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INSTITUTE BATHON

# The School Garden

As regarded and  
Carried on in the  
Different Provinces



Published by Authority of  
The Hon. MARTIN BURRELL  
Minister of Agriculture

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DOMINION OF CANADA  
DEPARTMENT OF AGRICULTURE  
PUBLICATIONS BRANCH

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# THE SCHOOL GARDEN

AS REGARDED AND CARRIED ON IN  
THE DIFFERENT PROVINCES

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## PAMPHLET No. 4

Reprinted from  
THE AGRICULTURAL GAZETTE OF CANADA

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Published by direction of  
THE HONOURABLE MARTIN BURRELL  
Minister of Agriculture

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OTTAWA  
GOVERNMENT PRINTING BUREAU

1916

DEPARTMENT OF AGRICULTURE  
BUREAU OF PLANT INDUSTRY

# THE SCHOOL GARDEN

AS RECOMMENDED AND CARRIED OUT BY  
THE DIFFERENT PROVINCES

PAMPHLET No. 1

THE AGRICULTURAL GARDEN OF THE GARDEN

THE AGRICULTURAL GARDEN OF THE GARDEN



PUBLICATIONS BRANCH,  
OTTAWA, February 15, 1916.

TO THE HONOURABLE  
THE MINISTER OF AGRICULTURE,  
OTTAWA.

SIR,

I have the honour to submit for your approval Pamphlet No. 4 of this Branch, entitled "The School Garden As Regarded and Carried on in the Different Provinces".

This pamphlet is a compilation of articles that have appeared in Volumes II and III of THE AGRICULTURAL GAZETTE OF CANADA.

The pamphlet constitutes, for the main part, symposiums on the more important phases of school gardening in which provincial officials responsible for rural science instruction in the various provinces took part.

School gardening, which has come to be regarded as a potent factor in rural education, is a comparatively new enterprise in most of the provinces.

For the information of teachers who direct school gardening work, or contemplate taking it up, I should recommend that this manuscript be printed and published.

I have the honour to be,

Sir,

Your obedient servant,

J. B. SPENCER,  
Editor and Chief.





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# THE MODEL SCHOOL GARDEN

## NOVA SCOTIA

BY L. A. DEWOLFE, M.Sc., DIRECTOR RURAL SCIENCE SCHOOLS

THE ideal school garden can seldom, if ever, be realized. A more or less near approach to it, however, is often possible.

The accompanying diagram suggests one of the many possibilities. A general diagram, however, must be modified to suit the size of the school grounds, the number of children, the ambition of the teacher, the slope of the ground, and the exposure of the ground relative to sunlight and prevailing winds. While drawing the diagram accompanying this article, I had in mind a school building facing south, with ample room at the back for a garden. In such a case, the spruce hedge or mixed wildwood would serve to keep off the cold north winds. Some school grounds are bordered by natural wood lots. Where this is true, there is no need of planting a wind-break.

The diagram is drawn to the scale of 20 feet to the inch. The left border is about nine feet wide. The hedge of Japanese rose (*Rosa rugosa*) will require about four feet. In front of that can be planted about thirty rosebushes consisting of ten or twelve popular varieties. That will make one border a solid mass of rose bushes.

These borders are to be permanent. Therefore, they are planted with shrubs and perennial flowers. The back border is an exception; for if it be planted with native shrubs, trees and ferns, the cultivated flowers will slowly be crowded out. For that reason, sweet peas and other tall annuals or biennials may be planted for a few years until the wild border is established.

In the front border, ornamental shrubs are placed every ten feet; and perennial flowers occupy the space between and around them. The names of the shrubs are written parallel with the shorter diameter of the garden.



L. A. DEWOLFE, B.A.  
Director, Rural Science Schools

Blackberries and raspberries make a useful border for the remaining side.

The garden proper should have flowers, vegetables, grains and small fruits. The diagram shows the distribution of these.

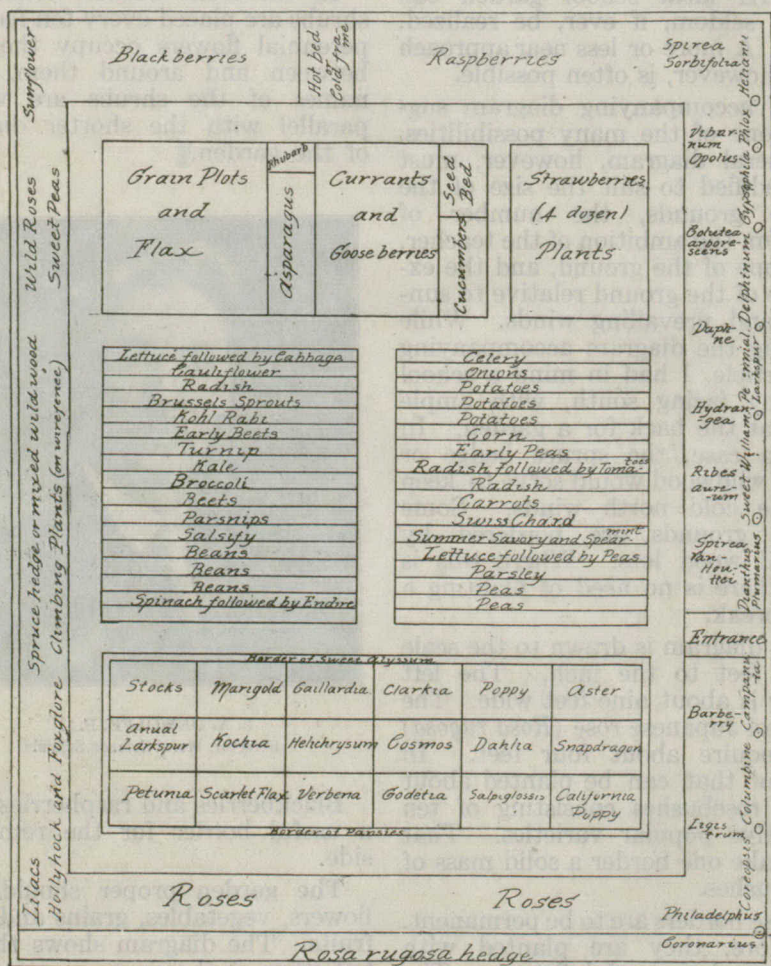
In planting the flowers, I would not make raised beds. Between one flower bed and the next, I would leave a path two feet wide. Thus, for early weeding and cultivation, the children can walk around every bed. When the plants are full-grown, the paths will be lost; but



at that time no one needs to walk among them. The flowers in the centre plots are sufficiently tall to be admired from the path that surrounds the whole flower garden. In fact, there are only four plots that do not border this path.

In the vegetable garden, the rows

between kohlrabi and turnips; and early peas and radish border the rows of tomatoes. This will illustrate what is known as *companion cropping*. *Successive cropping* is illustrated where cabbage or peas follow lettuce, endive follows spinach, or tomatoes follow radish.



A SCHOOL GARDEN PLANNED BY L. A. DEWOLFE, DIRECTOR OF RURAL SCIENCE SCHOOLS

are uniformly twenty inches apart. As cauliflower and brussels sprouts should have more room than this, a row of radish comes between. These will be gathered before the other vegetables need the extra room. For the same reason, early beets come

Furthermore, all members of the cabbage family are planted together. This will make more convenient the control of the cabbage worm. Extra rows of beans and peas will supply abundant material for demonstration in canning green vegetables. More-



over, some vegetables are introduced which are not in general cultivation on the home farm. Thus the school becomes the experimental station for novelties.

More than two-thirds of the garden is planted with annuals. These come in one block, which will enable that part to be ploughed.

Possibly one should specify varieties of each vegetable and flower recommended. That has both its advantages and disadvantages. Some mechanical teacher, if she could not get the variety recommended would not plant any. It is better, I think, to get bulletins and reports from the Department of Agriculture, Ottawa, or from the Provincial Departments,

and select from the varieties they have successfully tested.

The size of the garden in the diagram is 100 feet by 80 feet. Deducting borders and outer path, the permanent garden is 72 by 57. In a small school, this could be reduced, making every plot half size and every row half length. It would be better to reduce the size than to omit any part.

Where this garden would exist year after year, the annual flowers would be varied. Crop rotation should be exercised.

Out of the many possibilities, therefore, the diagram suggests one—not to be followed literally; but to be adapted to local conditions.

## NEW BRUNSWICK

BY R. P. STEEVES, M.A., DIRECTOR ELEMENTARY AGRICULTURAL EDUCATION

**S**CHOOL properties are owned by the districts. They are under the control and care of trustees elected at the annual school meetings. They include school grounds, buildings erected thereon, furniture and apparatus for teaching. It is therefore of prime importance that, if a school garden is to be established, official recognition be obtained. Not only is mere consent needed but the co-operation and sympathy of trustees, and at least of some of the ratepayers are very necessary.

The location of the garden is a point to be carefully considered.

1. It should be on, or contiguous to, the school ground. According to law the school ground, especially in country districts, should be one acre in extent. Except in the case of large semi-rural schools this area will afford ample space for a school garden without unduly entrenching upon the play-ground portions. It is a fact that many of our school grounds are much smaller than they should be. They are often rough and rocky and in

some cases badly drained. Where grounds are too small, more land should be purchased. Where they are unsuitable a near location, across the road, in full sight of the school and easy of access is imperative. The influence of the work upon the life of the school is weakened if the garden is far away or out of sight from the school house. Little or no time should be lost by pupils in going and coming between school house and garden.

2. It should occupy a conspicuous position. It should therefore not be located at the rear of the school premises but front on the street which the house faces. The form of a narrow strip along one side of the grounds is not desirable. It is also necessary that it be far enough removed from the play-ground portion of the premises not to be interfered with by the children at play.

3 Another feature to be considered in selecting a site is that the ground is well drained, or at least capable of drainage. This is quite as important as that it be not rocky or shallow.

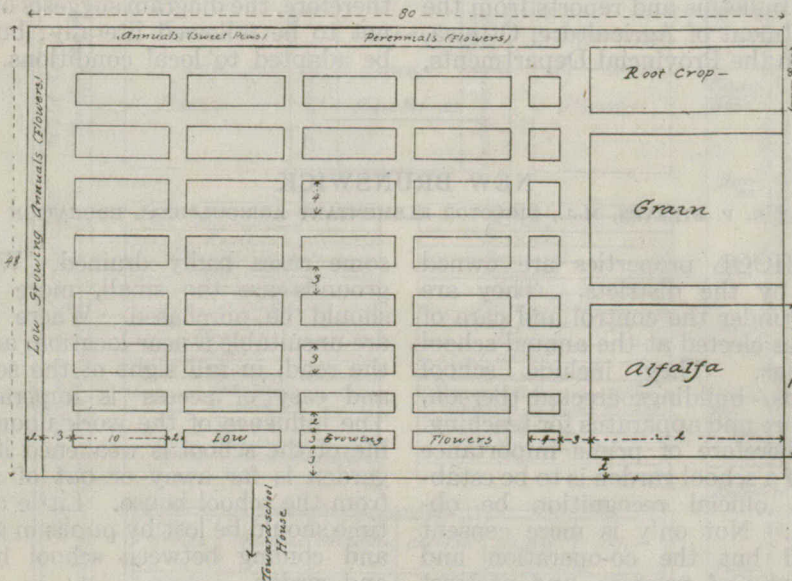


After the location has been decided upon the next consideration is size. This depends upon the number of pupils usually attending the school. We do not think that any school garden, in order that Trustees' and Teachers' grants be paid, should be smaller than 40 x 50 feet or 2,000 square feet. Such an area for a school having 20 pupils with from 8 to 12 of them in the upper grades should afford satisfactory space for good work. This area should increase as schools are larger until a half acre is reached. Only in the case of large schools should this be required.

might be of the same width. Other walks if two feet wide will generally be found satisfactory.

Plots from  $2\frac{1}{2}$  to 4 feet wide and 10 feet long according to the age of pupils working on them, will be found to give good results.

For experimental plots in which the whole school may be interested 8 x 10 feet has proven good. In the smaller plots named above individual pupils should have charge. Ownership gives responsibility and best permits of a purpose being worked out to a finish. No more than two pupils can well conduct one plot and



A SCHOOL GARDEN PLANNED BY R. P. STEEVES, DIRECTOR ELEMENTARY AGRICULTURAL EDUCATION

During the winter it will be found of advantage for each pupil under the direction and guidance of the teacher in the school room to draw to scale a plan of the garden from measurements made in the fall. This plan should show walks and plots. The principal walks should be from  $2\frac{1}{2}$  to 3 feet wide. Except on the rear sides of the garden where borders extending to the fence may be allowed, walks about the entire plot should be 3 feet wide. One drawn longitudinally through the centre

in such cases an equal division should be made.

While the plan is being made during the winter, talks will be conducted dealing with the kinds of seeds that will be planted and the proper relative places for each kind.

Low growing flowers might well come in narrow plots at the front next to the street, and taller growing annuals and perennials on the fence side farthest from the school house. On the rear side tall growing annuals such as sun flowers will look well.



Care is needed so that tall plants may not obstruct the growth of low growing ones, and also that the view from the street and from the school house may be the best.

A loam soil will be found well adapted for level or nearly level cultivation. If surface of plots is much higher than the walks, should the season prove dry, the earth dries out more rapidly and the growth of plants is retarded.

Where the soil is clayey, or where it has not been heretofore well drained, a liberal dressing of lime, in its natural condition if obtainable, will be found of advantage. In any case during the fall it is well to study the character of the soil of the garden and make tests for acidity, amount of humus, and water content.

As soon as the ground is really fit to work in spring, cultivation should begin, followed by the lay out of the walks and plots. Stakes, four for each plot, and two or three good garden lines are essentials. These stakes should be one inch square, at least  $1\frac{1}{2}$  feet long and neatly sharpened. They should be driven into the ground at the corners of plots leaving about three inches showing above the surface. The precision, accuracy and neatness exercised in this laying out work are

of the utmost importance. Not only is the appearance of the garden greatly enhanced by attention to these details, as an educative process for the children they involve training in character.

The foregoing plan represents merely a few suggestions for a plain garden that might easily be modified or extended to suit conditions of any locality. Much more elaborate designing may be desired by some. Such may recognize in this plan principles for application that may be useful. At least it presents in the concrete some of the ideas expressed in this article. Originality and individuality are not to be repressed. Teacher and pupils working together to secure a well planned garden adapted to local school ground facilities will in itself be an educative factor of no little importance.

If the school ground is not enclosed, a neat woven wire fence with a fair sized gate is imperative for this garden. Although the road law may prohibit animals from running at large, a fine garden might be destroyed by a runaway or other unforeseen occurrence. If the school ground is fenced this should be all that is necessary. Provision should always be made for getting on the garden with a team to plough and harrow.

## QUEBEC

BY J. A. GRENIER, B.A., DEPUTY MINISTER OF AGRICULTURE

**H**ORTICULTURE and school gardening play an important part in the rural school and even in schools of small towns and cities, as it is just as important to develop a liking for agriculture among city children as among rural children. A great deal would be gained if, by teaching horticulture in model schools, normal schools and colleges, we could make the young men understand the usefulness of the

farming occupation and thereby remove this feeling of contempt which too many have for this profession.

