its existence by man and nature, etc.

Right Species?

Most individual citizens plant an average of one or two trees in their entire lifetime. It may have been undertaken when in their school years, they participated in an Arbor Day program. To others, the festive tree planting takes place when they have acquired their first new homesite or property. To some individuals, the species of the tree is relevant, and they may wish to do the right thing, so to speak. But to the majority, the species, size, health, form, and tolerance of the tree is irrelevant. They frequently acquire the most inexpensive tree from the "Big Store" Garden Centre, because of clearance prices and after it is too late in the planting season. These trees may be intolerant to their specific climatic zone, dehydrated, abused and often too small.

Right Beginning?

The beginning for any tree is paramount. The planting is really the establishment of its future. The average front yard site is normally composed of 95% low nutritional clays, 2% of black granular soil spread sparingly over the clays, topped with 3% of prairie grown sod. A hole is dug, just a little larger than the "root ball" and sometimes just a little deeper than the "root collar". Some "black soil" is occasionally added to the bottom of the root hole. The tree is introduced into the hole, and seldom are the root stems spread out, soil is added around and upon the roots with little or no tamping, and the remainder of the vacant space is filled with the finer particles of the original clay material removed when the hole was first dug.

The soil is very often mounded in the form of a mushroom above the general lawn profile and some water is dumped on the area to "give the tree a start". In other words, the "new tree" has been introduced into a hostile environment. Its existence from that moment on is an uphill battle.

Is it Growing?

If the tree survives the first three to five years in this front yard site, it will begin to grow. The average tree is difficult to "kill". It will continue to battle ferociously for its life. It will

survive drought, flooding and boring, diseases, mechanical injury, suffocation. The degree to which each of these particular treatments are administered or the succession in which they occur, could be terminal.

Disease and Insects

The average individual has taken the trees around him for granted. In recent years, the defoliation of the trees by insects has brought the citizen's concern around the matter of "his trees". It was basically not the trees' problems that raised the matter to the citizen's mind, it was his personal discomfiture which was caused by the crawling nuisance that was foremost in his mind. "Get rid of the worms quickly and forever" was the main aim. With the occurrence of Dutch Elm Disease in the Manitoba scene another consciousness for the tree's sake has appeared on the horizon. Now the citizen becomes conscious of what the trees really mean to life. What do we do if we lose the trees?

Plant Correctly

There will be great losses in the next number of years. We will have to start from square one again to keep trees around our houses, towns, cities. We should all learn to plant these new trees correctly so that the initial start is well done to bring the trees into our environment with the potentials in their favour.

The simple rules could be,

- a) get good stock, trees that can grow in our climatic zone,
- b) get good sized nursery material,
- c) use good soil for planting,
- d) create large enough planting holes,
- e) use proper planting techniques,
- f) be generous with the watering,
- g) be conscious of the tree's fertilizer needs,
- h) protect the trees from insect infestations and
- i) protect the tree from mechanical abuses.

Then with that start, there will be fewer calls about — "What's wrong with my tree?"



A garden is a pleasant thing, a sanctuary filled with living plants where one may idle among beauty and fragrance of flower and fruit, bud, and leaf, bark and twig. A place where quiet reigns and the spirit walks at dawn and dusk. A sanctuary hallowed by memories of family and friends, a never failing source of peace to the mind and joy to the soul. Making the garden grow prolongs life and the fullness thereof, and there need be no serpent in our Eden.

E. H. "Chinese" Wilson
in *Aristocrats of the Garden*, 1926.

The Small Greenhouse

J. R. ALMEY

The main reason for operating a small greenhouse, or for that matter, most commercial greenhouses on the prairies, is to lengthen the growing season. Many plants grown in our short season need the facilities a greenhouse provides. In recent years it has become quite evident that the high ranking competitors in the Provincial Garden Competitions use a greenhouse to meet their requirements for a good garden. In addition to this, a greenhouse allows the grower to raise a variety of plants that are difficult to obtain locally, and often plants of better quality. The keen gardener can find it frustrating to have to wait until he can start his garden work outside in the spring. A nice warm greenhouse in operation at this time of the year is very satisfying.



Thompson greenhouse

Soil

The severe winters we have make it very costly to operate a greenhouse through the winter, so it is desirable to start up the greenhouse in early April. With this in one's plans a quantity of good soil, sand, manure and peat should be stored in the greenhouse in the fall, ready for use at a time when it is often difficult to obtain.

Location, Heating and Ventilation

When choosing the location for the greenhouse the maximum amount of sunshine obtainable and convenience to a source of heating, must be kept in mind. The greenhouse can be attached to the house, or as a separate structure. The usual source of heat is electricity, although some may use



Glass greenhouse

gas or oil, or if connected to the house, they can use the house heating system. We use electricity for our 9½' x 7½' greenhouse. A lead covered heating cable in a soil bench and a baseboard heater under a wooden bench have been quite satisfactory.

The heating and ventilation system is most important. They can be thermostatically controlled, which adds considerably to the cost of building. In our greenhouse we have not used either, and this has meant constant daily attention. Even without heat and a bright sun the temperature will jump quickly so as to injure plants, especially young seedlings, and it is necessary to ventilate and provide shade.

In addition to the use of a greenhouse, throughout the winter we operate in the basement under fluorescent lights with a bench heated with lead covered cable. In this instance we use automatic light control switches and thermostat for heat. This enables us to grow types of plants which need to be grown or carried over the winter.

Most small greenhouses use polyethylene sheets over a frame. One has a choice of this or glass. In the initial building glass is more costly. In building ours we used glass, and after ten years use it is as efficient as when built. In planning the size keep in mind the height, which should be such as to be capable of the installation of a standard sized entrance door, and high enough to work in comfortably.

Seeding

Earlier in this article I mentioned starting up your greenhouse the first week in April. For most seeds this

meets their needs. The earliest ones to be sown would be such kinds as pansies, lobelia, snapdragon and sweet peas as single seeds in Jiffy 7 pots; a little later salvia, ageratum, petunias, and the vegetables such as peppers and tomatoes. For most marigolds the first week in May will be soon enough.

It is best to have a portable cold frame available, because the greenhouse soon gets filled up, and those early plants can make room for more by being moved out to acclimatize or harden off in the cold frame.

We make little use of the greenhouse in the summer, thus we avoid the daily attention necessary in April and May. In the fall it is used for ripening off the onion crop, especially the large Spanish type. The begonia and dahlia tubers also make use of it until they are ready for storage. The final ripening of vegetable and flower seeds, which one prefers to save for his own use next year, can be completed.

The two pictures accompanying this article show in No. 1 a polyethylene covered greenhouse in Thompson, Manitoba. Note the additional end openings made to provide ventilation. The second photo shows a standard type of glass greenhouse 9½' x 7½'. Note the sliding door, which has advantages. The lowest row of roof lights are rigid plastic. This is used because freezing moisture between glass and plate on expanding will cause the glass to crack. Ventilation is provided in the far end of the greenhouse with one opening near the roof and one at the floor. Shade is provided by an inside awning on a roller under the ridge. The greenhouse faces south.

Preparing Fruit for the Horticultural Show

by P. J. PETERS

Western provinces differ slightly in their approach to the selection and preparation of fruits for exhibition. The following article deals with Manitoba's regulations as set out in Publication No. 244 (Revised) 1975. Exhibitors should study these regulations in detail. Judges should follow them carefully so that their placing will be consistent with the regulations. The prize list will specify the number of specimens for each class. This should be adhered to closely.

FRUIT

It is imperative that fruit be firm, mature but not over-ripe, strictly fresh, and average or slightly over average size for the variety. Unless strictly fresh when placed on exhibit, most fruits will become dry or soft before the show is concluded. Extreme care in handling is necessary to avoid bruising or damaging the specimens.

In selecting from the garden, a larger number of specimens should be collected than are required by the prize list. On closer examination it will be found that some of those selected are unsuitable. There is also danger that some may be damaged in transit to the show. Before leaving the show-bench it is important to make sure that the correct number of specimens remains for the judge.

Every precaution should be taken in

handling specimens carefully. Even slight bruising can cause dark spots to appear later, particularly in hot weather. Plums, cherries and sandcherry-plum hybrids should not be handled more than is necessary so that the original bloom on the skin is retained. Stems on these fruits should be removed to minimize danger of puncturing other fruits in transit or on the show-bench. However, apples and crabapples should be polished with a soft cloth to remove any spray or dust residues and to bring up the natural sheen to the skin. Stems should not be removed from apples and crabapples as there is danger of damaging the flesh, but the stems should be uniformly trimmed leaving about ½ inch (1 cm) on the fruit.

