THE WINNIPEG

# FLOWER GARDEN



*Presented by*
*The Winnipeg Horticultural Society*

*1947*

# FOREWORD

By J. H. NICHOL, *President*

I count it a great privilege to be able to write this foreword to the 1947 year book. Our book, this year, is larger and covers a wide range of subjects of interest to Horticulturalists.

Our Society has an excellent opportunity of being a real service to our city and suburbs, with so many new homes being built or recently completed. With this in mind we are endeavouring to make our year book and meetings of particular interest to the amateur gardeners.

By interesting these new home-makers in gardening we can help to beautify our city and communities and also make our gardening an interesting pastime.

Last summer we commenced having a separate competition for the rock garden and this proved so successful we will follow the same procedure this year.

Plans are again under way for our Annual Flower Show. Last year's show was a success despite the poor fruit crop caused by late spring frosts. We anticipate a fine show this coming summer and an increase in exhibits.

With the co-operation of our present members and the membership committee, we hope to further increase our numbers.

A great deal of thanks is due to the advertisers and also those whose donations have made this book possible. Our heartiest thanks to you all.

In conclusion, I wish to thank the directors and members for their support and also the Year Book Committee for their work entailed in making this book possible.

LIST OF OFFICERS

# The Winnipeg Horticultural Society

FOR 1947

*President*

MR. J. H. NICHOL
159 PROVENCHER AVE., ST. BONIFACE

*1st Vice-President*

MR. A. M. OSWALD
STE. 5, LONSDALE APARTMENTS

*2nd Vice-President*

MR. W. J. TANNER
518 HENDERSON HIGHWAY, EAST KILDONAN

*Secretary-Treasurer*

MR. R. W. BROWN
675 VALOUR ROAD, WINNIPEG

## DIRECTORS

| | |
|---|---|
| MR. J. A. MACPHAIL | 1000 Jessie Ave. |
| MRS. ROY MUNT | 545 Basswood Place |
| DR. I. F. FALARDEAU | 847 Spruce St. |
| MR. R. SKELDING | 1097 Dominion St. |
| MR. O. A. OLSEN | 157 Chestnut St. |
| MR. L. P. SPANGELO | 109 Ambassador Apts. |
| MR. M. R. BEVAN | 175 Semple Ave., West Kildonan |
| MR. E. A. POWELL | 101 Renfrew St. |
| MR. H. SULKERS | 44 Kelvin St. |
| MR. J. C. WILLIAMS | 644 Garwood Ave. |
| PROF. E. T. ANDERSEN | 1130 Somerville Ave., Fort Garry |

## ASSOCIATE DIRECTORS

| | |
|---|---|
| PROF. F. W BRODRICK | 448 Greenwood Place |
| MR. A. C. CAMPBELL | 222 Wellington Cres. |
| MR. R. W. BROWN | 675 Valour Road |
| MR. W. G. KOTCHAPAW | 50 Guelph St. |
| MR. F. J. O'MALLEY | Winnipeg Tribune |
| MR. THEO. E. HOWARD | 870 Palmerston Ave. |
| MR. C. G. KEITH | 291 Whytewold Road, St. James |
| MRS. T. J. FOXCROFT | 198 Good St. |
| MR. CLAUDE LAW | 26 Sherwood Place, St. Vital |

*Advertising Manager*—MRS. C. J. FOXCROFT

*Auditor*—MR. J. A. MACPHAIL

## LIFE MEMBERS

Dr. H. M. Speechly
Prof. F. W. Brodrick
Mr. John Walker
Mr. R. W. Brown

## PAST PRESIDENTS

| | | | |
|---|---|---|---|
| 1931 | Mr. Henry Downing* | 1939 | Mr. J. A. MacPhail |
| 1932 | Mr. William Stubbs* | 1940 | Mr. Thos. O. Graham |
| 1933 | Dr. R. W. Kenny | 1941 | Mr. Thos. O. Graham |
| 1934 | Dr. Percy G. Bell | 1942 | Mr. Theo. E. Howard |
| 1935 | Mr. John Walker | 1943 | Mrs. Roy Munt |
| 1936 | Mr. R. R. Nichol* | 1944 | Dr. S. W. Edgecombe |
| 1937 | Mr. R. W. Brown | 1945 | Mr. Eric Sochting |
| 1938 | Dr. W. J. Riley | 1946 | Mr. J. C. Williams |

*Deceased

# The Winnipeg Horticultural Society

Statement of Receipts and Disbursements for the year ending October 31st, 1946

## RECEIPTS

| | |
|---|---|
| Balance on hand Nov. 1st, 1945 | $ 37.36 |
| Membership fees for 1946 | 407.00 |
| Membership fees for 1947 | 34.00 |
| Government Exhibition grant for 1945 | 260.12 |
| Government Exhibition grant for 1946 | 290.62 |
| Government Membership grant | 56.60 |
| Municipal grant | 100.00 |
| Donations | 338.50 |
| Entry fees | 35.80 |
| Advertising | 703.00 |
| Rent of space at flower show | 50.00 |
| Sale of year books | 75.00 |
| Miscellaneous | 40.76 |
| | $2,428.76 |

## DISBURSEMENTS

| | | |
|---|---|---|
| FLOWER SHOW: | | |
| Prizes | $526.25 | |
| Entry tickets, ribbons, etc. | 31.44 | |
| Prize list | 243.08 | |
| Help at rink | 30.00 | |
| Rent of rink | 50.00 | |
| Cartage | 5.00 | |
| Other expenses | 15.80 | |
| | | $901.57 |
| Home grounds competition prizes | | 55.00 |
| Year book | | 465.26 |
| Printing | | 90.50 |
| Postage and stationery | | 131.78 |
| Secretary's honorarium | | 100.00 |
| Mr. Dan McCowan, for lecture | | 25.00 |
| Red Cross | | 27.00 |
| Donation, Crescent-Ft. Rouge Youth Centre | | 5.00 |
| Telephone | | 35.00 |
| University, rent of room | | 7.50 |
| Engraving cups | | 5.08 |
| Presentation | | 25.50 |
| Miscellaneous | | 17.24 |
| | | $1,891.43 |
| Balance on hand Nov. 1st, 1946 | | $ 537.33 |

R. W. BROWN,
*Secretary-Treasurer.*

## AUDITOR'S REPORT

To the President and Members,
Winnipeg Horticultural Society:

I have compared the above statement with the books and vouchers relating thereto and certify that it is a correct record of the receipts and disbursements of the Winnipeg Horticultural Society for the year ending October 31st, 1946.

J. A. MacPHAIL,
*Auditor*

Winnipeg, Nov. 25th, 1946.

## *Report of the Year Book Committee for 1946*

As chairman of the Year Book Committee, the following is the statement for 1946.

There were 900 books printed and distributed and the advertising and donations amounted to $550.00. The total cost of the book was $465.25 which leaves a balance of $84.75. This has been our objective, to make the year book of the society self-sustaining.

I now would like to thank all members who worked along with me on this committee and also everyone who so kindly submitted articles which we were able to use in the book.

In closing I would like to say that I hope the 1947 year book will be bigger and better.

MRS. R. MUNT,
Chairman of Year Book Committee.





## *President's Annual Report for 1946*

J. C. WILLIAMS

The 1946 season of the Winnipeg Horticultural Society has now passed into history and we have every reason to be proud of its achievements and of the progress made.

Membership is gradually increasing, 468 being the number enrolled during the past year, 30 more than in 1945 and an increase of 70% in three years. This is encouraging and speaks well for the efforts of the membership committee, under the able chairmanship of Mrs. T. J. Foxcroft.

Our Year Book was distributed to 600 of our own members and 300 to the Fort Garry Society. We have reason to believe that other sections throughout the province are interested in receiving this book and so spread the information contained therein to a greater number of garden-minded people. Proceeds from donations and advertising were sufficient to cover expenses incurred. Many thanks to those who contributed articles and to all those who made the printing of this book possible. The Winnipeg Flower Garden for 1947 will be bigger and better than ever and will be available to all those who take out membership in the Society.

Many members availed themselves of the opportunity of attending the seven interesting and instructive meetings held, which were as follows: Annual meeting on November 29th, 1945, at which Theo. E. Howard was the speaker; January 23rd, 1946, the speaker was Hector McDonald; February 13th in conjunction with the M. H. A. convention with W. R. Leslie and Prof. John Walker as the speakers; varying subjects were dealt with on March 7th by Dr. R. W. Kenny, T. V. Sandys-Wunsch, P. H. Hammond and Geo. Nicholson. On April 16th we were fortunate in having as our speaker Dan McCowan. The unusually large attendance at this meeting proved that the topics of the renowned naturalist are very popular. Mr. H. Sulkers spoke at the first of our Fall meetings this year. His talk was followed by the showing of a film through the courtesy of the Department of Mines and Resources. The response to the poll taken at this meeting regarding subjects for future meetings was very gratifying. Many and varied were the topics suggested, but the requests for amateur nights far exceeded any of the others. The success of these meetings was due in no small measure to the untiring efforts of our program director, A. M. Oswald.

In response to popular demand the judging of Rock Gardens was done earlier this year in order that the judges see them at their best. So distinct was the improvement that this will henceforth be considered an annual feature.

Entries in the Home Grounds competition were numerous and the gardens, for the most part, were up to the usual standard. Details are contained in the chairman's report.

The Civic Caledonian Rink was the scene of our Annual Flower and Vegetable Show on August 29th and 30th. Entries exceeded our expectations and competition was keen in all classes. Many citizens took advantage of the opportunity of viewing the products of our Winnipeg gardens. Due to frost damage in many parts of the province in the spring, fruit growers were unable to co-operate in presenting the usual fine fruit displays, but we hope that in 1947 we shall again have them with us. My personal thanks to all donors and exhibitors, also to the directors and members who gave so wholeheartedly of their time and efforts. We also owe a great deal to Mr. J. A. McPhail for the efficient manner in which he supervised the exhibition. Further details will be contained in his report.

The Society again agreed to supply judges for the Free Press Garden Competition. Several directors and members co-operated by judging the preliminaries with R. W. Brown and Prof. E. T. Andersen doing the final judging.

The Secretary-Treasurer's report shows that the finances of the Society are all that could be desired. A very special vote of thanks is due Mr. R. W. Brown for the efficient manner in which he looks after the affairs of the Society. Personally I owe much to him for his assistance during my term as president.

A trip to the Dominion Experimental Station at Morden was undertaken on July 28th. With the chartering of a bus and the co-operation of numerous car owners, approximately 125 people were given transportation. Officials of the station, as usual, extended a very cordial welcome. Mr. Ray Ure acted as host in the absence of Mr. W. R. Leslie and showed every consideration. Messrs. Harp, Cox and Godfrey proved themselves the excellent gardeners they are in passing along a wealth of knowledge while conducting the group around the various points of interest. Mr. Jack Nichol was in charge of arrangements. It was our privelege to have with us Mr. A. R. Brown, of Prairie Gardener fame. He was introduced to the gathering and gave a short but interesting talk.

We were sorry to lose the services of Directors L. A. Yager, B. N. Smallman and H. A. Green, who, for various reasons found it necessary to resign from the board. Their places were, however, ably filled by O. A. Olsen, L. P. Spangelo and M. R. Bevan.

While I have, perhaps, in the foregoing report, appeared to single out certain directors for special mention, this is not intended to be a slight on the others. Far from it because, without exception, they all did an excellent job. Only through unavoidable circumstances did any of them miss attending the numerous meetings that were held throughout the year. To them goes the credit for the success of the Society's enterprises through their foresight and attention to details.

My report would be incomplete if I did not express the appreciation of the Society to the Department of Public Works for allowing us the use of rooms in the Legislative Buildings in which to hold our meetings.

In conclusion may I take this opportunity of expressing my appreciation for the honor of serving as your president and to thank the officers, directors and members for their loyalty and support. My wish is that the incoming president will receive similar support. May the Society continue to prosper and its membership increase until we have every gardener in the city enrolled.



# INDEX

# *What Happens Inside Outside?*

A. RUSSELL CRAGG, United College

After two wars, there is again a great hope that the world can be reconstructed by education. To that end, in 1919, educational conferences were organized. At one of these held in Winnipeg, delegates gathered from the dominion to hear speakers like David Lloyd George, the British War Prime Minister, and Peter Wright of the Workingmen's Union of Britain. Wright frankly warned and advised us to choose men for the reconstruction who knew their job. "Why," said he, "do you know that in our country when they find a man who knows all about nuts, bolts and screws (an expert in shipbuilding) they make him Minister of Education?" Evidently something like that has happened since, for we have not saved ourselves from war nor have we been able to reconstruct a world.

We know very well what has taken place outside in the world during the twenty-five years. Do we know what is taking place inside ourselves? Do you? Do I? Do we ever really know what is going on within the human body, mind and spirit? It is a big question whose answer eludes most of us. As a world question, we have no answer as yet. As a garden question, let us try an answer.

Like the famous question asked three masons, "What are you doing?" three gardeners might answer, "I am earning my living," "I am growing flowers, fruits and vegetables" and "I am helping to feed a world." All three answers are objective observable data. But what is happening inside each of the three gardeners when doing this outside thing? We can estimate the size of the pay envelope for the first, the quantity of grown products for the second, and the amount of exports for the third. Can we estimate the inside assets and liabilities of each man? What is stirring inside body, mind and spirit? Surely the man who is growing a garden in order to help to feed a world must feel something different stirring inside. The man earning a living has always an inside story to tell.

The second gardener who grows flowers, fruits and vegetables has always thought himself different. To us ordinary folk, he may be like the American soldier reporting on Port Darwin and putting it this way: "When you have been there a few weeks, you find yourself talking to yourself. After that you find yourself talking to the lizards. Another couple of weeks you find the lizards talking to you. Then you find your-

self listening." Well, I have been a gardener long enough to want to know what the lizards said. Don't you? Let us try an answer for the question, "What happens inside us when we are outside gardening?"

1. **Examine the body for an answer.** The first fine day of prospective spring is a long way off. Are you waiting for the 10th of May to whiff the fresh air, to scratch the soil and to scatter seeds in the turned-over dirt? Do you expect success in growing a garden this way? If you are, you do not understand that body of yours. A gardener is weather-proof. Gardening is not a four-months' affair. It is a long term process. Did not the Back-to-the-Land Movement make its biggest mistake in assuming anyone could farm and do it from the 10th of May on or even April 10? The demands of gardening and farming are as great as those of storekeeping, banking and teaching. Storekeepers, bankers and teachers plan far ahead, through thaws and blizzards, through sunshine and storm, through droughts and cloudbursts. Vim, vigour and vitality are yearly necessities. Why should gardeners (pseudo-gardeners they are) ever try to exploit both the outside earth and the inside body in a reckless risk that carries with it all the disappointments of a gambler? If one is a genuine dirt gardener with green fingers, one is strengthening the body all the way through the winter months. Muscles and tendons, glands and organs, juices and hormones, are in active service for the duration of your life span as a gardener.

But and if you have not succeeded wholly in keeping the body in tip-top shape, even the May through September can work wonders. You remember Earle Temme who swam the tempestuous English Channel, and the girl office clerk who repeated the same feat. Both gave the credit not to calisthenics nor to sports but to gardening with its fresh air, sunshine and bending movements. My rather delicate cousin, a pharmacist, and a naturopath in theory, has now good health, normal weight, and a long-hours' endurance due to exposure to the weather for three hours a day. A very famous doctor in a big city recuperates rapidly in a short holiday by leaving the civilized city, returning to the country, even remaining away from houses, and by lying down on the good earth for quick recovery. Moreover he recommends it to his patients. You all remember our famous philosopher at Wesley College for nearly thirty years, who at sixty broke down in health. On the advice of a doctor he built a suburban home with a big acreage, rented another piece of land, and lived out of doors for one summer gardening and reading philosophy. He taught till he was 79, that is, nineteen more years. How much more then are we to expect from long term outdoor living?

Do we think enough about it? This is what can happen inside the body when we are outside.

2. **Examine the mind for a further answer.** Aldous Huxley once visited Winnipeg and gave a lecture and disgraced (so we thought at first) his audience by talking about ants. We soon knew he had chosen the right topic. It best can be told by a story of a boy. This boy was not too fond of choring. His mother had insisted all morning that he get rid of the anthill on the lawn. Finally he yielded to entreaty and threats. He took so long! Where had he gone? Mother found him on the lawn, with a big hole in it, looking intently into the hole, fascinated by the recovery the ants were making. He removed the colony and placed it so that it could continue its recovery. He sold that colony to a sick person who also made a personal recovery from sickness by watching the ants recover. To make a long story short, that boy kept on selling ant colonies to similar sick patients, and in a few years had hired six helpers. The ants had learned the secret of never being licked. That is the secret of good health. So the law of supply and demand took care of the business end of it. Nature is full of such useful lessons.

Long before Co-operatives were established, Nature had shown the way. Now gardeners are natural co-operators. They pool their findings, with exceptions. One exception happened to be a successful pansy grower: "Anyone can grow pansies. There is no secret to that. Just do so-and-so, buy good seeds, place in the right ground and with the proper shade and sunshine and you will have pansies!" He went inside for his receipt book and the customer found out accidentally the secret of growing pansies. There is a secret and it is supposed to be pooled. There is a secret of getting rid of ants, if you do not wish to pursue colonizing. Nature too has developed leadership. When I think of the well-informed skilful gardeners I have known, I have often wondered if, after all, they would make our best parliamentarians, in that they plan and prepare the soil and seeds, watch carefully all changing conditions, and never give up hope. Note these three inside qualities.

3. Finally for this article, **examine the human spirit.** Values are at stake today as never before in history. Even in peace we say the fight is still on between ideologies. It really is a fight between an idiot-ology and an idea-ology; between the idiot-ology of destruction of values of the human spirit, and the idea-ology of the preservation of the values of the human spirit. It is a fight between those who want quiet peaceful homes with gardens and those who know not what gardens are like and so want to blacken the earth with smoking factories turning out everything that would destroy the decencies of life. In their scheme of things there would be mass produc-

tion of state turnips, cabbages, pumpkins and potatoes. They have cabbage heads in stock now.

We gardeners do not pretend to be 100% peacemakers just for the sake of having peace. There are principles at stake. We admit we may have what one jokster calls the 'Mad Way To Health.' An old mountaineer from North Carolina was undergoing a thorough physical examination by a city doctor. Amazed to find the old man in such excellent condition, the physician asked incredulously, "How old did you say you were?" "Eighty-seven," was the firm reply. "In all my years of practice," said the physician, "I have never seen a man even fifteen years younger than you in such perfect condition. To what do you contribute such long life and good health?" "Well, I'll tell you, Doc. When me and my wife got married we made a sort of an agreement not to argue. If she ever got mad around the house, she promised she wouldn't say anything but just go back to the kitchen until she calmed down; and if I ever got mad I wasn't to say anything but just walk right out the back door and into the back yard and——" "Yes," interrupted the puzzled physician. "But what has that got to do with it?" "Well, Doc," drawled the mountaineer, "as a result of that agreement, I reckon I've led what you might call somewhat of an outdoor life."

These values of the human spirit including the jokester's, are altogether likely to be very simple. We all promised and were willing to adopt the simple life after the disastrous catastrophe of war. No one will be any more ready for the simple life than the gardener who has been living just such a simple life all his life. He has never wanted excessive wealth, or the display of luxury, or the exploitation of another's goods. He revels in nature's colors, its odors, its clean dirt, its ultra violet and infra red rays, and in its backaches.

Greatest of all values is the spiritual value of life. The 23d Psalm is the Shepherd Psalm. The 24th or part of it is the Gardener's Psalm: "The earth is the Lord's and the fulness thereof, the world and all the decent people that dwell therein. Who shall ascend into the hill of the Lord to get a view of earth's beauty, or who shall stand in His holy place, His garden? He that hath clean hands and a pure heart; who hath not lifted up his soul unto vanity nor sworn deceitfully. He shall receive the blessing from the Lord."

So now in peacetime, with shovel and hoe and rake and spray, we band and bend ourselves together to preserve our gardens, not just as something **outside** to be cultivated, but as **inside** symbols of all that we hold sacred in our civilization, and to preserve the same right for all who want to do the same thing, without fear, and in a great brotherhood of the cultiva-

tion of the growing beauties of nature and human nature. That is what is happening inside when we are outside. Very soon, we hope, the outside will respond to the inside. Meantime we want more gardeners to develop the inside so that we may change the outside.







# *Suggestions for the Novice Gardener*

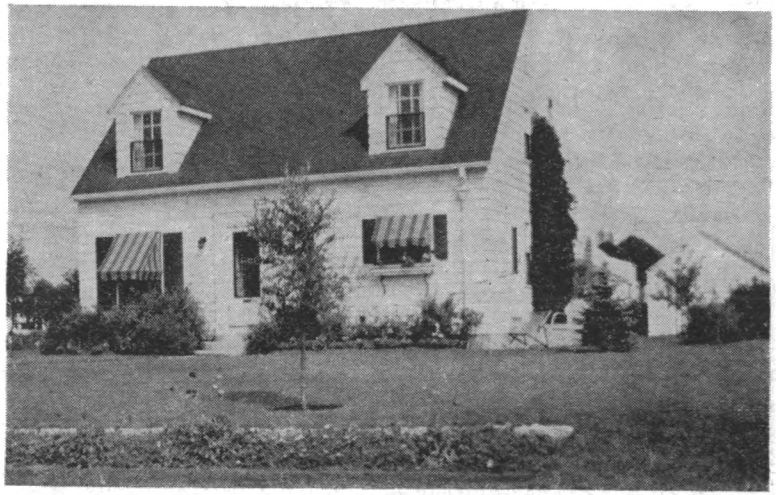
L. P. SPANGELO

Many new housing projects are under way and to-day more than ever before landscaping and home-grounds development are topics of utmost importance. It is the aim of the Winnipeg Horticultural Society to present to the novice and the amateur gardener useful hints and ideas for the development of more attractive home surroundings; well arranged shrub plantings, colorful flower gardens, attractive lawns and productive vegetable gardens. It is the purpose of this article to present to the new home owner some ideas of home grounds development.

Every home site has individual problems and these of course can not be dealt with in a general article. There are however, certain basic principles that should be applied to the landscaping of any particular home grounds. The designing of a landscape plan requires considerable thought and the amateur gardener will possibly find that a suitable plan cannot be prepared overnight.

Most of the city lots have frontages ranging from 25 to 50 feet and this type of a home grounds usually results in a

## Winnipeg Home Grounds Competition, Novice Class



*Home of E. H. Moore, 489 Lyndale Drive, Norwood, took first place in the Winnipeg Home Grounds Competition, Novice Class.*

limited choice for location of the house on the lot. However, to those who are contemplating the building of a new home careful consideration of the house location to fit in with an ideal landscape plan is important.

Possibly of first importance is the choice of the style of the design. Is it going to be of the formal or informal type? Both the informal and formal type can be suitably adapted to most homes. To the average person however, the informal type is the most pleasing. Trees, shrubs and flowers growing in their natural habitats do not present the monotony of continous straight lines. The informal type of landscaping closely copies the style nature has followed. Clumps of shrubs here and there, curved flower beds and lawn borders with no regularity are much more attractive than shrubs, flower borders etc. planted with the regularity of straight lines. With the informal type of plan the exact area of the home grounds is not revealed at one glance. This type of planting gives depth and vastness to the grounds and this is particularly important where the city lots are small.