I am pleased to mention here the interest which the Laval University of Quebec takes in the agricultural movement. The university has just prepared a programme for the teaching of horticulture which will be followed by the great convents that are affiliated to the university.

The Department of Agriculture is



fully aware of the importance of school gardens; they provide the easiest means for reaching all children; this work is as pleasant as it is useful for the pupils; through them the schoolmaster, or the schoolmistress, are able to teach the best principles of farming and to demonstrate by object lessons, that success in agriculture, as elsewhere, always depends on the amount of care and intelligence bestowed.

There were practically no school gardens in the province some twelve years ago; the first were inaugu-

kept, under a closer supervision from our district representatives and school inspectors. The latter have taken special courses at the Oka Agricultural Institute during the 1914 vacation in order to learn the best methods of culture, and each one of them gave a series of lectures on the teaching of agriculture in the schools when visiting the schools.

The area of the school gardens depends upon the amount of land belonging to the school trustees and teachers. On an average they measure 35 x 30 feet. A large number of



SCHOOL GARDEN OF THE COMMERCIAL COLLEGE OF STE. ANNE DE LA PÉRADE, QUEBEC

ated by Mr. O. E. Dalaire, Director of the St. Hyacinthe dairy school, who was entrusted with their management up to the present time. His first reports to the department date back to 1906. There were, at that time, only twenty-eight school gardens in the province, distributed in eleven counties and cultivated by 425 pupils; last year there were 284 school gardens, distributed in 54 counties and cultivated by 9,308 children gardeners. Next summer will witness a large increase in this number. They will also be better

domestic science schools, model schools, high schools (*academies*), colleges and convents have large gardens with a few bee-hives, and orchard, a poultry house and a school museum, etc. One may form an idea of our gardens by examining the one at the commercial college of the Sacred Heart, Ste. Anne de la Péraide. Every year through the Department of Agriculture seed grain and chemical fertilizers are sent to the school teacher and prizes are awarded to the children gardeners.



## ONTARIO

BY S. B. MCCREADY, B.S.A., FORMERLY DIRECTOR ELEMENTARY AGRICULTURAL EDUCATION

THERE is a good deal of confusion and misunderstanding concerning the relationship between School Gardening, Nature Study and Elementary Agriculture. In order to make headway in the proper direction it is very necessary that teachers and school inspectors should be clear in their minds in regard to these terms.

## THE MEANING OF SCHOOL GARDENING

The word "school" in the expression "School Gardening" marks an important and fundamental distinction; it indicates that the chief purpose in bringing gardening into school work is *education* for the child. This should not be lost sight of. A garden at school may be quite a different thing from a school garden. It is not the location at school that makes it a school garden. A child's garden at home may be a real school garden and of the very best kind. A plant in a flower pot may be a child's garden. Caring for an apple tree may be school gardening. An experiment with field crops carried out by a high school pupil on his father's farm is school gardening. It is not location, nor size, nor crop, nor the age of the pupil that determines whether a garden is a school garden; it is the *purpose*. Primarily the aim is not to grow grains, flowers, or vegetables. The purpose is higher. It is to furnish incentives and provide a field for work that will be rich educationally in recreative, instructional and character-forming experiences.

To present the chief features of the ideal school garden aimed at for Ontario rural schools, I cannot do better than quote from some of the Agricultural Education Bulletins and circular 13 which set forth the plans of the Ontario Department of Education for instruction in Elementary Agriculture. It is needless to say

that for towns and cities, such a garden would not be suitable.

## AN IDEAL COUNTRY SCHOOL

In the picture of the ideal one-teacher country school, one-half of the school grounds is represented as affording adequate playing room for the boys—baseball or football. At one side of the school house there is room for the older girls' tennis, croquet or basket ball. At one side of the front there are sand box, teeter and swing for the young children. At the corner of the school grounds nearest the corner of the roads the experimental plots are located. The flower beds, vines, boulevard and shrubs are set out and cared for as they might be at a well kept farm house. The teacher, pupils and community co-operate in making the school a home-like beauty spot for the neighbourhood. The playing facilities are for the young people too as well as for the pupils.

It is not to be inferred that the one-teacher school is considered preferable to the consolidated school which is much needed in many of the rural districts of Ontario.

## THE SCHOOL GARDEN

*Form.*—By many a proper school garden is considered to be a well arranged series of little plots with a more or less uniform assortment of flowers and vegetables grown by the pupils in the different classes. Such an arrangement undoubtedly may provide a good school garden and especially for the first year's effort.

Against such a plan, however, there are objections. It is not like an ordinary garden that may be found at the homes. It is not like a garden which the pupil will plan for himself when he grows up. It is difficult to lay out and manage. There is much



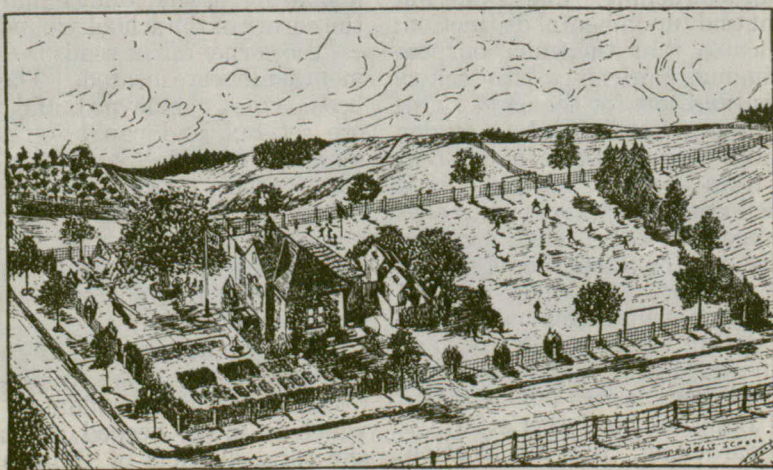
waste of ground in paths and these require a great deal of attention. It cannot be carried out unless there is a large or smaller open space in one plot. It does not appeal to practical farmers as being sensible. It is too narrow in its conception.

*Location.*—The school garden should not be located in an out-of-the-way place on the school grounds. If possible, it should be at the front or side of the school house and within full view of passers-by on the road. If space cannot be taken from the school grounds for it, it may be carried on in nearby grounds, or in a neighbour's field. Good work

suffice. This outfit will cost about \$12. Grass shears, a sickle and a lawn mower will increase this amount by about \$6. At odd times a few extra tools may have to be borrowed.

The tools should be put under the charge of a tool officer or garden committee of the pupils.

*Uses of area specified for school garden.*—The six square rods specified as the minimum area for the experimental plots in a school garden qualifying for grants is exclusive of paths. It is suggested that as a rule three square rods should be given to experiments or demonstrations on field



AN IDEAL COUNTRY SCHOOL

might be done in taking charge of the garden of some one living near the school as a loan, or on a rental basis.

*Equipment.*—The amount of equipment for carrying on garden work at school is not specified. At some schools, all the work is carried on with tools brought from the pupils' homes. There are some advantages in this plan for the first year's effort.

For an average school six rakes, six hoes, one digging fork, one shovel, a pronged trowel, two watering cans, a wheel barrow, one mallet, a plentiful supply of garden lines and corner stakes, a hammer and saw will likely

crops, and three square rods devoted to experiments or demonstrations on vegetables, plant propagation, etc. The interests of the locality, however, will be the best guide in selecting experiments, and in some cases it may be considered best to give all the space to field crops, or, on the other hand, to vegetables.

The space devoted to flower-growing can hardly be specified, as it will be best to grow the flowers in beds or borders along the walks, around the experimental plots, or about the school house and fences. In a school of twenty-five pupils



however, an area equal to at least one square rod should be given to flowers. For the smaller pupils, in either home or school garden work, small plots containing easily grown flowers or vegetables or both may well be encouraged. For the older pupils there are advantages in having the work done under conditions similar to those they will meet in actual life.

In the School Garden that should be aimed at for every Ontario school two features should be kept clearly in mind.

*First:* The garden should contain from year to year a few well planted and well conducted experiments and demonstrations on fruits, vegetables, or field crops of interest and value to the whole neighbourhood. This part of the garden will constitute a small "experimental farm" for every school section, full of valuable lessons in agriculture.

In it the older pupils of the school, while being trained to "do something

in order that they may learn something," will be trained also to co-operate for public service. The things they do will be for the benefit of all.

*Secondly:* The garden, i.e., the school grounds, should contain neat grass plots, flower beds and borders for the purpose of training children to care for tidy surroundings, to grow flowers and also to make the school premises attractive as the local "beauty spot."

The garden work should be planned to develop a consistent and progressive series of studies from year to year, and not allowed to become a matter of aimless repetition; pupils should advance into more difficult work just as they do in arithmetic or other school studies. The interests of the locality should be considered in selecting the work. Teachers should leave records of the work they have carried out for the guidance of their successors, and as a permanent history of the teaching of agriculture in the school section.

## MANITOBA

BY H. W. WATSON, M.A., DIRECTOR ELEMENTARY AGRICULTURAL EDUCATION

**F**OR more than a generation school gardens have been compulsory in many European countries. They were introduced to give an impetus, an inspiration to improved scientific methods of horticulture and agriculture. The objects sought were largely economic, namely, the introduction of more profitable methods in the cultivation of grains, vegetables, fruit and flowers.

In America, the school garden movement is rapidly gaining in popularity in the minds of all educators. The objects here are similar to those in Europe, but we have an additional purpose of encouraging the bright, intelligent, ambitious boys to remain on the farm. The great rural school problem of Canada

is:—"How shall we save the country boy from the allurements of the city and make him contented with life on the farm?"

From the communion with Nature associated with the gardens, children will learn to love the forests, streams, hills and glades, and be content to live there, nay more, will long to return should circumstances compel them to leave.

The children's gardens at school, properly kept, have been an inspiration for greater home improvement. No school activity will influence the home so effectively and permanently as that of school gardening.

## WHAT SCHOOL GARDENING INCLUDES

The nature and scope of gardening possible in a school will largely de-



pend upon conditions. In some schools, it may be difficult to go farther than indoor culture and window-boxes.

The above lay-out and improvement should be made a possibility at every school in city, town or country. The ground should be large enough to admit of developing equally the æsthetic, mental, and physical nature of the child. The beautifying of the school grounds should receive first attention, especially as this appeals most readily to younger children. The fences and gates may require repair, the walk to be improved, the wood to be piled neatly, the ground to be levelled and cleaned off.



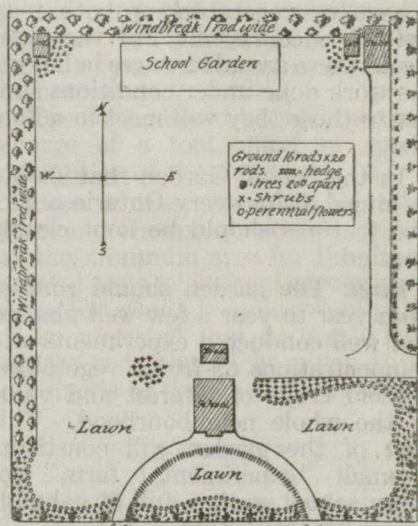
H. W. WATSON, M.A.  
Director of Agricultural Instruction

Shelter belts of trees should be planted on the north and west sides; a row of shade trees on the south and east; clumps of shrubbery in the corners, along the front and around outhouses. Hedges should be set, climbers planted, and perennial roots established around the borders of the lawn.

For the proper planting of all this permanent material, at least two years' thorough cultivation of the ground is necessary. While this ground is being prepared, it may be utilized by the children in the growing of potatoes, corn, carrots, beets,

etc., and there is no better means of preparation.

Then follows the planting of this permanent material and its subse-



TWO-ACRE SCHOOL GROUND PLANNED  
FOR SCHOOL GARDENING

quent care and cultivation, in which the children should always participate and perform all work of which they are capable. The borders, hedges and lawns will require a certain amount of care and cultivation continually, but an opportunity should be given the individual pupils, and this can be done best in experimental plots at the rear of the grounds.



A PERENNIAL BORDER ALONG THE SIDE  
OF A RURAL SCHOOL GROUND



## ESSENTIAL FEATURES IN BEGINNING

1. A desire on the part of the teacher to do *something*.
2. A definite plan to follow towards a completed whole.
3. Start at the beginning, the bottom, so that later developments may be possible and successful.
4. Make each improvement a definite and permanent one, so that other teachers following may have something upon which to continue the work.
5. Keep the garden work at all times in as good condition as the best-kept note book of work inside.

6. Before leaving for vacation, make certain that the garden will be properly cared for until school re-opens.

## FEATURES TO AVOID IN BEGINNING

1. Do not attempt too much, but do well.
2. Do not use too great variety in trees, shrubs, vegetables or flowers; use only varieties that are sure to succeed.
3. Do not be discouraged over failures, learning to turn present failures into future successes will be of great educational value.

## BRITISH COLUMBIA

BY J. W. GIBSON, M.A., DIRECTOR ELEMENTARY AGRICULTURAL EDUCATION

**T**HEORETICALLY there is a 'best' school garden for every school, a 'best' school garden for every district and no doubt a 'best' school garden for every teacher, but as yet few if any have seen it. So many factors enter into the organization and use of school gardens that it would be an utter impossibility to include all in any one school garden. Some teachers have attempted to include everything that they have ever heard of, thought of, or read about in one school garden with the result that the very complexity of it made efficiency in management and use impossible. Such a garden must sooner or later become the cause of considerable worry on the part of both teachers and pupils, which too frequently ends in apathy and neglect on the part of the pupils, and distraction and discouragement on the part of the teacher. Some teachers who have not had any experience in school gardening and who have given it no serious consideration at any time may perchance have seen or even heard of a garden established by some other teacher. Forthwith she determines to have a school gar-

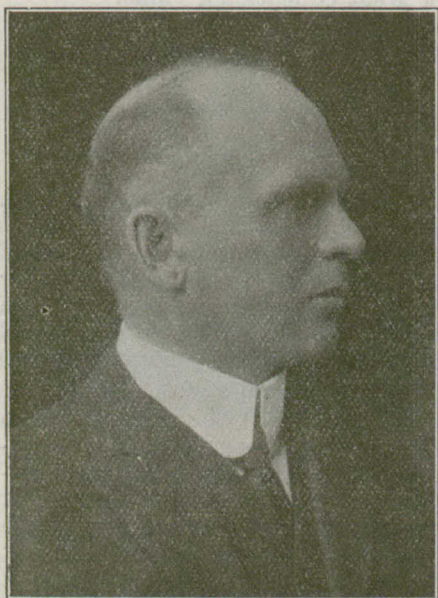
den and acquaints her pupils with her decision. Now it is doubtless worth while simply to "have a school garden" just as it is worth while for people who read very little to have a library, but a garden in the school grounds is far from being the ideal in school gardening.

We must shift the emphasis from the garden to the gardeners. Everything we undertake must have behind or beyond it a purpose. It must be done in the interests of the pupils and of the community. It will be the "best" school garden if it gives boys and girls a new interest in the things of nature which environ them, if it creates within them a desire to investigate in order to understand and appreciate that environment, and, finally, if it increases their ability to control and to improve that part of nature with which they have to do. It will deserve the name of "best" if it leads boys and girls to take a greater interest in agriculture as practised in their own home districts and if, on the other hand, it leads parents to take a new interest in the work of the school. Finally, it will be the "best" garden for the



teacher to have if by means of it she becomes more thoroughly acquainted with her pupils individually, is able to enter into their lives with more earnest sympathy and able to utilize this new interest to the advantage of the rest of the work of the school.