Fruit classes in horticultural show prize lists usually call for variety names to be supplied. It is important, therefore, that entries of fruit be correctly named and labelled, where necessary. Correct naming adds considerably to the educational value of an entry and if several entries are equal in other respects, correct naming should be the deciding factor in placing the entries.

Apples

Uniform in size, color, and shape; typical of variety; free from bruises, diseases or insect damage; mature; stem attached but trimmed uniformly; correctly named.

Crabapples

Uniform in size, color and shape; typical of variety; free from bruises, diseases or insect damage; mature; stem attached but trimmed uniformly, correctly named.

Apricots

Uniform in size, shape and color; free from bruises, diseases or insect damage; stems removed; natural bloom retained; named.

Plums

Uniform in size, shape and color; typical of variety; free from bruises, diseases or insect damage; mature; stems removed; natural bloom retained; correctly named.

Plum and Sandcherry Hybrids

Uniform in size, shape, and color; typical of variety, free from bruises, diseases or insect damage; mature; stems removed; natural bloom retained.

Strawberries

Ample size; firm; uniform in size, shape and color; bright red; well flavored; fresh; about one inch of stem attached.

Raspberries

Ample size; uniform in size, shape and color; attractively colored; firm; well flavored; fresh; without stems.

Currants

BLACK, RED or WHITE — Berries large, uniform in size; clean, bright and firm; bunches well filled.

Grapes

Bunches well formed, compact, uniform in size and typical of variety; berries large, ripe, with dense bloom; well colored.

Cherries

Ample size, and uniform in shape and color; firm; fresh; mature; stems attached.

Collection of Fruit

All specimens exhibited should be of high quality, fresh and prepared as for individual entries. Care should be taken that the exact number of samples is entered as specified in the prize list. All samples must be named correctly.

In exhibiting a collection of fruit it is not advisable to use decorative material. As the value of a collection lies in the advertising and education provided, quality and correct naming should be stressed.

Display

A display of fruits should not be restricted in scope by specifying a definite number of kinds or varieties. Decorative material may be used. Perhaps the best method used in arranging for displays is to allot a definite space area for each entry. While quality is important, due attention should be given to the number of kinds or varieties displayed. Tasty and artistic arrangement will go far in impressing the judge. The display should have definite eye appeal and should be so set up that it can be seen in entirety at a glance.

The cultivation of the earth is the most important labor of man.

Daniel Webster.

Growing Disease Free Geraniums

GARY PLATFORD



Geraniums!

One of the oldest flowering houseplants, still widely grown and increasing in popularity, is the geranium or Pelargonium. These perky plants brighten our homes winter and summer.

Types

There are three types of geraniums commonly encountered as house plants. The ordinary or zonal geranium (*Pelargonium zonale*) is the easiest to grow. Miniature varieties are also available in this type which grow only a few inches to about a maximum of six inches. There are single and double flowered varieties

in various shades of red, pink, purple and white. A circular zone of reddish coloured leaf tissue may or may not be prominent, depending on the variety.

The second type is the ivy leaf or trailing geranium, (*Pelargonium peltatum*). This type is harder to grow than the common geranium and is prone to oedema when grown indoors. The third type of geranium is the type commonly referred to as Pelargonium (*Pelargonium domesticum*). In contrast to the other two types which have smooth leaf margins, the margin of the Pelargonium leaves have many unequal sharp teeth. The flowers are bi-coloured. This type does not bloom as freely under indoor conditions as the common geranium and tends to grow straggly.

There are other species of geraniums which are less commonly encountered, including the scented leaf geraniums, oak-leaved geraniums, and varieties with white leaf margins. The various types of geraniums are all susceptible to the same types of diseases and here are suggestions for combatting them.

Diseases

Geraniums are susceptible to a number of disease problems including root rot, black leg, gray mould, virus diseases and oedema. Root rot is

caused by a number of soil inhabiting fungi which are almost always present in unsterilized soil. The lower leaves of the plant turn yellow and eventually fall off. The entire plant assumes a pale green colour and growth may be stunted. The plants often fail to flower or blossom, buds drop off before opening, and the roots of the plant appear brown and are rotted. This unfortunately is a very common problem with geraniums.

Watering

Overwatering of the plants, particularly during the winter months when the plants are making only very slow growth, creates a condition favourable for root rot development. Reduce frequency of watering to allow soil surface to dry out between successive waterings. If the geraniums are merely being wintered over for use next spring in outdoor plantings, they can be kept quite dry, especially if lighting conditions are poor. If plants do not respond after decreasing frequency of watering, a soil drench may bring some improvement. Drench the soil in a pot with a Captan 50WP fungicide solution at the rate of 1½ tablespoons Captan per gallon water. Water soil until some of the solution runs out of bottom of pot. Repeat application in two weeks and thereafter as required but not more frequently than about once a month.

Root Rot

To avoid root rot problems, plant cuttings in sterilized potting soil. Small batches of soil can be sterilized in an oven by placing soil in a roasting pan and heating to 180°F as indicated on a meat probe thermometer. Maintain this temperature for 30 minutes and then allow to cool down. Soil should be slightly moist when

heat sterilizing and top part of pan can be covered with tin foil.

Propagation

Propagation by cuttings is the most satisfactory way of maintaining and increasing geranium stock. Cuttings should be about four inches long or have four expanded leaves. Cut with a clean knife immediately below the fourth leaf. Trim off the bottom leaf by breaking from the stem with the fingers. Allow Geranium cuttings to dry for 12 to 16 hours in order for the cut end to callus over.

Insert the cuttings in moist vermiculite or expanded Jiffy 7's. Dipping the cut end in rooting hormone prior to planting helps to stimulate root development but is not essential. Space the cuttings in the vermiculite or space Jiffy 7's to allow for good air circulation. Place the cuttings under good light, preferably fluorescent lighting. A two bulb unit placed no more than twelve inches above the top of cuttings and on a 16 hour time cycle provides ideal lighting conditions for rooting of the cuttings. Leaves of cuttings may initially appear quite limp but will regain rigidity within a day after placing in rooting medium.

Disease Problems in Cuttings

Several disease problems can develop while the cuttings are rooting. Gray mould on the stem and leaves is a very common problem. Improve air circulation. Remove any dead leaves or other dead geranium plant parts in immediate area as the disease fungus can grow and sporulate on dead tissue and these spores can then infect living geranium plants. Spraying the cuttings with Benomyl 50WP fungicide at the rate of half tablespoon/gallon water will provide protection against gray mould damage.

Another disease problem which can cause serious losses is black leg. This disease is caused by a soil borne fungus (*Pythium* sp.). The base of the cuttings turn black and infected cuttings die. This problem is most severe when cuttings are placed in unsterilized soil as a rooting medium, but it occasionally occurs even when cuttings are rooted in sterile growing media. Select cuttings from healthy plants, preferably from upper growth. Root cuttings in a sterile medium. If problem becomes established in a flat of cuttings, drench with Captan solution as per root rot. (Root rot is caused by *Pythium* spp. and *Fusarium* spp. fungi). A Benomyl drench is not effective against black leg. Botrytis gray mould can produce a blackening of cuttings similar to *Pythium* black leg but will usually produce some gray spores on lower part of stems or dead basal leaves of cuttings.

Virus Diseases

One of the more serious problems of geraniums but rarely noticed are the virus disease problems. Geraniums are subject to several virus diseases which produce symptoms of mosaic (alternate patches of dark and light green leaf tissue) leaf curl or crinkle, chlorotic spots or ring shaped spots and leaf cupping. Infected plants are often stunted and fail to flower, or flower only infrequently. The expression of the symptoms is quite variable and often disappear under conditions of warm temperature and strong light, however, the virus remains in the plant and has a detrimental effect on flowering and

general plant vigor. Select cuttings only from healthy plants showing no evident virus symptoms. Geranium stock should be replaced periodically. Commercial growers generally obtain certified virus free cuttings from specialty growers in Ontario or the United States. A virus infected plant cannot be cured of the virus disease and should be discarded.

Oedema

A common problem especially on ivy leaf geraniums is an environmental disease called oedema. The symptoms of oedema are small raised watery blisters which arise along larger leaf veins on the undersurface of the leaves but can also occur on stems and petioles. These blisters eventually turn brown and appear corky.