Many homes in both the urban and rural areas of Manitoba are suitably landscaped, while others demonstrate the common mistakes in home grounds development. A walk or drive through any residential part of the city will reveal what can be done in the way of landscaping in Manitoba and many home sites will illustrate at one glance the obvious "what not to do."

After choosing the style of the design a paper plan, using a suitable scale, should be drawn. This plan or sketch should include the entire lot: the location of the buildings, walks and driveways, arrangements of plantings and planting distances. The use of a paper plan usually reveals and provides for the easy correcting of mistakes. It helps to design curved walks, roadways, flower borders, etc., that will be most attractive.

Styles of landscape design have changed during the past half century. Early designs usually provided for beauty to be enjoyed only by the home owner himself. Tall hedges along the frontage of the lot, and these still exist in front of many Winnipeg homes to-day, entirely screened off the view of the house from the street. This type of planting undoubtedly provided for privacy in the front yard. Modern landscaping discloses the beauty of the home to the passer-by and the private area is usually confined in an area at the rear of the lot.

An ideal plan should divide the lot into three main areas: the public area, the private area, and the service area. This division of the lot is achieved by the careful planning and planting of groups of shrubs at appropiate locations. The private area provides what might be termed an outdoor living

room while the service area should include the laundry yard, fruit and vegetable and possibly flower garden. Walks and driveways if convenient, should be on the service side of the house.

Figure 1 illustrates the method by which the lot is divided into the different areas.

Figure 2 shows how the division is achieved by the proper location of trees and shrubs.

The plan below, although not suitable for a small lot, nevertheless does demonstrate the method of division.

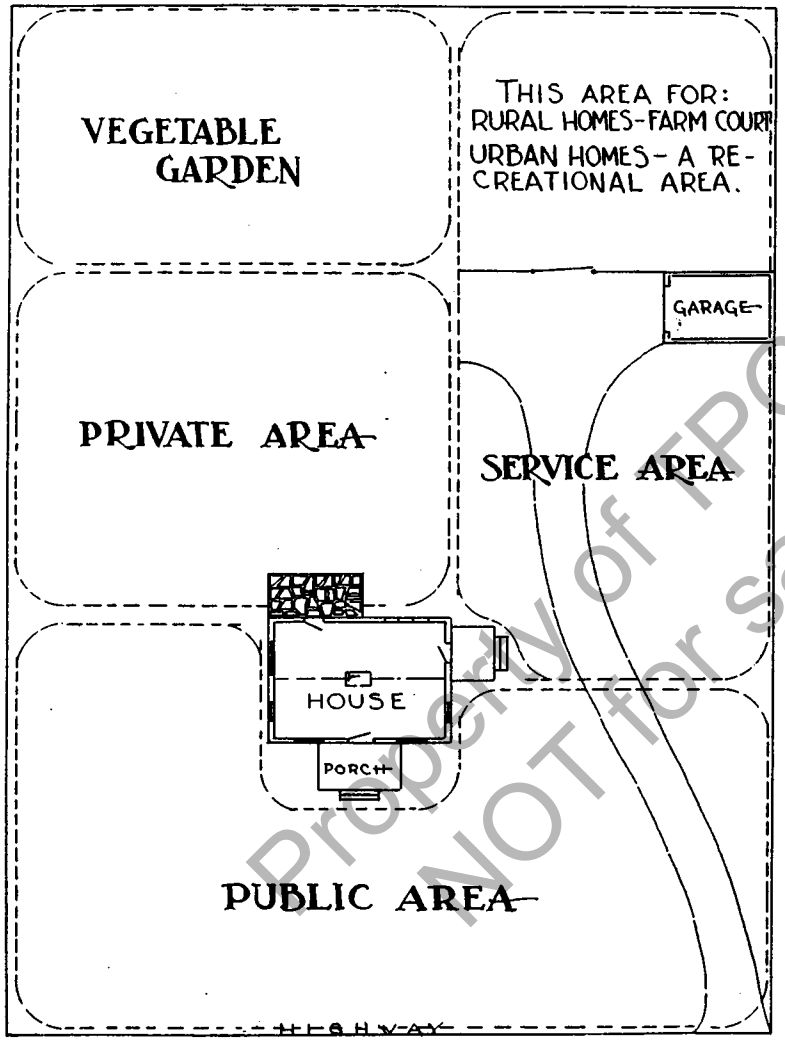



FIG. 1—From Miss. A. E. S. Bull., No. 340.



Every home site presents the problems of hot sunny and cool shady locations. Types of plant material suited for these locations should be used. A thorough knowledge of the ornamental trees and shrubs and flowers commonly used in landscaping is important. If you are not familiar with the variety of tree, shrub or flower it is impossible for you to know the type of growth it will produce, the height to which it will grow, the type and color of foliage in summer or winter, the color of the blossom, its cultural requirements, whether it is shade loving or its natural habitat is a warm sunny loca-

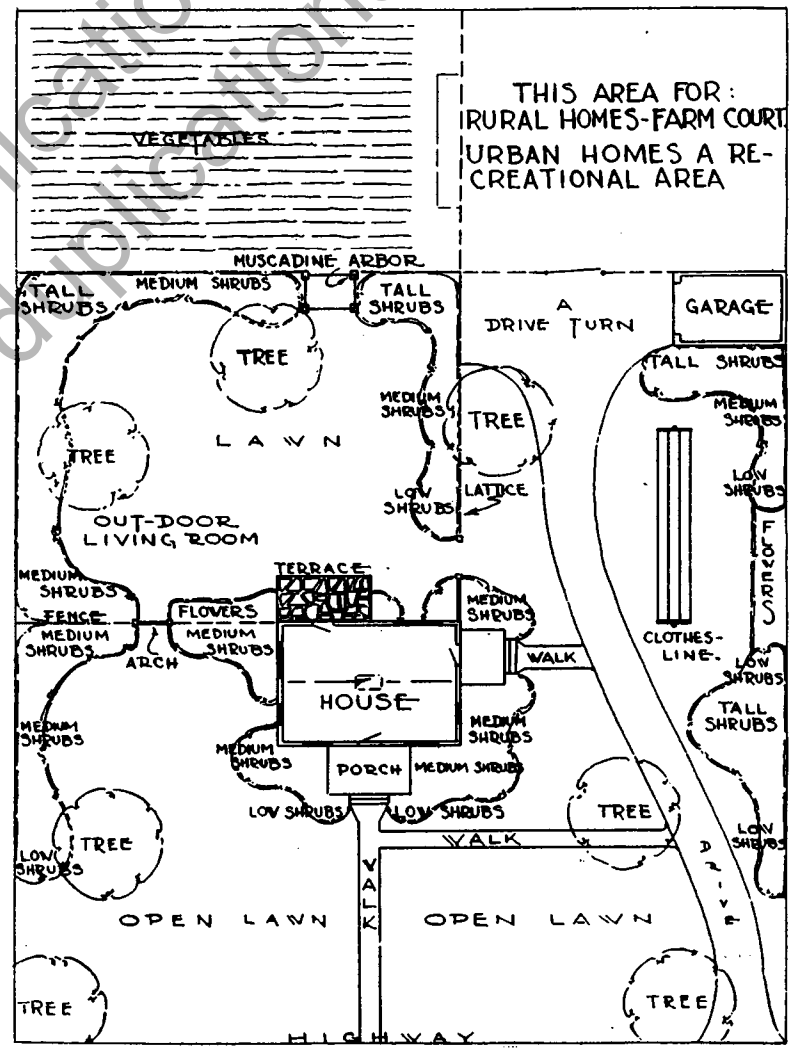



FIG. 2—From Miss. A. E. S. Bull., No. 340.

tion. In addition to having a knowledge of the above facts it is important that plant materials sufficiently hardy for the severe Manitoba winter conditions be used. A complete discussion of all plant materials suitable for landscaping in Manitoba is impossible in this article. However, a discussion of some of the more commonly used shrubs is feasible.

For the division of the lot into the different areas or for screening unsightly views some of the taller growing shrubs such as: the honeysuckles, lilacs, common caragana, elders, flowering crabs and some of the *Prunus* and *Rosa* species are suitable.

Of the honeysuckles possibly the Tatarian honeysuckle, *Lonicera tatarica* is the hardiest and the best. When left to grow naturally it may reach a height of 8 or 9 feet.

The common lilacs, *Syringa vulgaris,* will grow to 8 or 10 feet. There are numerous varieties both of the single and double flowered types.

*Caragana arborescens,* the common caragana is an extremely hardy and highly drought resistant shrub growing to a height of 10 or 15 feet if left untrimmed. It is however, very aggressive, and other shrubs and flowers growing nearby are likely to suffer from the strong competition. Also, it tends to lose its foliage early in the fall and becomes somewhat unattractive at this time.

Of the elders, the European Red Elder is considered superior. It is a large growing shrub 8 to 10 feet in height and very hardy.

The ornamental crabs with their varied colors have a place in the landscape plan. They are very useful in mass plantings and possibly should be limited to large lots.

Some of the plums and cherries, *Prunus* species, can be used very effectively either in border plantings or in foundation plantings.

Many of the roses require special care. Of the hardier types the Altai rose is possibly the best. For further information about roses see the article "Hardy Roses" in this publication.

Planting around the base of the house is known as foundation planting. Its chief purpose is not to hide the foundation entirely but to blend the harsh vertical lines of the house with the lawn. Foundation planting is best limited to planting at the corners and it is not necessary to continue across the wall. Shrubs for foundation plantings should not be planted so as to obstruct the view from windows. If you wish to plant below a window use material that is low growing.

Suitable shrubs for foundation plantings include the:

contoneasters, spireas, dwarf caragana, some of the Prunus species and some of the evergreens.

The *Cotoneaster acutifolia* is the best of the contoneasters. It usually grows to a height of approximately 4 feet, displaying red foliage color in the autumn and black berries that remain on the bushes almost all winter.

Several species of spireas are available. Not all are sufficiently hardy for Manitoba conditions and if they are to be used hardier types should be planted. The spireas are low growing shrubs displaying beautiful spring flowers, creamy white to white in color.

Of the low growing caraganas the *Caragana pygmaea* or Pigmy caragana is suitable for foundation planting, border planting or hedges. It is very hardy, has fine leaves and blossoms in the spring displaying attractive and conspicuous yellow flowers.

Several of the Prunus species, including the Flowering Plum, *Prunus triloba*, the Siberian Almond, *Prunus nana*, and the Purple Leaved Sand Cherry, *Prunus cistena* can be used effectively for foundation planting. The latter, although it kills back each winter, will produce attractive new growth.

Some of the ornamental evergreens can be included in the foundation plantings. *Juniperus scopulorum*, Rocky Mountain Cedar, a small evergreen, is very attractive, and can be used effectively.

Another way in which shrubs are used in the landscape plan is by planting in specially selected locations, shrubs with individual beauty. This type of planting provides specimen or accent points and it gives emphasis to the entire planting scheme. Shrubs or trees selected as such should have some particular feature of attraction to be worthy of the special position.

A common fault with landscape planting is that the materials used do not provide for attractive colors in winter. Most trees and shrubs during the winter months lack beauty. The evergreens, with their green foliage the year round, the dogwood, Cornus species, with its bright red bark and the cotoneaster with its black berries remaining on the bushes all winter, are a few examples of shrubs suitable for adding color to the winter landscape.

In any landscape plan it is most advisable to plant a few specially selected and well placed shrubs rather than numerous shrubs poorly located. This is particularly important in the city area where the lots are small.

Previous to the planting of lawn grasses, shrubs, trees or flowers, soil preparation is important. For information

about soils reference is made to the article on soils, elsewhere in this publication.

The care of planting materials on arrival from the nursery is very important. At no time should the roots be allowed to dry out. If the soil is not ready for planting the trees should be removed from the bundle and heeled in. This consists of digging a V-shaped trench, placing the roots in it, covering them thoroughly with moist soil and tramping it well. A thorough watering after this has been done is good practice.

Planting can be done either in the fall after the trees have become dormant or in the spring before growth begins. Spring planting is usually preferred. This permits the trees to become fully established before winter thus eliminating possible winter damage.

When digging the holes it is advisable to make the holes of sufficient diameter to permit the easy spreading out of the roots and the depth should be sufficient to permit planting at a depth 2 or 3 inches deeper than the trees originally stood in the nursery. Place the roots in the hole, fill in to about ⅓ with good top soil, tramp firmly and repeat this process until the soil is replaced. When planting trees the practice of using well rotted manure to fill in the holes will cause damage and possibly death to the trees.

When trees and shrubs are planted, pruning is essential to compensate for the roots lost when they are dug out in the nursery. Pruning or cutting off approximately one-third of the top of the tree is necessary.

The watering of newly planted shrubs is beneficial especially if the soil is dry. When watering heavy soakings rather than light and frequent sprinklings are best.

Further information regarding landscaping, planting, etc., can be obtained by contacting any one of the following: the Provincial Horticulturist, Legislative Buildings; Department of Horticulture, University of Manitoba; the Dominion Experimental Stations; and the numerous commercial nurseries in the province.

# *The Why's of Horticultural Propagation*

W. L. KERR

In this short article only a few of the "Whys" of horticultural propagation will be briefly discussed. There is perhaps no other phase or branch of horticulture which is more interesting. Many thousands of people either directly or indirectly depend on horticultural propagation for their living. It may be divided into two main branches. Propagation by seed or "Sexual" and vegetative or "Asexual."

**Propagation by Seed**

Where plants come reasonably true from seed this is usually the most simple method of increasing them. It is frequently more complicated, however, than just planting the seeds, keeping weeds and insects under control and digging the young plants or trees. Some seedlings are very susceptible to common soil born diseases and require treatment with some disinfectant. Others require special soil mixtures for strong germination and thrifty growth. The lack of understanding of the factor of dormancy in seeds is often the cause of considerable loss and discouragement. Stratification, which is subjecting seeds to moist low temperature conditions is necessary to break the dormancy and stimulate germination of many kinds of seeds. As a rule the most satisfactory temperature for stratification in approximately 41° F. The temperature range at which they stratify varies considerable among different kinds of seeds. Stratification goes on in a seed while it is in the fruit hanging on the tree or on the ground, provided temperature and moisture conditions are favourable. As the temperature goes below or above 41° F, stratification is retarded and a longer time is required. Along with temperature, moisture and aeration are required for best stratification conditions. They are usually supplied by mixing the seed with damp sand, peat or moss. Some seeds such as mulberry and freshly harvested elm will germinate as soon as satisfactory moisture and temperature conditions are given. Some such as apricot and ash require approximately a month. Others such as apple, pears peach and nanking cherry require two to three months.

Native plum, saskatoons and sour cherries four to five months. Some roses require over six months and hawthorns approximately one year. A few seeds such as cotoneaster germinate more freely if harvested and planted before thoroughly ripe. It is therefore, quite apparent that the treatment given and time of planting of seeds is very important. If the soil is moist there may be period of a month or more in the fall and a month

in the spring when stratification takes place. If there is a good covering of snow and the soil has been mulched conditions may be favourable for four or five months if planted early enough in the fall. Seeds which require long germination periods are usually best cared for by stratifying in fall. Frequent observations should be made by dumping them from one container into another. If they are not uniformily moist, more moisture should be added. If germination is commencing they should be screened out of the moist sand mixed with real dry sand and planted outside as soon as conditions permit. Prolonged open fall weather may result in fall germination and winter killing of the seedlings. Likewise, very early spring germination may result in heavy losses by late spring frosts. These hazards may be partly or completely overcome by the above mentioned artificial stratification method and delayed spring planting. The proper depth of planting is important also. Seed such as elm must be planted very shallow, while ash and plum will emerge through a depth of 3 inches or more of soil. Contrary to common belief, freezing is not beneficial. At times it may be injurious to good germination. Some seeds do not germinate evenly apparently regardless of treatment. This may be partly overcome by reserving a special place in a frame for them. Each year some seedlings are dug out and more seed planted. Basswood is a good example of this type of seed. A few seeds give more even germination after being subjected to alternate periods of stratification and normal temperatures. Seeds which have a very oily, hard, or impervious seed coats are assisted in germinating by scarifying, cracking or treatment with concentrated sulphuric acid, prior to planting.

### Vegetative Propagation

The increasing of number of plants by vegetative methods insures greater uniformity. This may be accomplished by one or more of a considerable number of methods. The more common methods of vegetative propagation include grafting and budding, cuttings, layering, suckers, runners or stolons, division, bulbs, bulblets, corms, rhizoms and tubers. In all the above propagation methods it will be noted that some part of the tree or plant other than the sexual (fruit or seed) is used to make the increase. In this way characteristics determined by sex combinations are not influenced in the new plants developed. In other words, when some individual plant or tree is found or obtained by controlled breeding to have special qualities which you wish to perpetuate, usually the vegetative method is the most satisfactory. The specific method used will depend on the kind of plant, knowledge and facilities available for propagation and speed of increase desired. For example, supposing you had an exceptionally good apple seedling and you wished to increase it as rapidly as possible. You do so by

budding. The original tree would possibly have 500 to 1,000 good buds. Using the buds from the year old budded stock and the original tree, by the end of the second year you should have 10,000 to 50,000 young trees of that variety. If it was black raspberry you wished to increase and you had no special facilities or desire for very many more plants, you would tip layer it. You might have 2 or 3 dozen plants by the end of the second year. If you wished a large number and you had the desired facilities, you would use a propagating house and soft wood cuttings. By this method at the end of the second year you might have several thousand young plants. Each leaf and bud making a new plant.

The main requisite to success in either budding or grafting is close contact between the cambiums of stock and scion or bud. The cambium being that part between the bark and the wood which has the power to regenerate new cells and form a union. Generally speaking grafting and budding is confined to woody trees or shrubs. The first and one of the most important considerations in budding or grafting is the selection of a suitable stock on which to bud or graft. The stock and scion or bud should be sufficiently closely related botanically to insure a congenial union. In some cases a lack in compatibility is desirable to bring about dwarfing, quick fruiting or scion rooting. A good example might be considered pears dwarfted by grafting on quince stocks. In general, however, the closer related the stock and scion or bud are, the more normal the growth will be and the greater the chance of a successful union. Aside from directly increasing the number of a certain variety, budding and grafting is extensively used to double work or top work trees and to repair those which have been girdled or injured by adverse weather, disease, mice or rabbits. For more complete illustrations, methods and whys of budding and grafting consult the Dominion Department of Agriculture folder on "Budding and Grafting of Fruit Trees."

The propagation of plants, shrubs and trees by cuttings has become very important. The discovery of plant harmones which promote more rapid root development on cuttings has been a great aid to propagation .Research studies on the rooting of cuttings taken at various times during the growing and dormant seasons have demonstrated much more simple and rapid methods of increasing them in many cases. Willows, poplars, grapes, currants and a few ornamental shrubs are propagated mostly by dormant or hard wood cuttings. Many herbaceous perennials, shrubs and trees which are difficult or impossible to root by such methods are readily propagated by using soft wood cuttings from growing shoots. These are usually treated with a hormone or rooting substance and planted in a special propagating house. A propagating house is a green-

house which is shaded or the glass painted to cut out the strong rays of the sun. It is also tight and kept damp to maintain a high humidity. This is necessary to prevent excessive wilting before the cuttings develop a root system. As soon as root systems are fairly well formed they are transplanted and hardened off outside in flats or frames. The conditions of cuttings in regards to maturity, root inducing substance used, as well as the soil or rooting medium used in the greenhouse all play an important part. Various kinds of plants or trees respond differently to high acidity, different soil mixtures, bottom heat, and kind and concentration of hormone used. A knowledge of these factors is necessary to success in this method of propagation.

Most plants or trees which sucker freely may be propagated by root cuttings. Raspberries and saskatoons are common examples of those which are propagated mainly by suckers.

Layering consists of mounding soil over some part of a tree or shrub to induce roots to develop. By the end of the season, or the second year the shoot is separted from the main bush with a few roots and planted out. Some gooseberries, black raspberries, some purple raspberries and malling apple root stocks are usually propagated in this way. When difficulty is experienced in rooting cuttings, layering may be resorted to. It is generally considered a slower and more expensive method. Black raspberries and non suckering purple raspberries are tip layered. The growing shoot is bent over and most of the tip covered with soil.

Strawberries are good example of plants propagated by runners or stolons. It is important that these runners take root and make strong plants early in the season. The earlier they root and the stronger the young plants become the better crop of fruit will be harvested that fall from everbearing varieties and the next summer from June bearing varieties.

A large number of our perennials and some of our trees and shrubs may be propagated by division. This is done by digging them up and splitting or cutting them into pieces. Each piece should have some roots and a piece of stem or bud. The best time to divide plants depends on the kind of plant. The poorest time to split any plant up is when it is in full bloom. It is usually safe to split plants in the early spring before growth commences. A few perennials such as peonies give good results if lifted and split up after they are through blooming and have partly ripened off. This is during late August or early September. Many plants which may be propagated by division such as hardy chrysanthemums and lythrums, etc. are very easily and more rapidly increased by softwood cuttings.

A bulb is considered a specialized bud with leaf bases

thickened and filled with stored food and with stem reduced to a disc from the lower side of which roots develop. They are of three main classes. Scaly such as lilies, tunicate as in onion or hyacinth, or solid bulbs (corm) such as gladioli. Scaly bulbs are easily broken up, scale ultimately developing into another complete bulb. Normally a few small bulbs, "bulblets," are formed from the base each year of tunicate bulbs or corms. By notching the base with a knife a greater number will be formed. These like lily bulb scales require about 3 years growth to make good blooming size. Multiplier onions when cut up, each section having a piece of the base from which roots arise will form a complete cluster of onions by fall. In lilies the small bulblets formed in the axils of leaves will likewise, after being planted two or three years, develop into flowering size.

Tubers are short thickened underground branches with buds (eyes). Each bud or eye is able to make another plant as illustrated by the Irish potato. Sweet potatoes and dahlias although termed tubers are really thickened roots and do not have buds. These are planted whole with a piece of the stem which has a bud. Dahlias and sweet potatoes are quite frequently increased by greenwood cuttings of the stems. Cannas and German iris are typical examples of plants propagated vegetatively by rhizomes, more or less uniformily thickened underground stems with buds. Each piece having an eye or bud being capable of growing into a plant.

Research workers and commercial propagators are continually developing better methods of increasing plants, shrubs and trees. Those who wish to make a close study of horticultural propagation will find it highly interesting and challenging to your imagination and ingenuity.





# *Bud Grafting*

By E. T. ANDERSEN

This short article is intended to supply the practical information required by the amateur so that he might propagate fruit or ornamental trees and shrubs by this easy method of grafting.

Grafting is done by propagators for a number of reasons. The most important of these are: 1. To reproduce varieties of tree fruits which will not come true to the variety from seed, and which do not readily produce new plants from cuttings or suckers. 2. To reproduce valuable ornamental trees or shrubs which in some cases produce no seed or which produce weak growth unless grafted onto more vigorous roots, or for reason No. 1 (they do not come true to variety from seed) and 3. To convert a well established undesirable tree to a more desirable type.

Bud grafting or budding is perhaps the easiest method of grafting and the one which is most likely to be successful when used by the amateur. It consists of transferring a bud, attached to a small amount of bark and wood from the variety which it is desired to reproduce to the less desirable type, or to a seedling which will supply the new root system. In this case the bud is referred to as the scion and the plant supplying the root system is the stock.