The use that is to be made of the garden in the teacher's scheme of education may be a determining factor with reference to size and location. If it is for the growing of flowers for decorative effect the garden may take the form of perennial and annual flower borders or plots,



J.W. GIBSON, M.A.

Director Elementary Agricultural Education for  
British Columbia

so placed in the grounds as to look best. This will not require a large area and might be established in any school ground however small. Such a scheme should be supplemented by window boxes for the growing of flowers. In this kind of gardening the teacher and pupils should consider such points as grouping and mass effects, colour schemes, time and duration of flowering, height,

flowering or foliage habit and design. If the work is chiefly experimental as regards varieties and methods of cultivation it is best to make use of simple rectangular plots and straight rows all arranged in a simple garden in a safe and convenient part of the grounds. These flower plots may be of two kinds—(1) individual plots and (2) community plots, the latter being four or five times as large as the former and operated by a group of children. Flower borders may also be operated as community plots in the school grounds. When the cultivation of vegetables is included as it should be in most school gardens, both individual and community ownership should be used. Individual plots for pupils in primary classes might be as small as 4 by 5 feet, or two pupils may be given a 5 by 8 foot plot together, in which case they invariably divide it into two, each claiming his part. In arranging plots for primary classes it is usually best to allow them to devote part of their plot to flowers and the rest to vegetables. All such combination plots should be grouped together in one section of the garden however. Flower plots look best when kept separate from the vegetable plots.

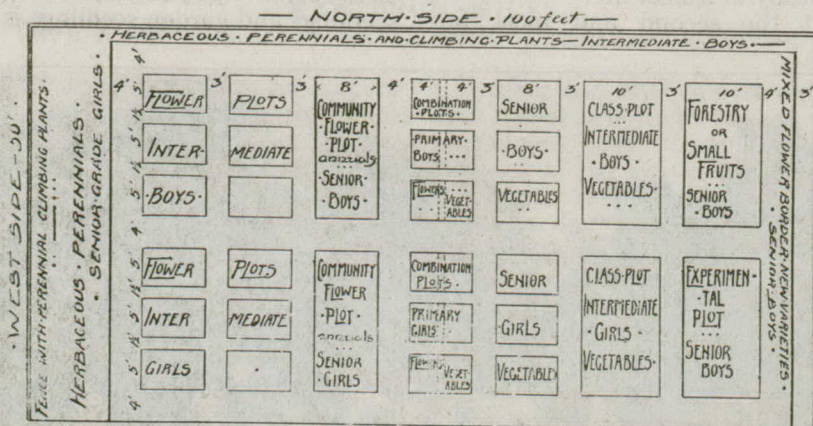
Class plots should be larger and used for the growing of larger crops such as corn, peas, potatoes, tomatoes, cabbage, etc. From two to six pupils may own and operate a class plot. These plots should be from 15 feet to 20 feet square. One rod square is sometimes desirable as it makes computation per acre very easy. These large plots may also be used as agricultural experimental plots, although all plots are in a sense experimental. It is not possible to include many such plots unless the area allotted to school gardening is fairly large. Of course community plots may be used in any grade and for either boys or girls whereas the large plots for agricultural experimentation are most suitable for boys of senior grade.



In fruit growing districts it is desirable to have a small plantation of bush fruits. Fruit trees require so much room that they cannot be included in most school grounds in orchard arrangement, but it is desirable that a few trees be included in some part of the grounds outside the garden proper.

A small area should be spared in every school garden for growing trees from seed. This little tree nursery may not be larger than 10 feet square, but will serve to interest boys and girls in the great work of

We have now alluded to most of the essentials both as to the purposes or educational value of the school garden and as to the make up of the garden itself. An important question still remains, viz., how many of those features already mentioned might reasonably be included in one garden? It is not possible to make a plan which would suit more than one set of conditions and say that even that was a "Model Garden." City schools and city grounds present many problems that do not arise in connection with country schools.



*Plan of School Garden for ungraded School of 30 to 40 pupils - Individual and Community Plots.*

A SCHOOL GARDEN PLANNED BY J. W. GIBSON, DIRECTOR ELEMENTARY AGRICULTURAL EDUCATION

tree growing and transplanting. This small beginning may lead to a more intelligent interest on the part of the pupils in the science of Forestry, and in most cases the trees grown can be used to advantage for planting either in the school grounds or at the homes of the children.

Herbaceous perennials should be grown in every school garden or in the school grounds for ornamental purposes. Vines, both annual and perennial, should also be grown in suitable places in the grounds for ornamentation or for screening out-buildings, ugly fences or rock piles.

Graded schools will require gardens somewhat different from those of ungraded schools. Of the two, the latter usually presents the greater difficulty. The plan submitted is for an ungraded rural school of from 30 to 40 pupils. The writer makes no claim that this is a "model" school garden even within the limits of the conditions stated but he has found everything suggested therein not only entirely practicable but also quite successful even according to those standards of success which were mentioned at the commencement of this article.



# RELATIONSHIP OF THE SCHOOL GARDEN TO THE CLASS ROOM

NOVA SCOTIA

BY L. A. DEWOLFE, M.Sc., DIRECTOR RURAL SCIENCE SCHOOLS

THE school garden helps the class-room in, at least, two ways. First: it gives that healthful exercise so necessary to school children, at a time when they most need it. In this, too, it furnishes variety, and breaks the monotony of school life.

But the second and most im-

community welfare when he is taught not to walk in his pupil-neighbour's garden plot.

The lessons on soil physics, in connection with conservation of moisture, make a tangible introduction to general physics in the class-room. Identification of weed-seedlings and garden seedlings is the



RURAL SCIENCE STUDENTS WORKING ON SCHOOL GARDEN, NORMAL COLLEGE GROUNDS, TRURO, N.S.

portant consideration, is that it vitalizes school work. The principles of mechanical drawing are mastered while drawing a plan of the garden to scale. Business methods are learned when buying the seeds; and, later in the year, when banking the profits. Many a boy gets his first lesson in good manners and

first step toward field botany. The control of these leads at once to economic botany.

What better arithmetic problems can be given than the boy's own problems to find how much seed or how much fertilizer his garden requires, when the tabulated amounts given are per acre?



The insect pests furnish good lessons on entomology. The insecticides and fungicides form a natural basis for lessons in chemistry. The covering of plants to protect from late spring frosts introduces a phase of physical geography not often well taught.

The written descriptions of garden operations furnish unlimited exercise in English composition. No drawing lessons could be more at-

tractive than those based on the garden and its products; and no reading should be more suitable than some of the best garden compositions written by the students.

Commercial geography will, perhaps, be helped more than any one subject.

In the hands of the skilful teacher, the school garden is the connecting link between the school and the real world.

### NEW BRUNSWICK

BY R. P. STEEVES, M.A., DIRECTOR ELEMENTARY AGRICULTURAL EDUCATION

THE school garden is an outdoor work-shop or laboratory to be made use of by the teacher in the process of general education of the pupils. In its construction and care are affiliated physical activity, mental development and æsthetic training. Through the senses the mind is constantly receiving impressions which must stimulate observation, thought and judgment, and which wisely guided lead to intelligent expression and application. The succession of seasons, the adaptation of supply to need, the influence of climate, the relation between labour and providence, the dependence of animal life upon plants, and of these latter upon soil conditions, among the most important of which is the presence of numberless, infinitesimal bacteria, all furnish problems most intricate and difficult, but adequate for mental culture. Moreover, the concrete consideration of such topics affords opportunity for moral and spiritual development since the wisdom of the beneficent Creator is traced in every manifestation of nature illustrated in the garden and its environment. Talks by the teacher in the school room about nature may exert an influence for good upon the young, but actual participation with nature in the open air,

where her laws are being exemplified, and her varying moods and phenomena are being observed, elevates all to be co-workers as it were with the Divine. Individual effort is directed, character is exalted and education is enriched by a fund of information obtained at first hand. Incidentally through such outdoor work also the school-room instruction is enlivened and enforced by illustrations pertinent because they appeal to conditions and actions with which the pupils are familiar.

The school garden may be made to occupy an important place in the teaching of the usual schoolroom subjects. The purpose and object of education is the production of good citizenship. It is by what we are, and how we do what we engage in, that we prove our position in the nation. Example and practice establish precept and theory.

The first element of success to secure in any school is interest. This must be obtained through the natural unfolding of the child's powers. Children are interested in life, living things, which appeal to them through their senses. Through an interest thus secured we may awaken in the child a realization of need to know how to solve arithmetical questions, to use language



with clearness and accuracy, to properly spell words used, to be able to make correct drawings and to learn the geographical and historical features of his native place. The school garden furnishes the living objects which appeal to the child's interest. Through his contact with it many varieties of arithmetical problems arise, from those of the simplest fundamental nature to intricate questions of commercial transactions. How can one better learn the principles and applications of measurements than by actually making the measurements of land in the open? What better way to acquire the principles of bookkeeping than by actually keeping a set of books that represent the work of a season in a school garden or home plot?

No better incentive to learn to draw can be afforded than for the child to realize his need of preserving the impression made upon his mind by some object of nature. The object to be drawn must be something to him, or he will not recognize the value of committing to paper his idea of it. If that drawing inadequately represents his idea, at once he appreciates his need to give more careful attention to his teacher's instruction. Later, his ability to picture the varieties of form represented in the school garden will attest to the quality of the instruction he has received.

The study of language must ever take up much time in the school. Ordinary methods of teaching are likely to lack interest because of being largely abstract. It is not the work or the arrangement of words that will attract the pupil's attention unless he realizes that his own effort falls short of conveying to others the thought in his mind. Oral should precede written expression. Impressions should be made on the mind before expression is attempted. Personal knowledge comes largely through observation and physical effort. We talk best,

most naturally, about what we know, what we are interested in. Nature study exercises, through the school garden, supply the best avenues for personal knowledge through the child's observation. By using the child's language descriptive of what he is interested in, of what he knows, the teacher is able to demonstrate successfully the fundamental rules of composition and their application in his every day life. Illustrations taken from books may later serve to confirm decisions reached. It is, however, through the child's own language made use of as a basis for composition lessons that the best results can be achieved. Language is a medium for conveying our thought to others. When it is studied with that practical view in sight, the value of such study takes on a new significance.

The monotony of indoor school exercises which have to do with mental training alone, may be relieved through the school garden lessons and activities participated in by both pupils and teacher. It is by the mingling of the active and the mental, by the outdoor and the indoor, that the best results are obtained at the least expenditure of time and nerve.

The school garden furnishes a link between the school and the home in that it makes use of the home occupations for an educative purpose. The school premises indicate the high water mark of educational appreciation in the district. The school is ground common to all. Whatever succeeds in uniting the people in a common effort to improve will be found most beneficial. If the school grounds are dilapidated and neglected, the tone of the community may naturally be expected to be sluggish and downward in tendency. Many school grounds which, before a school garden was established, were unfenced are now neatly enclosed by woven wire. The school garden has contributed its part to



making the grounds attractive, and has thus demonstrated its value in the education of the community.

The best country district is the one where the teacher unites with the pupils and the parents in regular efforts from time to time to make a real centre of attraction and the school grounds a veritable local beauty spot. The school garden and nature study exercises in the open air are the complement of the indoor mental training. In reading, lan-

guage, spelling, writing, arithmetic, history and geography they may by correlation and interweaving give energy and purpose to school life. Thus interest will develop as the child passes along through the grades, and thus, too, he may be encouraged to remain longer at school securing a broader, more cultural education and more practical withal, because it is being obtained in terms of his daily life and environment.

## MANITOBA

BY H. W. WATSON, M.A., DIRECTOR ELEMENTARY AGRICULTURAL EDUCATION

THE permanency of any nation will depend upon the extent of happy, prosperous, permanent homes that are developed within its borders, and the purpose of each and every subject taught within the public schools should be to produce such.

It is because of its peculiar fitness for such a purpose that school gardening is considered of such importance in the mind of the real, live, up-to-date teacher.

Some teachers, judging from what they attempt in this work, still continue to consider that school gardening is an additional subject to be carried on during the spring months, when work inside becomes rather irksome, even distasteful. Such teachers are merely playing with the subject.

All school subjects should be educational and such the garden should be made. The school garden should have at least two great values, either of which will justify its continuance; these are: (1) *Æsthetic*. (2) *Economic*.

1. *The æsthetic value*—School gardening should aim at creating an interest in home beautifying, the principles underlying such, the best materials to use, the methods of planting and caring for such material.

2. *The economic value*—In the school garden an interest in and a desire should be created for, experimenting with various shrubs, flowers, vegetables and grains. Through these experiments the pupils learn in a practical manner the principles of scientific horticulture and agriculture.



SCHOOL GARDENERS AT WORK AT HOME

The children's plots at school must necessarily be small, but, even so, they may produce the above results. They will fail in their true purpose if their counterpart on a larger scale is not carried on by the children in their homes.

Most teachers in Manitoba follow up the school gardening with competitions in home gardening, and these



gardens are regularly visited, inspected and valued throughout the summer.

Some teachers in 1914 required their pupils at home to establish plots in (1) Alfalfa, for fodder and for seed; (2) Three year seed selection, wheat, oats and barley; (3) A three year crop rotation.

In 1915 several hundred boys were formed into clubs to compete in the growing of "husking corn" in each inspectorate, and finally in a provincial competition.

The home gardens are of considerable value to the interested teacher. They furnish a splendid opportunity for visiting the homes socially, and reaching the parents as no other excuse would do so successfully. They provide the teacher a means of impressing facts taught at school, correcting errors, suggesting improvements, instilling higher ideals of taste, encouraging original and independent experiments.

The teacher that does not follow up gardens at school with those at home, fails to realize the purpose of the work and loses more than half the real pleasure and profit derived from it.

#### CLASS ROOM MATERIAL

The school garden furnishes the concrete material for the following:—

*Arithmetic*:—Number of plots in a certain area, allowing for walks; number of ounces of seed for each plot at a certain rate per acre; yield per acre based upon the number of pounds per plot.

*Elementary Geometry*:—Planning

the plots in various sizes and shapes on paper and drawing to a scale.

*Drawing and Colourwork*:—Concrete specimens are readily obtainable at most seasons of the year.

*Composition*:—Excellent practice may be obtained in writing descriptions and keeping records.

*Farm Bookkeeping*:—Children may keep records of various expenditures and receipts in connection with their plots and hence learn the principles of keeping crop records, stock records, etc.

*Literature*:—Interesting supplementary reading may be obtained in bulletins, farm journals, etc.

*Geography*:—Maps of the gardens are made, of the school ground, the village, township, county and province. Study of the industries and products of our own locality increases the interest in the study of such for other countries.

*Manual Training*:—The making of window-boxes, hot-beds, flats, pegs, markers, etc., greatly increases the interest in the use of the common tools.

*Botany*:—Abundant material may be had during the spring and autumn, and also during the winter, by gathering and preserving such as will be required.

*General Nature Study*:—Concrete specimens may be had for the study of plants, birds, insects, wild animals, etc., and all in their relation to agriculture.

*Elementary Physics*:—Valuable lessons may be learned in mechanics, heat, light, moisture, each in relation to the practical affairs of life.