Severely affected leaves may turn yellow and drop off the plant. The problem is related to overwatering of plants during cloudy cool weather, and keeping the plants under conditions of very high humidity. There is no disease organism associated with this problem, it is entirely related to environmental conditions and variety sensitivity. Reduce watering to allow soil surface to dry out between successive waterings, improve lighting, and space plants to allow for better air circulation around the leaves.

These are the major disease problems. Poor growth can also result from use of soil high in salts, watering with saline water, excess or deficiency of nutrients and inadequate lighting.

Don't despair, most people grow beautiful geraniums!



The University of Manitoba Conservatory

GORDON FINDLAY

The new conservatory at the Department of Plant Science was built in 1975. It is 60 feet x 40 feet x 36 feet high and rather a unique greenhouse in that the ceiling superstructure is zinc galvanized, open web steel joists which allow far more light penetration than the traditional solid aluminum superstructures. The entire slope of the roof, ranging from 8 feet up to 36 feet high, is directed south to capture as much sun as possible. Thus, on sunny winter days, the sun does almost all the heating necessary. Most of the glass is tempered so that breakage is substantially reduced.

The conservatory floor consists of one foot of pea gravel for drainage, over which we put 160 cubic yards of 1:1:1 soil mix. In November of 1975 we started planting, and what a job it was; especially the cactus garden with all its thorns! Once the plants were removed from their pots and planted, they started growing by leaps and bounds, very happy with lots of foot room. With the plants growing in the ground, their roots can seek out their own moisture level and grow more naturally. Food is given to them every three weeks from February to November in the form of 20-20-20 water soluble fertilizer. This is watered into the ground in place of their weekly watering. Insect control is done largely by three tropical car-

dinals which delight in eating any insects they can find. The only problem is, they also enjoy eating flower buds and succulents. Also, I occasionally use "Temik" which is a highly toxic granular insecticide applied to the soil and absorbed and distributed by the plants' roots.

Basically, the conservatory is comprised of the following general areas: the cactus garden consisting of several species of cacti and succulents, many of which were collected in the Southern United States; the Australian garden with callistemons and jacobinas; the Hawaiian garden with several colors of hibiscus; the pool and bog garden with waterlilies, calla lilies and payrus; the economic area with date palms, a coconut palm, several ficus species, banana plants, coffee, etc.; the hanging garden and patio with columneas and fuschias; and the begonia hill.

The conservatory is used mainly as a teaching aid as it is far better to learn with living plant material than by just looking at pictures and slides. Also, the many different textures and forms are a challenge to art students.

For anyone wishing to visit the conservatory it is open Monday to Friday from 10:00 a.m. to 4:00 p.m. and it is located at the rear of the Plant Science buildings on the University of Manitoba Campus.

House Plant Blues

LORNA POFF

Are your plants losing leaves one at a time until all that remains are three leaves clinging to the top of an eight foot stem? Don't worry! Cheer up! Read on!

Houseplants are extremely tolerant of a wide range of abuse from their cultural practices to which we subject them. They simply adjust their growth requirements and manage to survive even under the most difficult conditions. Yet there is a limit to what they can take. Some die quite suddenly, while others linger on, dropping one yellow leaf after another.

Keeping in mind that plants require light, moisture and nutrients to grow, an excess of deficiency of any one of these can lead to near disaster. The following eleven situations are the direct cause of mis-management, but are frequently mistaken for disease problems. Disease problems on houseplants will occur, but usually develop when the plants have become weak and unthrifty. Being able to recognize the beginning of mis-management is a key to growing beautiful, healthy house plants.

Situation 1

Symptoms: Lower leaves turning yellow and stems becoming soft and dark. Cacti will become mushy. Soil remains soggy.

Cause: Too much water. It is quite normal for an occasional leaf to turn yellow. When too many turn yellow it is usually the sign of overwatering.

Remedy: Make sure there is adequate drainage in the pot. Do not allow water to stand in the saucer for more than ½ hour. Roots may be rotting, therefore, apply the fungicide Captan, at the rate of 1-2 tbsp/gallon water. Drench the soil and then allow it to dry out thoroughly between waterings. There is no set pattern for watering. Environment, the type of plant and the season of the year all affect the frequency of watering. Remember, less damage results when a plant is underwatered rather than overwatered.

Situation 2

Symptoms: Leaf margins turn brown. Leaves dry up and curl under. Leaves may also turn yellow with the occasional brown spot.

Cause: Too little water or too much heat.

Remedy: Change the watering frequency. Give the plant thorough waterings (allowing water to drain into saucer) and allow it to dry out in between. Do not give frequent sprinklings which only wet the top

surface of the soil. Move plants to a cooler location.

Situation 3

Symptoms: Plants weak and spindly, light green in color, growth slow. Plants bending toward the light source.

Cause: Too little light.

Remedy: Move the plants to a brighter, sunnier location, or increase the amount of light with an additional light source such as a lamp. Always know a plant's light requirement when purchasing one for a particular site. Some plants are more tolerant of low light conditions and can be grown very successfully.

Situation 4

Symptoms: Yellow or brown patches develop on the leaves.

Cause: Too much light (suncorch).

Remedy: Move plants away from the light source or provide some shade. Most foliage house plants require filtered rather than direct sunlight. They are used to growing under a forest canopy. Once again, know a plant's light requirement and find a suitable location for it to grow.

Situation 5

Symptoms: Leaf edges turn brown and eventually leaves die and fall off.

Cause: Not enough humidity.

Remedy: Increase the humidity around the plants by placing on a tray of pebbles containing water, misting the plants regularly with a hand mister, or installing a room or furnace humidifier. Again, some plants require more humidity than others, especially ferns. Know a plant's needs and supply the proper environmental conditions.

Situation 6

Symptoms: Leaf tips turn brown especially on ferns. Stems appear to be crushed or broken.

Cause: Bruising.

Remedy: Move the plants so that they are not easily injured. Hanging baskets containing ferns should be high enough to allow them room to grow and fill out.

Situation 7

Symptoms: New growth rapid but weak. Plant may wilt. Leaves are a very dark green color. A white crust of built up salts may develop on the surface of the soil.

Cause: Too much fertilizer.

Remedy: Water the plant thoroughly to leach out the excess nutrients. Move the plant to a sunnier location where active growth will increase. Do not fertilize until the plant begins to show signs of needing it, i.e., situation 8.

Situation 8

Symptoms: Leaves fade to pale green. Lower leaves turn yellow and drop off. New leaves smaller and growth slow.

Cause: Too little fertilizer.

Remedy: Apply a water soluble fertilizer or fertilizer pellets to the soil. Water well. Generally, a balanced fertilizer such as 20-20-20 is suitable for houseplants. Fertilize in the spring and once a month while actively growing in the summer. Avoid fertilizing in the winter as low light intensities reduce house plant growth and their requirements for nutrients.

Situation 9

Symptoms: Leaves, buds or flowers may drop off suddenly.

Cause: A shock to the plant. It could be a sudden increase or decrease in

temperature or simply moving the pot to another location.

Remedy: Protect plants from sudden increases or decreases in temperature. Plants growing in entrances near doorways should be protected from cold air temperatures during winter. Plants in flower should not be moved. Some are very sensitive to this, e.g., hibiscus.

Situation 10

Symptoms: Roots protruding from the drainage holes at the base of the pot or cropping out on top of the soil.

Cause: Plant is too big for the pot — it is pot bound.

Remedy: Repot the plant in a slightly larger pot, taking care not to damage too many roots. Keep the plant in a cool, moist environment for about a week, giving it a chance to become established. Then, return it to its usual location.

Situation 11

Symptoms: Reddish-brown, raised, corky areas on the leaves and stem. Severely affected leaves may turn yellow and drop early.

Cause: Oedema — overwatering during cloudy weather.

Remedy: Avoid overwatering in cool, overcast humid weather. Keep water off foliage. Lower humidity and increase heat, ventilation and light. Space plants.

Hopefully, this has outlined the most common problems that any gardener can expect to discover on his foliage and flowering house plants. Being able to spot trouble early before any significant damage has occurred, will maintain vigorous healthy plants. The thought of enjoying green foliage and flowering plants in January will make all the work worthwhile.