Twigs from which the buds or scions are taken are called scion-wood or bud-wood. Such bud-wood may be transported long distances by mail at little expense, so that it is a convenient way of establishing and introducing new varieties.

Budding may be done by two methods. The shield or T-bud method is most widely used and must be done at a time of the year when the bark will "slip" or "lift" readily and cleanly from the wood and when well matured buds are available. The period when buds and the slipping of the bark are in best condition for budding is generally the latter part of July and the first half of August. Generally the bark will slip best 2-3 days after a rain or after the trees have been given a liberal watering, thus ensuring a rapid state of growth. If the bark is dry and does not lift cleanly or smoothly in making the T opening it is not likely that success will be obtained in the operation.

Budding is most successful when stocks or stems of pencil size or slightly larger are used. In nursery practice or where it is desired to propagate new trees of a variety the buds are inserted near the ground level of stocks which are no larger

than the dimensions stated above. Larger shrubs or trees may be budded by inserting buds into the smaller branches at a higher level, thus converting the shrub either in part or entirely depending on the number of buds or branches which are budded.

The operation is performed as follows: A T-cut is made in the stock cutting just through the bark to the wood as shown in B of Fig. 1. The bark is then peeled back from the edges of the T-cut.

Now using a very sharp knife, cut a small shield-shaped bud from your bud-wood as in Fig. 1C and C-1. Bud-wood A is obtained from the current season's growth of the desired variety and has the leaves cut off as shown in C. The cut bud is then slipped under the loosened edges of the T-cut, so that the upper end of the shield fits in below the upper edge of the cut, Fig. 1-D. The bud is then wrapped and tied with a strip of rubber about ⅛ inch wide, Fig. 2-D, or with raffia as in Fig 1-E. If raffia is used it will have to be cut loose about three weeks later when a union has taken place. Rubber will rot and loosen by itself, making it unnecessary to cut it free.

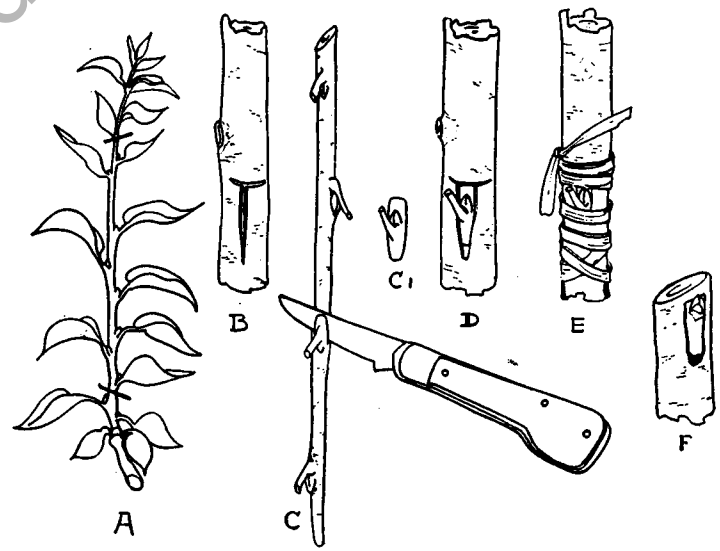



FIG. 1. SHIELD BUDDING

A —Terminal growth of current season, the source of buds;
B —The T-cut in the stock: C—The prepared budstick showing the cutting of the bud;
C1—The shield bud; D, E.—The bud in place and tied tightly against the stock with raffia;
F —The branch of the stock cut off close to the bud in the following spring.

—From Ont. Dept. of Agriculture, Bull. 439.

The following spring when growth commences the branch or stem beyond the bud is cut off about ¼ inch above the bud as shown in Fig. 1-F. New growth which forms on the branch from the inserted buds will all be of the new variety.

The second method of budding is called plate or dry-budding. It differs essentially from shield budding in that it may be performed successfully later in the season and in the early spring or winter. It is not dependent on the bark slipping or lifting cleanly from the wood of the stock. As shown in Fig. 2-A. The bark is sliced downward- just cutting through into the wood, using a sharp knife. The bud is cut similarly to those for shield-budding except that a sharp wedge is cut at its base, which fits under the flap left on the stock, Fig. 2-C. The bud is tied in the same manner as in shield-budding and treated in the same way subsequently.

Grafting-wax applied over the bud is usually not necessary in bud grafting, but under dry and very warm weather conditions may be of considerable help in obtaining good unions.

This article does not supply a large amount of detail on budding and it is suggested that those who are further interested obtain bulletins or leaflets on the subject. These may be had on request from government Experimental Stations, University Horticultural Departments, or the Publications Branch, Dept. of Agriculture, Ottawa. An outstanding chart illustrating many methods of grafting is available from the latter office.

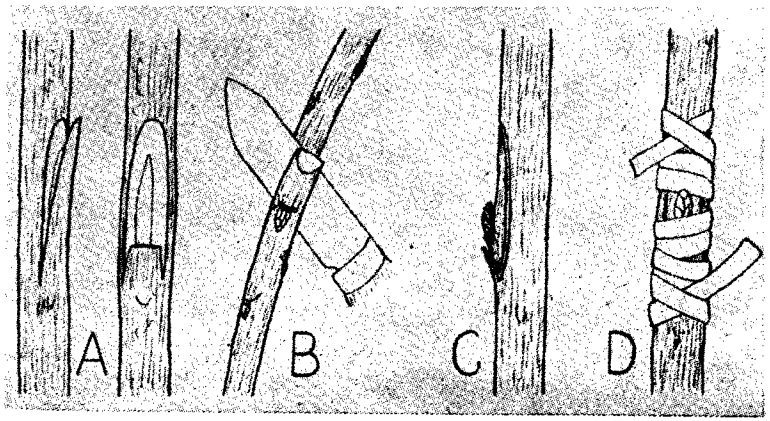



FIG. 2—Plate or dry budding. A—Stock; bark sliced and cut off at proper height. B—Cutting the bud. C—Bud wedged in place under stub of bark. D—Bud tied in place with rubber band. (From Alberta University and Agriculture Bull. No. 2).

# *What Is and Who Belongs to The Manitoba Horticultural Association?*

By THEODORE E. HOWARD

When visiting various points throughout the province, it is surprising how many times I have been asked by horticulturalists what connection, if any, there is between local horticultural societies and the Manitoba Horticultural Association. I have even had this question put to me by members of our four societies in greater Winnipeg. In view of this and particularly for the benefit of new members the following short explanation may be of interest.

ARTICLE 4 of the constitution of the Manitoba Horticultural Association says: "Any Horticultural Society in Manitoba may purchase annual membership in the Association for all its members." Further: "Affiliation fees shall be deducted from the membership grant by the Department of Agriculture before payment of this grant is made. On acceptance of fees the said society will be in good standing with the Association until the completion of the next annual meeting (convention) of the Association and again after the receipt of each annual affiliation fee." In other words, any local provincial horticultural society may pay a fee and become affiliated with the Manitoba Horticultural Association and in return receive a grant from the Department of Agriculture to assist the local society in its work. Fees and grants are based on the number of members in the society applying for affiliation.

ARTICLE 5 says: "Any affiliated society may appoint two delegates to the annual meeting of the Association, who will have full voting powers for the carrying on of business at the annual meeting or at other duly authorized meetings of the Association."

ARTICLE 8 says: "The delegates present at the annual meeting shall nominate and elect by ballot seven persons as directors of the Association as provided for in Section 36, Horticultural Society Act 1940." Further: "The board of directors elected at the annual meeting shall within ten days thereafter, meet and elect from among themselves and the two members appointed by the Minister of Agriculture as provided for in section 36 Horticultural Society Act 1930, a president, two vice-presidents and either from among themselves or otherwise a secretary and treasurer, etc."

The constitution is quite a lengthy document, but from the above it will be seen that membership in any local society

in the province, say for instance, any member of the Winnipeg Horticultural Society, affiliated with the Manitoba Horticultural Association, automatically becomes a member of the Manitoba Horticultural Association upon payment of his membership fee to the local society and without any further fee. Any such member is eligible to be appointed a delegate to the M. H. A. and likewise such member is also eligible to become elected as president, vice-president or a member of the board of the M. H. A. The officers and members of the board of the M. H. A. are therefore elected from the membership of affiliated local societies.

---

The cast thrown up by the earthworm contains the richest and most nutritious crop-growing soil available.







# Annuals

H. F. HARP

True annuals are plants which spend all their substance in one glorious outburst of riotous living, after which they go down to the earth never to rise again, and are only perpetuated by their seed. For variety of form and color, ease of cultivation and general usefulness they are esteemed by flower lovers everywhere. From mid-summer till frost comes they are colorful and gay, completely dominating the flower garden, having taken over from the perennials, whose brief flare-up of May and June is now almost forgotten.

Annuals may roughly be grouped in two classes, namely, long season and short season kinds. The former need early sowing in either greenhouse or window sill, while the latter may be sown in the open ground where the plants are to flower. The long season annuals such as Snapdragon, Lobelia, Verbena, Petunias, may be sown early in March. Sowings made before this date will usually result in plants that are drawn and spindly by setting-out time. Where the facilities of a greenhouse are available an earlier start may be made with advantage, especially where Pansies and Lobelias are grown. Toward the end of the month you may continue with Phlox, Nicotiana, Salvia and Salpiglossis. And later on — about the end of the firsts week in April — you may finish with Stocks, Asters, Zinnias and Marigolds.

See that you have light, porous soil for your seed sowing. If rotted sod — which is the basic material for all prepared soils — is not readily available, then you can use any good garden soil, mixing two parts of this with one part well rotted manure and one part leaf soil or peat. Add to this one part clean sand. Use four inch pots or tin cans of about the same size, and see that they are well drained. This is very important. Either pieces of broken crockery or coarse gravel will be found to be satisfactory material for drainage. Place a piece of broken pot or a flattish stone in the bottom of the pot covering this with the gravel or other material so that you have about one-third of the pot filled. Sift your soil mixture through a 4-inch sieve and place a covering of the rough portion over the gravel. Fill up with the sifted portion so that when pressed down it stands level at about one-half inch below the rim of the pot. Now stand the pots in a bowl of warm water till they are completely saturated by the process of percolation. Drain, and sow your seeds, taking care to distribute them evenly and cover them lightly by sprinkling

with the sifted soil. Be governed by the size of the seed as to depth of soil covering. Very small seed, such as Lobelia, is best not covered at all but gently pressed into the soil with a tin lid or similar object. Cover the seeded pots with a piece of glass over which place a sheet of newspaper. Turn over the glass each morning and when the seedlings appear, gradually inure them to the room temperature and full light by removing the glass and paper.

If you have taken the trouble to sterilize your soil, and this can be done by baking the pots in a hot oven for an hour or so, you will not be troubled greatly by damping off. Should there be some sign of damping off you can stop its progress by blowing a little "Semesan" dust on the seedlings and stand the pot in full sunlight for a few hours. As a precautionary measure do not water your seed pots in the afternoon if they appear dry. Do all your watering in the morning so that the seedlings will be perfectly dry over night. Wet seed pots and low temperatures during night will greatly aggravate damping off.

When the character leaves are evident, transplanting will be necessary. Use convenient-sized boxes and space the seedlings about two inches apart each way. Keep the boxes in full sunlight as far as possible in order that the plantlets grow sturdy and strong. The boxes may be transferred to a cold frame in early May, but care must be taken to give protection from night frosts. On sunny days the frame sash should be raised so that the plants can enjoy fresh air. By raising the sash on the leeward side you will avoid drafts. Gradually the plants must be hardened to outside conditions and the sash should be taken off entirely towards the end of the month.

Transplanting to the open ground is usually deferred until the first week of June by prudent gardeners, and the operation is greatly facilitated by choosing a cloudy day. Failing this, plan to carry out as much of the work as possible in the evening hours. By leaving a slight depression around each plant, after it has been well firmed in the soil, watering will only be a matter of filling up this depression and later on draw up the soil around the plant to prevent baking of the wet soil by the sun. All that remains is to cultivate the surface soil throughout the growing season and later on remove faded flowers wherever possible, so that the plants will not exhaust themselves making seed.

### Short Season Annuals

These are varieties that may be planted where they are intended to bloom, and include such popular kinds as Larkspur, Calendula, Candytuft, Centaurea cyanus, Cosmos, Esch-

scholtzia, Nasturtium, Shirley Poppy, Portulaca, Clarkia, Godetia and others. All these may be flowered successfully from seed sown in the open ground. Preparation of the soil should preferably be made in the autumn, as soil disturbed in spring dries quickly and conditions for seed sowing are made unsatisfactory. Where artificial means of watering are available the foregoing remarks will not apply in the same degree. See that the ground is firmed and made level by raking, and if some material such as corn stalks is handy, put these into position on the prepared site to catch snow. As soon as weather conditions permit in spring, usually about the end of April, the seed should be sown. Extreme care must be taken that small seed, such as Shirley Poppy and Portulaca, are not smothered. These are best sown on the surface of the soil and lightly pressed in and raked. Larger seeded kinds, such as Larkspur, Cosmos, etc., may be sown in shallow drills drawn about a foot apart in irregular patches throughout the border. The important thing to remember is that the seed must be in contact with moist soil in order to germinate. If weather conditions are favorable the seedlings may be looked for in a week or so, and no time should be lost in disturbing the soil crust by means of a hand cultivator as soon as the seedlings are making character leaves.

Early in June they will require more living room and drastic thinning must be carried out to allow for the proper development of the choosen few remaining. This thinning is best carried out in two or three operations, choosing showery weather if possible. Final distances between plants will vary according to the plant's requirements. Dwarf growing Candytuft and Portulaca, for instance, will require only 6 to 9 inches, while the Marigolds and Cosmos will need 2 feet each way. Intermediate ones will require 1 to 1½ feet. Sufficient room for the proper development of the plants must be given and the ruthless destruction of surplus plants must be practised. We may console ourselves that they have served their purpose as nurse plants and now their time has come to be weeded out.

**Annuals for Special Purposes**

*Cut Flowers*—Annuals grown for cut flowers alone are best given a place in the reserve garden or vegetable garden, where they may be planted in rows to be in keeping with their associates. Here will be found tall Snapdragons, Calendulas, Marigolds, Cosmos, Scabious, Sweet Sultan, Stocks and, of course, Sweet Peas. If you have become disgusted with asters, try the Queen of the Market type, which has been found far less susceptible to the Yellow's disease than the more choice Ostrich Plume and Crego kinds.

*Winter Bouquets*—When the frosts of autumn blackens

the Dahlias and the sparkle and lustre of the annual border shows signs of fading, we may yet gather colorful bouquets of everlasting flowers if we planted such things as Helichrysum (Straw flower), Gomphrena (Globe Amaranth), Ammobium (Winged Everlasting), Xeranthenum (Immortelles), besides the sea Lavenders, Statice sinuata and Bonduelli, and a few ornamental grasses. When gathering these choose a sunny day, tie them in small bunches and dry them in a cool room or cellar. Strawflowers are best gathered before the flower centres are exposed. These and the Immortelles can be dyed bright colors for use in more bizzare decorative schemes. Bouquets made from these dried flowers will provide a measure of cheer through the short days. By the time the first daffodils appear you will have grown weary of your dried flowers, and besides, they will have harbored considerable dust.

**Annuals for Edging**

Where straight lines are unavoidable in your planting schemes and formal beds are a feature, edging plants give a finish to the planting. Lobelia, Sweet Alyssum, Ageratum, Eschscholtzia, Candytuft, Portulaca may be used with good effect.

**Annuals for Climbing and Summer Ledges**

As a suitable subject for climbing or making a screen Sweet Peas are among the best. Other useful annual climbers are Morning Glory, Canary Creeper, Ornamental Gourds, Tall Nasturtium and Cobaea scandans. Annual sunflowers may be used where a tall screen or windbreak is needed. Artemisia sacrorum and Summer Cypress make useful summer hedges, from seeds sown where plants are to remain.

**Annuals for Fragrance**

Varieties of annuals grown for their fragrance should include Four O'clock, Virginia Stock, Mignonette, Stock (ten weeks), Sweet Sultan. Verbena, Sweet Scabious and Sweet Peas. These are all reliable for their fragrance.

**Uncommon Annuals**

*Diascia Barberae*—A dainty subject of fairy-like proportions; coral pink in color; about a foot high. May be used effectively to fill a vacancy in the rock garden.

*Felicia adfinis*—Miniature daisy-like flowers of a heaven-blue color. Not happy in the torrid heat of prairie summers but merits preferential treatment if only on account of its wondrous color.

*Annual Lupins*—These are satisfactory substitutes where the better known perennials ones have not succeeded.

*Hunnemannia, or Tulip Poppy*—About two feet in height with buttercup yellow flowers and handsome foliage. Sow where plants are to flower as they are somewhat impatient of transplanting.

*Campanula macrostyla*—Interesting annual bell-flower; purplish in color, veined, and with prominent styles. About one foot in height.

*Leptosiphon Hybrids*—Charming dwarf plant, various colored flowers. At home on a sunny ledge in the rock garden.

**Ornamental Grasses**

These are not nearly as popular as they deserve. What they lack in brilliancy in color they more than make up in beauty of form and add a pleasing mistiness to a bouquet of flowers. The following varieties are of easy culture:

Pennisetum longistylum (Fountain Grass)—1½ft.
Agrostis nebulosa (Cloud Grass)—1 ft.
Briza maxima (Quaking Grass)—1½ ft.
Briza gracillima (Quaking Grass)—1 ft.
Tricholaena rosea (Natal Grass).

In conclusion let me again emphasize the importance of allowing each plant sufficient room for proper development if you would have high quality flowers. Maintain good cultural conditions throughout the growing season by frequently using the hoe and remove faded flowers wherever possible so that the plants will not become exhausted before the end of the season.

---

About 35,000,000 pounds of lead arsenate are used annually to protect apples against the codling moth.





# *How to Grow Gladiolus*

W. HAWCROFT
President, Winnipeg Gladiolus Society.

More Manitoba flower lovers every year are appreciating the beauty and all round merits of our modern Gladiolus.

During the blooming season Gladiolus are so numerous and popular that Winnipeg soon will be just as famous for this flower as Portland, Oregon is for its roses.

Both our soil and climate with its long days of sunshine during the months of June and July are favorable for the successful culture of gladiolus.

Whilst during the growing period before flowering the foliage may not be described as ornamental, nevertheless the magnificent blooms later more than compensate.

The long colorful spikes will brighten any garden and the spikes when cut are unsurpassable for vase or interior decoration. Not only are they bright and beautiful, but they will last for days and each floret will open with all its glory right to the last one. And what more could the flower grower wish for.

Once you have a love and enthusiasm for growing Glads you are sure to be successful in their cultivation.

The quality of Glads is constantly improving and comparatively few of the varieties popular ten years ago are grown today. Hybridizers each year are developing and introducing new and better varieties of glads.

In order to take up this hobby it need not be expensive to get started, for there are a number of varieties in various colors which may be bought from reliable growers at no greater cost than $1.00 per dozen.

The following is a list of some of these which have been proven to be highly satisfactory for Winnipeg and district:

White or Cream or light shades — Snow Princess, Maid of Orleans, Lady Jane and Corona.
Yellow and Orange — Royal Gold, Golden Chimes, Bit of Heaven and Yangtze.
Orange salmon or red salmon — Aladdin, J. S. Bach and King's Ransome.
Pink—Picardy, Rosa van Lima, Ethel Cave Cole, and Greta Garba.
Light or dark red — Algonquin, Beacon, Black Opal and Tip Top, or for a little more try Red Charm, easily the best in this color.

Lavender or Mauve — Lavender Ruffles.
Blue or Purple — Blue Beauty, Eleanora or King Lear.
Smokies — Mother Machree, Vagabond Prince and Zuni.
Blotch Varieties — Margaret Beaton, Silentum and Moneeta.

Two grand and new varieties which every grower should try, and which are very popular in Winnipeg district are Leading Lady — a white sport of Picardy and Elizabeth the Queen — a lovely ruffled lavender.

A good way to get into the newer but more expensive varieties is to buy bulblets and plant them in boxes nine to twelve inches deep. In this manner they can be grown into a good sized bulb which will produce bloom the next season.

Having decided on what varieties to grow, we are now ready to start planting usually the end of April or early in May. However before planting a very necessary precaution is to treat the bulbs in a Lysol solution for 3 or 4 hours. This solution is made of one teaspoonful of Lysol to one quart of water, and it will act as a destroyer of Thrips and also disinfect the bulb.

To obtain best results do not on any account plant bulbs near to trees, shrubs, buildings or in the shade, as Glads require lots of sunshine and water during the growing season.

Some of the most successful growers find that best growth and bloom are obtained by planting bulbs in beds enclosed by boards six inches wide. This method too, it has been noted, helps to keep out cutworms during the early critical part of the season.

Bulbs should be planted about four inches deep and six inches apart in rows 12 to 16 inches wide. The more space you can give the larger and better bloom you will enjoy.

After planting you will eagerly watch for the shoots to peep through the ground. After they do, keep down weeds by cultivating lightly as soon as they appear so that the growth of the Glads will not be impeded. Unless it is an exceptionally dry season it is unnecessary to water before the plant breaks through the soil.

A timely word of caution. Now we are to be on guard against the Glads worst enemy, namely "Thrips."

An infestation of this insect can greatly mar or spoil our whole season's work. However, there is no need to be alarmed if we take the necessary action to get rid of this pest. The best and simplest way once the plant is about six inches is a weekly spraying with a DDT solution. You merely follow the instructions given by the manufacturer. This method is an improvement over the Tartar Emetic mixture and it does not require any sweetening.

To be assured of straight spikes when the flower head appears, it should be staked. Do not tie firmly to the stake until the growth below the tie has been completed. Tie loosely at first, gradually firming the lower ties as the spike toughens.

You will next get your big thrill by cutting gorgeous blooms, bringing delight to both your family and friends. To you every bloom will be a prize.

Bloom should be cut before breakfast time with a sharp thin bladed knife leaving at least four or five leaves on the plant. This is very important as these leaves act as breathers to the plant which still has to make the bulb for next year's growth. After the spike is cut the new bulb will really start to grow and it should be allowed to remain in the ground at least three or four weeks to mature.

The early part of October is usually the best time to take up the bulbs and you will have a lot of fun doing this. Use a digging fork for this purpose and cut off the old leaves flush with the neck of the bulb. Destroy old tops.

It is now very essential to thoroughly dry the bulbs — in the open if there is no frost and the weather is dry and sunny, otherwise cure in a warm, dry room or basement. It usually takes four or five weeks for this process after which it will be easy to separate the new bulb from the old one. Do not remove husks from bulbs during storage. After the cleaning process is over bulbs may be stored in bags open at top or wooden boxes with a screen wire bottom. A good protection against Thrips during storage is to dust bulbs with a 3% DDT powder.

However, if bulbs can be stored in a room where the temperature ranges between 35 and 45 degrees during the storage period there should be no damage from thrips.

I hope the foregoing information will prove useful and help you enjoy growing beautiful glads.