## BRITISH COLUMBIA

BY J. W. GIBSON, M.A., DIRECTOR ELEMENTARY AGRICULTURAL EDUCATION

SOME one has called the school garden the out-of-doors laboratory of the school, by which we would understand that it is a place for doing experimental work, making observations and recording results. Gardening is to the boys and girls of public school age largely experimental, and this is one of the reasons why they are so much interested in it; moreover, the knowledge gained in this way, at first hand and as the result of the pupils' work and observation, seems to be so much more real to them than that which they gain from reading and class room interpretation, which too often is the teacher's interpretation for the credulous pupils. But we would do well to keep in mind that it is not so much the facts acquired by the child, whether by his own discovery or from reading, that are important but rather the relationship of facts, that is, interpretation. This latter and more important process of interpretation is the result of reflection following on observation. The class room is the best place for the completion of garden lessons. The teacher directs the processes leading to such understanding by recalling the observations made by the different pupils in the class (oral language work for the pupils), and by good questioning stimulating reflection, thus leading the pupils to arrive at their own conclusions, or else revealing to them the need of making further observation. These class room conversations or discussions (I hesitate to use the term "lessons" because of certain unhallowed memories which the term recalls), are or can be made as interesting to the class as were their previous observations in the garden. There is a lot of truth in the remark made by some one who

understood children and who also understood teaching, to the effect that "a child delights in the discovery of a new relationship as much as in the discovery of a new object." The class room then is the place where the "adjourned business meeting" is held, where the reports of committees of investigation are presented, accepted, amended in committee of the whole or rejected, conclusions arrived at and resolutions finally passed.

Then again the class room discussion of plans and possibilities helps to give the pupils a purpose and point of view which aids them "to get somewhere" in the work which they decide to undertake. It affords the introduction and perchance the invocation as it also pronounces the benediction on the part performed in the garden.

Space will not permit of even the briefest consideration of how other school subjects, such as reading, spelling, composition, nature study, geography, arithmetic, drawing and all the rest, can with great advantage be correlated with school gardening. The garden and experiences in it become the great centre of reality for the child. These various subjects merely result from the different types of reaction and expression of the child mind. Herein these formal subjects find a place and application. They are as the "tools" that the child has to learn to use in fashioning the "raw materials" which he daily and hourly acquires through experience or sense perception, and each would be useless without the other. The garden stands for child experience and the class room has stood too much for "subjects" and formal discipline. Let us bring them together.



# CARE OF SCHOOL GARDENS DURING SUMMER VACATION

## PRINCE EDWARD ISLAND

BY R. H. CAMPBELL, SUPERINTENDENT OF EDUCATION

**I**N Prince Edward Island we do not anticipate very much trouble in providing for the care of school gardens during the summer vacation. In our rural schools the summer vacation is comparatively short. These schools will close June 30th and re-open August 9th. Teachers who start school gardens will be held responsible for their care. If the teacher is not prepared to assume the responsibility of making such arrangements as will provide for the care of the garden during July and the first few days in August she is advised not to start a garden at all. It is felt that, if the school garden has been properly conducted, interest among pupils and parents will be sufficiently great to make such

arrangements easily possible. The teacher is paid a bonus for a well-kept school garden properly used in the instruction of the pupils, but the bonus is not payable till August, when the Inspector's final report on the condition of the garden is received. We have ten inspectors or one for every group of 48 schools. We expect this summer to have about one hundred school gardens in operation or about ten to each inspector. During the summer vacation each inspector will visit all the gardens in his inspectorate, and will see that the arrangements for their care, previously made by the teacher, are being carried out, or should the need arise will make such other arrangements as to him may seem necessary.

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## NEW BRUNSWICK

BY R. P. STEEVES, M.A., DIRECTOR OF ELEMENTARY AGRICULTURAL EDUCATION

**T**HE school garden represents in a large degree the attitude of the school toward outdoor instruction and community life problems. It is also the visible expression of the estimation of the people of the district of the value of education to increase productive industry. It stands for that side of education that dignifies manual labour under the direction of trained intelligence and a knowledge of scientific principles. It indicates that the people realize that there is a clear relationship between the instruction the schools afford and the improvement and development of local conditions,

between what the children do at school and what they do in after life for the social and economic prosperity of the community.

The school property is the only possession in which every resident of the district has a part. If it be of value every resident therefore should have an interest in its upkeep. In concrete form its appearance and condition voice public opinion. The school premises should be the pride of the community, a place where residents will be sure to take visiting friends. Where this is the case, there will be no two opinions about school ground conditions, their influence in



the neighbourhood, or the people's appreciation of the sort of education that makes the inhabitants prosperous, contented and happy.

#### SCHOOL GARDENS AN ATTRACTION

School grounds containing a well kept school garden will always be found more attractive, and, in all cases, other things being equal, such schools give better value to the community, a better education to the children, who have greater interest in their work.

That during the summer vacation the school property should have a dilapidated, forsaken appearance is no credit to any community. It tends to make the young people lose interest in their surroundings. At a time when all nature is looking best, neglect and disorder at the spot that stands for local intelligence cannot but give a downward incline to thought and action among the younger portion of the population.

The idea is, therefore, that the school grounds should be a point around which the thought and effort of all residents should centre, and that here, during the school vacation, from time to time on Saturday afternoons, or other convenient time, for social enjoyment, for community improvement, the people should assemble with the pupils of the school. On the principle that "many hands make light work," a short time would suffice to put the garden and the entire school ground in good shape, mow the lawn, clean the walks and destroy weeds about the fence. The remainder of the time would be given to games and contests and social intercourse.

In many of our country sections to their great advantage Women's Institutes flourish. I feel sure the members in their districts would heartily co-operate in efforts of this character. Among the many parts

the evening repast would be not the least entertaining. The ladies would gladly assume charge of such work. To assemble at four o'clock, spend the first hour and a half in labour, have the evening meal and spend remaining time until eight o'clock in games, might be the programme. Children, young people and heads of families all could participate with individual pleasure and profit.

Such a course of action would cause that the school garden need not be handed over to a paid caretaker, it would be a community investment for instruction and general improvement and pleasure. Public sentiment would be behind it. No one would be the poorer, in fact life in such a place would be worth more.

#### MAGNIFY COMMUNITY LIFE

The more the pupil can be encouraged to keep in personal contact during vacation with his school garden plot, the more the people, parents, ratepayers and young people, can be induced to co-operate, the stronger the influence that will be exerted on the youth to magnify community life. People whose community life has been happy, bright and attractive in youth, and who have learned the secret of getting intellectual and moral values through their physical and social activities, will never in maturity lose the attachment to that locality or interest in its pursuits.

This is a direct call to teachers and pupils, to school trustees, to ratepayers in school meeting assembled, to unite to make the school a paying investment for the community. The time needed will bring its own reward. Four hours spent out of every two weeks during July and August, as indicated in the foregoing, will pay the best interest in uplifting life in rural communities.



## QUEBEC

BY JEAN-CHARLES MAGNAN, OFFICIAL AGRICULTURIST

THE care and maintenance of the school gardens in the province of Quebec do not give much trouble, particularly in the educational institutions which are managed by brothers or nuns. When the school year is over, that is, towards the end of June, the teacher who has supervision of the school garden, calls the pupils together and gives them the necessary instructions. The children must attend to the garden during the summer vacation at regular hours appointed by the school authorities. For instance, once or twice during the week, they visit their garden, accompanied by a guardian. They bring their tools, or use the tools belonging to the schools, when the trustees are thoughtful enough to buy same for the pupils.

Then the scholars spend an hour or two in the school garden, hoeing, cultivating, watering, etc. Some of them transplant vegetables and shrubs, others prune tomato plants or fruit bushes that have been given to their care by the teacher. All of them fight the insect pests and weeds. When their work is done, the children are called together by the teacher, and they make a record of their work and observations in an agricultural copy-book prepared for their special use, entitled, "Diary of My Garden."

In small schools, which are far away from the village, it is difficult to have the children meet once or twice a week, as some of them live a mile or two from the school. Very

often, too, the teacher leaves the school to spend the vacation with her family. In this case the children harvest their products at the end of the school year. These products consist of early vegetables, such as radishes, carrots and lettuce. They are not very big, but they are the result of their work.

However, in some places the teachers spend the summer in the school, or in the neighbourhood of the school. Then, an excursion to the garden by the pupils can be easily arranged. But the teacher must appoint the hour and the day and she must accompany the pupils herself at each visit.

Lastly, although the teacher may have to leave the school for some reason during the vacation, she can arrange for the garden to be cared for, by organizing in June, with the help of the pupils and of the board of trustees, a club of children-gardeners.

One of the school trustees is requested by the teacher to act as patron of the club. He accompanies the children to the school once a week, at an hour appointed by an executive committee of the pupils and approved by him. This method is practical when the school is near an inhabited house, the occupants of which agree to watch over the garden and prevent strangers from trespassing. It is better, however, in the interest of pupils, to appoint a farmer as patron of the club.



## ONTARIO

BY PROF. S. B. MCCREADY, B.S.A., FORMERLY DIRECTOR OF ELEMENTARY AGRICULTURAL EDUCATION

**H**ARM RESULTING FROM NEGLECTED GARDENS. — For Ontario school gardens at rural and village schools, it is urged that their summer holiday care be one of the very first considerations. In planning for the garden, teachers and trustees are warned not to make a commencement unless they are certain that the garden will not be neglected. Teachers who expect to be leaving their school at the end of June are advised not to commence a garden unless they are sure that sentiment and organization in the community will carry it through successfully. Where a garden has been carried on in previous years, and cannot be expected to continue successfully, it is advised that the ground be put into good shape and seeded down. Neglected school gardens are a menace to the cause of agricultural education. They retard real progress. It is better not to commence a garden at all in most cases than to demonstrate only a failure. One year's failure will ordinarily be more convincing of the uselessness of school gardening as an educational enterprise than several years of successful gardening will be convincing of their usefulness.

**PLAN A YEAR AHEAD.**—Where a garden is to be undertaken for the first time the plans for its preparation and care should be made before autumn passes. The best security for good care will be to arouse community interest in the garden. The people must be made to understand what the garden stands for in *terms* of education of their children as well as in terms of community "getting-together." The garden must be made *their* garden; it should not be

merely the teacher's garden in which they acquiesce for the sake of keeping peace. The people should as far as possible plan it themselves. They should be represented personally in the garden experiments and demonstrations. The trustees should have a "trustees' experiment." The local branch of the Women's Institute should be represented in some part of the flower growing that is to be done to beautify the school. Some of the ex-pupils should be enlisted for some of the work. In fact an ideal school garden will be for the education in agriculture of the whole community, and, more than that, it should be a training ground for the development of the "co-operative spirit," in which lies the best hopes for our needed rural reconstruction.

**A COMMUNITY'S SCHOOL GARDENING.**—With the foundation securely laid in the general unselfish, active interest of the people of the community, plans for the summer care of the garden can give little anxiety. It is only a matter of good organizing. Everybody will be helping. The trustees will do their share. The mothers' committee will do their share. The ex-pupils will be strong supporters and protectors. The School Progress club will oversee the pupils' work. The school will be alive and a thing of beauty all summer, even if the teacher cannot be on hand to join in the many good times her people have had at their school. When she comes back, she will find that her community still holds together round the school garden. A simple little school fair in September will be the fitting climax to the community-building and agricultural-education enterprise.



## MANITOBA

BY H. W. WATSON, M.A., DIRECTOR OF ELEMENTARY AGRICULTURAL EDUCATION

THE proper care of the school garden during the summer vacation is a real problem and one that gives many teachers considerable worry. Some teachers report that during the holidays the weeds were allowed to grow to such an extent that the trustees took the mower and cut down everything that came in the way. It was easier to drive the mower than to use the hoe for an hour or two. Other teachers report that the gates were opened—or the fence broken down—and stock was deliberately driven in to eat down anything and everything that came in its way.

Several teachers report that vegetables and even grains were stolen from the school plots, previous to being harvested, by grown-ups not connected with the school. Such conditions are certainly very discouraging to an energetic teacher and interested pupils. However, if the garden be properly prepared, planted, weeded, thinned and cultivated until vacation begins, it will have taught many valuable lessons; and the conscientious teacher should not be discouraged even if the work ends there.

Still, gardening is a whole summer's work and should be made of educational value until the various crops are harvested, reckoned up, disposed of, the profits calculated and reports made thereon. To accomplish its best results the school garden should be kept in proper condition during the vacation until harvest time, and hundreds of school gardens throughout Manitoba were kept in such condition during the year.

## ESSENTIALS TO SUCCESS

"Where there is a will there is a way." The wise and thoughtful teacher who has a desire to preserve the good appearance of a school garden will surely find a "way."

Some teachers, it is hoped they are few, intend leaving the school, or hope to be able to leave, at vacation, and thus take very little interest in the garden and create less interest in the minds of the children. However, the faithful teacher richly deserves her vacation and should be freed from any worry regarding the dangers that may befall the garden plots during her absence.

The garden should be considered by children and parents an important part of the educational plant—the outside laboratory. The plots are the property of the children, who should be taught to assume the responsibility for their care and preservation.

The degree of interest created in the children by the teacher will determine the amount of care given the plots during vacation. Agriculture and horticulture should be taught systematically throughout the entire year, but special discussions regarding the school garden should be held during March and April. By the first of May everything should be in readiness for the children to put into execution the plans of the preceding months. After the somewhat tiresome work of preparing the soil and carefully planting the seed, the real interest should begin as the various plants in turn begin to make their appearance. Very soon each morning's observations will create a fresh interest in the garden; at every turn the young gardener will experience a new thrill of inspiration.

All work should be done in due season, so that at vacation time the plants will be well advanced, entirely free from weeds, thinned out when necessary and properly cultivated. An interest may thus be created that, if only directed wisely, will remain in the minds of most pupils, who will solve the "weed problem" during vacation.



## METHODS EMPLOYED TO SOLVE THE PROBLEM

Many children regularly visit their plots during the vacation and keep them in condition. Some are driven by their parents, who also become interested, and at their regular visits to the village store, or post office, make trips to the school plots as well.

Trustees of many schools meet on Saturday afternoons and round up the village children to accompany them to the school grounds and perform the necessary weeding, etc. The children's plots (of many of these schools), furnish sufficient flowers for the Sunday services throughout the summer.

A janitor of a village school, who is generally hired by the year and employs his time during vacation in cleaning and repairing the school, should be interested in the grounds as well and act as a leader of the children. In some schools, committees are appointed for each week of the vacation and each committee, in turn, is held responsible. This plan works well in town schools

where many children go camping for part of the time.

A municipal system of government may be profitably organized in connection with the school plot, with a reeve, alderman, road-inspector, weed-inspector, etc.

## INCENTIVES TO SUSTAIN INTEREST

Competitions and exhibitions, both in rural localities and in towns, have worked wonders in creating interest in improved agriculture and horticulture. They should be of equal, or greater, stimulus to children; in fact a little money will extend much farther, and produce more marked results, when spent on children than on their parents.

Such competitions in school and home garden work have solved the "weed problem" in hundreds of districts. The plots are judged at the end of June, again at the end of August, and in addition to the marks obtained at these judgments, competitors must exhibit at the school fair the best that the plots produce.