My Neighbor's Rose

*The roses red upon my neighbor's vine
Are owned by him, but they are also mine.
His was the cost, and his the labor, too,
But mine as well as his the joy, their loveliness to view.*

*They bloom for me and are for me as fair
As for the man who gives them all his care.
Thus I am rich, because a good man grew
A rose-clad vine for all his neighbors' view.*

*I know from this that others plant for me,
And what they own, my joy may also be,
So why be selfish, when so much that's fine
Is grown for you, upon your neighbor's vine.*

—ABRAHAM L. GRUBER.

Vegetable Gardening in the North

by JANE THOMPSON

The Canadian North is often imagined to be nature at her worst. Yet, she is not so unkind in that the people who live there appreciate her unspoiled beauty and in many places are able to grow some of their own food.

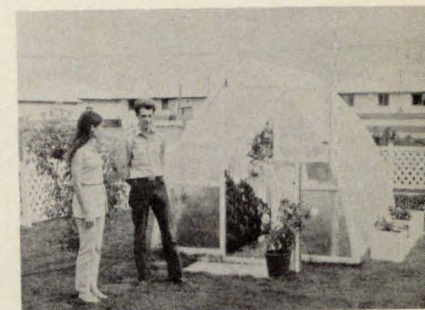
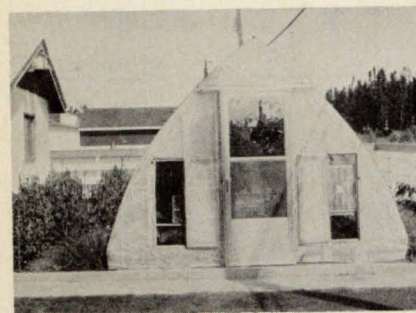
Though it is less expensive to import most food items from the south, many northern settlements, even inside the Arctic Circle, do have vegetable gardens. Methods of growing flowers and vegetables on permafrost at Inuvik, latitude of 68°N, near the Beaufort Sea, have been tested with good results.

For many, gardening is an experience beyond feeding one's self and, especially in the far north, is a wonder and a challenge.

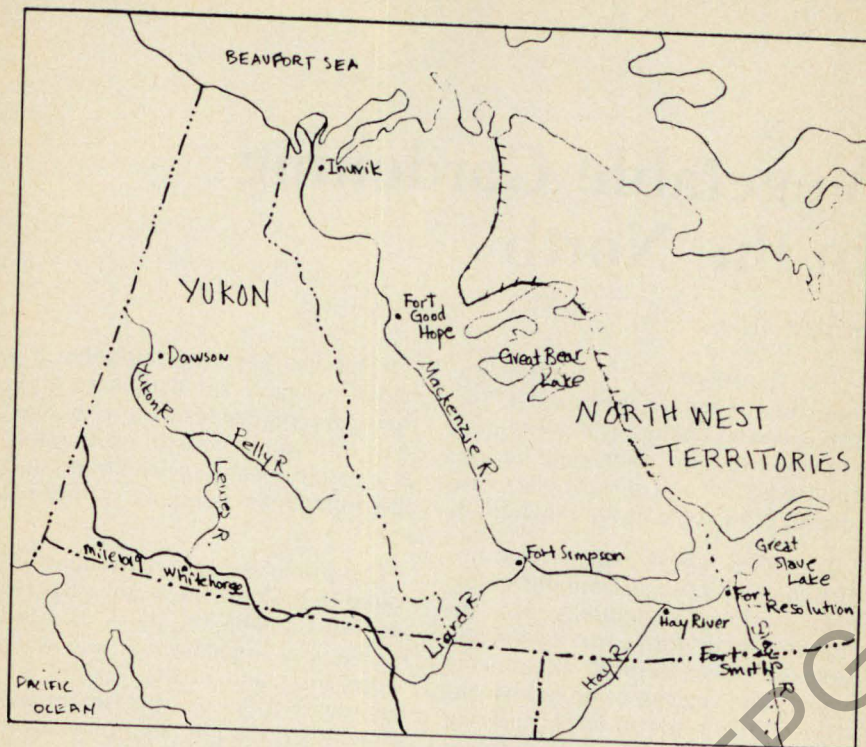
It has also been indicated that it is highly desirable for natives to grow their own vegetables as it is increasingly difficult to depend on trapping as a stable means of livelihood and also to maintain adequate nutritional levels.

The prime lands and climates are found in the northwest along the rivers, most notably the Laird, the Mackenzie, Hay and Slave. Soil surveys in these areas and in the Takhini and Dezadeash valleys in the Yukon have shown that, though large portions of the land are unsuitable for cereal or forage production, many horticultural crops can be grown successfully.

In some locations where the frost-free period is sufficiently long, grow-



Polyethylene greenhouses at Thompson, Man.



Limit of the PreCambrian Shield

Alaska Hwy.

TABLE 1 Killing-Frost-Free Period, Vegetative Period, Number of Degree Days and Precipitation during Frost Free Period for 9 Locations in the Yukon and N.W. Territories (1)

	Killing frost-free period, average (days)	Veg. period average (days)	Number of degree-days	PPT during frost free period in (May-Sept.)
Dawson	119	136	1636	7.10 (in.)
Whitehorse	118	143	1437	5.77
Mile 1019	52	122	605	6.00
Ft. Smith	100	141	1563	7.98
Ft. Resolution	126	130	1658	5.15
Ft. Simpson	119	138	1825	7.60
Hay River	126	130	1633	5.91
Ft. Good Hope	91	119	1269	7.24
Inuvik	90	96	964	5.99

ing is limited by soil temperature. Ridging and terracing the ground and the use of polyethylene mulches help raise the temperatures of the soil.

In choosing a site for a garden, a slight slope with a south or southwest exposure is desirable. Wind breaks are very important in reducing winds, evaporation and drifting of soil and snow.

A gardener can reduce frosts on the slope by clearing trees below the plot to form a path for the cold air to move down. In case of a temperature decrease to between 0°C and -2.2°C, sprinkler irrigation can be used to keep up air temperature to prevent damage, especially to plant crowns.

Between the years 1945 and 1969, two federal experimental farms were operated just north of latitude 60°N, one at Mile 1019 on the Yukon stretch of the Alaska Highway and the other at Fort Simpson at the junction of the Liard and Mackenzie rivers.

Much of the earlier work in horticulture done at these stations was focussed on determination of suitable crop varieties, best cultural methods and fertilizer applications.

The varieties used were from the south and results of testing showed room for development of types better adapted to cool, short and relatively dry seasons.

Vegetables

Vegetables that are easily grown include carrots, which develop excellent roots under cool, dry conditions, radishes, lettuce, cabbage and broccoli.

Tender crops such as sweet corn, cucumbers and tomatoes do not generally do well, but cucumbers and tomatoes are sometimes grown in shelters and greenhouses.

Slight problems are encountered with cauliflower which suffers reduced yields with extremes of temperature and moisture; onions do not reach usual bulb size due to longer days; peas and broad beans both require special protection from frost while pods are developing.

The potato is the most important vegetable in the north. Because of the coolness and limited moisture the quality is high. Sprouting good size seed potatoes or pieces before planting and hilling during growth, rather than deep planting, result in earlier and higher yields.

In most aspects, general practises of soil preparation and improvement, seeding, cultivation and disease and pest control are the same as anywhere else, although added attention is required. Because of the climatic conditions, the gardener must aim for rapid growth and development; any setback can mean failure.

It is necessary to start most vegetables five to six weeks early, either indoors, in house or greenhouse, or in a hot bed. The hot beds should be built in a sheltered, sunny location and the sides well banked with soil to prevent drafts. The seed bed must be carefully watched for moisture and temperature levels. Ventilation may be needed during the day or extra covering at night.

Cold frames are important in the hardening off process. Again, temperatures must be checked.

Greenhouses

Much of the work that was done at the northern experimental farms, and is being continued by others, is experimenting with mulches, plant shelters and greenhouses, with particular emphasis on the use of plastic materials.

Plastic proves to be much less expensive than glass. Since plastic is also less durable, a 12-mil gauge is recommended for any permanent set-up.

Plant protectors range from individual cloches, to row coverings, to walk-in hutches. These shelters serve to warm up the soil prior to planting, to protect crops from winds and storms and to maintain optimum moisture and temperature conditions.

Mulching with clear polyethylene plastic of approximately 1.5- to 2-mil gauge heats up the ground by as much as 6.6°C and over ridges by up to 8.8°C. It also prevents moisture loss and can be arranged to speed up germination by slitting above the seeded rows.