# Wild Flowers

By NANCIE E. GYLES

Have you a shaded spot you don't know what to do with? Why not try some wild flowers. Manitoba has an abundance of beautiful flowers. We prefer perennials, and when transplanted we try not to disturb. The Showy Pink Ladyslipper (Cypripedium Reginae) is one of the most spectacular and will stand transplanting well, provided you give it good drainage, filtered sunlight, and lots of water in the spring. We have had one plant for ten years. We have found three kinds of yellow slippers, the large yellow, medium size, and the very tiny marsh slipper, which has a sweet perfume. There is also the Mocassin Slipper (Cypripedium Acaule) which does not like to be moved. The longest we have been able to keep it is three years, and it will not stand being picked, as it seems to kill the plant. This Mocassin plant is becoming rare in some places it used to grow. It used to be quite plentiful at Victoria Beach, but owing to the ruthless way people have been picking it, it has become scarce in that area. In picking wild flowers you should always leave two leaves so that the plant will not be killed, and don't pick the wild flowers unless you have something with water in it to put them in, or they will be dead by the time you reach home.

In the spring the Marsh Marigold will give you a lovely splash of yellow. We sank a small tub near our pool and put some stones in the bottom, then leaf mold, and planted the Marigolds in it, and keep it very wet in the spring.

We found Blood-root on the bank of the Broken Head River. It has established itself and multiplied in our garden, and is really beautiful. In early spring you notice a green spike appearing somewhat like a cone; this is the blood-root leaf wrapped around the flower bud, which opens up first into a white waxy eight-petalled flower, but it does not last for long. The leaves unfold more slowly.

The Shooting Star (Dodecatheon) is the daintiest little flower, a cluster of pink flowers on a thin stem. The petals turn backward, leaving the yellow anthers exposed. The green leaves are clustered at the base of the plant. A marker should be put where the plant is, as it dies right down towards the end of the summer.

We have had several Pitcher Plants, but the birds seem to think the flower bud is a berry, for they usually eat it before it has a chance to bloom properly, in our garden. We have seen plenty of bloom in the bogs. The leaves are shaped

like a pitcher and hold water, and are covered inside with fine hair which droops downward, making it very difficult for any insects foolish enough to go in for a drink to get out again. The plant feeds on the bodies of the caught insects.

We found a lovely bog east of Beausejour, but a fire has recently overrun it, and a lot of it may not recover. There we found any number of Pitcher Plants and Kalmia.

There are several kinds of Golden Rod and they will grow well in your garden, also the Bottle Gentian. We tried some Fringed Gentians but they are biennial. The first year you just find little rosettes of leaves.

The Mertensia transplants and multiplies well, and will stand rather rough treatment. It has a pretty pink bud, which when it opens turns to straight blue. It blooms for quite a long time, throughout most of June and early July, then the plant dies right down and rather quickly, which is a satisfactory feature, as it allows other later plants room to grow and flourish.

The Trailing Arbutus is a highly rated plant, but probably its proper place is out in the woods where it grows naturally. We trailed it over large areas of Manitoba and when we did find it, it proved to be disappointing, both from the difficulty of digging it up and results after transplanting. Its flowering season is short and does not seem to like being transplanted.

There are so many lovely wild flowers in Manitoba, I have just mentioned a few that appeal to us especially. In past years we have had around sixty different kinds of wild flowers in our garden.





# *Hardy Roses for the Prairies*

WM. GODFREY

Readers of the "Winnipeg Flower Garden" may note the similarity in the above title to one that appeared in the issue of 1945. In the article mentioned, Hardy Shrub Roses for the Prairies was discussed, and in 1946 Hybrid Tea and Hybrid Perpetual roses received attention. These covered, in general, over twenty years of rose growing experience at the Dominion Experimental Station, Morden. Although the subject matter of either of these could be expanded to some extent, it would probably be of limited interest. In the present instance, it is planned to take advantage of the omission of the titular word Shrub to deal with another phase of rose culture. This will be concerned with the improvement of the rose and the work being done to provide better hardy forms for these cold regions.

In these days of impressive and constant plant-breeding accomplishments the rose appears as an object of comparative neglect. That this should be so, with a flower possessing so much beauty and traditional appeal as the rose, is a little surprising.

There are many difficulties or obstacles that operate to retard rapid progress, the chief one, perhaps, being the lack of sufficient workers in this field of endeavor.

No effort has been made by the writer to ascertain or to estimate the number of Western Canadian plantsmen engaged in rose-breeding work, but those mentioned here are well known to horticulturists. Mr. F. L. Skinner of Dropmore, Manitoba, Dr. Patterson, Professor of Horticulture at Saskatoon University, Mr. Percy Wright of Moose Range, Saskatchewan, and Mr. Simonet, Edmonton, Alberta. Limitations of space and, in most cases, meagre knowledge of the material used permits only brief mention of names of these operators. More intimate knowledge and information can be conveyed to the reader by relating some of the more important attempts and results of a rose improvement project carried on at the Morden Station.

The breeding programme began in 1928. The first, and, as it appeared, the most desirable objective was the production of a hardy climbing rose. The basis for this project was the Ross rose, a supposed seedling found at the Forestry Station, Indian Head, Saskatchewan. Possessed of extreme hardiness and the necessary long rambling growth, this plant seemed to be a promising parent. Its unattractive features were small white flowers and dull foliage.

The results obtained from a great many cross-pollinations, using Ross as the seed parent, were disappointing. Many were tender and few showed a climbing or pillar habit. It is worth noting that many growers of the Ross rose have found the habit to be shrubby rather than climbing. Among the few seedlings of promise was Ross x Dr. W. Van Fleet, a Wichuriana hybrid. This possessed adequate hardiness, good foliage and very attractive blooms. The latter, however, were sparsely produced, although the plant has been proved capable of providing a lavish display in a mild climate. This individual is being preserved with hope that other combinations will remedy its defects.

Rosa rugosa was not given an important place in this breeding programme. Early experience showed that combinations of this species and tender sorts were invariably too low in degree of hardiness. The hybrid named Turkes Rugosa Samling, however, has a major place in the ancestry of Prairie Sailor, which was named in 1945.

The Prairie rose, Rosa suffulta, for a time presented possibilities. Its progeny, generally, showed desirable qualities of intense pink colouring, but again were not quite hardy enough.

Early attention was devoted to Rosa altaica, principally because of its extreme hardiness. A few years were lost in discovering that it was unresponsive to foreign pollen. Only a few apparently infertile seeds were gathered. Failing in its seed-bearing duties more time elapsed before its value as a pollen parent became evident. The most promising combination to date is Ophelia x R. altaica. Seedlings of these parents have disclosed superior qualities in hardiness, habit, foliage and flower. Large populations of second and third generation seedlings are now in the process of development, and the distinctive characters seem to be generally constant.

It may be interesting to briefly identify the above mentioned Ophelia rose by relating a few facts concerning it. It is a hybrid tea variety belonging to a comparatively old group of roses. Introduced by Wm. Paul in 1912, it is still a favorite sort, and fairly widely grown, but it has been superseded by more modern varieties. Its most notable mark of distinction rests on the influence it has exercised in breeding work. An examination of the pedigrees of a large percentage of modern varieties will contain the name Ophelia. She may well claim the title of a Grand Dame in the history of roses.

Rosa Willmottae is a tall, floriferous shrub rose with beautiful foliage, and it makes moderately long annual growths. Recent efforts have been made to combine this species with the Ross hybrids to produce a hardy climbing rose.

It should be borne in mind that plant-breeding in most cases is a long process. The almost perfect rose of mild-climate

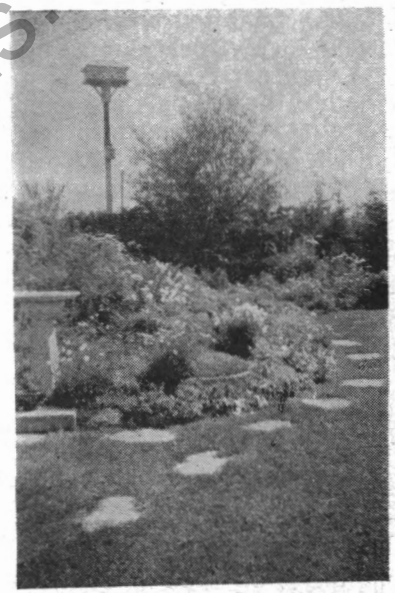
gardens is the result of many hundreds of years of seed sowing, selection and intensive cultivation. With a wider knowledge of the principles involved in plant-breeding, and an increase in the number of workers, the Prairies will yet have roses.





# *The Rock Garden*

R. C. PRAGNELL



The rock garden, well laid out, built, and maintained can be a beauty spot in a garden scheme, except in the very formal type, in which case it is hard to build it to conform to lines of formality. It is best when it is made to look as natural as possible and should be made to represent an outcropping of a stony ridge or a mountain side in miniature with a small pool somewhere near the foot of it. Water enhances the beauty of the garden as a whole too, and tends to blend the rock garden to the lawn which is as it should be, even without a pool. Keep away from overhanging trees, for the drip from them will ruin the dainty plants one wants to grow. Some shrubs are permissable as a background. Also very small ones of dwarf habit such as genista, creeping juniper, mugho pine, etc. can be used in the rock garden proper.

Material for the making of the garden is a matter to consider well. Do not use pieces of cement or large clinkers with a cement wash over them, or granite boulders. Plants do not care for such stuff. Obtain limestone, preferably that which has been well weathered or water-worn and not of the smooth boulder type, but rather with holes and cracks through them. Rocks should be of good size too. Most rock plants do not mind the lime from the stones, but if there are some that need a more acid soil, this can easily be overcome by mixing a little peat into the soil when they are being planted.

The best soil to use in the general make-up of the rock garden should consist of old turfy loam, some leaf mold, and sandy loam. These mixed together will make a very friable soil. Manure is not necessary. If the soil is too rich the plants will grow too much to foliage and the blooms will be small. Rock garden plants are best when planted in a poorer soil as

their natural growing state is probably on some stony or sandy ridge or mountain.

When planting the rock garden try to use perennial plants of low growth over most of it. Some taller ones can be used as accent plants here and there, but dwarf and trailing ones soon cover the bare ground and make a beautiful effect when in bloom. Annual plants of course can be used till the gardener gets acquainted with the better plants. And there are many most lovely rock plants obtainable, many of which will bloom in very early spring almost as soon as the snow is gone, and before the annuals are even planted. A few herein named as Draba, Primula cortusoides, Auricula, Arabis, Phlox subulata, Viola Missouriensis. Also there are bulbous plants which are planted usually in October; some of them permanent. All are a delight in early spring. As the rock gardener progresses he will find there are a host of beautiful little plants to be had which will come into bloom one after the other and make the rock garden look what it should be "The Jewel Box of the Garden."

---

MEDICINE FROM POISON

A medicine, digitalis, is made from the foxglove, a poisonous plant. The medicine is used to slow down the beats of the heart, but is known as a heart stimulant.





# *Hints on Pruning*

T. W. HOLTOM

Winter on its way out and spring approaching soon, made obvious by the arrival at close intervals of seed catalogs, stirs the imagination and creates visions in one's mind of accomplishments, and pictures to be developed, with planting new shrubs or improving those already planted. A few hints on pruning at this time may be quite in order. My experiences in England, and for thirty odd years on the parks in Winnipeg, has given me a practical knowledge and a vast insight in the art of pruning and tree surgery.

There are various ways of pruning, good, bad and indifferent.

On many occasions I have been called upon for advice, and I have discovered to my regret that good shrubs and trees have been mutilated through the lack of knowledge by those who probably have meant well.

It pays well to employ a good pruner or tree surgeon, just as well as if you were choosing a doctor for your own ills. Distinction should be made between pruning and shearing.

Natural pruning is most desirable for all ornamental shrubs, but this requires a considerable amount of skill to accomplish the effect required. This can be done by carefully thinning and cutting back as far as possible, and removing all spindley growths and ragged shoots.

I have no objection to shearing for formal effect for the sides of porches, doorways or vestibules or foundations. Such shrubs as: Cedars, Juniper, Cotoneaster and several other shrubs, respond to this treatment very well, and become very dense and may require a little thinning later on.

Pruning should be avoided as much as possible, on young trees, and yet done sufficiently to secure the effect desired. If begun early in the life of tree, no large branches need ever be cut off.

The most desirable pruning being the directing of the growth by pinching or cutting off side buds or spindly branches, but if inconvenient may be necessary to do more extensive pruning.

The purpose of pruning is to give trees or shrubs, forms that are desirable for the purpose intended. For example: a specimen tree or shrub for the lawn is a splendid subject if allowed to branch right to the ground.

Many of the evergreens and some other trees used for ornamental purposes eventually take on a regular symetrical form, and very seldom need pruning, except to cut out ragged shoots that may form. If a forked top has developed cut out one of the leaders.

The proper time for pruning is determined by the health of the tree or shrub. Cut out all dead branches, which may be done at any season.

Pruning trees or shrubs in the dormant state, produces more vigorous growth in the remaining branches. Pruning or removing branches during the growing season, lessens the leaf surface, and checks the growth somewhat.

Elm, Ash, Willow, Cottonwood, Poplar, may be pruned at almost any season. Manitoba Maple, should not be pruned later than February, otherwise will bleed profusely, but can be pruned safely after June.

Wounds made from cutting of trees, just when starting the growing season, do not heal so rapidly as trees that have been pruned earlier, or after the month of June.

Avoid doing too much pruning at one time on small trees, especially on low boughs, as the tree may grow up top heavy. After pruning, it is sometimes necessary to paint the wounds to eliminate possible decay.

Where boughs are rubbing together remove one of them, but always cut back close to the trunk, and do not leave stubs showing. Where a tree has lost its main leader, prune so as to develop one of the side branches into a leader.

Prevent the formation of long side branches, by shortening those that are liable to become too long, especially in trees which have a habit of forming long branches.

Do not prune in excessively cold weather, if it can be avoided, as the wood cracks very easily and is liable to cause bad wounds.

Evergreens, such as Native Spruce, and Colorado Koster Spruce, are very desirable for lawn planting. By a little intricate pruning can be made to form in beautiful symetry, which is their natural habit.

Spiraeas and Mock Orange, should be pruned after the blooming season is over, as the new shoots which develop after blossoming are the ones that produce next seasons blooms.

Pruning is a big subject, and requires more than one article to explain the many and varied ways and means treatment.

---

### SHOCKING PLANT LIFE

The writings of Linnaeus on the sex system in plant life shocked the religious world of the 18th century and were banned for years in several European countries.



# *My Adventures With A Lawn*

H. A. GREEN

When I moved into my new house, it was with a feeling of relief that I sat in my comfortable old chair and surveyed my domain. Several major battles had been fought over the building and furnishings and although I lost most of them I won the Waterloo and was allowed to keep my old armchair. "Now," I thought, "The world is a good place to live in, and all that's left to do is to put in a bit of lawn and plant a few shrubs to make this a real home."

I got out the catalogues that had been arriving in a steady stream since Christmas and settled down for an hour of relaxation. The directions given for the preparation of the lawn were simple and a rule was given whereby I could find out how much grass seed I would need—all I had to do was measure the portion of my estate I intended to keep for lawn and, according to one catalogue, allow 1 lb. for each 200 sq. ft., another said I should use 1 lb. of seed for each 300 sq. ft. and yet another advised me to sow 1 lb. to every 400 sq. ft. This puzzled me for a while, but I thought I knew a way out, I'd phone a friend of mine who had an uncle in the old country whose father was a gardener. I only ran into more trouble here because my friend decided that he had better come over and talk it over with me —this decision was only arrived at after he had made sure that there was no drought and that the brand would suit his taste. He arrived armed with a garden encyclopedia, two government pamphlets and a small son whom he was looking after while his wife played bridge.

Slightly awed by this invasion, I poured him a generous dose of tonic, tied his offspring to the leg of a chair and settled back to absorb his words of wisdom.

"Now!" he said, "The first thing to decide is whether you want a sodded lawn or a seeded lawn." This was an entirely new idea and solved a mystery that had often bothered me. Many time on my way to work I have passed new homes, bleak and bare with that pathetic look that newly built homes have and on my return at night have seen these same houses transformed into homes with green lawns stretching from the house to the street. This, then, was the solution. "If this miracle can be performed, why aren't all lawns put in this way?" I wanted to know. It took a while to get the youngster's teeth out of my leg and a dose of snake-bite remedy to ward off infection, but I got my answer.

"These sodded lawns," he said, are generally composed of

prairie sod, 'wild grasses', whereas lawns are sown with grasses especially bred for this purpose and if properly cared for produce rich, velvety, turf of much finer texture and appearance. It's more trouble but it's worth it." It didn't sound bad, sitting in a comfortable chair, cosy and warm and mellow, looking out over a broad expanse of white snow and I heartily agreed with him.

"There are many varieties of grasses to choose from," he went on, "but perhaps if we rely on one of the seedsmen's mixtures it will simplify matters—your front lawn is not very shady and here's a mixture made up of 'Kentucky Blue Grass' and 'Red Top.' These grasses blend well and remain green late in the fall and although there may be blends of grasses that will do as well, this mixture is easy to procure and does not require any special care." Already I could see the front lawn, a velvety expanse of rich green. "The back lawn will be shady during the hot summer months, so a mixture containing a good percentage of Poa Annuis or Poa Triviallis will be suitable here. These grasses seed themselves during the summer and send up a crop of new grass each spring."

All that was left for me to do now was to wait until the snow melted and the soil dried enough, then I could sally forth with my bag of seed and blithely scatter the good seed on the land.

Well, in due course, the snow melted and the ground dried and I took a stroll over my domain to make the final decision regarding the flower beds, borders and walks, etc. I had previously cut a lot of small stakes from the pieces of lumber left by the builders and now proceeded to stake out these garden features.

Even to my inexperienced eye the soil didn't look much like the garden soil I had seen in my friends' gardens, where lawns were rich and shrubs and flowers flourished, but the man who sold me the place told me it was levelled and ready for lawn, so I supposed it was just a different type of soil but would produce plants as good as the darker, looser soil I had seen.

However, my suspicious wife didn't like the look of it a bit and suggested that we get an expert opinion on the needs of our particular piece of landscape, so, after making sure that the cellar was not bare and that his wife was not playing bridge on Sunday I invited my gardening friend over for a conference. He came alone and when he had become sufficiently mellow he gave me the following instructions and advice:

"The heavy, greyish material with which your garden is covered, is clay, which has been dug from your basement and has been spread over the good soil that covered your lot previous to the excavation of the basement. It would have been a good idea to have taken off the surface soil, piled it to one side



to be used after the clay had been used to raise the level of the lot." This brought visions of back-straining labor-hours of digging and hauling heavy clay off the lot—that brought another thought: "Where shall I take it? I can't pile it in the middle of the street and if it's no good for my little grass seeds, it won't be any good for anyone else."

However, my ingenious friend had a solution for this problem. "You are not wealthy," he said, (I knew that, 'though Mr. Ilsley apparently does not agree with him) "therefore you won't want to haul off your clay and replace it with good loam" (loam, that was another new word) "Oh! that's the kind of soil seeds and plants like to grow in," he said and he went on, "and your good soil is only about three inches below the surface, so the best plan is to hire a man and plow to turn the good black soil up to the surface again. This ploughing must not be done until the soil is fairly dry. You should have done it last fall so that the soil would have been in good shape this spring." I let this pass, though I hadn't even bought the place in the fall. I saw that the mellowing influence was waning and hastened to replenish the supply. When he again leaned back comfortably in his chair, he resumed his topic. "After the ploughing has been done, it will benefit your soil and make it more friable if you spread about an inch of good acid peat over the soil, this will mix with the surface soil when the raking is being done. Of course the plowman will break down most of the lumps with a harrow but the soil must be made finer than could be done by machinery and this means that you will have to rake the whole area by hand, you'll have to rake the lawn level and smooth by the use of a rake, and a roller must be used to make the soil firm.

"When you have the soil nice and firm and are satisfied with the level, you start your preparations for seeding. The seed for each area should be divided into two equal parts. Now proceed to sow one half of the seed, broadcast over the lawn walking from East to West, then with the other half seed the same area walking from North to South, this ensures an even distribution of the seed. When you broadcast the seed, do not try to cover too great an area with each swath, or the lightest breeze will carry the seed away—swing your arm freely when seeding and allow the tiny seeds to drift through your fingers as you swing your arm.

"Now the ground must be lightly raked to cover the seed and rolled to make the ground firm and level. When this has been done, give your new lawn a good watering, taking care not to wash out the seed. If you have done all of this well and truly, you may be sure that you are well on the way to having a good lawn and all that is left to do now is to water it regularly. Remember, the seeds are very small and are near the

surface, if the surface area dries out after the seeds have germinated, the tender young plants well shrivel and die. An occasional rolling with a light roller after the grass is up and the lawn is well established, will make the young plants stool out and will help make a closely matted, healthy lawn."

The hour was late and the bottle dry, so we ended the session, and all that remains is to do the work. I anticipate a few healthy backaches, but also envision a lovely expanse of lawn which will not only add to the appearance of my own lot and the district as a whole, but there is a lovely old tree under which I can set a garden chair and a small table. I shall sit on the chair with my feet and other necessary articles on the table and enjoy to the full the fruits of my labors.

---

THIRSTY CORN

A single stalk of corn will lift approximately 440 pounds of water from the ground, and expel it through its leaves, in one short season.





# *Grapes In Manitoba*

C. R. URE

The grape is one of our oldest cultivated fruits and is beloved by all. Although it is grown to a very limited extent on the Canadian prairies, greater interest is being expressed concerning its culture. Winnipeg home-owners in particular have shown an increased desire to know more about it. The time seems apportune to pass along, through the medium of "Winnipeg Flower Garden," a few ideas that may assist those wishing to try their hand at grape growing,.

**Limitations and Uses**

There are certain limitations to grape culture that must be appreciated at the outset. Their exacting climatic requirement makes commercial production expensive and uncertain in most areas of Manitoba. The grape requires a long season with an abundance of heat to mature the fruits before the arrival of fall frosts. Consequently, the matter of shelter becomes a primary consideration, as do location and soil type. These factors will be enlarged upon later. When considering the cultivation of a fruit that is on the border line for hardiness, such as the grape, only the hardiest varieties should be planted at first. As experience is gained and the hardier sorts are found to survive in a particular location one may branch out with more tender varieties of higher quality. Then too, the grape requires careful pruning to keep the vines productive, and adequate winter protection to maintain strong vigorous plants. Under suitable environment the vines live a long time.

The value of grapes in Manitoba is chiefly as a home garden proposition,—to grow enough fruit for domestic use. They also make an excellent covering for a fence, building or as a screen. The Riverbank grape, a native of Manitoba, is a fine subject for screening porches or for any use to which a climbing vine may be put. They are superior to Virginia Creeper, so overused at times, in that the foliage is less subject to pests, is different and gives a more luxurious effect. The grape will continue to gain favor as it becomes better known to prairie gardeners.

**Soil and Site**

Proper choice of site and soil have a great influence on successful grape culture. The grape has a long growing period and requires a warm situation for rapid growth. Only the earlier ripening varieties have a sufficiently short growing sea-

son to mature within our frost-free period. In 1944 a bountiful crop was harvested from the vineyard at Morden. That year exactly 140 days elapsed from the time the vines were uncovered in May till the fruit was picked in September. Any condition which hastens growth and earlier maturity is advantageous.