## BRITISH COLUMBIA

BY J. W. GIBSON, M.A., DIRECTOR OF ELEMENTARY AGRICULTURAL EDUCATION

**T**HERE are those who regard the care and management of the school garden during the summer holidays so difficult as to make school gardening a rather doubtful undertaking. It will usually be found that such people take a similar view of any new movement which presents difficulties. They are not lazy people either, but merely given to "fearfulness" and needless apprehension. Anyone who has had experience in the organization and management of school gardens knows that the vacation problem does offer difficulties, and also knows that there are numerous ways of solving those difficulties.

Probably no two teachers will

solve these difficulties in exactly the same way, but almost any method adopted will have some bearing on the question of the child's responsibility for the care of the garden during the summer holiday season. Some have advocated the placing of all responsibility upon the pupils, whilst others have gone to the other extreme and have relieved the pupils of all responsibility. Neither is desirable, and as is frequently the case the middle course will be found best in actual practice. We would all like to think that the pupils who take part in the work would maintain sufficient interest in it throughout the season not to permit their garden plots to become unsightly through



lack of care and cultivation, but, unfortunately, many children are not able to give personal attention to their plots, and through no fault of their own. Some teachers have made absolute responsibility for summer care the chief condition on which the pupils might participate in school gardening. This usually ends in "breach of contract" for a large percentage of those taking part, and also places the work on a purely voluntary basis. Many of the most interested pupils, and certainly many of the most conscientious, are, by this means, debarred from taking part in school gardening, and it cannot be made the useful instrument in education that it should be, unless all the members of a class take part in it. On the other hand, no person will say that the pupils who make no provision for the proper care of their gardens during the holidays are entitled to the same credit in this subject for the year as those who give their gardens attention weekly. Some system of merit marks may be used with good effect and these should be based upon the following points: (1) Conditions of the garden on the closing of school in June; (2) Number of hours devoted to the care of the gardens during the holidays; (3) Quality of the work done; (4) The garden diary or weekly garden report for July and August. This diary will contain a record of observations made in the garden from week to week as well as of the work done. Special credits may be given for drawings made from Nature to illustrate the garden report. To carry out this plan successfully, it will be necessary at the closing of school in June to make two definite appointments. (1) A garden day (or half day) to be observed by the pupils weekly during the months of July and August; (2) A garden

manager or supervisor who will be in attendance at the garden on that day each week in succession. The school garden supervisor should be appointed by the School Board and should be a person who is not only entirely in sympathy with the work, but also conversant with the teacher's method of conducting it. For this reason the Board should consult with the teacher before making such appointment. The amount to be paid to such supervisor will depend upon the size of the garden and the number of pupils taking part in the work. It should not exceed \$3 per week and might be as low as \$1 per week. In a small garden, three hours weekly, preferably in the morning, will be quite sufficient to keep the garden in good condition. In larger gardens eight hours per week might be found necessary. One hour per week is usually sufficient for each pupil to spend in actual garden work. The writer has employed for this purpose both men and boys, and recommends a competent boy who has had experience in gardening. There is no reason why a young woman should not be appointed in some cases where the garden is not a large one. The supervisor registers the attendance of the pupils who come from week to week on gardening day and reports on the work done in each plot by number. He is put in charge of the school tools and is authorized to direct the pupils in the work which they are to do for the day. His consent must be obtained by pupils before removing flowers or vegetables from their plots during the summer. He will have charge of watering the garden when it is found necessary to do so and he will do the necessary work on the plots of absent pupils and record the same.



# WHY SCHOOL GARDENS FAIL

## NOVA SCOTIA

BY L. A. DEWOLFE, M.Sc., DIRECTOR OF RURAL SCIENCE SCHOOLS

**S**CHOOL gardens, I think, fail  
(1) Because the teacher lacks enthusiasm and the power of leadership with the pupils.

(2) Because she is not well-balanced; and lacks persuasive powers and leadership with trustees and parents.

(3) Because teachers in various departments of the same school fail to co-operate.

(4) The teacher's ignorance of gardening causes the children to lose confidence in her.

(5) The school grounds are often unsuitable, either on account of condition or in size.

(6) Loafers on the school grounds after school hours often do damage. Making the school ground a thoroughfare also causes trouble.

(7) Too much is attempted.

(8) The frequent change of teachers.

(9) "Who will do the work" is a puzzling question. Frequently the matter of ploughing is left to the voluntary efforts of some good-natured man instead of having the work done in a business-like way at the section's expense.

(10) Lack of care in summer vacation is, perhaps, the greatest drawback.

(11) Procrastination is fatal. Ploughing, ordering seeds, and making plans are often left until planting time. Hurriedly and poorly prepared ground will never result in a good garden.

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## QUEBEC

BY JEAN-CHARLES MAGNAN, OFFICIAL AGRICULTURIST, SAINT-CASIMIR, PORTNEUF

**T**HE importance and utility of the school garden are fairly well understood by the school teachers of our province; however, too many promising school gardens, which were well started, have been neglected and abandoned later on.

This is much to be regretted. What are the causes of such failures? In our opinion the causes hampering the school garden movement are the following:—

A. *The object of the school garden is not sufficiently understood.*

The teacher should know clearly the "why" and the "how" of the school garden if he or she wants to

achieve success. All teachers who desire to establish a school garden should first write to the Department of Agriculture for guidance and advice. The teacher must keep informed, if he wants this work to be really profitable to the pupils. The Department of Agriculture has for distribution a number of pamphlets and circulars on the establishment and care of the school garden.

B. *There is a lack of understanding and co-operation between school trustees and teachers.*

It is a fact that the teacher works alone. The school trustees do not understand that they can do a great



deal to help her. However, it is absolutely necessary that there should be good understanding between the two, otherwise the garden will not be successful. This is a weak point to which my attention has been particularly called this year during my visit to the school gardens. The school board should not forget that it has been established specially to supervise the teaching of the children of the parish, and to make sure that this teaching is given in accordance with the programme. Therefore, the teacher who desires to establish and maintain a school garden in her school should be supported and helped by the school board.

#### *C. Land poorly prepared.*

In some schools the garden is abandoned after the first year; this is particularly the case of a good many gardens which were not well enough prepared. It is impossible to secure products of good quality on land that has not been sufficiently worked and that has not received a sufficient quantity of manure. The land should be ploughed and harrowed; it should receive an application of farmyard manure and wood ashes. Chemical fertilizers may also be applied as a supplement to farmyard manure.

#### *D. Some school gardens are too large.*

Many teachers have lost heart because they undertook too much at first. I have seen school gardens 90 by 50 feet for schools which had only about fifteen pupils. The following year, the majority of these schools had given up their garden. When I would ask the reason for this, the teachers would invariably answer "Too much work." These teachers had made a mistake from the start. Let us always remember this principle:—The school garden must be proportionate to the school, to the number of the pupils and to the spare time of the teacher.

#### *E. The teachers change schools too often.*

Each year a large number of teachers leave school to work for another school board. In such cases too often the school garden is abandoned, as a new teacher is not always up in agricultural school work or does not care; this is to be regretted, and school trustees would help the movement very much by employing only qualified school teachers who would remain a long time in their school. From an educational point of view, the children would be the first to benefit by this move.

## SASKATCHEWAN

BY A. KENNEDY, M.A., INSPECTOR OF SCHOOLS, WEYBURN

**D**URING 1914 there was a marked increase in the number of school districts undertaking School Garden work. Much of this work has demonstrated its educational value and has been duly accorded its share of praise. Unfortunately, however, the results have not always been successful; in fact, teachers and pupils have had bitter disappointments and many discouragements. While some have had to admit defeat, one hesitates

to pronounce their work a failure, for often out of apparent defeat comes glorious victory; in many cases the work of 1915 has determined whether the experience was a success. There are so many opportunities for direct interest and inspiration, as well as for indirect influence, through the various subjects of the course of study, that one has difficulty in deciding when failure may be admitted.



## CAUSES OF FAILURE

Among the causes for disappointment and discouragement, if not failure, are the undertaking of too much work, the lack of fencing, the difficulty of getting water, destruction of the plants by gophers, frost, etc., neglect during vacation and the changing of teachers. Some of these difficulties are peculiar to the prairie and western conditions. They are, however, also difficulties with which the farmer has to contend so that the boy, the future-citizen, may have an opportunity of experimenting on a smaller scale.

Many enthusiastic teachers make the mistake of undertaking a large garden, or attempting to cover a wide selection of plants, and fail to estimate accurately the amount of work required in the later cultivation in the limited time at the disposal of the pupils. Prairie children who live three or four miles from school, and often have to walk to and from school, cannot be expected to spend any considerable time in garden work outside of school hours. The result is too often a crop of vegetables allowed to go to seed, with weeds producing an even larger crop of seed. The educational value of such an experience is negative; thrift should be one of the products of garden work.

Prairie farms are seldom fenced and the school grounds also suffer similarly. While cattle are not permitted to run at large, school gardens have suffered destruction from chance visits of stray animals. There are other ways in which a fence would often afford protection to the plots on which the children have expended patient care.

## WATER FOR THE PLANTS

The question of supplying the children with suitable drinking-water has given a great deal of trouble and has not yet been satisfactorily solved. It can be readily appreciated then, that the problem of

providing sufficient water for the plants, offers no less difficulty. Again, this is a farmer's problem which presents itself for solution at several stages in the crop season. It is only necessary to note the attention devoted to questions of irrigation and dry-farming to understand something of the magnitude of this problem. Of course a partial solution is often found in arranging for a cistern, dug-outs, etc., but even then the difficulty is not wholly overcome.

On the prairie the gopher is ever with us, despite energetic attempts to eradicate the pest. Many and many a time I have been told by teacher or pupil of the destruction of the garden by the visits of these creatures. During July and August hailstorms by day, and frost by night cause many disappointments, and against these there is little defence. However, the young citizen receives a lesson that may serve him in good stead in later life.

The vacation problem is not usually so acute in the rural districts, as many of the schools decide upon the short vacation in summer, with the longer vacation in winter. The urban districts can usually make arrangements to have the garden cared for during the vacation.

## CHIEF FACTOR IN FAILURE

Probably the factor that contributes most to the failure of school garden work is the changing of teachers. Unfortunately, there are three conditions, perhaps, peculiar to the prairie country, which account for the changing of the teachers so frequently; the period of operation of many of the rural districts does not greatly exceed 140 days per year; boards of trustees do not give sufficient attention to training and experience in deciding the amount of salary to be paid, many teachers for whom provisional certificates have to be secured being offered the same salary as teachers with second class certificates; there is often a lack of



encouragement and support as between trustees and young teachers, creating an atmosphere that does not tend to make for permanency in the position. The new teacher often misses excellent opportunities of establishing a permanency by neglecting to complete the work undertaken and conducted up to the vacation.

The increase in the number of class-rooms having flowering plants and bulbs is most gratifying; this phase of school garden work might well be extended as there are fewer difficulties to be met, and the transformation of the class-room amply repays all the time and trouble given to the care and cultivation of the plants.

### BRITISH COLUMBIA

BY J. W. GIBSON, M.A., DIRECTOR OF ELEMENTARY AGRICULTURAL EDUCATION

**M**OST people judge of the success of school gardens by the volume and excellence of the crops produced. Some teachers and school inspectors and most school trustees regard success from this standpoint. In so far as these material results are the result of painstaking care and intelligent application on the part of the pupils just so far may we look upon them as evidences of success and no farther. In the pages of THE AGRICULTURAL GAZETTE OF CANADA this question of the truly successful garden has been several times discussed. It is quite possible to have a garden at school which would be a great failure from the standpoint of the average market gardener but a great success from the standpoint of an earnest teacher, whose pupils have had opened up to them through their work and study in the school garden new and wholesome interests, which are destined to lead them out into a larger life—a life full of thoughtful, purposeful activity, in which they will come to know and appreciate the beauties as well as the utilities about them.

#### RESPONSIBILITY OF THE TEACHER

On the teacher, more than on anyone or anything else, depends the success or failure of the school garden. The teacher may fail through lack of interest or through

lack of a real understanding of the meaning of the work. More often, however, the teacher's failure is due to inadequate preparation for the work, and consequently to mistakes, bad management and bad methods of conducting the work. Experience in gardening is, of course, valuable, but the management of classes in the garden and the conducting of profitable lessons in both garden and class-room are things that an expert gardener might utterly fail in. How to make the most of the school garden, not for the growing of carrots and cabbages, as some might think, but as a part of the equipment of the school for the purpose of training and educating boys and girls, is something that most teachers must yet learn.

#### INFLUENCE OF SCHOOL WORK

Many teachers, not all, complain of pressure of work and the preparing of pupils for examinations and look upon the time spent in the school garden as so much time and energy expended which might have been used in "getting up" the work in the other school subjects. All such teachers naturally regard school gardening as so much "extra" work. No one who knows will say that school gardening does not mean extra work. Most teachers, however, will tell you that their pupils as well as themselves have found



the garden work both interesting and recreative. The great problem then must be concerned with turning school garden interest and daily garden experience to account in the teaching of the formal subjects of the curriculum—arithmetic, reading, writing, composition, drawing, etc. Some teachers are finding this quite possible, and are no longer complaining of the overcrowded curriculum.

In the next place school gardening will meet with variable success or failure so long as teachers change from school to school as frequently as at present. This great disadvantage will be minimized, of course, when all teachers are specially trained in the work. With the establishing of the teacher's residence and the increase of the percentage of male teachers in our schools something approaching permanency will result.

#### UNFAVOURABLE CONDITIONS

Lack of sympathy and co-operation on the part of trustees and rate-payers has in some cases prevented the establishing of school gardens, or has led to the abandoning of them. This opposition has almost passed away and we are glad to note that instead we now not infrequently find trustees and parents urging that school gardening and other agricultural studies be inaugurated in the schools of their districts. Only those people who do not rightly understand the meaning and purpose of

the school garden will be found opposing it.

Some attempts at school gardening have failed for the simple reason that the conditions for gardening were unfavourable in the extreme. At the same time, people have been led to wonder at the excellent gardens that have been established where such forbidding things as ash heaps, tin cans and burdocks held sway. Indeed, not the least value arising from school gardening is the experience gained in cultivating and bringing under control most refractory garden sites. Nevertheless, teachers and school boards would be wise in always selecting a piece of land for school gardening which in season can be made productive. In some cases, the labour and expense entailed in making and maintaining a garden have been very great, but, speaking generally, expense is not a frequent cause of failure in school gardening.

Finally, the long summer vacation offers some difficulty. A garden neglected throughout the months of July and August is a great disappointment. Such failure, however, is merely an evidence of bad management and of carelessness on the part of everyone concerned—teachers, pupils and trustees. Neglect of the school garden and school ground during the summer usually results from lack of interest and failure on the part of teachers and trustees to appreciate the real value of the work.



# THE PROPAGATION OF ORNAMENTAL PLANTS SUITABLE FOR SCHOOL SURROUNDINGS

BY F. E. BUCK, B.S.A., ASSISTANT TO DOMINION HORTICULTURIST

THE aim of the teacher is to make the country school a centre of useful influences, at least that is an aim which the rural school teacher each year finds more possible of realization. The school as an educational centre, a social and recreational centre, and a centre from which there shall spread the longing to have really creditable and beautiful rural homes, is not at all a visionary idea and is perhaps realizable for every rural school in the land.

The seed of this idea is already germinating and the resulting plant is bound to yield much valuable fruit to nourish the physical, social, and spiritual life of the nation.