Inuvik

Of special interest is the work of Dr. R. E. Harris at Inuvik. There, the total number of degree-days and length of the frost free period are not quite adequate but soil temperature is the most severe draw back. Normally, the soil remains frozen up to a depth of 15 inches. After eight years of crop cultivation, the permafrost level went down to a maximum of 85 inches.

Though it was a matter of years, the success attained is remarkable. Many of the hardy vegetables were grown, either in the open garden, mulched on ridges or terraces, or in cold frames. Yields obtained were very worthwhile.

Dr. Harris has also been involved in the development of new varieties of the "sub-Arctic" tomato. These tomatoes are adapted to the shorter season as the fruit is set early and

quickly at low temperatures and the top growth is restricted.

Much has yet to be learned of the physiology of plant hardiness, therefore, the research in breeding of crops suitable for northern climates is extremely limited.

It can be concluded that growing vegetables in the north is a feasible effort for a person with the interest, skills and patience. One can obtain lists of recommended varieties and information on ways of extending the growing season and protecting crops.

The success of vegetable gardens in diverse areas of Northwestern Canada give favorable indications that northern communities can one day be self-supporting in this aspect.

REFERENCES

- GUBBELS, G. H. 1963. *Gardening In The Yukon*. Publication No. 1192. Published by Canada Department of Agriculture.
- HARRIS, R. E. 1970. *Gardening On Permafrost*. Publication No. 1408. Published by Canada Department of Agriculture.
- HARRIS, R. E. et al. 1972. *Farming Potential Of The Canadian Northwest*. Publication No. 1466. Published by Canada Department of Agriculture.
- HARRIS, R. E. 1972. *Three New Sub-Arctic Tomatoes: "Early Subarctic", "Sub-Arctic Midi", and "Sub-Arctic Plenty"*. Can. J. Plant Science 52: 119-120. Jan.
- NOWOSAD, F. S. 1970. *Handbook for Northern Gardeners*. Publication No. 1192. Published by Canada Department of Agriculture.
- Progress Report, 1947-1953 1954. *Fort Simpson, N.W.T.* Queen's Printer, Ottawa.

Prevention of Winter Injury

LORNA POFF

Trees native to the prairies are considered to be fully hardy and if growing in a state of good health can withstand our harsh winters. Ornamentals which have been introduced from other areas are generally considered to be borderline hardy and require special attention to prevent winter injury. A listing of recommended ornamental trees and shrubs for Manitoba can be obtained from the Manitoba Department of Agriculture.

There are two main causes of winter injury. The first being an inadequate hardening-off of trees prior to subjection to cold temperatures; and the second cause being the action of freezing and thawing on plant tissue in early spring.

The former cause can be prevented by retarding late growth of trees and shrubs in the autumn. This late growth is very succulent and, therefore, very susceptible to injury caused by freezing temperatures. The following four points should be considered in the prevention of late growth:

(a) **Avoid overwatering** — This will encourage growth. However, an adequate amount should be supplied just before freezing (late October or early November) to prevent winter dessication.

(b) **Avoid fertilizing late in the fall** — This will make succulent growth very susceptible to damage under conditions of low temperature.

(c) **Avoid transplanting in the fall** — The heavy action of freezing and thawing in early spring will expose roots, causing them to undergo desiccation. Plants should also be allowed a good season of growth before being subjected to harsh winters.

(d) **Avoid late pruning** — Pruning should be done in early spring with the very latest being mid-summer.

The latter cause of winter injury, freezing and thawing in early spring results in three types of damage:

(a) **Frost cracks** — An unequal heating and cooling of plant tissue results in tension and eventual longitudinal cracking of wood and bark. Trunks facing southern and western exposures are most susceptible, as well as deciduous trees rather than evergreens. Trees susceptible to frost cracking include apple, crabapple, maples, willows, lindens and ash.

(b) **Scalding** — Deciduous trees, especially those with thin barks (e.g., maples, willows) exposed to the strong rays of the spring sun soon dry out. This desiccation results in a blackening and wilting of the trees in early spring.

(c) **Desiccation of conifers** — Conifers lose moisture from their needles constantly throughout the winter and, if not supplied with an adequate amount of moisture before freeze-up, will dry out in early spring. Conifers planted in southern exposures are more prone to this condition. The result of this desiccation is a reddening of needles followed by defoliation if the condition is severe.

Trees which have been properly chosen for the site and are known to be hardy under Manitoba's climatic conditions will survive the winter months without too much damage.

Newly planted trees and shrubs (having undergone one season's growth) should be protected for at least two winter seasons. This can be done by wrapping the trunks and main branches with burlap, affording protection of the young tissue from both drying winds and the desiccating rays of the sun. A mulch applied to the base of the trees, covering the roots will ensure that the ground underneath the covering will remain frozen, thereby preventing active growth of the trees too early in the season. This is especially important during years of light snowfall.



Are You Interested in Flower Arrangements?

Welcome news for those many gardeners and flower lovers who would like to be able to prepare lovely arrangements. A new booklet is being published under the auspices of The Prairie Garden which explains the various steps in flower arranging.

FLORAL ARTISTRY FOR BEGINNERS is easy to read, is very well illustrated, and covers how to make flower arrangements step by step. It discusses different types of containers, different types of arrangements, and tells how they are prepared with descriptive drawings.

FLORAL ARTISTRY FOR BEGINNERS will be available this spring by writing — Floral Artistry, P.O. Box 517, Winnipeg, Manitoba.

Flowers to Express a Mood

by MARK B. ELLIOT

Flower arrangements can become a practical art, the art of organizing according to the principles of design to still maintain beauty by expression.

Personal tastes play an important part in flower arranging. The style of decoration will depend upon what kind of flowers you like to grow. If the arranger is a casual soul, he may best express his nature by thrusting a mass of flowers into a vase. Flowers can be arranged to create illusions. The realistic feeling in flower arrangement is the most artistic type. Certain flowers are considered symbolic of certain emotions.



Meaning of Flowers

Arranging flowers is a great opportunity for expression and also a way to relax and tranquillize the mind. To construct such an arrangement, it

does not take a great many flowers. The one flower arrangement is ideal for showing the passing of time. The olive and oxeye represents peace and patience. Leaves of the Meadow Rue are beautiful with roses . . . having an airy quality. A few geraniums, meaning gentility, arranged with their own foliage, and done with taste and understanding, can give as much pleasure as the most expensive orchid. Everything is a symbol of something, such as, in peace . . . the Pope gave first a single golden rose. Everything has to be restful and not sharp. A 'quiet' type . . . is the blue hardy salvia.

To express yourself when in a happy or gay mood, the arrangement should be merry and light-hearted.



The best example is mixing pink and blue flowers to produce a joyful atmosphere. Who says nature does



not have a sense of humour! The ivy has been grown for years without anyone really knowing its meaning. As someone new enters the neighbourhood, friendship is always brought out, which starts with a piece of ivy. The flowers of phlox hold the meaning of souls being united. Usually soft and feathery flowers are used to represent the happy feeling.

Sadness and sorrow are the most painful emotions ever felt. Thus the arrangements should confer this idea. Although, thorny plants are never used because of their unpleasant connotations, and this is also true of any poisonous plant, however beautiful.

Flowers are always welcome, whether in time of illness or sorrow. Any flowers that are dark in colour represent hardship and misery. A bouquet of all sweet peas, means departure; yew, means sorrow. The palm is usually used at this time, since sympathy is best expressed. Sadness is when there are heavy or dark thoughts, so nightshade is used. There are a few flowers that have a greater meaning, thus are seldom



used in arrangements. The locust is one, which has the hidden meaning of affection beyond the grave.

While building an arrangement of love, it must be, romantic, as an arrangement of violets, lilies of the valley, and trailing ivy vines.

The rose has always been the symbol of love. Nearly everyone loves roses, as they have a charm all their own. Roses go with almost everything for they are classic flowers. Small flowers and fresh colors bring out



sweetness and simplicity. The first emotions of love are displayed by lilacs; a bouquet of forget-me-not is true love. It is difficult to express love as everyone has different ideas. The sex symbolism for a male is strong colors as well as blues; for the female, whites and yellows. It has been said, "Any color for a man as long as it is red."

The world is full of beauty and people who would love to be taught to see it and to create it. Flower arrangements should provide very personal expressions. Those who are alert to learn new methods of arrangements, will find pleasure in expressing their personality.