Select the hottest place in the garden. The vines thrive under plenty of heat. They should be in full sunlight most of the day, especially in the fall when the friuts are ripening. An area with a south exposure on the sunny side of a shelterbelt is satisfactory. For home use, a few plants can be placed on the south side of a garden fence, wall or building, and here generally develop quite well. Whatever the spot selected, it is essential that protection be given from winds, particularly those occasional icy blasts which come out of the North.

While grapes are grown on a variety of soil types, a deep, well-drained, light, fertile loam is best. Heavy clay soils should be avoided for they tend to be cold, often poorly drained and thus retard growth. Clay loams are satisfactory provided drainage is good. Very light sandy soils should be avoided because of low fertility, even though they warm up early in the spring and encourage rapid growth.

Before planting it is important to prepare the soil thoroughly. A heavy application of manure, 10 to 12 tons per acre, should be ploughed in the spring previous to planting. The area is kept summer-fallowed the balance of the year. If planting is to be done immediately, work in a heavy application of well rotted manure. It will improve the fertility of sandy soils, open up heavy soils, and encourage better drainage. Work the soil deeply as the vines are deep rooted. Drainage has been mentioned several times. Avoid areas where water is likely to gather. Grapes require a moist soil but will not stand excess water, particularly canes buried for winter protection.

**Varieties**

It is surprising that the Riverbank Grape, Vitis riparia, has not been planted more extensively, if not for its fruit certainly as a trailing vine to cover porches and pergolas. This species is native along the streams in south and eastern Manitoba, and northward into the Riding Mountains. It is fully hardy. At Morden the vines winter outdoors unprotected, and annually give a generous crop of fruit. The clusters are medium to small in size. The berries range up to one-half inch in diameter, are black in color and quite tart in flavour. The fruit is used very little for dessert but does produce excellent jelly and grape juice, and may be used for wine.

Next to the Riverbank grape, varieties developed in South Dakota and Minnesota rank high in hardiness. The Minne-

sota introductions, Alpha, Beta, Blue Jay, Hungarian and Suelter have done well at Morden. They are hardy, productive and of fair quality. They are fine for jams. All bear blue fruits. Other varieties showing ample hardiness at this station are,Clinton, Westfield (both black grapes), Wyoming and Moyer, which are red. In the better quality class, but more tender, are Campbells and Moores Early, which are black; and Lucile, Lindley and Mary, which are red. The next step is the recognized commercial varieties that require more attention to location and winter protection. In this group Fredonia, Van Buren and Worden among the blacks. Portland-green, and the red varieties of Lutie and Delaware give a fair crop of fruit at Morden in most years. Fredonia, Portland, Van Buren, Lutie, Lucille, and Mary are especially prized in the dessert class.

**Planting**

Spring planting is desirable, usually in early May. The grape is propagated by means of cuttings taken from the previous season's growth. For planting one may obtain cuttings or rooted plant. If cuttings are procured it is customary to set them in a frame or nursery row for one or two years before planting in the permanent site. They are set into the soil in a slanting position at 6 to 8 inches apart, and deeply enough that only one bud is left exposed close to the ground level. A plentiful supply of moisture is needed to ensure root development. After one year the new plants may be transferred to their permanent location provided they have made strong growth; otherwise it is better to wait another year. When the plants are purchased it is desirable to obtain a two-year-old vine.

In the permanent plantation the vines are set at 6 to 8 feet apart in rows 10 to 15 feet apart. Dig the holes larger than necessary and work in some acid peat moss, or well-rotted manure, if moss is not available. Set the plants slightly deeper than they grew in the nursery. Lastly, tramp the soil very firmly around the roots as the holes are being filled.

**Training and Pruning**

Successful grape culture is dependent, in large measure, upon proper pruning. After planting, the vine should be cut back to 2 or 3 buds to force growth into the lower shoots and prevent drying out of the vine before growth starts. This pruning compensates also for the reduced root system. Following this operation little, if any, additional pruning is required until fall. By autumn 2 to 4 strong canes 4 to 6 feet long should have developed from the strong plants. After leaf falls, but before severe frosts strike, cut out all weaks shoots as well as the thin tips and laterals on the strong canes. The number of

strong canes which should be left on the plant will be governed by the system of training to be followed.

There are several systems of training the vines in common practice. Of these the most popular and generally most satisfactory for prairie conditions is the fan system. This method only will be discussed at this time. It consists of 3 to 5 strong canes arising at a point near the ground. These are spread out fanwise and tied to the fence, garden wall, side of a building, or other means of support. The wire trellis is the common method of supporting the canes. It consists of three strands of number 9 wire strung between posts 16 to 24 feet apart. The bottom wire is placed 2 feet from the ground and the upper two at 18 inches apart. Soft cord is the most satisfactory material to use for tying. When tying it is advisable to fasten the cord securely to the wire first and then tie the cane in place. Be sure to leave sufficient room to allow for expansion in growth of the vine.

**Protection**

Winter protection is the next consideration. After pruning is completed in the fall and the permanent canes selected they are gently pulled down to the ground parallel with the trellis and held in place with large staples made from No. 9 wire. Then cover with 6 to 10 inches of soil. Under prairie conditions the covering of even the hardiest commercial varieties is a desirable practice. The following spring remove the earth from the vines at the time the buds are beginning to expand. This is usually in early May, or when the apricot and pear are in full bloom. If uncovered earlier there is danger from frost. If done later, new expanding buds are likely to be broken off while removing the soil. The canes are then slowly pulled up into place and tied to the fence.

**Subsequent Care**

Treatment during the second year should establish the full quota of five permanent canes, by allowing enough new strong shoots to develop. Laterals will develop from the buds on each of the canes. Pinch out the weak laterals leaving two strong side shoots (laterals) in close proximity to each wire. All together on the five permanent canes there should be about thirty fruiting laterals. These developing laterals are tied to the wires, one lateral directed each way. Keep all subsequent laterals pinched off. In the fall of the second year these laterals are cut back, leaving 2 or 3 buds at the base near the permanent cane. The canes are then ready to be freed from the wire and covered with soil.

The canes are taken up the following spring and tied to the wires again, as indicated for the second year. From the buds left the previous fall sub-laterals will develop. Pinch out

the weaker shoots, allowing only the strongest shoot to grow from each of the original laterals. Fruit is produced on the new growth of the current season and not on the older wood. The clusters are all borne within a distance of 4 to 6 feet of the permanent cane. This fact indicates the necessity for heavy pruning if much fruit is to be produced. When the sub-laterals have made a growth of 8 to 10 feet the end is pinched off. This operation forces the plant strength into the development of fruit. If this is not done the laterals will continue to elongate, and at the same time side shoots will develop from each node, or junction of leaf petiole and lateral. Rapid growth of these new shoots is promoted at the expense of the fruit. Hence the reason for keeping all side shoots off the fruiting laterals, and the laterals themselves cut back to 8 or 10 feet.

Summer pruning of the mature vine is essentially the same as outlined above for the three-year-old plant. Each spring approximately 30 laterals are established, permitted to grow about 10 feet, headed off, and future side shoots removed. Summer pruning of the new growth can be done any time. Old wood or old canes should be cut out only in the fall, or very early spring. Removal in the spring during sap flow, or just before, may cause injury because the stalk bleeds freely. Heavy losses of sap may leave plant in a very weak condition.

During the fall of the third year and each subsequent fall the old fruiting laterals are cut back, after leaf fall, to 2 or 3 buds near the base. The permanent canes are untied, taken down and covered.

**Renewals**

It often becomes necessary to replace one or more of the permanent canes. This may be due to frost injury, disease, or breakage as the canes become old and brittle. Some authorities recommend their replacement every 6 to 8 years. The change over can be affected in a period of 2 to 3 years. It consists of permitting a strong shoot, or shoots, to develop from near the base, which takes the place of the old cane the following year.





# *The Herbaceous Perennial Border*

F. L. SKINNER

In laying out a new herbaceous border, the first things to consider are: the selection of the site for the border and the proper preparation of the soil. A location facing south is undoubtedly the best but if such a site is not available, most perennials will do quite well on either an eastern or western exposure if assured of sunlight for at least half of the day. A board fence, hedge or border of shrubs should be used as a background for the perennial border and in the case of the two latter the border should be far enough away from the shrubs or hedge so that their roots will not rob the perennials of all moisture and nourishment.

Having selected a site the next thing to do is to have the soil thoroughly prepared before any planting is done, for it should be remembered that plants like paeonies, Dictamnus and several others do best when left undisturbed for a number of years. Care should be taken when preparing the bed to see that no low spots are left where water may lie around the crown of the plants. Water lying on the plants in early spring or late autumn is likely to kill out many perennials that are really quite hardy under proper conditions.

If the soil is a stiffish clay or gumbo the addition of a heavy top dressing of well rotted manure and some sand or fine gravel, dug in and thoroughly mixed, will do much to bring it into that friable condition suitable for the growth of most flowers. If well rotted farmyard manure is not available either peat moss or leaf mold make fairly good substitutes. Sandy loam or silty soils are also very much improved in texture by the addition of either farmyard manure or its substitutes.

Regarding the planning of the border there are several simple rules that should be borne in mind. First, plants, while in bloom, should not have a taller plant between them and the front of the border. Some perennials such as rocket, Hesperis matronalis, that makes its growth early and is only about a foot high after the blooming season is over, may be planted near the back of the border behind taller flowers with a later growing season such as New England Asters. In this case the asters will not be sufficiently tall to hide the rocket while it is in bloom. Second, while some colours are likely to clash if planted close together they may be made to harmonize if white flowers or plants with attractive foliage are planted between those with clashing colours. Most flowers

look best when grown in clumps, this is especially true of such slender growing flowers as Lilies, Liatris or Siberian Iris, most of the slender plants should be planted in at least groups of five or more individuals with the more bushy varieties in clumps of about three plants of each.

As the arrangement of any group of flowers is very much a matter of personal taste and as it is impossible to plan a border to suit all tastes, I personally think it advisable for most gardeners to plan their own borders. Given the height, flowering season, colour and the amount of space that the various perennials usually fill, the planning of a flower garden may be quite an enjoyable study for winter evenings. It is well to remember that even with the best of planning it may be a little difficult to keep a herbaceous border a blaze of colour throughout the summer and a few spaces should be left for such tender plants as Gladioluis, Dahlias, petunias and Salvias.

To assist those whose knowledge of perennials may be rather limited I give below a list of hardy perennials together with their blooming period, colour and such other particulars as will enable the gardener to place them on the plan with some degree of confidence.

| Variety | Height | Color | Season | Space required |
|---|---|---|---|---|
| Achillea ageratifolia | 6″ | White | June | 9″ |
| Achillea filipendula | 2′ | Yellow | July-Sept. | 18″ |
| Achillea Perry's white | 15″ | White | July-Aug. | 12″ |
| Aconitum bicolor | 4′ | Blue and white | August | 15″ |
| Allium Ostrowskyanum | 6″ | Rose purple | June | 6″ |
| Allium Zebdanense | 15″ | White | June | 3″ |
| Anemone montana | 8″ | Purple | June | 6″ |
| Anemone sylvestris | 12″ | White | June | 9″ |
| Aster alpinus | 9″ | Blue, white | June | 12″ |
| Aster Nova Anglia | 3′ | Purple, pink | Aug.-Sept. | 2′ |
| Campanula carpatica | 12″ | Blue, white | July-Aug. | 12″ |
| Campanula dahurica | 15″ | Blue purple | July | 12″ |
| Campanula persicifolia | 18″ | Blue, white | July-Aug. | 12″ |
| Liatris scariosa | 15″ | Purple | August | 6″ |
| Chrysanthemum hybrids | 9″-2′ | White, pink, yellow, bronze, red | Aug.-Sept. | 18″ |
| Chrysanthemum corymbosum | 2′ | White | July | 12″ |
| Chrysanthemum leucanthum | 12″ | White | June | 12″ |
| Clematis integrifolia | 15″ | Blue | July-Aug. | 18″ |
| Clematis recta | 3′ | White | July-Aug. | 3′ |
| Delphinum hybrids | 4′-6′ | Blue, white | July-Aug. | 2′ |
| Delphinum sinense | 18″ | Blue | July-Sept. | 2′ |
| Dianthus plumaris | 9″-12″ | White, pink | July | 12″ |
| Heliopsis in variety | 3′ | Yellow | July-Aug. | 3′ |
| Hemerocallis Middendorfiana | 18″ | Orange yellow | June | 18″ |
| Hemerocallis flava | 2′-3′ | Yellow | July | 12″ |
| Hemerocallis Kwanso (fulva) | 3′ | Copper red | August | 15″ |
| Hesperis matronalis (Rocket) | 3′ | Purple, white | June | 12″ |
| Dictamnus albus rubra | 2′ | Rose pink | June-July | 2′ |
| Iris sibirica | 3′ | Blue | June-July | 12″ |

| Variety | Height | Color | Season | Space required |
|---|---|---|---|---|
| Iris bearded | 2'-3' | Various | June | 12" |
| Fritillaria pallidiflora | 12" | Pale yellow | May-June | 9" |
| Gypsophila paniculata | 3' | White | July-Aug. | 3' |
| Gypsophila Rosy Veil | 15" | Pale pink | July-Aug. | 2' |
| Lavatera thuringiaca | 5' | Pink, white | July-Sept. | 4' |
| Ligularia speciosa | 5' | Yellow | July | 3' |
| Lilium amabile | 2' | Scarlet | July | 8" |
| Lilium concolor | 18" | Scarlet | July | 6" |
| Lilium dauricum | 2' | Orange red | June | 12" |
| Lilium Davidii | 3' | Orange red | July | 9" |
| Lilium Maxwill | 5' | Orange red | July-Aug. | 9" |
| Lilium tenuifolium | 18" | Scarlet | June | 6" |
| Lilium tigrinum | 4' | Orange red | Aug.-Sept. | 9" |
| Lychnis Arkwrightii | 12" | Scarlet | July-Aug. | 12" |
| Lychnis chalcedonica | 2' | Scarlet | July-Aug. | 15" |
| Lychnis viscaria | 15" | Rose purple | July-Aug. | 12" |
| Mertensia paniculata | 18" | Blue and pink | June | 2' |
| Mertensia oblongifolia | 9" | Blue | June-July | 6" |
| Nepeta Dropmore hybrid | 15" | Pale blue | May-Sept. | 15" |
| Papaver nudicaule | 18" | White to red | May-June | 12" |
| Papaver orientale | 2' | Scarlet | July | 2' |
| Paeonia hybrids | 2' | White, pink, red | July | 3' |
| Phlox hybrids | 18"-30" | White, pink, rose | Aug.-Sept. | 18" |
| Phlox subulata | 8" | White to red | June | 12" |
| Polygonatum multiflorum | 2' | White | June | 9" |
| Ranunculus acris fl. pl. | 2' | Yellow | July-Sept. | 12" |
| Rudbeckia Golden Glow | 6' | Yellow | August | 2' |
| Saponaria officinalis fl. pl. | 2' | Pale pink | July-Sept. | 18" |
| Saxifraga crassifolia | 15" | Pink | June | 18" |
| Spiraea filipendula | 18" | White | July-Aug. | 12" |
| Spiraea ulmaria fl. pl. | 2' | White | July-Aug. | 18" |
| Sedum hybridum | 8" | Yellow | June-July | 12" |
| Veronica spicata | 18" | Blue | July-Aug. | 12" |
| Veronica spicata | 12" | White, pink | July-Aug. | 12" |
| Veronica prostrata | 6" | Blue | June | 9" |

Some people like to have an edging of one variety of dwarf perennial to their border and the following are all good for that purpose. All have neat evergreen foliage which makes them attractive even when not in bloom: Dianthus plumaris, Dianthus Rose Cushion, Achillea ageratifolia, Sedum hybridum, Thymus serpyllum, Veronica prostrata.

For large borders both Saxifraga crassifolia with its large evergreen leaves and the Dropmore Nepeta with its grayish leaves and blue flowers are very effective.

---

## GRASSHOPPER PETS

Millions of Chinese people keep pet grasshoppers in their homes. The custom is an economical solution to the Chinese craving for pets.





# *Chrysanthemums*

W. A. CUMMING

Most gardeners in this latitude have long dreamed of being able to grow colorful displays of 'mums in their gardens such as they see displayed in greenhouses or in pictures from warmer climates. They will remember their high hopes when they picked up gardening magazines and saw the "Azaleamum" advertisements of the late '30's, and their disappointment when these were tried under our conditions. With the exception of one all were too late in flowering, the one exception being Pink Cushion.

In the fall of 1940, while paying a routine visit to the Manitoba Hardy Plant Nursery at Dropmore, Mr. Skinner showed me a row of hybrids of C. Zawadski which he had raised, these showed very marked differences in form and foliage. During the following summer some of these seedlings flowered and in 1942 the following named varieties were released; Dr. Graham, Dr. Speechly, Kittywake, Pygmy Pink and Sunburst.

C. Zawadski is a single flowered white chrysanthemum from Austria and is not particularly attractive. However, it is hardy and blooms early in the season. These two properties are responsible for its choice as a parent and both characters have been passed on to some of its progeny. Although not altogether fool-proof as to hardiness, these hybrids all bloom sufficiently early to make a pleasing display and will winter if conditions are right.

About the same time as these hybrids of C. Zawadski were introduced, the University of Minnesota granted Mr. Skinner permission to introduce Goldilocks, an early flowering, extremely hardy double yellow 'mum. This variety has repeatedly wintered outdoors at Dropmore and Winnipeg and makes a fine display in early September.

In 1943 Dropmore Bronze and Deanna Durbin were introduced. The latter is as hardy as any of the hardy perennials, makes an excellent show with its single pink blooms, but, unfortunately, is a little late in flowering here. At Morden it is very good.

Dorothy Howard was picked out of a seedling row in 1944 and introduced in 1945. It has the largest blooms of any of the hardy 'mums, color white.

A red seedling from Wyoming was introduced to the prairies in 1946, under its number H-43. This is a fairly dwarf variety and when at its best is covered with brick red 2-inch

double flowers. Unfortunately it is also a little late for most years at Dropmore.

Two new C. Zawadski hybrids are being listed in 1947. "Daisy Mae," a lavender-pink pom-pom, which is the earliest yet to come into bloom and withstands more frost when in bloom than any of the others; and "Lux," a creamy pink, large-flowered variety.

During the summer of 1946 a number of the new University of Minnesota hybrids were tested at Dropmore. Out of these six have been chosen as deserving of distribution and further trial, among them two reds, a color which has so far been short in hardy 'mums, "Maroon and Gold" and "Redwood."

There is still much to be done in the way of raising hardy chrysanthemums for the Canadian prairies, but much of the spade work has been done, and we can look with confidence towards having displays of chrysanthemums to brighten the fall landscape.





# *Just South of the Border*

ERIC SOCHTING, Valley City, N. D.

It is just a year since I left Winnipeg to take over my new duty down here in North Dakota. I have been asked to write my first impression of the U. S. A., and about my work. It gives me a great pleasure to write to your year book, and it gives me indeed a great satisfaction that the Winnipeg Horticultural Society is in good hands and very much alive. I am in charge of the growing and propagating at the Northwest Nursery. Very interesting, and I am very happy.

When crossing the border one finds, of course, the same prairie conditions as in western Manitoba, which means bareness, and seen from a horticultural standpoint, much needs to be done. We have here at the nursery a slogan: "It's Not a Home—Until It's Planted." A very well chosen slogan, and it should not be seen alone on paper, but every house in town and on the farm in the U. S. A. and in Canada should most certainly practice it.

As I travelled south to Crookston, Fargo, and on to Valley City, I was much impressed by the most beautiful evergreens and Junipers of a size and color which I had never seen in Winnipeg. In seeking information about the evergeens, and in particular, how they stood the winter so well — 20 to 30 degrees below zero — I did find out the following information which I do think would be of great interest to the members of Winnipeg Horticultural Society.

The evergreens, trees and shrubs are given much more time to ripen in the fall here than they are in Winnipeg. Our people here are taught to stop watering of the lawns early in the fall to give their trees and shrubs a chance to fully ripen up. The desire on the part of some to carry that same green lawn late in the fall through extra watering, keeps the trees and shrubs growing late, which makes them unprepared for winter, and in addition, robs them of much beautiful autumn coloring which they might enjoy if their trees and shrubs would ripen up. Further, I am sure that your evergreens in particular would survive the winter much better in Winnipeg.

The trees and shrubs are most excellent down here, and we have a wonderful selection.

Permit me to mention just a few shrubs which I am sure you will like very much.

THE HIGHBUSH CRANBERRY:

Improved strain by Professor Yeager, is indeed a wonderful shrub, 100% hardy, and it is really a sight to behold in

bloom. After finishing blooming you have a very neat shrub, lovely big green leaves, always in a perfect form, and not very much bothered with insects and disease.

FLOWERING CURRANT:

A shrub which has always been neglected. Why, I do not know. It is perfectly hardy. In bloom, it most certainly will give you a great satisfaction, in particular for you people who knew Forsythia and the old English Broom. It blooms for a long time, and it even has a perfume. Used together with Rosy Bloom Crab or Prunus Triloba, it will give you a combination people will look at and admire.

HONEYSUCKLE:

If you are looking for a shrub with thousands of bloom, well, here you have it. The glorious new dark red Honeysuckle. Give it a background location, dwarf shrubs in foreground to hide its trunk, and low and behold, a sight you will never forget.

ROSY BLOOM CRAB:

The Rosy Bloom Crabapple is really a gift from Manitoba. Developed at the good old Morden Experimental Station. It is a tree which you Manitobans can be very proud of. Here you have a tree unsurpassed for its beauty. A hardy tree, a color which will go to any combination, and when finished blooming, a tree which will give you a beautiful ornamental or shade tree. And another thing which the Winnipeg gardens have great need of is a tree which will never grow too large even for small lots.

One thing I missed very much is a perennial border. I mean that gorgeous wide border. It seemed to me that they are first now learning how to blend in this combination to the full beauty of the garden picture. I have been working on this. I have now a wonderful selection of perennials. Lilies grow here to a size undreamed of in Winnipeg.

As to the people down here in North Dakota, they are very friendly indeed, and, of course, as all Yanks, businessmen par excellence. The city is located in a valley, a little river flowing through the city, and from nature it is favored with an extremely beautiful setting. However, while many yards are most beautifully landscaped, there is still room for great improvement, and I hope to have a share in carrying it out. This city should well become the "Pearl of the Prairies."

May I take this opportunity to wish all the members of Winnipeg Horticultural Society a Very Happy New Year, and for the society itself, I wish success in the coming year.



# *Perennial Phloxes—Which You Too May Enjoy!*

JOHN WALKER

Because of their usefulness and values for general garden culture, summer-flowering phlox — Flame Flower is the common name — will be dealt with for the most part. The classification of this phlox, botanically, is rather difficult. Standardized Plant Names suggests *P. carolina* which would include groups of polybrid (half-breed or mixed-breed) phloxes frequently listed under *P. decussata* and *P. suffruticosa.* Other species which seem to have entered into the make-up of summer-flowering phloxes are *P. maculata* — Meadow Phlox and *P. glaberrima* — Smooth Phlox.

Outstanding varieties in this group of phloxes suitable for prairie gardens are MISS LINGARD (White), PYRAMID WHITE, ADA BLACKJACK (pink).