In offering a suggestion with regard to the function which the rural school may fulfil, in connection with the delightful task of disseminating a greater love of the beautiful among its pupils and their parents, it is only natural to recall the handicaps which envelop some rural schools. Lack of any appreciation, on the part of parents and trustees, of the material and ethical value of beauty, lack of room around the school house, or a very shabby looking building, lack of funds and what not. But such things to the teacher with vision need not totally discourage. With every idea a beginning must be made, and where a beginning has been made already so much the better.

## AN AID TO RURAL BEAUTY

The subject of this paper "Propagation of Ornamental Plants," in many of its aspects is not new to the teacher, although it may be new to

many of the children. Whether it is so or not, it may be used as the basis for either starting or helping forward the work of creating more rural beauty, with the school as the centre of the movement.

The first thing to reflect on is how to start such work in a practicable, simple way and with some hope of success, especially if the task of obtaining funds for such work is difficult. The best advice that can be given on this point is to say that, if the school grounds have received that preliminary attention in the matter of grading and levelling, etc., and if funds are procurable for the purpose, it will be wise to purchase a few hardy shrubs and ornamental trees from a reliable nursery company and plant them out at once. But supposing this is accomplished already and that the school grounds are laid out to play-ground, school gardens, etc., or, supposing the school grounds in any condition you please, there is still a great opportunity for the rural school to become a strong influence in disseminating true beauty and fragrance throughout many rural communities, and this by means of a thoroughly workable and simple plan. More than twenty-five years ago the Central Farm at Ottawa began the work of testing ornamental plants to obtain suitable varieties for the different conditions of our Canadian climate. There soon followed the work of distributing these plants to branch farms in different parts of the country. The results to-day are that there are numbers of beautiful grounds, driveways, parks, public institutions, etc., which owe



their beauty to plants thus disseminated; many were raised from seed, cuttings, etc., at the Central Farm, Ottawa. What the Central Farm has been to the Dominion at large, the rural school may become to the community it serves.

#### THE METHOD

The suggestion is then, that it would be a practicable and quite simple scheme for the teacher of each rural school to start a small school nursery. This nursery might consist of a twelve foot strip, or less, at

pupils so that they may take home a few shrubs such as lilac, honeysuckle, Japanese rose, etc., to plant around their own homes.

#### PREPARATION OF THE SEED BED

The preparation of a suitable seed bed in which the seeds of shrubs and perennial flowers may be sown will involve about a day's careful work, not more. The beds as prepared at Ottawa for this purpose are very simple affairs. The beds are made four feet wide and any length, six-inch boards are used, and these are



BOX ELDER (MANITOBA MAPLE) SEEDLINGS AT THE EXPERIMENTAL STATION, SCOTT, SASK.

Seed Sown May 25th, Photo Taken August 20th

one end of the school grounds. It must be prepared to receive the plants which may be raised from seed and cuttings in a still smaller seed bed. The seed bed then is the first thing to be started. And what shall be started in it? Only the seed of those plants which are hardy, beautiful, and suitable—suitable for two purposes: First, to plant around the school grounds in those positions where trees, hedges, shrubs and flowers will help to beautify the school house and grounds, and, secondly, to distribute amongst the

kept in position by stakes driven into the ground every few feet to which the boards are nailed. Inside the area enclosed by the boards the soil is thoroughly prepared, all coarse stones, weeds, etc., are taken out, and, finally, as a top-dressing, a layer of several inches of good quality, fine sandy loam is applied. This is in order that the seeds may have every chance to germinate properly. The only other thing that is necessary is something with which to shade the young plants as they are coming up. For this purpose any sort of coarse

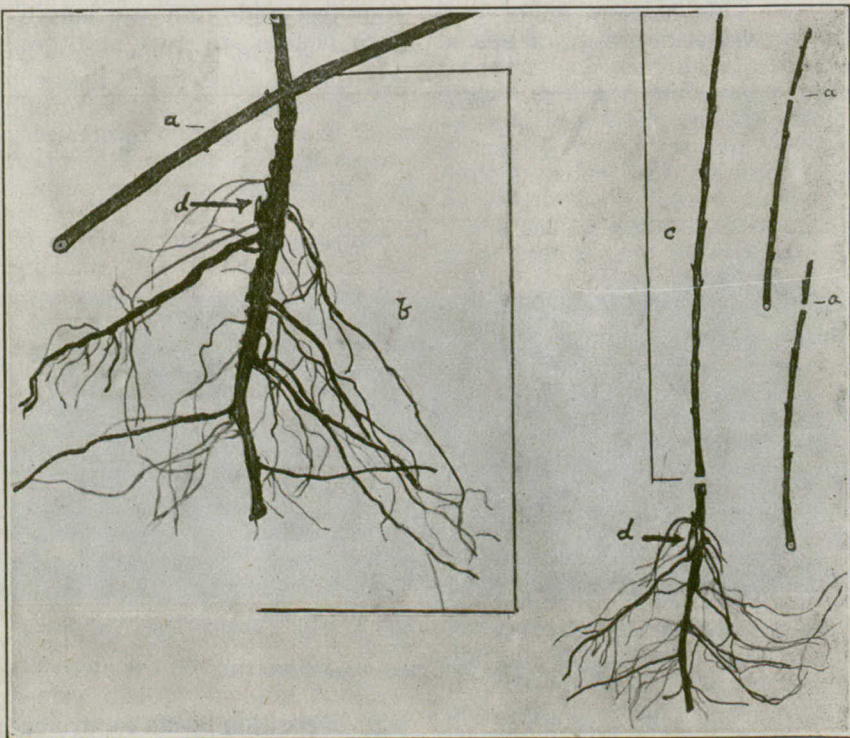


canvas may be nailed to a frame and used, or laths nailed together to form a lattice form equally useful shading material. In fact many methods of shading may be used with equal success.

#### SOWING THE SEED

In sowing the seed little trenches are made crossways of the bed. That is, the rows are each four feet long, and these trenches, which are made

be slightly firmed after the seed has been sown, and if at all dry it must be thoroughly watered. By sowing the seed early in the spring, when it is best to sow it, the work of watering this seed bed will be very light, as the spring rains are generally sufficient to start the seed into growth. Later on in the summer when the sun is hot, water should be given every dry day, and the shade mentioned in the foregoing, should be used



THE TRANSFORMATION OF A CURRANT CUTTING

a. Cuttings 12 inches in length, inserted in soil up to mark (a).  
b. Roots formed the following summer.

c. Top-growth made during summer.  
d. Buds which will form additional shoots like (c) the second summer.

by placing a four foot board on its edge and pressing it firmly into the soil, are made about six inches apart and one or two inches deep according to the size of the seed to be sown. Covering the seed is a simple matter, and may be done with the fingers or with the board which was used for making the trench. The soil should

during the hottest days.

In the Prairie Provinces where the summers are hot and dry, it is best to sow the seed in the autumn just before the ground freezes up. It is best to use, where possible, seed gathered during the same summer. Seed from trees like the Ash and Manitoba Maple is very easily



collected. These trees are particularly useful on the prairies and do well there.

#### TRANSPLANTING THE SEEDLINGS TO THE NURSERY

In the early autumn those plants which have made good growth during the summer may be dug up and planted out into the nursery. In fact some of the perennial flowers like Hollyhocks, Blanket flowers, Delphiniums, etc., will be big enough for the pupils to take home and plant around their homes that autumn. The following year they will give fine bloom and all perennial flowers will live for many years and give quantities of bloom each year. The shrubs, however, should not be distributed until they have made about two years growth in the school nursery. Then in the autumn or early spring they might be all dug up, some planted to assigned places around the school grounds, and the others carefully distributed to the pupils or their parents. Hundreds of beautiful shrubs could thus be disseminated throughout the community.

The nursery strip, which is reserved to receive the plants as they are taken up from the seed bed, should be ploughed, or dug, in the spring and should be kept well cultivated and free from weeds during the summer. It will then be in good condition to receive the young plants in the autumn. The nursery rows are made about three feet apart and the plants are put about twelve to eighteen inches apart in the rows. The nursery strip must be kept cultivated and free from weeds while the plants are growing. It should also be protected, if necessary, from being tramped on by the children. The children could be trained, no doubt, to take equal interest in their school seed-bed and nursery as they do in their school gardens, and they should be carefully instructed in the simple art of transplanting flowering shrubs.

#### WHAT TO SOW AND WHERE TO GET THE SEED

Seed of only those shrubs and flowers which are beautiful, hardy and thrifty should be sown. In some localities the seed or cuttings of several native plants might be used to splendid advantage. The climbing Bitter-sweet, (*Celastrus scandens*) grows wild in many parts of Canada. It makes one of the very best hardy vines for verandahs and porches. It is easily raised from seed. The self-fastening variety of the Virginian Creeper which is the very best vine for covering the house is also found wild in many parts. It is easily raised from cuttings and the many thousands which have been sent out from the Central Farm have all been raised that way. The cuttings are taken from plants growing on the buildings around the Farm. They are taken just after the leaves fall in the autumn. Wood not quite as thick as a lead pencil is selected and cut into lengths a foot long. These cuttings are placed base downward in sand for the winter, during which period a callous forms over the cut ends. In the spring they are planted out. They must be buried for about three quarters their length. Roots will then form, and, later on, from the buds left above the ground, leaves will shoot out. Cuttings may be made from some other suitable plants, as given in the following list, in a similar manner, although in most cases where seed can be obtained it should be used. The seed of some shrubs which has a very thick seed-coat will not germinate until it has been left in the ground for one whole year, or longer, and, therefore, the seed-bed should not be dug up too hastily.

The Central Farm each year makes, for experimental purposes, a small distribution of such seed as is collected on the Farm grounds. Those teachers who wish to start work similar to that herewith



suggested, and who make timely application for it, would be welcome to such seed as could be spared from the Farm collection. The quantity of such seed is, of course, limited.

Some of the trees, shrubs, and perennial flowers which could be most easily raised from seed, and which are perhaps most suitable for school and home surroundings, are as follows:

#### FROM SEED.

##### 1. Trees:—

Sugar Maple.  
White Spruce.  
Green Ash.  
Norway Maple.  
Scotch Pine.  
Manitoba Maple (for the Prairie Provinces).  
Basswood.  
Arbor-Vitæ or Cedar.

##### 2. Small Trees:—

Siberian Pea Tree.  
Mountain Ash.  
Japanese Tree Lilac.

##### 3. Shrubs:—

Japanese Barberry.  
Japanese Rose.  
Bush Honeysuckles.  
Wayfaring Tree.  
Common Lilacs.  
Snowberry.

##### 4. Perennial Flowers:—

Columbines.  
Shasta Daisy.  
Blanket Flowers.

Phlox.  
Hollyhocks.  
Pinks.  
Bell-flowers.  
Sunflowers.  
Foxgloves.  
Oriental Poppies.  
Larkspurs.  
Coreopsis.

#### FROM CUTTINGS.

##### 5. Trees:—

Poplars.  
Willows.  
Arbor Vitæ or Cedar.

##### 6. Shrubs:—

Van Houtte's Spiræa.  
Honeysuckles.  
Flowering Currant.  
Privet.  
Mock Orange.  
Dogwoods.

##### 7. Self-fastening Virginia Creeper.

NOTE:—On account of the hardness and thickness of the seed coat of such seeds as the Basswood, and sometimes the Japanese Rose, it has been found that the seed when sown in the autumn, soon after ripening, will not germinate in the spring with the seeds of other plants. It remains dormant in the ground for a year and a half. Most of it will germinate, however, in the second spring.

Cuttings of the willows and poplars will root in any good moist soil, but those of the cedars and most of the shrubs will succeed best in a moist, sandy soil. All cuttings should be kept shaded.

Cuttings of currants, both the red and black varieties, will root very easily and the illustration shows how a cutting transforms into a plant in one year.



# A SCHOOL GARDEN MUNICIPALITY

## WEYBURN, SASKATCHEWAN

BY A. KENNEDY, M.A., INSPECTOR OF SCHOOLS, WEYBURN, SASK.

THE school garden at Souris school, Weyburn, will rank as one of the best school gardens operated in America during 1914. Under the direction of the Principal, Mr. Stanley Phillips, a considerable plot of ground was ploughed in the spring of 1914 and afterwards fenced. At that time pupils of Grades one to five only were accommodated in the four class-rooms of this school. Under

being six feet apart, while those running East and West were twelve feet apart, thus actually representing the survey of the roads in the province. Each senior pupil fyled on and had charge of a double section, twelve feet by six feet, while each junior pupil fyled on and had charge of a section six feet square.

Implements and seeds were purchased by the Board for the use of the pupils, who were given con-



SCHOOL GARDENERS OF WEYBURN SCHOOL, SASKATCHEWAN

supervision of the teachers, these pupils surveyed the garden as a rural municipality. (In Saskatchewan a rural municipality is eighteen miles square, including nine townships, and is governed by a municipal council, including a reeve elected by the whole municipality and six councillors each elected by a division). Each section or square mile was represented by a plot six feet square. The roads were represented by paths two and three feet wide, those running North and South

siderable freedom in the matter of choice of vegetable and flower seeds and the arrangement of the individual plots. A portion of the garden was planted with trees, while another portion was planted with some seven hundred shrubs presented by the Provincial Landscape Architect. Along one side of the garden a community farm was operated, being planted with several kinds of grain and the larger vegetables.



## THE CIVIC PLAN OF MANAGEMENT

Not the least interesting and valuable feature is to be found in the fact that the garden was managed by a municipal council, elected by and from the pupils in the school. This council included a reeve twelve years old and six councillors, one of whom was a girl. Valuable lessons in Civics, Geography, Arithmetic, Language, Drawing, etc., were all made more interesting and vital by reason of the garden, while Nature Study and Elementary Agriculture assumed concrete and definite form. The interest not only of the children but also of the parents was sustained throughout the season. Many visitors from the city and neighbouring school districts, as well as from other parts of the province, expressed their appreciation of the undertaking. Dr. R. W. Wilson, Principal of the Normal School, Regina, and Hon. Walter Scott, Premier and Minister of Education, were pleased to visit the garden during the summer and manifested considerable interest in the undertaking, particularly in the application to the regular class-work, including a practical teaching of Civics.

Interested citizens provided \$64 for prizes awarded to the children for the best constant care of their plots.

The Council met only as necessity arose and transacted the business in regular fashion. Minutes of two meetings will suffice to indicate the nature of the business.

MINUTES OF COUNCIL IN CHARGE  
OF SCHOOL GARDEN

SOURIS SCHOOL, WEYBURN S. D. 512

The Council met in Room 4, at recess, all members being present, Reeve Beischel in the chair.

Kathleen Deans - Ormond Stewart:—That Henry Brown be appointed secretary-treasurer. Carried.

Stewart - Joe Hess:—That the following seed inspectors be appointed, Pearl Luck-singer, Eddie Kyle, Frank Wingert and Geo. Clement. Carried.

Albert Brown - Willis Burnside:—That the teachers of the staff be legal advisors to the Council. Carried.

Neil Gibson - Hess:—That the grant of money from the School Board be accepted, with thanks. Carried.

Burnside - Brown:—That meeting adjourn to meet at the call of the Reeve. Carried.

(Signed) ROY BEISCHEL, Reeve.

(Signed) HENRY BROWN, Secretary.