Junipers

The junipers provide excellent ground cover and can be used to some extent in foundation plantings, says Dr. R. E. Harris, Horticulturist at the Beaverlodge Experimental Farm, Alberta. They are useful on banks, in rockeries, and in places where green cover without too much maintenance is desired. The prostrate junipers are those usually in favor in Alberta. Popular species are the common juniper (*Juniperus communis*), the Savin juniper (*J. sabina*), and the creeping juniper (*J. horizontalis*).

The common juniper is a dense, low shrub with awl-like leaves carried right to the soil. Its berrylike cones are light blue and the plant is excellent for sandy banks in full sun. The Savin juniper is an upright, spreading type with a height of up to 3 feet. Varieties are available. The creeping juniper is a vigorous grower with long, narrow branches that root readily as the plant spreads. Colors vary from dark green to silver grey and blue, and the leaves often take on a purplish tinge in the fall.

Beaverlodge has a special interest in the creeping junipers, two having been introduced from this area. Both were collected by John Wallace, formerly of the Experimental Farm and now joint owner of Beaverlodge Nurseries. He selected the variety Wapiti in the wild state from the Wapiti River south of Beaverlodge in 1952, and it was made available for distribution by the Experimental Farm in 1959. It is fine-textured, lustrous green, has an upright growth of 12 to 16 inches, and can be encouraged to a spread of 8 to 10 feet.

The variety Dunvegan Blue is silvery blue in color, creeps close to the ground, and provides excellent ground cover. It was collected by Mr. Wallace on the banks of the Peace River near Dunvegan, and named and introduced through the Beaverlodge Nursery. Two other creeping juniper varieties recommended by Dr. Harris are Andorra and Waukegan.

Foliage Plants for the Office

ROGER BROWN

There seems to be a growing trend towards having plants at the office, particularly in the reception area where they add a welcome to visitors. They add to the attractiveness of the decor of our homes and offices and play an important part in the designers' plan.

There are various ways in which plants can be displayed indoors, either in individual containers or planted into a bed as an indoor garden. The first method seems to be the most successful as drainage is very important.

Watering and Over-Watering

"How often should I water my plants?" is a question most people ask. Plants should be thoroughly watered as required, which depends on the temperature and the humidity. The soil also has some bearing on how often you should water, a good soil mixture is one that is light and airy and will drain well. Two parts loam, one part leaf mould or peat moss, and one part coarse sand or perlite is a good mixture.

One of the problems is over-watering, usually caused by too many people trying to take care of the same plants. The only way to overcome this problem is to make sure that everyone in an area where plants are situated knows who is responsible for taking care of them. It is easy to add water but very difficult to extract it

from soil that is saturated. If large plants are purchased they can be left in the pot, which is then placed inside an attractive container. Vermiculite or a mixture of peat moss and perlite is used to pack between the pot and container. This material will absorb any excess water which may drain from the pot and will not leave the plant sitting in water. Plants that are in individual containers are much easier to move around than those permanently planted.

Indoor Garden

Plants that are to be planted into a bed as an indoor garden should be very carefully chosen, remembering that they are expected to grow in the same place for a number of years. Construction is most important, special thought should be given to the depth of the garden to ensure there is enough room for drainage and soil.

Tropical Plants It is not necessary for tropical plants to be in direct sunlight as most of these plants naturally grow in the tropical jungles where they rarely see the sun; however, light is important, plants that are in portable containers should be turned every few weeks to keep them growing straight.

All tropical plants need high humidity to grow well, and we can help by spraying the leaves once a day with tepid water. Another consideration is

dust which builds up on the leaves. They should be washed periodically, and this will also add to the appearance of the plant. To keep your plants healthy it is necessary to feed them about every three weeks, but be careful, too much fertilizer may be harmful to your plants.

Containers

There are many varieties of containers, from plastic to stoneware, that may be used, one type becoming quite popular is the self-watering container. With this type we have found that after it has emptied itself of water twice, it is better left for a few days before refilling so that it can dry out a little, this will help create a better root system.

Plants may also be rented from a number of rental companies located throughout our cities. The plants are then cared for on a regular basis by the company.

Varieties

The varieties available are so extensive it would be impossible to list them all, however, the following are a few of the most widely used plants that grow well in offices:

Areca Palm
Cordatum
Devils Ivy
Dieffenbachia
Dracaena
Dracaena
Dracaena
False Aralia
Grape Ivy
Indian Laurel
Ivy Hedera Lelix
Norfolk Island Pine
Philodendron Pertusum
Polypody Fern
Rubber Plant
Schefflera
Spider Plant
Weeping Fig

— Chrysalidocarpus lutescens
— Philodendron oxycardium
— Scindapsus aureus
— Amoena
— Warneckei
— Massangeana
— Janet Craig
— Dizygotheca elegantissima
— Cissus rhombifolia
— Ficus etusa nitida

— Araucaria excelsa
— Monstera deliciosa
— Polypodium scolopendria
— Ficus elastica "Decora"
— Brassia actinophylla
— Chlorophytum comosum "Vittatum"
— Ficus benjamina



Flower Shows for the Young Gardeners

ROBERT PALUC

In the summertime one of my interests is my garden and I look forward to entering my flowers in the various flower shows. I began entering flower shows four summers ago with one entry in the vegetable section and was lucky enough to win a first prize. From then on I was hooked as a competitor. I now enter nearly all sections, including flower and novelty arrangements and so far I always manage to win a few prizes. It is really quite simple to enter, I just take my entries down to the flower show on setting up night, set them up in the proper places and hope for the best.

Novelty Arrangements

One of the most interesting categories is the novelty arrangement section. In this, a display is made out of vegetables, seeds, leaves, berries, roots, etc. using material grown in Manitoba. Some of the best models to make are nursery rhymes or characters from famous stories. They are not too difficult to do, but sometimes they take most of the day. The best materials for making these models that I have made in the past year are Hansel and Gretel, Jack Spratt and his wife, and other things such as ships and animals. For Jack Spratt and his wife I made a table out of a large onion with a leaf on it. The people

were made with potatoes, green tomatoes, corn silk for hair and many kinds of seeds, roots and flowers. For Hansel and Gretel, I had a large head of cabbage for the witches house which was covered with different vegetables, leaves and seeds. When I made a ship, I hollowed out half of a cucumber and made sails with hollyhock leaves.

Categories

There are many categories for the junior gardener to enter such as flower arrangements which I have entered and won a few prizes. Also, the cut flowers, which include marigolds, zinnias, cornflowers, sweet peas, dahlias and many more. Gladiolas happen to be my favorite flower to grow and this section is included in several flower shows. In the vegetable section there are carrots, beans, beets, tomatoes, and others to enter that are easy to grow. Usually, there are many entries in these categories.

Planning and Care

I plan my garden ahead of time and decide what I want to grow. It is a good idea to obtain the exhibitor's prize lists early to have an idea of what seeds or bulbs are needed. When the garden is planted I make sure that it is well weeded and watered. Then, when the plants come up they need

to be thinned out where there are too many. From then on the plants should be weeded and watered as needed. The soil should also be loosened up around the plants to keep them in good health. At the end of the season the plants are dug out and the soil is allowed to rest for the next year.

My garden is a great interest to me

all summer long and I spend a good deal of time caring for it and preparing for the coming flower shows. There is no greater thrill than seeing a red ribbon on an exhibit that I have entered, knowing all the work behind it. I hope other young people will become interested in this great summer hobby.



Junior Section, West Kildonan 1976 Show.

From "Daffodils"

By William Wordsworth

For oft, when on my couch I lie
In vacant or in pensive mood,
They flash upon that inward eye
Which is the bliss of solitude;
And then my heart with pleasure fills,
And dances with the daffodils.

Insects and House Plants

A. J. KOLACH

In the kind of environment that most house plants are kept, the utmost care and attention is required to keep them healthy. Special attention should be given to keeping plants insect free, as insect problems can build up in a hurry in the warm environment of a household. The following are some of the insect pests commonly encountered when growing house plants, and what to do about them.

Whitefly — This insect is commonly called greenhouse whitefly and is a very serious pest of house plants, particularly potted flowers. Whiteflies are easily detected as they are about 1/16 inch long, have powdery white wings and feed on the underside of leaves. Whiteflies are often taken indoors on plants kept outside during the summer. Injury is caused by sucking of plant sap by both adults and nymphs.