In temperate regions of the world where summers are longer and more humid and where winters are shorter and less severe than in prairie Canada, varieties of summer-flowering phlox and old-fashioned phlox constitute extremely valuable flower garden subjects. Their value lies in their ability to blossom over a long period, and at a time when bright blooms are welcome. The brightness of phlox blossoms gives them special appeal.

### Blossoming Time of Most Reliable Varieties

Perhaps the Pyramid White variety of summer-flowering phlox is best known to prairie gardeners. Where conditions influencing growth are not too extreme as to exposure, drying summer winds, and severe winter temperatures this variety seems to be wholly dependable. Blossoming may commence any time from about July 10th to about July 25th, depending on the season. At this station blossoming of this variety began in 1946 only a few days later than in 1944, but seven days earlier than in 1945.

When moisture conditions are favorable for sustained growth bright blooms will continue to appear on PYRAMID WHITE phlox plants until after the first fall frosts of late August or early September.

Pink ADA BLACKJACK is a desirable phlox similar in type and habit to PYRAMID WHITE. Blossoms are a pleasing shade of pink, in the former variety, but blossom spikes are slightly flatter in type than in the latter variety. Blossoming

of ADA BLACKJACK begins eight or ten days later and usually terminates more abruptly about the time that the first destructive fall frost is experienced.

Occasionally spikes of pale pink blossoms appear on stems of PYRAMID WHITE plants. These add a bit of welcome color in flower displays that may lean excessively to white.

### Old-Fashioned Phlox

Less dependable than the above varieties of phlox are most varieties of old-fashioned phlox so popular in gardens of Eastern Canada. *Phlox paniculata* or hybrids between this species and *Phlox maculata*. The season of blossoming of old-fashioned phlox commences later and for the most part blossom colors are brighter and individual blossoms larger, as compared with summer-flowering phlox.

At the Forest Nursery Station, Indian Head, the following varieties would appear to be most promising:

SWEETHEART—Large, vivid salmon-pink blossoms with lilac centre; early August, very attractive.

AMETHYST—Lavender blue; individual blooms, large, attractive; late August.

EVA FOERSTER—Blossoms bright salmon, lighter centre; good spike, early August.

Others of Merit:

JULES SANDEAU—Attractive salmon-pink.

MRS. ETHEL PRITCHARD—Rosy-mauve, darker towards centre.

CAROLINE VANDERBERG—Purple.

MRS. W. H. HEPBURN—Rich pink, large blooms.

LE SOLEIL—Salmon-pink with light eye.

BORDER GEM—Purple carmine with crimson eye.

FRAU A. VON MAUTHNER—Salmon-orange with small crimson eye.

### Summer Care

For best results perennial phlox should be replanted every three or four years. Young or vigorous portions of old crowns blossom more strongly and produce better spikes of blooms than plants which may be root-bound and producing a great many flower stems.

In fact, prize winning spikes are most likely to be obtained from plants producing only a few flowering stems in any one year. Root portions or divisions are best replanted in late fall (late September or early October), but plants may be successfully set out in early spring if the planting is done carefully,

and conditions as to soil texture, soil moisture and protection are favourable. A cool location is desirable.

When dividing and replanting established plants only outer portions of the old crown, on which two or three strong buds are located, should be selected.

The soil should be well drained, and should contain plenty of organic matter —rotted manure being ideal to work into the soil. For best results under prairie conditions perennial phlox should be planted in soil having a high moisture-retaining capacity. Plants will also benefit from a top-dressing of rotted manure, if applied around July 1st. Perennial Phlox varieties may also be increased by stem or root cuttings. Nurserymen have no doubt often observed that stems arise from portions of roots left in a nursery row from which phlox plants have been dug.

### Production of Seedlings

There is fun as well as profit in growing perennial phlox seedlings. Partly because of their hybrid origin the majority of phlox varieties do not produce seeds freely. Because blossoming begins relatively late seeds produced are not usually mature until the end of September or the beginning of October. Just as blossoms develop over an extended period, so do seed pods mature.

When pods are picked they are allowed to ripen. Seeds are then set free. When separted from chaff the simplest way to handle the seeds is to sow them during early November in a pot or seed flat using soil of light texture. After the seeds are sown, and the containers watered, they should immediately be placed outdoors in a frame or other protected area and covered with peat moss, old sawdust or other suitable material to a depth of 3 or 4 inches. The object of this covering is to keep the containers under uniform conditions during winter.

The containers should be examined before May 1st. Just before May 1st they may safely be placed in a hot bed or greenhouse to hasten germination of the seeds. The custom at this Station has been to leave the containers in winter storage conditions until germination has taken place, usually between May 1st and May 7th.

When they are large enough it is best to place the seedlings in two-inch flower pots. This can usually be done about the middle of June. They may remain in these small pots until about September 1st. At that time they may be planted in a nursery row outdoors. Roots should be disturbed as little as possible. Moisture conditions should be favorable. Some of the more vigorous seedlings may bloom before the season ends.

A top-dressing of rotted manure applied about October

1st will help the young seedlings to survive the winter. This manure may be worked into the soil near the plants the following year. During the second year the majority of the seedlings should produce one or more spikes of bloom when selections for color, type and vigor may be made.

---

EXTRACT FROM A LETTER TO THEO. E. HOWARD FROM STUART CRIDDLE OF TREESBANK, MAN.

Just to show you how the Red Prairie Lily, Wild Onion and Prairie Anemone are greatly reduced in numbers in a short space of time by the Microtus minor. You will remember that I ran across two bright yellow lilies, a rare sport of Lilium philadelphicum, out on the fields above our place. Well, I self-pollinated these and procured their seed, hoping to get more seed the next year. I left the bulbs where they were. Unfortunately, deer, very fond of lily buds, found and ate them off just as they were about to burst into bloom. This decided me to get the bulbs to plant in my garden, but when I went to do so I found they had already been removed by these microtus. After a short examination I found one of their main runways and followed it to their home, sixty-three yards away. This was typically microtus minor, as all the earth excavated from the nest chamber and store-room had been placed over the former and the store-room itself made well away from the nest. Both were large, which indicated that they had been made by more than the three mice I was able to catch.

The store-room was only about a third full of what appeared to be Lily bulbs. However, this was not the case, as when the contents were sorted out and counted I found it to be composed of the following:

Eleven thousand and seventy-six bulbs, among which I presume were my two prize bulbs (try and identify them!); 678 Allium stellatum onions; 583 Helianthus pigida tubers and root stalks; 417 Pulsatilla ludoviciana buds and root stems; and a few bits each of Sabina, Geum, Artemisia, Solidago and Petalostemon; two grass species and one of prairie sedge. Their respective weights in grammes were Lily 2891, Allium 258, Sunflower 123, Anemone 163 and the remainder 23, thus bringing the total weight to 2648 grammes.

(Note—For the benefit of the novice, Microtus minor is one of the commonest of our field mice.)



# *A Blossom Calendar of Perennials*

CLAUDE E. L. H. LAW

When most people are selecting shrubs and perennials to landscape their homes they are puzzled because they do not know when most plants are in bloom, and the catalogues lack much of such information. They desire continuous bloom and to acquire this they require more information. The following list may give some guidance. Since seasons vary from year to year the dates are general dates, and have been compiled from records made over a number of years in the Winnipeg area.

In April come the following: Native Anemone, Corydalis nobilis, Fritillaria pudica, Siberian squills, Grape Hyacinth, and Daphne Mezereum. (These should be planted in autumn).

In May bloom the following: *Virginia Bluebells,* Violas aetolia and glacilis, Russian Almond, Rose Daphne, *Flowering Plum,* Korean Golden Bell, Nanking Cherry, Golden Currant, Spiraeas Media Serica and Pikowensis, Wild Ginger, *Ixiolirion Montanum tartaricum, Dwarf* (*Pumila*) *Iris,* Dwarf Candytuft. *Fritillaria Pallidiflora,* Phlox divaricata, Primula polyanthum, Bloodroot Wakerrobin, Saxifraga crassifolia, Wood violets and early *Darwin Tulips.* Some are in early May and others later. Those *in italics* are better planted in autumn.

In June bloom the Broom, Cotoneaster acutifolia and integerrima, the Elders, Chinese Bush Cherry, Honeysuckles, Lilacs, Spiraea Van Houtei, Anemones narcissiflora and Sunset, Alyssums saxitile and wolfenianum, Anthemis bieberstein-ianum, Columbines, Baby's Slippers, Buttercups, Lily-of-the-Valley, various dwarf Clematis, Bleeding-Heart. Purple Gas Plant, varieties of Dianthus, Daylilies, various Bearded Irises, Perennial Flax, Lychnis Viscaria, Oriental Poppy, varieties of Peonies, Jacob's Ladder, Salvia pratensis, Silene, Star Grass, and varieties of Violets.

In July bloom: other Lilacs, Mock Oranges, Ninebark, Potentillas, Roses, Tamarix, Snowballs, Achilleas, Alliums, Monkshoods, Delphiniums, Tuberous Begonias, varieties of Campanulas, varieties of Chrysanthemums, Ox-Eye Daisies, Shasta Daisies, varieties of Heliopsis, Iris Dichotoma, varieties of climbing Clematis, Rose Mallow, Blazing Star, Pyrethrum, varieties of Lychnis, Lythrums, varieties of Lilies, Sundrops, Oxalis, varieties of late Peonies, Penstemons, varieties of Phlox, Bouncing Bet, varieties of Sedum, Garden Heliotrope, varieties of Veronica Spicata, Mother-of-Thyme, varieties of Gypsophila and Statice.

In August bloom: Buckwheat Bush, Potentillas (continue), Roses and Tamarix also, Spiraeas Anthony Waterer and Alba Callosa, New Dawn Rambler Rose, New England Asters, varieties of Gaillardia, Tiger Lilies, Primula Cortusoides, Golden Glow, Skullcap, Scabiosa caucasia, varieties Douglasi, Jackmanni and Jouiniana clematis, Platycodons, Plantain Lily, and many varieties that bloom in July continue into August.

In September bloom Rose Daphne (second time), Snow-in-Summer, and the following continue from August on, Potentillas, New England Asters, Achilleas, Monkshoods, Gypsophilas, Statice, Tuberous Begonias, Campanulas, Rose Mallow, Chrysanthemums, climbing Clematis varieties, Maiden Pink Dianthus, Scabiosa caucasia, Heliopsis, Lythrum, Phlox, Gaillardias, Oxalis, Violas, and Buckwheat Bush.

In October besides several of the September bloomers continuing, come the Michaelmas Daisies. By October frosts have usually caused the coloring of leaves which to some extent substitutes for bloom, and in addition colored berries on contoneasters, Mountain Ash, cranberry bushes, etc., and colored seed cases, etc., provide rather drab coloring for the autumn.





# *What of Today's New Insecticides?*

G. F. MANSON
Dominion Entomological Laboratory
Lethbridge, Alberta

Rapid changes in the insecticide world of recent years prevents us from gaining any clear-cut picture of even the present situation. Trends, except in the broadest meaning of the word, are lost in the maze of new developments. A clearer recognition of the importance of insect control in the food supply of a world at war spurred science to new achievements in this as in many other fields. The momentum of that war-born urge has carried over into the period of peace and continues to place new weapons of unknown potentiality in the hands of mankind for use in the age-old struggle against his insect enemies.

Some of the earlier discoveries, when they could be revealed, caught the public fancy and fed by enthusiastic publicity led to the belief that insect cure-alls were just around the corner. Not realizing the complex of insect variety and adaptation some were disappointed when wholesale miracles failed to follow the use of the new materials.

Nothing can replace the slow and less spectacular task, now in progress, of testing and fitting these new products into the whole program of insect control. They are not cure-alls but each undoubtedly has its place and that must be found in relation to the specific pests it will control, the crops on which it can be safely used, the climatic area for which it is suited and, above all, its place in relation to human safety. These factors account for much of the lag between the discovery of new insecticides and their sound application in the field.

The multiplicity of insecticides, both new and old, forms a bewildering array which is in no way simplified at present by the unpronounceable names and equally mysterious combinations of figures used to designate them. It is inevitable that the addition of so many new materials should complicate the problem of insect control, but it is to be hoped that suitable common names will soon be found for those which at present are so difficult to pronounce.

Every progressive gardener will be anxious to try some of the new insecticides against his particular pests. At this stage it is well to be guided by the best information available including the instructions on the containers. The manufac-

turer's instructions have been carefully checked before the product goes on the market. The gardener should choose the particular material necessary and then do a thorough job of applying. That does not require doubling the dose or smothering the plant, but simply seeing that all affected parts are treated. Adequate equipment will certainly help, but when this is lacking, ingenuity will go far toward replacing it.

Most of the new materials, like the old, are poisons. The full effect of these on warm-blooded animals, including man, is not fully known. In general, treating leafy vegetables or plants for human consumption or to be fed to livestock should be avoided, as some of the poisons accumulate in the body and repeated small doses may eventually cause poisoning. They should be used with due care.

Turning from the consideration of the problem of new insecticides as a whole, let us consider some of them in more detail and see what is known about them and their possible place in the control of garden insects in particular.

### DDT (dichloro-diphenyl-trichloroethane)

DDT, the first, and certainly the most publicized of the new insecticides, is undergoing the process of testing and fitting into the general program. Its strengths and weaknesses are becoming evident. This is well illustrated by the results of a questionnaire sent to the State Entomological institutions asking what uses DDT will be recommended for in 1947. The replies include:

(1) Potato insects (Colorado potato beetles, flea beetles, leafhoppers and in many cases aphids).
(2) Cabbage insects (cabbage worms and flea beetles on young cabbage and cauliflower *before heading*).
(3) Thrips (on onions and gladiolus).
(4) Grape leafhopper.
(5) Lygus bugs on alfalfa and clover *seed* crops.
(6) Many pests of flowers and ornamentals in both gardens and greenhouses.

In orchards DDT is rapidly replacing arsenicals for the control of codling moth and some other pests of tree fruits.

For control of flies (except warble flies) and lice on livestock DDT is becoming increasingly popular.

The recommendations for the use of DDT in Canada in 1947 will probably be very similar to those outlined above.

For general purpose spraying one pound of actual DDT, i.e., two pounds of fifty per cent wettable powder, per one hundred gallons has proven satisfactory. Dusting experiments show that three per cent dust is satisfactory for such purposes as the control of potato insects, cabbage worms and flea beetles.

For some special uses, including control of grape leafhopper and some household pests, five or ten per cent dusts have given better results. Where visible residues are objectionable DDT emulsions, used according to the instructions on the container, are suggested.

A number of newer members of the DDT family are in various stages of development. These include DPE, TDE and DFDT. There is little to report on these, however, as they are, for the most part, still in the early stages of testing.

### Benzene hexachloride ("666")

Benzene hexachloride developed in England during the war and used quite extensively for flea beetle control is under further test throughout the world. In its present commercial form it has an unpleasant odour which limits its application. There is some evidence that the impurities responsible for the odour may be removed, in which case its range of use will be greatly increased.

In many respects it resembles DDT in its action though it is not quite as persistent but unlike DDT in preliminary tests, it has shown up fairly well as a control for grasshoppers and some of the State officials of the United States plan to recommend it for this use in 1947.

Another promising use for this material is in soil fumigation for some soil infesting pests including wireworms. The details of this use must still be worked out and further tests conducted before its place is clear. There is some indication that germination of seeds may be affected at higher rates of use.

It has given good control of Colorado potato beetles and some potato aphids in preliminary tests, but in excessive doses has caused slight burning of the leaves of potato plants and some off flavour in the tubers. Similar flavours have been noted when it was used on apples against codling moth.

Application rates for benzene hexachloride are calculated on the basis of the gamma isomer content since this is the chief active agent. The gamma isomer content of crude benzene hexachloride is approximately twelve per cent and approximately 0.5 pounds of the isomer or about four pounds of crude powder per one hundred gallons of spray is suggested as a maximum dose.

Like DDT, benzene hexachloride is poisonous and should be handled with due care.

### "1068," a new chlorinated hydrocarbon insecticide

"1068," a proprietary product of the Velsicol Corporation, is reported to have been extensively tested during the past season, but few of the results are yet available.

In preliminary tests it has shown some very favorable results against grasshoppers, potato beetles, squash bugs, cabbage worms and flea beetles. A great deal of work remains to be done to determine the insecticidal phase of this new material and to clarify the present confusion regarding its toxicity to higher animals.

### Hexaethyl tetraphosphate or "Bladan"

Little is known regarding this insecticide which was found to be in use in Germany at the close of the war. Chief interest in Bladan is its reported good control of aphids and red spider. With an acute shortage of nicotine entomologists are interested in any substitute and early results suggest this material may find a place in this capacity. It is now being manufactured in the United States.

### Insecticides of Plant Origin

The war shortage of derris and pyrethrum stimulated a search for other insecticides of plant origin. This search focused attention on such materials as Sabadilla, Yam-bean, and Ryania.

Of these three, Sabadilla appears to have been most promising. Not by any means a new insecticide, Sabadilla has enjoyed a revival and expansion in use. Experiments have shown it to be effective in the control of Lygus, stink and squash bugs.

About 500,000 pounds was used in the United States in 1945. Its high toxicity to warm-blooded animals and its questionable value when compared with other materials now available make it doubtful whether or not its return to prominence will be long lived.

### Absorptive Chemicals

While not of particular interest to anyone but greenhouse operators some interesting trials on a commercial basis are in progress with selenium compounds for the control of aphids, mites and midges on ornamentals. Highly toxic to man, it is doubtful whether or not this material will ever find use beyond the greenhouse beds devoted to ornamentals. Even here, careful disposal of soil from these beds is required.

It is not so much the material in use as the principle involved which is interesting. Sodium selenate is applied at the rate of one pound to eighteen-hundred square feet of soil surface. It is absorbed through the roots into the plants, making them toxic to a number of pests feeding on them.

Provided suitable compounds can be found, this seems to open the door on an approach to insect control which entomologists have dreamed of for years.

### Soil Fumigants

Many materials, valuable in the control of such soil pests as wireworms, have been known for years, but most of them have been too expensive to use except on very high priced land. DD, not to be confused with DDT, is a comparatively new product which gives promise of effectiveness at lowered costs. It is still not cheap enough for widespread use on low cost land, but it is a definite move in the right direction. Improved methods of application of this type of material are also under investigation.

### Dinitro Compounds

Something of the complexity of the whole picture of insect control is seen in the increased demand for the various dinitor compounds which are of particular use in the control of mites. DDT reduces the parasites and predators of mites and mite populations generally show a sharp rise when it is used. The result is the increased demand for the dinitro compounds and similar mite controls.

The upset of the balance in nature by indiscriminate use of insecticides can have serious consequences. This is another of the many problems confronting the entomologist and is one reason for what may seem to be slow progress in the adoption of new discoveries.

### Methods of Application

The discovery of new materials is not the only important move in progress in the insecticide field. New insecticidal discoveries have stimulated a search for improved methods of application. The situation here is almost as confused as in the insecticide field itself. Only brief reference can be made to some of the new trends.

The aerosol method of dispersing insecticides, although not so new in principle, is new in application. The method employs a wide range of equipment from the small household aerosol bomb to large field equipment for generating fogs and smokes all of which are at present in varying stages of development and change. Some hold real promise for specific tasks and may greatly reduce the costs of application.

Sprayers and dusters are undergoing change and some radical new principles are being introduced. Out of these will undoubtedly come greatly improved methods of application.

Studies on the place of various types of aircraft in the application of insecticides are under way throughout the world. While in fairly general use for some types of this work new improvements and a better appraisal of their place in the overall situation can be looked for in the not-too-distant future.

**Resumé**

The confusion of the rapidly changing insecticide and equipment situation makes it difficult to present a clear analysis. Many products have not been mentioned and many new ones will be appearing over the horizon from time to time. All will have to be fitted to their proper place in a greatly complicated but more efficient program. One conclusion which at this stage seems warranted is that we are observing a revolution in this field. In spite of this, the wise grower will go forward with confidence as the ground is tested and declared safe for the new advance in insect control.





# *Blossom-end Rot and Bacterial Speck of Tomatoes*

J. E. MACHACEK
Dominion Laboratory of Plant Pathology
Winnipeg, Man.

These two diseases cause much wastage in Manitoba tomatoes. Blossom-end Rot destroys the fruit on the vine, reducing the yield. Bacterial Speck does not destroy the fruit but disfigures it so that it becomes unsaleable.

With Blossom-end Rot (a non-parasitic disease) a brown discoloration occurs at the blossom end or in the interior of the fruit at the time it is partly formed. The discoloured part enlarges, becomes sunken, and the fruit ripens prematurely. Often, the decayed part is invaded by soft-rot micro-organisms and the fruit is rapidly totally destroyed.

It is generally accepted that Blossom-end Rot occurs the most frequently when tomato plants grow under favourable conditions during the earlier part of the season and then are exposed to long periods of drought. Lush plants, such as are grown in heavily fertilized soil, develop the disease very easily unless an adequate supply of water is maintained. Actually, the disease results when the plant fails to obtain the amount of water to which it is accustomed, that is, whenever the supply of water is reduced by drought, by a tearing of the roots when soil cracks, or when a portion of the root system is destroyed by disease. When the soil is very wet, disease may destroy the roots

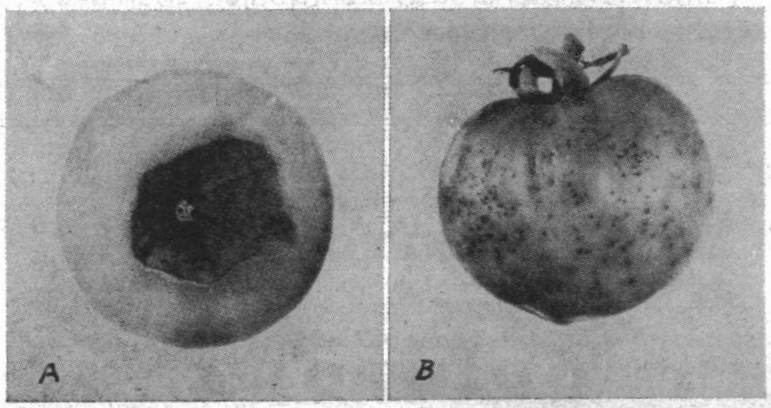



FIGURE A—Blossom-end rot. FIGURE B—Bacterial speck.

sufficiently to reduce the water intake of the plant. This results in an artificial drought condition, followed by the development of Blossom-end Rot.

To control this disease, it is necessary to maintain a sufficient supply of water in a well-drained soil during the fruiting period. Where this procedure is difficult to follow, the use of Blossom-end Rot resistant varieties offers a partial solution to the problem. The self-pruning varieties of tomatoes appear to be generally more resistant to the disease than are the staking kinds but there is some variation in each group.

Bacterial Speck of tomatoes is a highly infectious plant disease. The causal bacterium is carried by infected seed and by infected soil. When it attacks the leaves, small pinhead black spots occur in varying numbers, and if they are very numerous, some leaf-yellowing results. The disease is most conspicuous on the fruit, producing numerous, black, raised specks on the surface of the green fruit. If the fruit is attacked when very young, some deformities result. Spotted, ripe fruits are difficult to peel.

Bacterial Speck, as with many other bacterial diseases of plants, is spread easily and rapidly by rain or by tools, clothes and hands, especially if the plants are handled when wet.