The second meeting of Council was held in Room 4, at recess, all members and officers being present, Reeve Beischel in the chair.

Stewart - Doane:—That Blue and White be adopted as the school colours, and that the School Board be requested to have the posts of the new fence surrounding the school garden painted in these colours. Carried.

A communication was read from Inspector Kennedy re prizes for the plots showing the best constant care during the season, together with a list of sixteen subscribers to a fund of \$64 for this purpose and recommending that Dr. R. M. Mitchell, M.L.A., chairman of the Board, Mr. P. E. Netheral, chairman of the Property Committee, and Mr. J. Marshall, M. A., principal of the High School, act as judges in this competition.

Brown - Burnside:—That this communication be received and filed and that the recommendations be adopted. Carried.

Mesz - Doane:—That the weed inspectors be instructed to see that the owners of plots proceed with the weeding of the plots and adjoining paths. Carried.

Gibson - Mesz:—That all strings be lifted and corner stakes firmly driven. Carried.

Doane - Stewart:—That the secretary procure and post a sign bearing "VISITORS WELCOME." Carried.

Burnside - Brown:—That meeting adjourn to meet at the call of the Reeve. Carried.

(Signed) ROY BEISCHEL, Reeve.

(Signed) HENRY BROWN, Secretary.



## QU'APPELLE, SASKATCHEWAN

QU'APPELLE High School had a successful students' parliament which centred itself upon the cultivation and management of the school flower and vegetable gardens. The parliament having five constituencies, divided the available land into five parts, each of which was divided into 12 lots. One of the lots was reserved for experiments in corn and potatoes. Each pupil was responsible for his special plot. Each grade had a choice of flowers and vegetables. Grade 1 for instance, seeded turnips, and Grade II beets and sweet peas. The intermediate classes had a choice of three from four varieties. Grade VIII cultivated tomatoes, cabbages and dahlias. The members of the parliament were given the privilege of plots in their own constituency row. The plots not taken were subdivided and given to the care of the higher public school grades. The parliament had its cabinet with a premier and various officers of state. The premier on the advice of his colleagues appointed judges who reported every two weeks. Score cards were provided on which 30 marks were allowed for general appearance, 15 for condition of cultivation, 30 for absence of weeds and 15 for abundance of growth. By this method constant attention was ensured. At the close of the school term the Minister of Agriculture advertised

for tenders for the care of the entire garden during the holiday months at a small salary. Several applicants appeared and being put in control were instructed to sell the lettuce and radishes, the proceeds being added to the school funds. Rain in the latter part of May brought the gardens along finely, but frost in June played havoc with the beans, corn and tomatoes, which however, were resown and came along well. Drought retarded the growth later on, but on the whole, according to Miss Virginia Longpre, the Secretary of State, from whose report these notes are taken, the garden was a success, and proved helpful in the study of agricultural and nature subjects.

Miss Thelma Craig, the Minister of Finance, submitted to the house the following statement for the year:

## RECEIPTS

Departmental grant.....	\$20.00
Sale of radishes.....	1.25
School garden sale.....	5.45
Proposed grant from trustee board.....	5.00
	<hr/>
	\$31.70

## EXPENDITURES

Weeding.....	\$ 5.25
Selling of radishes.....	.50
Advertising exhibit.....	2.00
One hundred copies of Progress.....	5.00
Prizes for vegetables.....	7.45
Constituency prize.....	11.50
	<hr/>
	\$31.70



## TORONTO, ONTARIO

THE Broadview Branch of the Young Men's Christian Association, Toronto, is unique among such associations in Canada in so far as it pays especial attention to gardening. Established fifteen years ago, in connection with the Broadview Boys' Institute, merged three years since into the Y.M.C.A.,



H. WM. KINGLERLY  
Boys' Secretary, Broadview Branch, Toronto Young  
Men's Christian Association

it is claimed for the Broadview Boy's Fall Fair that it is the largest of its kind in America. Whether this claim is definitely correct or not the prize list, of which six thousand copies are printed, is certainly a very comprehensive and pretentious document, comprising 52 pages with special covers and including 22 classes divided into 320 sections.

## SCOPE OF THE FAIR

The fair covers three days in the middle of September and as exhibits embraced vegetables, flowers, ponies,

dogs, rabbits, cavies, goats, and miscellaneous pets, pigeons, including magpies, poultry, natural history, amateur photography, drawings and paintings, industrial crafts (boats, sleds, carts, kennels, fretwork, basket work, printing, darning, model electrical apparatus, skies, snowshoes, toboggans and any other article the judges consider worthy), manual training creations, domestic science articles of food, penmanship, aeronautics (dirigible balloons, monoplanes, bi-planes, models of aeroplane or glider) and miscellaneous collections of boys' treasures, such as autographs, buttons, badges, coins, postcards, postage stamps, crests, prize tickets, medals, college and city colours and pennants, flags from gum, war trophies and other novelties and souvenirs. Prizes in connection with the fair are also given for oratory and literature, music, boy scout exercises, swimming and athletics. The special features of the three days covered by the fair are:

Thursday evening,—grand opening, oratorical contest.

Friday evening,—swimming competition.

Saturday afternoon,—scout demonstration and contest, athletic games, pony parade and races and dog jumping in athletic field.

Saturday evening,—band concert.

The following extra exhibits are also on view:

Red Cross exhibit; safety first; health exhibit; model boy's room and library; pocket testament booth; provincial government mine and vegetable exhibits; photo demonstration; graphic arts society exhibit; photographs of exploration (this year some original views of the South Pole expedition).

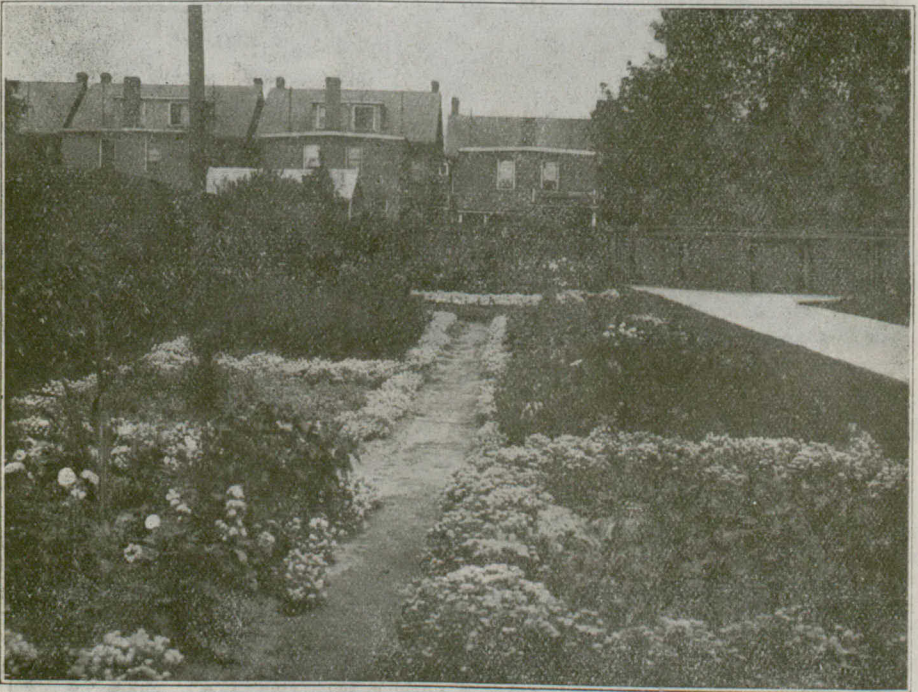
## CONDITIONS AND PRIZES

All exhibitors in the competitive classes must be boys under 18 years



of age. An entry fee of 10c. is charged for the first exhibit and 5c. for each subsequent exhibit. The admission fee is 25c. for adults and 10c. for children. Meals can be had on the grounds. Besides a large number of useful articles, of medals, cups, etc., five hundred dollars in cash are distributed in prizes. Cards and red, blue and yellow ribbons are also awarded.

met by the Y.M.C.A., by public subscription and from the boys' own fees. A number of business men subscribe to the prize list and give prizes for special exhibits. Until the last few years the Ontario government made an annual grant of \$75, but although the government exhibits minerals and vegetables the grant has been discontinued.



THE MUNICIPALITY IN BLOOM

#### MANAGEMENT AND SUPPORT

The rules provide that the boys must make their own entries and transact all their own business. In fact both what is called "The Garden City" and the fair are controlled, managed and arranged by the boys themselves, supervised by the Boys' Secretary of the Branch, Mr. H. W. Kingerley. The boys have an elected city council with board of control, various committees and Mr. Kingerley as mayor. The expenses are

#### A NATIONAL EXHIBITION

The only officials connected with "The Garden City" not appointed by the boys' council are three judges and an advisory board who are nominated by the governing board or management of the Y.M.C.A., but approved by the boys. Just as the Toronto exhibition has assumed the name of "Canadian National," so is the Broadview Boys' Fair termed "National Exhibition of Boys' Work." Meetings are held regularly





SECTION SHOWING CENTRE PARK



CO-OPERATIVE WORK, THE BOY GARDENERS HELPING EACH OTHER



every month and on special occasions, when addresses and lectures are delivered on gardening and kindred subjects. In this connection it should be mentioned that while the small charge of two cents a package is made for seeds they are generally donated by local seed firms. Experience has taught that what the boys pay for is a great deal more valued by them and less subject to waste than when freely distributed.

#### EXTENT OF THE PROPERTY

"The Garden City" which was founded in 1901 by Mr. C. J. Atkinson, now field secretary of Federated Boys' Clubs of America, is located at 275 Broadview Avenue, Toronto, and on three lines of street cars. From this fact, and considering the value of land in a large city, the statement will be appreciated that the property is somewhat limited in extent. Even at that it is divided into streets, parks, avenues and squares, with a circular floral park adorned with flag pole in the centre. There are two lots situated to the west of the playground, to the north of the spacious Y.M.C.A. building, and fronting on Broadview Avenue. One is 42 by 32 feet and the other 12 by 32 feet. These are surrounded by decorative flowers and subdivided into 47 squares or gardens 10 feet by 10 feet and 10 feet by 12 feet, tilled and cultivated by 50 boys ranging in age from 10 to 16. They are devoted mainly to vegetables, the boys, as the secretary says, being more appreciative of things eatable than things ornamental. Official inspection is made and progress re-

ported every month along with recommendations and criticisms.

#### RULES AND IMPLEMENT EXPENSES

Following are the rules and bill of expenses formulated and adopted by the council of boys, which is comprised of thirty directors or duly elected juvenile aldermen:—

#### BROADVIEW GARDEN CITY

##### RULES PROPOSED BY COUNCIL

We propose a tax of ten cents per month on each plot. This must be paid on or before the 15th of each month, first payment to be made by May 1st to J. Rose, city treasurer. In case of non-payment of taxes property will be seized.

We propose to organize an Advisory Board consisting of at least three business men.

We propose that we meet for supper on the first Monday in each month. Supper to cost ten cents.

We propose that each citizen pay two cents for each package of seed.

We propose that each citizen do one hour's work each month to help beautify the city.

#### EXPENSES

Wheel barrow.....	\$3.00
Hoes.....	1.00
Fork.....	1.00
Rakes.....	1.00
Spade.....	1.00
Manure.....	1.00
Watering cans.....	1.00
Plants for centre of city.....	5.00
Mid-Summer Show.....	5.00
Flag.....	5.00
Miscellaneous.....	1.00

Total.....\$25.00



# GARDENING OPERATIONS

## NOVA SCOTIA

BY L. A. DEWOLFE, B.A., DIRECTOR OF RURAL SCIENCE SCHOOLS

THE number of home gardens cared for by school children increased from 700 in 1914 to 1900 in 1915. School gardens have made no material advance. After home gardening has made this side of education popular, the school garden will probably come to stay. But at present we in this province seem scarcely ready for it.

in making and keeping up the garden. For two years she conducted it practically alone. Now, however, an enthusiastic and capable rural science teacher has taken charge of the school, and is giving the assistance that was so much desired. From this garden in 1915 were sold 100 boxes of strawberries and five dollars' worth of flower seeds. In



SCHOOL GARDEN, SOUTH BERWICK, KINGS COUNTY, N.S., JULY, 1915

To be sure there are notable exceptions. It would be difficult to find in any rural community a better school garden than that at South Berwick, King's County. This garden was started by a lady resident of the section, who was able to get the assistance of the school children

the fall, a flower and shrubbery border was prepared on two sides of the spacious school grounds.

Several schools are preparing for perennial flower borders. In nearly all cases, however, we are leaving vegetable culture to the home.



## QUEBEC

BY J. C. MAGNAN, DISTRICT REPRESENTATIVE

THE school garden movement in the province of Quebec has been greatly helped by the school inspectors, the teachers and the school boards. The following statistics are interesting in this connection:

Years	Number of schools having a garden	Number of pupil gardeners
1912.....	231	6,914
1913.....	234	7,740
1914.....	284	9,308
1915.....	710	18,000

A number of pupil gardeners' clubs and school museums were established

during the year. It is not our intention to increase the number of school gardens this year, but to maintain those that have been established. They will be improved, in accordance with the experience gained during the past year, and a system of agricultural teaching will be organized, based upon the degree of instruction of the pupils and adapted to the requirements of the district and to the climate.

The educational part of the school garden is being more and more realized and the advantages of the agricultural profession are better appreciated by the rural school pupils.

## ONTARIO

BY J. B. DANDENO, INSPECTOR OF ELEMENTARY AGRICULTURAL CLASSES

ONTARIO has always been cautious, perhaps over-cautious in undertaking new problems. This is seen in the attitude towards school gardens. As this is essentially a rural problem it is subject to rural ideas, which too often are non-progressive. The rural community assumes the attitude that it got along without gardens for a couple of generations, and why should it not continue to do so? Progress will necessarily be slow. Other difficulties present themselves.

The school grounds, for the average Ontario school, occupy about one-half acre, or, perhaps one acre, and this is for buildings and playgrounds. If a garden is required, it will be necessary to secure more land. This looks to the farmer, quite frequently, too much of an innovation, and he waits to see what others may do.

There is no doubt that the teacher will be the chief factor in the devel-

opment of the idea. But the teacher sees in it very little except additional work and responsibility and is frequently not qualified to direct the work successfully. Moreover, the garden is such a public part of the school work that the teacher fears failure, because in the garden it is so easily seen. Other school work, if poorly done, is not so easy to see. But garden work is not so difficult as many teachers imagine. A certain amount of training is necessary, the more the better.

To encourage the school-garden work and the teaching of elementary agriculture in rural schools the Department of Education offers grants in money to such schools as will seriously undertake the work. To a teacher with an elementary agricultural certificate carrying on the whole work successfully throughout the year, the Minister will pay \$40 to the teacher and \$30 to the board. To a teacher who holds a second class teacher's certificate, after 1915, and



who carries on the work successfully throughout the year, the Minister will pay \$20 to the teacher and \$15 to the board.

The Public and Separate School inspectors supervise the work and decide the matter of qualification for grants under the approval of the

Minister of Education.

It is expected that school gardens in the rural schools will have some tendency to prolong the teacher's term in each school. The more a teacher puts into a school the less likely she is to leave to undertake work in another school.