Ready-to-use aerosol formulations containing resmethrin are effective in control of whitefly. Periodic sprays may be applied if necessary.

Aphids — Aphids may occasionally infest house plants and usually appear as small, green colored soft bodied insects. Adults and young are usually found on undersides of leaves or on the plant stem in clusters. Aphids may fly indoors during summer, or plants set outside during summer may become infested.

Most aerosols formulated specifically for use on house plants will

control aphids, and repeat applications may be necessary if aphids reappear. Malathion applied as a spray will also control aphids effectively.

Mealy bug — Mealy bugs appear as small, waxy-like insects on both leaves and plant stems. They are stationary on the plants and white in color.

Most aerosol insecticides for use on house plants and malathion as a spray will effectively control mealy bugs.

Mites — Various species of plant feeding mites may appear on house plants and, because they are so tiny, often go undetected until damage is quite evident. Mites may be reddish or greenish in color and sometimes a very fine webbing appears, particularly when spider mites are present. Evidence of mites is usually indicated by leaves turning dull and drying.

Kelthane applied as a spray is effective for mite control, however, several applications at weekly intervals may be necessary to completely rid an infestation.

Springtails — Springtails appear as very tiny, white insects on the soil surface, especially after a heavy watering. They are wingless and live in the soil feeding on organic matter. They may be seen jumping about on the soil, hence their name. Springtails will do no harm to plants but seem to thrive in good potted soil that is kept

very damp. Springtails are mainly a nuisance pest and their control is not important in maintaining good healthy plants.

They may easily be controlled by adding malathion at normal spray rates to the water to be used for watering the plants.

Occasionally if insects are few in number the hand picking method or soapy water treatment may be a practical means of ridding the pests. In most instances, however, an insecticide will be required to control the problem completely.

A variety of brands of ready-to-use formulations of insecticides are available and convenient to use for house plants. As some plants may be susceptible to sprays, make certain the formulation is specifically for use on house plants in general and the plant to be sprayed specifically. When using liquid concentrates, e.g. malathion 50% EC, follow directions for rates of application as given on the container label. Since most sprays leave objectionable odours, spraying of plants is best done either outdoors if weather permits, or where inconvenience of odours is minimized.



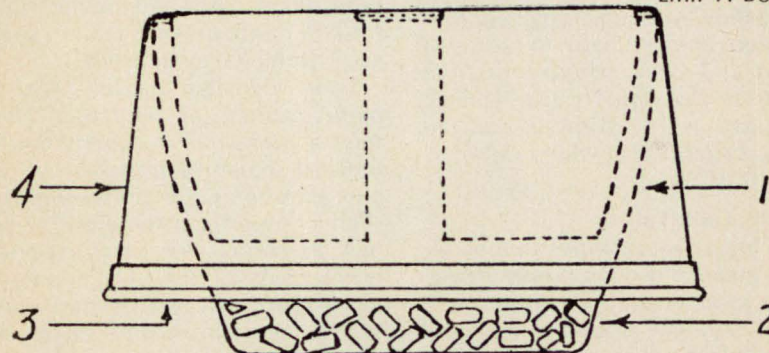
Novel Slug Trap

From American Rhododendron Society BULLETIN, Vol. 29, No. 1

1. Small size margarine plastic container for holding Slug Bait: 4" wide at top x 2¼" high x 2⅜" wide at bottom. Cut out on dotted lines leaving four ½" wide pillars to sustain plastic protective cover.
2. Slug Bait.
3. Entrance for Slugs.
4. Rain-free protective plastic trap cover, margarine plastic container: 4" wide at top x 1⅞" high x 3½" wide at bottom. Keeps Slug Bait dry or Beer in a larger edition from becoming diluted from rain.

A larger size may be constructed from larger plastic containers to contain Beer which is also used effectively as bait for the destruction of Slugs.

—Emil V. Bohnel



Decorative Materials for use in Flower Arrangements

FRAN PARTRIDGE and MILLIE KING

There are beautiful and unique natural materials which may be gathered to add a special touch to flower arrangements. Certain ones last for only a few hours, but others may be used many times over, and keep well for months or even years. Collection of these items can be carried on for most of the year. In early spring branches of catkins or leaf buds may be cut for use indoors. In the winter, skeletonized forms of weed pods and grasses are found, some of which have a daisy-like form, and having been bleached by sun and storm, are lovely in their natural beige or grey colors, but also take well to sprays or dyes.

Reminder

When going in search of woodland gleanings, keep certain ground rules in mind. Don't trespass on private property! Keep a sharp pair of clippers handy — a judicious snip here and there does no harm to most wild shrubs and trees, where indiscriminate breaking would cause damage. Know and avoid poisonous and rare plants. Don't pull anything out by its roots.

What to Look For

The important qualities to look for in any material used in flower arranging are form, color, and texture. Most natural materials require trimming to expose their finer characteristics. Col-

lecting them should be approached in an experimental way for possibilities not noticeable at first glance, such as exposing the undersides of leaves, which are often silvery or reddish in color.

Seed pods and grains may be picked at several stages. For drying these, it is advisable to cut when slightly green. Seeds stay intact, the colors are varied, and stems are sturdier. Some grains and seed pods suitable for use are barley, wheat, oak, love-in-the-mist pods, Queen Anne's lace, scabiosa seed heads, dill (before and after the seeds have fallen), iris pods, delphinium seed stalks, wild dock in its colors ranging from reddish-green to dark brown.

When placing your seed order, don't overlook ordering seeds of ornamental grasses. These are often very interesting and not difficult to grow. Poppy pods and mullein stalks, fresh or dried, provide a rather strong accent which may be useful.

Your vegetable garden, the farmers' market, or the supermarket offer a profusion of items. Look for unusual shapes — fruits and vegetables are often more interesting when slightly imperfect. There are vegetables to contrast or harmonize with every color of flower. Peppers, in lovely chartreuse, yellow, dark green, or red colors in various shapes and sizes, last fairly well and add zest to

arrangements. They may be held in place with wooden picks or skewers. Cauliflower and broccoli florets are useful, as well as the many varieties of squash, some of which are very decorative when cut open. Fresh green pods of peas or string beans can be wired together. Eggplant and asparagus have unique textures. Silverskin onions and garlic heads are effective when clustered in groups. Artichokes and pomegranates from the supermarket are suitable for use fresh or may be dried. A light rub with vegetable oil helps preserve some vegetables and adds to their appearance. No need to waste vegetables or fruit used in arrangements — today's focal point of a centerpiece may appear in tomorrow's casserole or dessert!

Ideas!

Many fruits and vegetables can be hollowed out to form containers. Suitable ones include gourds, pumpkins, melons, citrus fruits, and many others.

For bright clusters of fruit, try cranberry, mountainash, hawthorns, and elderberries, and experiment also with white dogwood berries, branches of blueberries or chokecherries.

Distinction may be achieved by using only part of a flower. For example, de-petaled flowers of the dahlia leave bright lime green centres which go well in many arrangements.

For miniature dried arrangements, why not add an unusual accent with dried spices such as chili peppers, bay leaves, cardamom, and others?

Driftwood, Fungi, Cones, and Rocks

When collecting driftwood, use a fresh approach. Instead of the bulky pieces often used, look for some delicately curved, thin pieces. They are excellent for stressing a line in an

arrangement, and are in scale with most foliage and flowers. Scrub pieces well with a wire brush and soapy water and don't hesitate to scrape away portions or prune when necessary. Woody vines such as bittersweet, climbing honeysuckle, and clematis add a graceful line, with or without foliage. Dry some for winter use. Bark of trees can be sliced to obtain beautifully-grained bases and stands, or can be hollowed out to form containers.

Certain fungi, because they are curved from contact with tree stumps, make ideal camouflage for containers or other mechanics of arrangements. Some mushrooms, such as the white ones which appear locally in autumn, dry well. Take them up in clusters if possible.

Cones of various sizes and nuts can be utilized. Small ones should be wired to stems for easy placement, and large ones can be cemented to the base of an arrangement. For a change, use branches of cones or nuts in the early stages of their development. The small cone-like seed pods of the alder are very decorative when picked in the green stage (they tend to shatter when ripe).

There are also mosses, rocks, marsh plants, and many other items which you will find useful. Most of the items mentioned are to be found locally, but if you travel, your trip gives an opportunity to add other natural materials to your collection. Visit local shops to find dried material, and look for rocks, sea-shells and driftwood.