The most certain way of controlling the disease is to plant seedlings from disease-free, disinfected seed, providing such seedlings are grown in clean soil. If the seed is dusted with Semesan dust or diluted Ceresan (1 volume of Ceresan to 2 volumes of talc) the seed will be safe to use.





# *Gardening With Bush Vegetables*

CHARLES WALKOF

The bush type vegetable is no longer a garden novelty. It is becoming an important part of vegetable growing in the short season areas of Canada. In most cases it matures early and this characteristic has helped to make gardening a success where previously such an occupation was hazardous. Moreover, the bush vegetables are particularly useful in the usually narrow confines of a backyard city garden.

The term "bush vegetable", as used in this article, refers to that type of tomato, pea, squash, etc., in which the growth of the plant terminates after it reaches a certain height. Such a vegetable is also known as a determinate one. However, the habit of growth of the determinate vegetable is usually compact, and in appearance resembles a bush. Hence, determinates are often referred to as bush vegetables.

The two general types of vegetables, namely, the bush and long-vined types are quite distinct. As a rule, plants of the bush type require only a small area of ground. They yield generously and the newly developed varieties produce large fruits of desireable quality. In contrast, the long-vined type continue to grow and elongate their branches or vines until they are killed by the fall frosts. They require much ground area to reach full plant development. Moreover, many long-vined varieties are late in ripening, although there are a few that succeed even in the short prairie season.

The size of bush vegetable plants varies. Some varieties produce dwarf plants and others comparatively large ones. In bush tomatoes this varies from 12 to 48 inches in plant diameter. The importance of plant size is emphazied in the earliness with which a variety matures. A dwarf variety normally produces ripe fruit earlier in the season than a taller growing one. The reason for this is obvious since a dwarf plant attains its mature height more quickly than a tall one and thus it is able to devote more time during the short growing season to setting and ripening a crop of fruit. In the breeding work with bush vegetables at the Dominion Experimental Station, Morden, Manitoba, dwarf plant size is emphasized in order to obtain maximum earliness.

Dwarf bush vegetables frequently produce small fruits. There is reason to believe that a genetical linkage exists between these plant and fruit characteristics. However, recent results obtained at the Morden Station indicate that this linkage can be broken. In the work with bush tomatoes dwarf hy-

brids have been obtained with fruits fully as large as Bounty and Earliana. Morever, dwarf plants do not necessarily yield only a few fruits. Certain Morden dwarf hybrids with plants 12 inches in diameter have had clusters of 10 to 12 Early Chatham-sized fruits.

The small backyard city garden benefits considerably by the use of dwarf bush vegetables. The compactness of such plants permits close spacing, and thus the full use of the small garden area is possible. As a result more vegetables can be grown on a given area than if the long-vined sorts are used.

The optimum spacing for growing bush vegetables depends largely on the availability of soil moisture. Where water is supplied by garden hose, the plants can be spaced so closely that when they reach mature size their outer leaves will touch. On the other hand, if water is not supplied the plants must be so spaced that there will be ample ground area for the plant roots to forage for soil moisture. The competition for soil moisture between plants must be at a minimum for best results.

Farmers and others growing vegetables under field conditions in Manitoba and in other prairie districts favor the bush varieties. Under desirable growing conditions, the early sorts will yield as much,or more, than the long-vined varieties. Morever, the compactness of the bush vegetable plants permits a greater number to be set on an acre than of the long-vined varieties. Accordingly, the acre yields of tomatoes have been encouraging in past seasons. Yields up to 12 and 14 tons per acre have been obtained in Manitoba for varieties such as Early Chatham tomato.

Among bush tomatoes the Early Chatham variety is most reliable in the short season districts of Canada and the United States. It is early and in certain cases has ripened some fruit in late July. As a rule , it bears a full crop by mid-August. The yields harvested at Morden have been excellent, even where the seed was sown outdoors in Mid-May. The fruits of Early Chatham are medium to large in size, have an excellent red color and fine quality. The L-3700 tomato, which is a cross of Farthest North and Polar Circle, is earlier in ripening than Early Chatham. It is characterized by a dwarf plant and fruits of medium size. Ripe fruit has been picked, in certain years, by July 15. The fruit color of L-3700 is rather pale and in cool summers the tomatoes are somewhat rough. The largest fruited bush tomato is Bounty, a mid-season variety. In most years it begins to ripen by August 15 at Morden. Because of this, the culture of Bounty is limited to the southern prairies. Its ripe fruit yields in the northern prairie gardens are small.

First generation hybrid vegetables have given striking results in recent years. Sweet corn is possibly the most outstanding in this connection. Remarkable results have been obtained

also with hybrid bush tomatoes. According to the results obtained with these at the Dominion Experimental Station, Morden, Manitoba, it is easy to conceive that the open-pollinated varieties may soon be replaced by the hybrids. The seed of first generation bush tomatoes is costly. The repeated crossing by hand of the parent varieties, which is necessary for a seed supply, makes the seed expensive. It has been estimated that hybrid tomato seed will cost $5.00 to $6.00 per ounce as compared with 50c per ounce of open-pollinated sorts.

Despite the high price of hybrid seed, this type of bush tomato will be popular with home gardeners and vegetable growers. Most home gardeners require only 3 to 4 dozen seeds to give them ample supply of tomato plants. In the field it takes only 1½ ounces of seed to plant an acre. Accordingly, this initial cost is easily offset by the advantages gained in using hybrid seed. The advantages are high yields, disease and possibly insect resistance, drought tolerance and the production of desirably flavored, as well as large-sized fruits.

The Midget variety is the one bush cucumber available. It is not recommended for general use since it is only a fair yielder and the cucumbers are of ordinary quality. However, Midget is likely to be the progenitor of a line of desirable bush hybrids. The breeding work at the Morden Station indicates this possibility. At present the semi-bush Mincu variety is recommended. The fruits of this variety are blocky, five inches long and the meat has a desirably sweet flavor. It is excellent for slicing or for dill pickles. The vines of Mincu run only 2½ to 3½ feet from the plant centre, hence the rows can be spaced closely together. Morever, most of the fruits are borne near the centre of the plant instead of along the length of the vines.

The Farnorth muskmelon is much like the Mincu cucumber in producing short vines. Hence, the rows can be placed closely. However the fruits of Farnoth are set at any point on the vines and scattered at random along the melon rows. The melons ripen by mid-August in an average season at Morden. Recently improved strains of this variety yield many fruits of desirable flavor and sugar content. Experts in nutrition advise greater use of muskmelons because of the high vitamin C content of this dessert vegetable.

Considerable progress in recent years has been made with bush squashes. The White Scalloped variety is excellent for summer use. If its fruits are used when small, five inches in diameter, their quality is outstanding. The wavy margins and the pure white color of the White Scalloped squash give it ornamental value as well. On the other hand, winter bush squashes have an outstanding variety in the Bush Buttercup. This is superior in quality and size of fruit to the new Minnesota Green Bush selection. The Bush Buttercup, like its vining

sister variety, is a pleasantly-flavored and mealy-meated sort. It is interesting to observe that the bush squashes tend to be semi-vining under certain growing conditions. However, such vines are single, short and stubby branches which, although they may reach a length of two feet, seldom bear fruit. The bush squash fruits are usually produced in a cluster around the centre of the plant.

The White Bush Marrow is one bush vegetable that has been popular for many years. It has the general bush characteristic of producing its fruits at the plant centre. Tests show that marrows are most delicious when cooked and used as they reach a length of 5 to 9 inches.

The Cheyenne bush pumpkin produces plants 18 inches tall, and each yields a cluster of fruit three to five in number. The fruits are approximately the same as those of the Sugar variety in size, although the former are smoother and also lighter in color when ripe. The Cheyenne bush variety is early and, as a rule, the first fruits turn golden orange in early August.

Among the most interesting dwarf bush vegetables is the Golden Midget sweet corn. The plants of this variety grow three feet tall and its eight-rowed ears average from 3 to 4 inches long. Golden Midget is a sweet and yellow colored corn. It retains its sugar content longer than most varieties and its ears are delicious even after the kernels begin to firm up. The ears are ready for use in mid-July at Morden. They are well adapted to freezing on the cob and, if canned on the cob, five ears will fit snugly into a pint jar.

The short-vined or bush peas are becoming popular with the small plot gardener. The vines of the newest dwarf sorts do not exceed 10 inches in plant height. Wando is a recent dwarf pea introduction from the United States Department of Agriculture. Another, Simonet's Dwarf, has been productive and has had the finest quality of the two varieties. A promising unnamed crossbred pea, Wisconsin Early Sweet x Engress, originated at the Dominion Experimental Station, Morden, Manitoba, has shown up satisfactorily in early tests. This crossbred produced many pods on short vines. The quality of the peas was excellent.

The idea of the bush type vegetable is not a new one with certain vegetables, such as beans, potatoes, onions, carrots and beets. However, in developing early varieties of these sorts, it has been found advantageous to select the ones with dwarf plants. In bush beans earliness is often found in the small compact sorts, such as Pacer. This variety, developed at the Division of Horticulture, Ottawa. is actually of the dual purpose type. It can be used as a succulent yellow bean, if it is picked as soon as the pods are large enough for use. Pacer ripens quick-

ly and develops tough and stringy pods. When ripe the beans make an excellent baking product.

Dwarf bush potatoes are found in the Warba variety. This is the earliest potato available and the plants can be spaced closely together. The tubers of this variety are set closely around the main tap root and thus confine the entire plant to a small area of ground. In comparison, the standard Netted Gem potato sets tubers on long stolons varying from 12 to 15 inches from the main root.

Plants of dwarf stature may be found also among varieties of onion, radish, carrot and beet. Short plant tops with these vegetables are desirable where close spacing is necessary in the garden. The Yellow Globe Danvers No. 11 and Kenearly onion varieties are typical of such vegetables. Both are early and the plants appear to devote most of their energy to developing bulbs. In carrots, the short-topped Nantes strains, such as Touchon, are desirable. The Red Cored Chantenay is a fine storage variety. The Comet radish, a fine flavored variety, has typical short tops. Commericial canners have shown preference for the Short Top Detroit beet. The plants of this variety require little ground space and hence the acre yields are high. The beets are medium sized, globe-shaped and red-fleshed.

The tests of bush vegetables indicate that greater demands will be made in the future for this type of vegetable than for the long-vining sorts. The advantage of compact plants are many, particularly in the short growing season areas. However, the most significant advantage of all for prairie vegetable growing is the fact that dwarf plants often produce the earliest crops.





# *Improved Plants From Home Grown Seeds*

O. A. OLSEN

Many gardeners are in the habit of starting each year's operations with a new lot of seed. However, the growers of plants can give continuity to each summer's work and make the raising of garden crops much more interesting by attempting to improve their vegetables and flowers by raising and saving their own seed. The use of seed produced from carefully selected plants is one way by which plants may be improved. Every plant grown from seed has the possibility of being different from other plants of the same variety, even though the difference is very slight. These differences may determine whether the plant is more or less suited to the environmental conditions found in its own small part of the world. It may be slightly more disease resistant or better able to use the available plant nutrients and moisture. Seed saved from these superior plants will pass on the desirable characteristics to at least some of the plants produced the following year. By continuously selecting seed from the best plants, a strain can built up within a variety which will be best suited to the gardener's particular conditions. In this way, color, type and uniformity of vegetables may be improved and in this way many vegetable varieties resistant to diseases have been produced.

On the other hand, seed growing is exacting work. It requires keen observation based on an exact knowledge of the variety being grown, and aptness in judging and comparing types of plants and their performance. Biennal plants, or plants which require two years to produce seed, require facilities for carrying them over winter. Also, when plants are normally cross pollinated, precautions must be taken to prevent crossing with another variety of the same kind of vegetable or flower. Vegetables which are normally cross pollinated are cabbage, cauliflower, turnip, radish, carrot, beet, cucumber, watermelon, muskmelon, squash, pumpkin, parsnip, corn and spinach. In order to grow seed of these crops, each must be well isolated from other varieties of the same kind. The distance required varies with the kind and whether they are pollinated by wind or insects. Therefore it is often difficult for a city gardener to secure sufficient isolation to make certain that his variety will not become mixed with some other variety. Vegetables which are normally self pollinated are peas and beans, tomatoes, peppers and eggplants. With these plants, separation of only a few feet between varieties is required to prevent cross pollination.

The amateur seed grower might find that the self pollinated annual plants are the easiest to grow for seed and the best from which to gain experience.

When selecting plants for seed the plant should be chosen as a unit, rather than saving seed from any one large fruit or large individual seeds. The plant should be vigorous, carry a heavy yield and be free from disease, as some diseases are carried over in or on the seed. The plant must be true to type for the variety, the grower should have a description of the variety available as a guide when selecting plants. In root crops, carrots, beets etc. the root should be examined as well. A small section may be cut part way into the carrot before planting and only those with small cores should be planted. With beets, the deep red color with absence of white is sought.

When extracting seeds of fleshy fruited plants such as tomatoes, peppers and vine crops, the seeds may be squashed or scraped out into a jar of water and allowed to stand and ferment at room temperature for a few days. The seed is then spread out thinly on waxed paper to dry away from direct sunlight. Allow dry seeded crops, such as carrots, beets, beans and peas to ripen thoroughly on the plant before harvesting. However with carrots, some of the seed will mature before other seed in the same cluster so the grower must use his own judgement to determine when to harvest.

Storage of well dried seed in moisture-proof tins in a cool basement is the ideal method for home seed growers. Seed may be held in open containers in a dry, cool basement at 45° to 50° F very successfully for two or three years. However, when the seed is brought to warmer temperatures, it must be kept dry or the benefit of the cool storage may be soon lost. The seed of the majority of the garden vegetables except possibly onion, celery and sweet corn will retain their viability, provided it is dry. At an average temperature of 70° F a relative humidity of 60% should not be exceeded. Care should be taken at all times to keep the seed as dry as possible at temperatures which are not too high.

To sum up, the advantage of home growing of garden seeds is the opportunity to select seeds from the most vigorous and productive plants in one's garden to develop acclimatized strains. The beginner may find that annuals such as peas, beans, vine crops and tomatoes are the easiest to grow and that onion, cauliflower and sweet corn, unless isolation of 400 yards can be obtained, are the more difficult seeds to produce. By taking care to hold seeds at lower temperatures and low humidities, the seeds of most kinds can be stored successfully.

# *Importance of Technical Names*

CLAUDE E. L. H. LAW

When mentioning the names of various plants, it is not uncommon for one to be frequently asked to give just the common name rather than the technical name. Those who make such requests do not realize that many plants have a number of common names, generally relative to the neighborhood originally giving it a name. Since many plants are native to a wide territory, and since people in early days seldom travelled far from the immediate neighborhood, it was not uncommon for plants and flowers to have different common names in the separated neighborhoods. Such names have been confusing. One example may be the Lychnis Chalcedonica which bears the names Scarlet Lightning, and Maltese Cross. One of these names refers to the scarlet color while the other refers to the cross-like shape of the corolla. At times the technical names are confused eg., many people from England mention the Mockorange as Syringa, which is the class name for Lilac, while Philadelphus is the class name for Mockorange. Some catalogues are not as careful about names as they should be.

To fully understand the use of technical names one needs to know something of the historical standards of education. It is only a few decades ago that all educated persons were more or less thoroughly trained in the classical languages Greek and Latin. Often the quality of ones education was measured by the persons mastery of these languages. Not only the clergy and teachers but also doctors and even those skilled in the natural sciences knew their classics, and naturally applied them to their lectures and written works. The vocabulary of the classical was far smaller than our language today, and many times a classical word requires several words in our language to express the idea. In addition it was the common standard of all civilized nations to require the classics in learning and so they became universal languages to the learned. Since all learned persons could read the classics, and they frequently were unable to read or converse in many languages other than the native tongue, they wrote in the classics in general use.

So it was when Carolus Linnaeus (1707-1778) the first great botanist recorded the first encyclopedic list of plants. In his exhaustive studies he found that plants could be grouped into classes or families having common characteristics, yet differing in some one or more details. Being a scholar trained in the classical languages he naturally applied the classics

to his nomenclature and naming of plants. The names almost always draw attention to specific characteristics of plants named. To these have been added names that indicate the source of the plants either indicating the country or the person discovering or producing them by hybridization. The following are a few examples:

Anemone from anemos Gk (Greek) meaning wind, meaning windflower.

Anthemis from anthemion, Gk. flower.

Aquilegia from aquila L. (Latin) eagle beaked—Spurred.

Arborea from arbor L. a tree.

Arenaria from arenaceus L. sand—sandwort, grows in sand.

Baccata from baccatus L. berry, berry like fruit.

Campanula from campana L. bell — Bellflower.

Candidum from candidus L. pure white, hoary — Lilium candidum — white lily

Chrysanthemum from Chrysos Gk. gold, antmemum Gk. flower — golden-flower.

Convallaria from convilla ris L. valley.

Crassifolius from crassus L. thick, coarse, folia L. leaf.

Crocus from Krokos Gk. saffron.

Daphne from Daphne Gk. laurel or garland — garland flower.

Delphinium from Delphis Gk. a dolphin shaped nectary.

Dianthus from Zeus, Dios god, anthos flower — flower of the gods.

Grandiflorus from Grandus L. large or great, flora L. flower — Large flowered.

Alpinus from Alpinus L. high mountain or high altitude.

Albus, from album, alba, L. white.

Sanguinea from sanguinum L. Blood — Blood colored.

Purpurea from purpureus L. purple.

Caerulea from Caeruleus L. dark blue.

Alta from L. high and Altissimus L. very high.

Magnus from L. great and Maximus L. very great.

Dicentra from Di, divided, Kentro Gk. spur, divided-spur.

Digitalis from L. pertaining to a finger.

Elegans from L. elegans, elegantis, elegant, graceful.

Edulis from L. edible.

Euonymous from euonymos Gk. good name.

Fertile from Ferre L. to produce.

Flore Pleno from (fl. pl.) L. flora flower, plenus double — double flowered.

Floribundas from Flora, L. flower abundus L. plenty or abounding, free-flowering.

Helianthemum from Gk. Helios sun, anthemion flower — Sunflower.

Hesperis from Gk. Hesperos-evening.

Incomparabilis from L. In not, Comparabilis compared, Beyond compare.
Juniperus from L. juniperus, evergreen.
Dahuricus from L. Dahuria, Siberia.
Amurensis from L. Amur.
Chinensis from L. China.
Canadensis from L. Canada.
Americana from L. American.
Hansonii from L. Hanson.
Skinneri from L. Skinner.

When one does not know a name it has been proven many times that one new name may be as readily understood or known as another. So it really is an advantage to learn the technical name rather than some common name which may be only one of several common names. When one uses the technical name it can be understood by persons of any nationality or tongue who is conversant with classical terminology. It is really a habit we may have, and all know the difficulty of changing a habit even for ones own welfare. It is true in this too. The larger the number of plants one becomes acquainted with, as botanists, nurserymen, horticulturists, and others the greater is the need for technical names to distinguish the numerous varieties of flowers and classes of flowers in use.





# *Recommended Vegetable Variety List*

Approved by The Vegetable Committee of the Manitoba Horticultural Association

**Asparagus** ..... Mary Washington.

**Beans**
- Green Podded ..... Stringless Green Pod, Tendergreen.
- Wax Podded ..... Webber Wax Pacer (very early), Round Pod, Kidney Wax, Pencil Pod Wax.
- Baking or Dry Shell ..... Grainer (Gohns Rainy River), Great Northern (large).
- Broad Beans ..... Broad Windsor (long and short pod varieties).
- Pole ..... Kentucky Wonder (green and wax podded), Dutch Case Knife, Oregon Giant.
- Edible Soybean .... Agate (early), Black-eye.

**Beets** ..... Early Wonder (early), Detroit Dark Red Types.

**Brussel Sprouts** ..... Improved Dwarf, Long Island Improved.

**Cabbage**
- Green—Early ..... Jersey Wakefield (conical head), Golden Acre.
- Mid Season ..... Copenhagen Market, Green Acre.
- Winter ..... Danish Ballhead, Penn. State Ballhead, Round Head, (drier areas).
- Red ..... Red acre (early), Mammoth Red Rock (late).
- Savoy ..... Chieftain Savoy, Sutton's Best of All.

**Cauliflower** ..... Early Snowball, Dwarf Erfurt No. 18 (mid-season).

**Carrot** ..... Nantes (early, very brittle, not suitable for commercial washing), Red Cored Chantenay, Danvers Half Long Types.

**Celery** ..... Golden Plume (early), Golden Pascal, Utah or Salt Lake (green, late).

**Citron** ..... Red Seeded.

**Corn** (Sweet) ..... Banting, Dorinny (very early), Gills' Early Golden Sweet (early), Gills' Early Market (for shipping), 8 row Golden Bantam.

**Cucumbers** ..... Early Russian (very early), Straight 8, Delcrow, Long Green.
- Pickling or Dill .... National Pickling.

**Egg Plant** ..... Black Beauty, Blackie.

**Leeks** ..... Giant Musselburg, Giant Carenton.

**Lettuce**
- Leaf ..... Grand Rapids, Early Curled Simpson, Prize Head.
- Head ..... N.Y. types, Sweetheart.
- Cos ..... Paris White.

**Muskmelon** ..... Champlain (early), Far North (very early)

**Onions**
- From Seed ..... Early Yellow Globe, Yellow Globe Danvers No. 11, Red Wetherfield, Ebenezer (also grown for sets), Australian Brown (sometimes grown for sets), Sweet Spanish and Prizetaker (used as transplants).
- Perennial ..... White Welsh, Egyptian.
- Pickling ..... Silver Skin.

**Parsley** ..... Paramount.

**Parsnips** ..... Guernsey Half Long, Hollow Crown (roots rather long for heavy soils), Short thick.

**Peas**
- Early ..... Little Marvel.
- Mid-Season ..... Lincoln (Homesteader), Laxton Progress.
- Late ..... Alderman, Stratagem.
- Edible Podded ..... Mammoth Luscious Sugar.
- Dried for Soup ..... Dashaway (yellow soup), Arthur.

**Peppers**
- Sweet ..... King of the North, Harris Earliest (early), Harris Wonder (late).
- Hot ..... Cayene (early), Hamilton Market (mid-season).

**Potatoes**
- Early ..... Warba, Bliss Triumph.
- Mid Season ..... Early Ohio, Irish Cobbler.
- Late ..... Chippewa, Green Mountain.

**Pumpkin** ..... Small Sugar, Connecticut Field (table and cattle).

**Radish** ..... French Breakfast, Scarlet Globe, White Icicle, Scarlet Turnip White Tip.
- Winter ..... Black Spanish.

**Rhubarb** ..... Valentine, Canada Red, Coulter, Ruby, Macdonald (not possible to grow a specified variety from seed; grown only from roots).

**Spinach** ..... Longstanding Bloomsdale, King of Denmark, New Zealand (late, not true Spinach).

**Squash**
- Winter ..... Greengold (early), Table Queen, Green and Golden Hubbard.

**Tomatoes**
Non-staking ..... Bounty, N.D.A.C. 38, Early Chatham.
Staking ..... Earliana, Bonny Best, Break O'Day, Stokesdale (mid-season).