Once you have developed an interest in this aspect of flower arrangement, you will derive pleasure both from the collecting and the use of the great wealth of material which is available.

Dr. Frank L. Skinner to the Canadian Agricultural Hall of Fame — Toronto, November 14, 1976

Dr. Frank L. Skinner's portrait now hangs beside 95 other prominent Canadian agriculturists in the Coliseum, Exhibition Place, Toronto. Dr. Skinner (1882-1967) nominated by the Agricultural Institute of Canada for this honour, was a self-educated botanist and horticulturist from Scotland, dedicated to the development of over 200 species of trees, shrubs, fruits, perennial bulbs and herbaceous perennials to beautify the farmsteads and landscapes of his adopted country.

For his outstanding contribution to horticulture, he was awarded the M.B.E., and Honorary LL.D. from the University of Manitoba; the Minnesota Horticultural Bronze Medal; the North American Lily Society Award; and a citation from the American Horticultural Council. In 1971, the Skinner Memorial Library, University of Manitoba, was dedicated in his honour.



As one of three portraits unveiled at the Canadian Agricultural Hall of Fame on Sunday, November 14; that of the former Dr. Frank L. Skinner, Roblin, Manitoba is surrounded here by relatives attending the function. His widow, Mrs. Helen Skinner, third from left, was present for the unveiling along with members of her family.

Contributing Authors

- J. R. ALMEY
PAT BEAUCHAMP
MARTIN BENUM
ROGER BROWN
Retired Provincial Horticulturist and Ag. Agent for C.P.R. Amateur gardener, Winnipeg.
Director, Parks and Recreation, City of Winnipeg.
Supervising gardener, Government Greenhouse, Winnipeg.
- DR. J. D. CAMPBELL
ARLENE CHESNEY
Dept. of Food Science, University of Manitoba.
Horticulture Liaison Officer, Alberta Agriculture, Edmonton.
- MRS. ALMA
CORNWELL
MAGDA DAKINS
LYNN DENNIS
MARK ELLIOT
W. J. EMERSON
GORDON FINDLAY
Amateur Winnipeg gardener and designer.
Winnipeg amateur horticulturist.
Horticulturist, Royal Botanical Gardens, Hamilton, Ont.
Student, University of Manitoba Horticulture.
Government Greenhouse, Winnipeg.
Greenhouse Supervisor, Dept. of Plant Science, University of Manitoba.
- H. E. HARP
Retired Head Gardener, Ornamentals, C.D.A., Morden, Manitoba.
- MRS. HUGHES-
CALEY
JOAN JONES
MILLIE KING
A. J. KOLACH
JERRY LENOVER
H. H. MARSHALL
G. E. NODEN
Amateur gardener, Prince Albert, Saskatchewan.
Florist, Teulon, Manitoba.
Amateur gardener and flower arranger.
Entomologist, Manitoba Dept. of Agriculture.
President, Manitoba Orchid Society.
Horticulturist, Canada Research Station, Morden, Man.
Electronics Dept., Southern Alberta Inst. of Technology, and gardener.
Supervisor, University of Manitoba Greenhouse.
Artist and amateur gardener.
Horticulturist, Manitoba Dept. of Agriculture.
Plant Pathologist, Manitoba Dept. of Agriculture.
Technician, Horticulture, Manitoba Dept. of Agriculture.
- SUSANNE OLVER
FRAN PARTRIDGE
P. PETERS
GARY PLATFORD
LORNA POFF
MRS. ADELE
PYZIAK
G. REYCRAFT
Gardener, Fisher Branch, Manitoba.
Hooty Hortus — Garden Columnist, Winnipeg Free Press.
Director, Winnipeg Horticultural Society.
- ROBERT SERBIN
MRS. FRANCES
SMITH
JANE THOMPSON
BETSY
THORSTEINSON
JOHN VELIATH
ROGER VICK
Member, Winnipeg Horticultural Society.
Student, University of Manitoba, Horticulture.
- E. J. WALKER
JOHN WALKER
Amateur indoor gardener of exotic plants.
Graduate student, University of Manitoba.
Curator, Devonian Botanic Garden, University of Alberta, Edmonton.
Landscape Architect, President, Habitat Design Ltd., Regina, Sask.
Retired Professor of Horticulture at University of Manitoba and Superintendent of Forestry Nursery Station at Indian Head, Saskatchewan.

PHOTOGRAPHIC CREDITS — COLORED SECTION

F. J. Weir

J. Wojciechowski

G. Lenover

Lorne Heshka

Front Cover — Manitoba Dept. of Agriculture

ADVERTISING

Readers will notice that this issue of The Prairie Garden contains no advertising. Our advertisers over the years have assisted us in various ways and many of the nurseries, seed houses, horticultural suppliers and greenhouse growers have also helped in the distribution of our publication by carrying it for sale on their premises.

The Board of The Prairie Garden, however, regretfully came to the decision to discontinue advertisements for this year at least because the federal and provincial taxes, unfortunately, amounted to more than we received from the advertising last year.

We sincerely thank our advertisers and list those who appeared in the last year's publication:

Alberta Nurseries & Seeds Ltd.
Aubin Nurseries Ltd.
Aqua Holding Ltd.
Cheetah Distributors Ltd.
C. A. Cruickshank Ltd.
Early Seed and Feed Ltd.
Fegol's Nursery & Landscaping
Ferncliffe Gardens
Gardeners Sales Ltd., The
KLM Royal Dutch Airlines
Manitoba Dept. of Agriculture

Manitoba Mines, Resources &
Environmental Management
Manitoba Telephone System
Perma Engineered Sales Ltd.
Scent Off
Speers Seed Store Ltd.
Sunshine Peat Moss
T & T Seeds Ltd.
University of Manitoba
Yetman's Ltd.

For information on plants and gardening, we suggest our readers contact their local nurseryman, greenhouse grower, etc. You will always receive courteous consideration.

The Departments of Agriculture also have informational booklets on various aspects of horticulture, free of charge in most cases, and Agriculture Canada has a printed list of publications especially for the gardener.

Manitoba Department of Agriculture
Publications Section
411 York Avenue
Winnipeg, Manitoba R3C 1T5

Saskatchewan Agriculture
Communications
Administration Building
Regina, Saskatchewan S4S 0B1

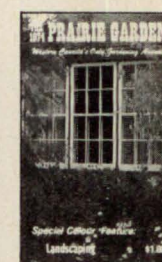
Alberta Agriculture
Publications Office
Rm. 1B — 9718 107 Street
Edmonton, Alberta T5K 2C8

Information Division
Agriculture Canada
Ottawa, Ontario
K1A 0C7

The Publications Section of Manitoba Department of Agriculture also have available, free, the Prairie Garden Index, 1965-1974, which gives a complete list of articles printed in those issues grouped under the various headings — Gardening, Trees and Shrubs, Flowers, etc.

Editor

ORDER FORM



1977 Prairie Garden — \$3.00 (Back issues will be sold at \$2.00 each as long as they last.)

- ☐ 1976 ☐ 1971
☐ 1975 ☐ 1970
☐ 1974 ☐ 1969
☐ 1973 ☐ 1968
☐ 1972 ☐ 1967

The Prairie Garden
P.O. Box 517
Winnipeg, Manitoba
R3C 2J3

Please send me the Prairie Gardens as indicated in the boxes above. My cheque in the amount of \$ _____ is made out to the Prairie Garden.

Name _____

Address _____

Code _____

(TO REMOVE, CUT OR TEAR ALONG THIS LINE)

International Flower Show

The Winnipeg Horticultural and Gladiolus Societies have announced that the Twenty-Second Winnipeg International Flower Show will be held on August 25th, and 26th, 1977 at the Polo Park Shopping Mall.

This beautiful annual event is a highlight of the summer for Manitobans and visitors alike, and there are usually an abundance of entries. Shipping charges to a maximum of \$5.00 per shipment are refunded to prize winners; and all exhibits are to be forwarded (prepaid) to arrive at the Polo Park Shopping Mall before midnight the night before the Show. Out-of-country exhibitors are advised to wire ahead and to mark all packages "cut flowers for exhibition — no commercial value".

Mrs. Tannis Gordon, 901 Norquay Building, Winnipeg (946-7801), Secretary of the event, informs us that the program and prize list booklets are expected to be available in early April for the coming Show.