**Turnip**
Swede or Rutabaga ..... Canadian Gem, Perfection, Laurentian.
**Watermelon** ..... Early Canada (extra early), Sweet Sensation, (early), Honey Cream.
**Vegetable Marrow** ..... Long White Bush.

The foregoing list is recommended on the basis of quality, adaptability to Manitoba conditions, suitability for the farm garden or commercial grower and existing seed stocks.

**Less Commonly Used Vegetables.**

**Artichoke**
Jerusalem ..... White skinned types.
**Borecole or Kale** ..... Dwarf Green Curled Scotch.
**Broccoli** ..... Italian Green Sprouting or Calabrese.
**Celeriac** ..... Large Turnip Rooted.
**Chard** ..... Lucullus, Fordhook Giant.
**Chicory** ..... Witloof (for basement forcing).
**Chinese Cabbage** ..... Chihili, Wong Bok (short head).
**Corn** (Pop Corn) ..... Tom Thumb (yellow), Pinkie, Jap Hulless.
**Ground Cherry** ..... Novelties, Golden & Purple Husk, Tomato.
**Herbs** ..... Anise, Balm, Borage, Caraway, Catnip, Chervile, Chives, Dill, Fennel, Garden Cress, Horehound, Lavender, Marjoram, Mint, Pot Marigold, Mustard, Rosemary, Saffron, Sage, Summer Savory, Sweet Basil, Thyme, Wormwood.
**Horse Radish** ..... Maliner Kren.
**Kohl Rabi** ..... White Triumph of Prague.
**Okra** ..... Dwarf Green.
**Salsify** ..... Sandwich Island.
**Turnip**
Summer ..... Purple Top Milan, Golden Ball.

Note: This list will be revised in 1947. However changes are likely to be very few, and, in the main these varieties may be used with complete confidence.

# *Garden Tools—Their Use and Care*

HECTOR MacDONALD

Possibly some of the earliest tools devised by primitive man were for preparing soil and planting seed, and even today in many parts of the world, gardens are still cultivated with the simplest of tools. However, we have a wide range of garden tools to choose from, all the way from hand trowels to power operated cultivators and sprayers.

In this article we will discuss tools which are more or less necessary for the cultivation of the average home garden, and for keeping the home grounds neat and tidy.

Garden tools can be divided into groups, such as the soil preparation and cultivating tools—spades, shovels, hoes and rakes.

Spades and shovels are best for fall or spring digging as the soil can be turned over cleanly and weed seeds and seedlings buried. A digging fork may be easier to use, but it is not possible to turn soil cleanly over with a fork. Perennial weed roots slip between the tines of a fork and remain in the ground instead of being brought to the surface and exposed. The fork is useful for loosening baked soil in flower beds or between rows of vegetables during the growing season and for harvesting potatoes and other root crops.

There are two main types of hoes, push or dutch hoes and draw hoes. The former is ideal for keeping weeds under control and shallow cultivation. Push hoes are made in various widths, about five inches should prove most convenient. Push hoes should be bent at the neck to suit the height of the operator, the blade should be nearly flat on the ground when the operator is standing in a comfortable working position. Draw hoes are required for making seed rows or chopping weed growth and badly baked soil.

All the above mentioned tools require much the same care. Keep the metal free from rust, the woden handles will be ruined if exposed to the weather for long periods. Sharpening is done by applying a file or hone to one side of the cutting edge only, the under side.

We have another group of tools which are used for cutting and controlling growth:—lawn mowers, hedge-shears, secateurs, pruning saws and knives.

In the lawn-mower we have a machine instead of a tool, and it requires more care than most garden equipment. The moving parts must be kept clean, well oiled and properly adjusted. The reel is set by means of set screws and the blades

should pass over the grass plate smoothly and close enough to cut a piece of newspaper. Before cutting the lawn, small stones, pieces of twigs, wire or other hard material should be removed, the reel is easily bent or the grass plate dented by running over a hard object. Proper sharpening is necessary from time to time according to the amount of use the machine gets, and should be done by an experienced man.

Hedge shears are handy to have around, even if there are no hedges to trim. For clipping grass around trees or close to fences, along the edge of beds, borders and walks and many other jobs. The cutting edges should be ground evenly and nearly straight across the edge of the blade, and the locking nut holding the blades together should not be allowed to become loose.

One of the most useful tools for pruning shrubs, fruit trees or bushes is a good paid of secateurs. The non-cutting blade should be next the twig or other part of the tree or shrub that is to be removed; this prevents bruising and makes a clean cut with no stub.

Pruning saws are of many shapes and sizes, to suit different conditions. However a single edged saw with an eighteen inch blade will suit most purposes. The saw should be properly set and sharpened.

A good sharp jack-knife is one of the most useful tools a gardener can own. Its uses are legion, and a knife with two blades is preferable. On his first day at work in the Old Country a garden boy or apprentice is given a knife and woe betide him if he fails to keep it sharp.

We have a group of tools or implements for controlling insects. For use in the open air either dusting or spraying insecticides is the usual method. During the last few years, more and more insecticides are being prepared in powder form, to be applied as a dust. Dusting is convenient, and effective. A serviceable duster is inexpensive and should be keep in a dry place when not in use.

Spraying requires more preparation than dusting, as the insecticides usually have to be diluted with water, but in some cases may be more effective. Sprayers range in size from about a pint capacity to hundreds of gallons. Choose a size to suit your needs, and wash it out with clean water after using.

With proper care most good garden tools will last for many years. Rust is the great enemy of the metal parts, and a rusty tool makes for much harder work, it is not much trouble to wipe over the metal parts of a hoe or spade with an oily rag before putting it away. In the fall when garden work for the year is done, all tools should be sharpened, repaired if necessary and oiled. Then when the spring comes you are all ready to go ahead, when time counts so much.



# *Exhibition Pointers*

E. T. ANDERSEN

It is not possible in the scope of this article to discuss all angles and details of exhibiting fruits, flowers and vegetables at garden shows. A few pointers may be given, however, which apply to all types of exhibits in general and which are for the most part the deciding factors in a judge's decision of superiority.

The two main considerations are uniformity and condition or quality. In selecting specimens for an exhibit few inexperienced persons appreciate the importance of uniformity of size and shape or type. One or two specimens in an exhibit of, for instance, carrots which are small in size compared to the other roots, or which are either noticeably longer or shorter will greatly lower the appeal of the exhibit. The judge is likely to eliminate such exhibits on his first inspection. An exhibit of uniform specimens will attract attention even though roots may be somewhat small or otherwise inferior. Uniformity of color is also very essential. Poorly colored specimens in an exhibit are far more prominent and noticeable where such specimens are included along with some of very good or high color. This does not mean that good color is not necessary for a top exhibit. Color is a good indication, in many cases, of quality and no low quality exhibits will ever take a prize.

The term "condition" refers to the freshness, soundness, color, neatness and freedom from blemishes of the specimens of the exhibit. Good specimens for an exhibit of fruit or vegetables must be firm and free from insect or mechanical damage of any kind. Wilting in exhibits is very common and is usually accompanied by a loss in color. Exhibits should always be clean. Root vegetables are usually washed or they may be cleaned by brushing. They should never be scraped or brushed with a hard brush as this is likely to break the skin and cause early wilting and breakdown.

The best size of specimens in an exhibit has been a much debated point. This is particularly true of vegetables and fruits. Too often preference is given to the largest specimens with insufficient thought to quality. In many cases very large fruits or vegetables tend to be coarse and rough, and do not represent the variety or type to which they belong. In general it might be said that the best size is that which is in most demand by the consumer, or that which a good cook will select for table use. Stage of maturity is likewise important. Fruits and vegetables having top market or table quality or in prime

storage condition will be at the right stage for exhibiting. Where the specimens are exhibited according to variety name, all specimens should be representative of the variety. Specimens too large or too small to closely represent the variety will lose points. Medium or slightly above average size usually indicates the best choice. Neat and careful arrangement of the specimens is also important.

Where an exhibit consists of a large number of different varieties or types making up a display either for competition or advertising, the same principles as for a single exhibit must be kept in mind. In addition the arrangement of the display as a whole must be given careful attention. Very often general displays lose effectiveness because the number of specimens of each kind are too few or are too widely scattered so that no one kind is sufficiently prominent to make a strong impression on the spectator. It is well to include several specimens of a kind and to keep these together, so that the uniformity and quality of each kind will attract notice. Quite frequently also such displays will include a large number of kinds which are little known or of little commercial value. Such specimens scattered through the display are likely to detract the attention from the main features of the exhibit.

Most vegetables and fruits if given such consideration as the foregoing will yield good results in competition. All, however, including flowers, have features peculiar to the particular plant which to a large extent can be learned only through continued association with exhibitions of this kind.

As an illustration of this fact, let us briefly consider carrots and onions. In judging of carrots the size of the core and the internal color and texture are important features indicating quality. Small cores and high internal color are desirable. These characteristics cannot be seen without cutting into the root. Thus the exhibitor through experience must learn to recognize such high quality roots from their external appearance in order to be successful. With onions quality is judged by maturity, firmness at the base of the neck and by size. Necks must be small, indicating maturity. Onions, except pickling types, should be large, indicating tenderness and sweetness. They should never be peeled closely to expose the fleshy leaves of the bulb. A covering of one or more layers of dry scales or leaves will give protection against wilting and bruising.

The number of specimens required to make up an exhibit is usually given in the entry list. This number must be closely adhered to. Either a larger or smaller number of specimens will disqualify the entry. All other regulations given on the entry list should also be studied carefully and followed.



# *Competition Plus Pleasure*

By J. C. WILLIAMS

It is my intention to attempt to interest flower growers, who are not at present exhibiting, in entering one or more of the various competitions sponsored by the Winnipeg Horticultural Society.

There are many who say that they just grow flowers for their own pleasure, but, I suggest, until they have shared their pleasure and have had the joy of comparing their blooms with blooms grown elsewhere and their gardens with other gardens, they have not reached their utmost pleasure. It is through the above noted competitions that this can be accomplished.

In some sections of the city, neighbors vie with one another in producing the best blooms, plants and gardens. Unfortunately these instances are all too few. Many have neighbors with diverse interests, so seldom have the opportunity of indulging in "back yard" garden chats.

Competition creates the incentive to improve and keep on improving. It is, therefore, to the advantage of people in either category to take an active part in both the Annual Home Grounds or Garden Competition and the Flower Show. Through qualified judges it can be proved who really has the better garden and the best individual blooms. They are also splendid means of acquiring additional knowledge and associating with people with like interests.

The Annual Flower Show provides an opportunity of obtaining first-hand knowledge of varieties and some of the newer introductions to the flower world.

A floral display is worth a visit at any time and many and varied are the things that can be learned by a careful study of the blooms and the methods used in arranging them. Should, however, the onlooker have an entry of his or her own on one of the tables, the interest is intensified because of the comparisons that can be made. It is only when flowers are placed side by side that the superior one can be chosen.

The information gathered in this way will pay dividends when bouquets are brought into the home. So many are spoiled by the "stuffed in" appearance in a vase.

The remark has often been heard, in reference to certain entries, "Mine are the equal to those. Why didn't I enter them?" This is sometimes quite true. It is well known that the best are not always in the show.

It is not necessary to be a professional or even a near professional gardener to enjoy participation in a flower

show. It matters little whether you have a large formal garden or a small bed or two tucked away in some secluded corner. All that is necessary is to cut the best blooms you have, arrange them as artistically as possible in a vase, bowl or basket and have your entry slip filled in on the day preceding the show. This day, to the uninitiated, is termed "setting-up" day.

Amateur gardeners and their entries are particularly welcomed because of the help and experience it is felt can be given to them.

Should you be one of those whose interest lies in the growing of vegetables, there is a section set aside for almost every variety grown.

You will be amazed at the friendly spirit that prevails among the entrants, the fund of knowledge available to any who wish it and the number of new friends that can be made.

Elsewhere in the Winnipeg Flower Garden will be found a tentative prize list for 1947. Why not look it over and decide right now to make at least one entry this year. Remember a show cannot be held without entries, and the more there are, the keener the competition, and the keener it is, the more successful the event.

Bear in mind, too, that you will be helping to bring a lot of pleasure into the lives of those who, through no fault of their own, are unable to grow flowers. It is a delightful experience for them to ramble around the show and view with ever increasing enthusiasm the products of our Western gardens.

The garden or Home Grounds competition is another means by which considerable pleasure and a wealth of knowledge can be attained, as well as a lot of new friends.

It is the privilege of every member of the Horticultural Society to enter his or her garden in this annual event. There is no entry fee, just the effort of writing your name and address on the entry form supplied prior to the competition.

When approached on the subject, many are apt to remark, "But my garden is not worthy of competition and would certainly not win a prize." This statement, in many instances is due to an inferiority complex, as it is quite possible that the garden in question would compare favorably with many of those previously entered.

If the garden is not fully landscaped but certain flower beds, window boxes, hedges or lawns have been brought to a reasonable degree of perfection they may be entered individually. Worthwhile prizes are offered in each section, and you, the reader, may have as good a chance of winning as anyone else.

We hope to see your name on the entry list this year.



## *Report of Home Grounds Committee for 1946*

The annual home grounds competition for the year 1946 was very satisfactory. There were 36 exhibitors of whom 23 received prizes.

We are indebted to the following, who very generously donated the prizes: The Winnipeg Tribune, Winnipeg Supply & Fuel Co., C. H. McFayden Co., Antenbrings Ltd., Hudson's Bay Co., J. H. Ashdown Co., Winnipeg Hydro Electric System, Swift Canadian Co., Patmore Nurseries Ltd., Wallace Nurseries, Manitoba Hardy Plant Nursery, Dr. S. W. Edgecombe, and Dixon Reid Co.

The judging of the rock gardens was done on June 28th by Mr. R. Pragnell, and the other eight sections of the competition were judged on August 23rd by Mr. R. Pragnell, Mrs. L. M. Nichol, and Mr. M. R. Bevan. The winners were:

**Section 1, Lots up to 33 ft.**
1st—Mr. R. Skelding.
2nd—Mr. T. J. Foxcroft.
3rd—Mr. F. Edwards.
4th—Mr. C. A. Goodall.

**Section 2, Lots 34 to 66 ft.**
1st—Mrs. T. McKeown.
2nd—Mr. R. Preston.
3rd—Mr. A. Dance.
4th—Mr. J. F. Douglas.

**Section 3, Lots over 66 ft.**
1st—Mr. A. Potter.
2nd—Mr. H. G. Dawson.
3rd—Dr. B. J. Ginsburg.
4th—Mr. A. R. Burt.

**Section 4, Utility Gardens**
1st—Mr. Geo. Butler.
2nd—Mr. R. P. Rooke.
3rd—Mr. N. E. Tolton.
4th—Mr. William Baker.

**Section 5, Flower Garden**
1st—Mr. R. Skelding.
2nd—Mr. T. J. Foxcroft.
3rd—Mr. A. Potter.
4th—Mr. F. Edwards.

**Section 6, Window Box**
1st—Mrs. T. McKeown.
2nd—Mr. R. Skelding.
3rd—Mr. T. J. Foxcroft.
4th—Mr. F. Edwards.

**Section 7, Lawns**
1st—Mr. E. H. Morse.
2nd—Mr. F. Edwards.
3rd—Mr. T. J. Foxcroft.
4th—Mr. C. A. Goodall.

**Section 8, Novice, Home Grounds**
1st—Mr. E. H. Morse.
2nd—Mrs. C. G. Biggar.
3rd—Mrs. W. H. Hemming.
4th—Mr. J. I. Huston.

**Rock Gardens**
1st—Mr. G. E. Walsh.
2nd—Mr. Brock Windsor.
3rd—Mrs. W. W. Gyles.
4th—Mr. Chas. Ward.

Nov. 28th, 1946

J. H. NICHOL.
Chairman.

# *Report of the Winnipeg Horticultural Society Vegetable and Flower Show*

HELD AUGUST 27TH AND 28TH, 1946
AT THE CIVIC CALEDONIAN RINK

Your directors, after careful consideration, decided to again hold the show at the above rink. This has proven to be a favourable location and because of its being cool and well ventilated is quite suitable for the holding of Flower Shows.

Wishing to attract as many exhibits as possible for the amount of money available, careful consideration was given to the prize list: that we were successful in our efforts is indicated by the fact that:

Our entries totaled 751.

From 92 exhibitors.

Of whom 71 succeeded in winning one or more prizes.

We paid out in prizes $526.25. Rental, printing and other expenses brought the total cost of our show to about $900.00. Our cost would have been much higher were it not for considerable assistance given us by the T. Eaton Co., who loaned us counters, etc., and provided cartage for the same. We are indebted to the Hudson's Bay Co. for the publicity they gave us over the radio. We know that this added considerably to the attendance.

Owing to the late spring frosts we did not receive the usual number of exhibits of fruits, but the fruit growers like to show with us and under ordinary conditions they add considerably to our show.

From the above it must be considered that our show was worth while, true, it meant a lot of work for our secretary, Mr. Brown. Your directors turned out and helped in many ways and the rink officials co-operated with us in a very splendid manner. The Press were kind to us, in that they gave our show considerable publicity.

A number of suggestions as to the improvement of our show were received, not the least of which was from our Sunday morning radio friend, the Prairie Gardener, who commented quite favourably on both the quality of exhibits and management of the show. All suggestions received, I feel, will be carefully considered by your 1947 executive.

Respectfully submitted,

J. A. MACPHAIL,
Chairman, Show Committee.

Winnipeg, Nov. 28th, 1946.



# *Flower, Vegetable and Provincial Fruit Show*

The following is a tentative list of classes for the 1947 Flower, Vegetable and Fruit Show of the Winnipeg Horticultural Society, published for the guidance of prospective exhibitors.

## CLASS I—CUT FLOWERS

Asters, vase.
Asters, basket.
Carnations, vase.
Cornflower, vase.
Cosmos, vase.
Dahlias, vase, 3 blooms.
Dahlias, basket.
Dahlia, individual bloom.
Dahlias, small flowering, vase.
Dahlias, small flowering, basket.
Gladioli, vase (at least 3 spikes).
Gladioli, basket
Gladioli, individual spike.
Marigolds, vase (African type).
Marigolds, basket (African type).
Marigolds, vase (French type).
Marigolds, basket (French type).
Pansies, bowl.
Petunias, vase (double).
Petunias, basket (double).
Petunias, vase (single).
Petunias, basket (single).
Roses, bowl.
Rose, individual bloom.
Snapdragon, vase (tall).
Snapdragon, vase (medium).
Snapdragon, basket.
Stocks, vase.
Sweet Peas, vase.
Table Centre, containing sweet peas.
Table Centre, other than sweet peas.
Zinnias, vase (large flowered).
Zinnia, basket (large flowered).
Zinnia, vase (Pom-pom).
Zinnia, basket (Pom-pom).
Mixed Flowers, vase.
Mixed Flowers, basket.
Any other flower, not mentioned, one variety, vase.
Collection of cut flowers, 6 vases, different.
Display of cut flowers, 6 ft. x 4 ft. (named).
Collection of Gladioli, 6 vases, 3 spikes to a vase (named).
Display of potted plants, at least 6 kinds.
Display of Tuberous Begonias, in pots at least 3.
Display of Sweet Peas, 6 ft. x 4 ft. (named).

## CLASS II—VEGETABLES

12 Beans, broad.
12 Beans, bush yellow.
12 Beans, bush green.
12 Beans, any other variety.
5 Beets, globe.
2 Broccoli.
2 Cabbages.
2 Cauliflower.
5 Carrots.
2 Celery, any variety.
2 Citron.
5 Ears Sweet Corn.
2 Cucumbers, frame.
2 Cucumbers, outdoor.
3 Kohlrabi.
2 Marrows.
12 Onions, multiplier.
5 Onions, yellow or red.
5 Onions, white.
5 Onions, large.
5 Parsnips.
1 Pint Pickling Onions, white.
Parsley, one plant in pot.
5 Potatoes, white.
5 Potatoes, pink or red.
1 Pumpkin.
Peas, 12 pods
2 Peppers, green.
2 Peppers, red.
5 Rhubarb, 5 stalks.
2 Squash.
5 Tomatoes, ripe, small type.

5 Tomatoes, ripe, large type.
5 Tomatoes, green.
2 Turnips, Swedes, for table use.
Any other vegetable.
(Non-professional. A display of vegetables, not less than 8 distinct kinds, to occupy a space 3 ft. x 4 ft.
Display of vegetables, not less than 12 distinct kinds, to occupy space of 4 ft. x 6 ft.

Display open to market gardeners or any other exhibitor. Display to be considered when judging.

## CLASS III—CANNED VEGETABLES and FRUIT

1 pint or 1 quart of canned carrots.
1 pint or 1 quart of canned beets.
1 pint or quart of canned beans.
1 pint or 1 quart of canned corn.
1 pint or 1 quart of canned peas.
1 pint or 1 quart canned tomatoes.
1 pint or 1 quart of any other canned vegetable.
Collection of canned vegetables.
1 pint or 1 quart of canned crabapples.
1 pint or qt. of canned currants.
1 pint or qt. of canned gooseberries.
1 pint or qt. of canned plums.
1 pint or qt. of canned cherries.
1 pint or qt. of canned raspberries.
1 pint or qt. of canned strawberries.
1 pint or qt. of any other canned fruit.
Collection of canned fruit

## CLASS IV—PROVINCIAL FRUIT SHOW

Collection Standard Apples, 6 varieties, 5 of each, named.
Plate of 5 named or seedling variety (parents shown) of apples, plate from collection not eligible.
Collection of crabapples, hybrid or true, 6 varieties, 10 each, named.
Plate of 10, named or seedling (parents shown) crabapple, apple hybrid or seedling plates from collection not eligible.
Plate of 10 named crabapple or seedling (parents shown) plate from collection not eligible.
Collection of plums, 6 varieties only, named, 10 of each.
Plate of 10 named variety of plum, plate shown) plate from collection not eligible.
Plate of 10 seedling plum (parents shown) plate from collection not eligible
Collection, any size, of other small and tree fruits, named or parents shown, 5 of each.
Plate of 10 of any other tree or small fruit, not from above collection.
Plate of 10 standard apples.
Plate of hybrid crabapples.
Plate of crabapples.
Plate of standard plums.

NOTE: Last 4 sections not open to nursery men or institutions.

The Directors of the Winnipeg Horticultural Society wish to thank the advertisers who have made this edition possible, also the following who kindly made donations:

HERBERT WINSTON, FURRIER
SMITH'S BAKERY
THE VOGUE TAILORS
ARLINGTON PHARMACY
THE SAFEWAY STORES
KARR'S DRUG STORE
GLOBE MOTORS
GRAMMA'S
THORKELSON LTD.
SHERBROOK MEAT MARKET
WATERMAN'S GROCERY STORE
McKEAG'S
BUSHMAN CO.
TIMES DRUG STORE
CAPITAL COAL CO
PICARDY'S LTD.
FRED'S FLORIST
WILDER DRUG CO.
OFFICE SPECIALTY CO. LTD.
MANITOBA BEARING CO.
MARTEL STEWART CO.
CHARLES RIESS & CO.
MESSRS. HALLET AND CAREY
FEDERAL GRAIN CO. LIMITED
MR. HAROLD A. SMITH
THE WINNIPEG FREE PRESS
MESSRS. OSLER, HAMMOND AND NANTON
THE WINNIPEG TRIBUNE