## MANITOBA

BY H. W. WATSON, M.A., DIRECTOR OF ELEMENTARY AGRICULTURE

**D**URING the past year, a marked increase in interest has been displayed by both teachers and trustees in this branch of Education. Most of the new school sites, especially those in connection with consolidated schools, have been well fenced and have had land prepared for the planting of windbreaks, ornamental trees and school gardens. Many old sites that

the number of last year. The season was, however, rather discouraging to school gardeners, as it was to the farmers with their gardens. The spring opened early and was favourable for putting in garden seeds. The germination was all that could be desired and the plants were doing splendidly when heavy frosts about the middle of June cut almost everything to the ground. Teachers



GARDENERS OF ISABELLA CONSOLIDATED SCHOOL, MANITOBA

have not even been fenced have been improved in a similar manner.

Teachers and trustees are beginning to realize the value of making the school buildings and their surroundings as attractive as those of the best farm homes of the district.

### RATHER UNFAVOURABLE SEASON

The number of school gardens was increased at least fifty per cent over

and children were compelled to do as most farmers did, namely, to replant with such varieties as were suitable for late sowing. For this reason the gardens were not in very good condition when the school closed for holidays. During July the garden material did well, but a heavier frost than usual again occurred about the time school reopened in August, and cut off much before it had reached maturity.



However, many of the school gardens are reported to have been equal to or better than any other gardens of the district. Many teachers have advanced beyond the "playing at gardening" stage, and are making this work of real educational value in relating it to the other subjects on the curriculum and to the interests of the home. Many teachers, who have been most successful with their school gardens, have adopted the plan of limiting the varieties grown by a single pupil, or even by an entire grade, to one or two at most. The advantages of such a course are:

1. The pupil learns to grow one variety at a time more successfully.
2. The teacher can select a variety suitable to the age and ability of the pupil.
3. The pupil, or pupils of a grade, will thus grow sufficient of a given variety to make the sale of the quantity worth while.

#### SUGGESTIONS FOR GRADING

In order that interest may be sustained throughout the full public school course and that the subject be made properly educative, I am convinced that teachers should follow a plan as in arithmetic, grammar or other subjects, and proceed from the simple to the more difficult, year by year introducing some new and more advanced stage in the subject. As a guide to the teachers of this province, I have made out the following suggestive outline:—

##### Grades 1 to 3.

Radish	Nasturtium
Beans	Poppy
Peas	Candytuft
Beets, 2nd crop	
after Radish or	
Beans	
Turnips	

The work in these grades should merely aim at interesting the pupils in the growth of plants. The knowledge of "how and why" should be gradually obtained in the succeeding grades.

##### Grades 4 to 6.

Onions	Marigold	Wheat
Carrots	Calliopsis	Oats
Parsnips	Eschscholzia	Barley
Potatoes	Mignonette	
Corn	Perennials	

A pupil should not grow more than two varieties of vegetables each season, and he or she should learn to grow these successfully.

##### Grades 7 to 9.

Cucumber.	Wheat (3)
Cabbage (early sowing)	Oats (3)
Tomatoes (transplanting)	Barley (3)
Corn (different varieties)	Alfalfa (2)
Potatoes (different methods of planting and cultivation)	Grasses

Sweet Peas	Maple
Morning Glory	Ash
Gaillardia	Elm
Aster (early sowing)	Lilac
Stocks (transplanting)	Honeysuckle
Perennials	Caragana
Bulbs	Snowball, etc.
House plants	

In connection with the vegetables and grains, the work should be largely experimental. Different varieties should be used under the same conditions, or the same variety under different methods of planting and cultivation. The keeping of records of growth and yield, cost accounts, etc., should be an important feature of the work in these grades. An individual pupil should not attempt many varieties.

#### DEPARTMENTAL ASSISTANCE

The Department of Education assisted teachers and trustees considerably by furnishing material such as trees, shrubs, and seeds, either free or at wholesale cost.

During the year the following material was thus distributed:—

	Free
Germination Testers.....	960
Egg Testers.....	200
Wheat, oats, barley, corn....	7,500 pkts.
Potatoes (three varieties)....	1,800 "
Alfalfa for small plots.....	2 bush.
Tree seedlings.....	12,000
Vegetable and flower seeds.	8,000 pkts.
Shade and ornamental trees.	4,950
Perennial flower roots .....	600
Bulbs.....	7,000



The greatest drawback to the success of gardens at schools is the lack of care during the summer vacation. Many teachers keep the plots in good condition until school closes, but fail to organize the pupils for care during holidays; consequently some return to find the flowers or vegetables choked out by weeds or eaten off by animals. However, most teachers find some way of successfully overcoming the difficulty. Some teachers reside in or near the district and arrange with the pupils to meet regularly and weed the plots. In many districts the trustees award prizes for the best kept gardens. In sundry of the village schools the janitor or some of the older boys are engaged to attend to the seeding and cultivation.

#### MUNICIPAL AND PARLIAMENTARY PLANS

In a number of schools last season, the garden work was linked up with

the subject of Civics. The entire plot was surveyed as a province, with its municipalities, townships and sections and the necessary government in connection therewith. There were the Premier, members of parliament, municipal councillors, road inspectors, weed inspectors, sale committee etc., all of whom were appointed or elected according to the laws of our province.

I know of one school which had a large number of individual plots where such an organization was extended to include several provinces, with a federal form of government.

Many of the vegetables that are grown in the school plots are used by the children in their hot mid-day meals. In villages and towns where such was not done and where considerable material was grown, a sales' committee was appointed and the proceeds were used to procure school-room supplies, play-ground equipment, etc., or donated to the patriotic fund.

### SASKATCHEWAN

BY A. W. COCKS, B.Sc., DIRECTOR OF SCHOOL AGRICULTURE

ACCORDING to the report for the year 1914 there were 370 school gardens in actual operation in the province of Saskatchewan, while preparation for the work of school gardening had been made in many other school districts. It was further stated that a large number of pupils operated home garden plots under the supervision of the teachers.

Early in 1915 the Departments of Education and Agriculture endeavoured to stir up enthusiasm for school garden work among the teachers of the province. The two directors of school agriculture who were appointed in the spring,—F. W. Bates, M.Sc., and A. W. Cocks, B.Sc., addressed many teachers' institutes and various public meetings through-

out the province. The inspectors of schools gave great assistance, not only by arousing the interest of the teachers and trustees, but by the organization of committees for rural education associations and school fairs. The agricultural secretaries of the municipalities and the District Representatives of the Department of Agriculture also lent their very valuable assistance to this work.

#### A SUCCESSFUL CAMPAIGN

The result of such a campaign has been remarkably successful, for although the Department has no definite information as to the exact number of school gardens which have been in operation during the year, yet from the reports of the inspectors of schools it is possible to estimate



that at least 1,500 schools undertook the work. In some cases the work was carried on by the pupils in their own home gardens, but so long as



A. W. COCKS, B.Sc.  
Director of School Agriculture for Saskatchewan

this is under the supervision of the teacher the Department recognizes it as school gardening. It is to be regretted that more than 50 per cent of the school gardens could hardly be considered successful. Many reasons could be given for these failures, such

as destruction by gophers and drought; neglect during holidays; change of teachers and insufficient enthusiasm to carry the work to a successful conclusion. However, a great advancement has been made and one evidence of the progress is seen in the large number of school fairs which were held in the fall.

As usual, it was found that owing to the correlation of the garden work with the regular class work a greater interest in school life was exhibited by the pupils. The attendance was improved and the work of the school generally raised to a higher level. A few particular methods of conducting the work are worthy of attention. The splendid organization of the work at the Qu'Appelle high and public schools is the result of the deep interest of the principal, Mr. R. F. Meadows, and his staff in the school garden movement. The following, which is a quotation from the report of the Secretary of State, will adequately explain the organization:—

"Each pupil of this school felt proud to consider himself a member of the students' parliament, under which with the general supervision of the teachers the management of the school garden was placed.

"The House being restricted to five constituencies, namely: Qu'Appelle, Prairie, Muscowpeetung, Tekahionwake and Valcartier, made it necessary to divide the garden into five rows, each one bearing the name of a constituency. These rows were divided into twelve plots each, leaving a small bed at the end for the con-



A SCHOOL GARDEN IN SASKATCHEWAN



stituency emblem. Besides the constituency rows, occupying the north end of the garden, were left three plots, two of which were allotted to grades 1 and 2 and the other for experimental purposes on four different varieties of corn and of potatoes. For protection, at the extreme north end, a triangular plot the width of the garden was left to grow sunflowers.

"The members of the parliament were

of flowers and vegetables to grow, suitable to his grade. Grade 1 seeded turnips, whilst grade 2 sowed beets and sweet peas; thus learning the difference of size and the depth in which each plant will thrive. The intermediate classes had a choice of three from four varieties, whilst grade 8 sowed such seeds as tomatoes, cabbages and dahlias, thus learning the method of transplanting. The high school



SCHOOL GARDEN, INDIAN HEAD, SASKATCHEWAN, RURAL MUNICIPALITY  
PLAN, JUNE, 1915

given the privilege of an entire plot in their own constituency row. The numerous other plots which were not taken by the members were sub-divided in half and given to the care of the higher public school grades, making each pupil responsible for his special plot.

"Now it must not be thought that each gardener seeded his plot in a haphazard manner. Each grade was given a choice

pupils devoted their plots principally to experiments on carrots, beans or onions.

"By offering a prize of twelve dollars to the constituency having the best showing of marks, the Premier on the advice of his Cabinet appointed a committee of judges to judge the garden every two weeks. The method of judging was done by the guidance of a score-card with the allowance of thirty marks for general appearance,



SCHOOL GARDEN, INDIAN HEAD, SASKATCHEWAN, RURAL MUNICIPALITY  
PLAN, SEPTEMBER, 1915



fifteen for condition of cultivation, thirty for absence of weeds and fifteen for abundance of growth. Each judge was given a score card to fill in what he thought should be given under the different conditions. After every judging his card was handed in to award each constituency the average obtained. In this way the constant care of the gardens was made compulsory.

"At the close of the school term the Minister of Agriculture advertised for tenders to see to the general care of the entire garden during the holiday months at a small salary. Several applications were received and the applicants given authority to sell radishes and lettuce, the proceeds of which were put in the garden funds."

and an attempt will be made to cover the whole province by this organization. The members of these associations will consist of the teachers of the municipality, school trustees, agricultural secretaries and others interested in the work. The object of the associations is to arouse interest in the great educational value of the school garden; to provide means for profitable study and discussion of the various phases of the work; to promote and develop the use of the school garden as a means of more efficient teaching and



EVERYBODY WORKS! BIRCH HILLS SCHOOL, SASKATCHEWAN

It is interesting to note that in some portions of the province, particularly those parts settled by non-English speaking people from Europe, the produce of the school gardens was sold and the proceeds donated to the various patriotic funds. As the results of such a sale at the Yorkton school fair two beds were provided for the Saskatchewan Hospital Unit.

#### RURAL EDUCATION ASSOCIATIONS

The rural education associations already established in the province have been of great assistance in producing a greater interest in school garden work and many of the school fairs have been organized by these associations. It is hoped that next year in each rural municipality there will be a rural education association

to organize demonstration and school garden work valuable to the agricultural interests of the community. Probably many of these associations will find it advisable to hold a school fair, to organize contests for boys and girls, to promote the formation of boys' and girls' clubs and to provide opportunities, by means of entertainments, lantern lectures, etc., for social gatherings in the community.

The Department of Education hopes that this work will result in establishing numerous centres of activity and that the directors of school agriculture will thus be enabled to act as an exchange by which special features worthy of encouragement will be made known throughout the province.



## SOUTH WEYBURN

BY ETHEL H. FERGUSON, TEACHER, SOUTH WEYBURN SCHOOL

SCHOOL gardening was first undertaken in South Weyburn, S.D. 670, in 1914. On the advice of Inspector Kennedy I asked the school board to rent a portion of a neighbouring garden, but we were given all the land we required free of rent, the land being ploughed for us the third week in May.

The children, under my supervision, surveyed the plots, staking them ten by five feet, with two feet walks between the plots and three feet between the rows.

he watched his corn rival that of his neighbouring gardeners.

In September when the school garden exhibition was held in Weyburn, these children won forty-two prizes—forty-two books.

When the prizes were to be distributed we prepared a short programme, to which the parents were invited. School gardening was discussed and all agreed to assist during the following year.

Last spring the school board purchased a half acre of the above-men-



VIEW OF THE SCHOOL GARDEN, WEYBURN, SASKATCHEWAN

The children brought the seed used from their homes, and we used what tools we could borrow from the neighbouring farms.

Each child experimented with one variety of vegetable. In addition flower seeds were sown in a round bed in front of the school. The boys were given, in addition to their vegetable plot, plots in which were sown Marquis and Red Fife wheat, oats and flax.

These gardens created much enthusiasm among the children and the dull pupil became interested as

tioned neighbouring garden, and a passage was made through the trees connecting it with the school-yard. On the north and west this garden is protected by a windbreak of poplars, on the east by a high caragana hedge and two rows of raspberry bushes, and on the south by a caragana hedge and lilac bushes. This time the school board staked out the plots, making each ten by six feet, and each walk five feet wide. There were thirty-three beds in all.

In the walks between the rows trees were transplanted, a large plot



being made for perennials and shrubs, another plot sown in grains, while the remaining portion was used as a community vegetable garden.

The board provided the seed and each child was given three varieties of garden vegetables and flower seed. As ten of the children ranged from five to seven years, the older ones assisted them in arranging and planting their plots.

During the summer vacation, despite handicaps, the children kept

their plots free from weeds, *though some come three miles to do it.*

The enthusiasm has not diminished, every child being devoted to the garden and liking to talk about it. One sturdy chap remarked: "I can grow bigger beets than daddy."

This fall our school won fifty-seven prizes in the school garden exhibition held in Weyburn, also four community prizes.

At the exhibition our vegetables were sold and the proceeds donated to patriotic purposes.

### WEYBURN

BY CHAS. J. MACKAY, PRINCIPAL, SOURIS SCHOOL, WEYBURN

**I**N the fall of the year 1914 our garden grounds were well manured and ploughed shallow. In the spring of 1915 the ground was ploughed deep, thus leaving the manure about the right depth to benefit the plants, and the ground was then well worked down with disc and harrow.



THE PRODUCE OF THE PUPILS' GARDENS

The 1915 the plan of our garden was based upon that of a city. There were our wards, numbered 1, 2, 3, 4; each ward consisting of 15 lots, thus making in all 60 individual lots. In the centre was a circular lot about 7 feet in diameter, representing municipal building sites. This lot was planted with perennial flowers.

The pathways running north and south represented streets, while those running east and west represented avenues. These were named by numbers. Each individual plot measured 8 feet by 12 feet. The whole city comprised an area of ground measuring 100 feet long and 87 feet wide. In addition to the city proper there were community flower and vegetable gardens. West of the city limits a strip of ground 12 feet wide, running the entire width of the city, north and south, was divided into three equal community flower gardens. East of the city limits a similar strip of land, 59 feet wide, was divided into three equal community vegetable gardens. The above plans were drafted by the teachers and pupils concerned, and approved by the inspector, Mr. A. Kennedy, M.A.

Considerable latitude was given the pupils as to kinds of vegetables and flowers to be grown. It was decided by an unanimous vote of the pupils that the north half of each individual plot be devoted to flowers, and that the south half be devoted to vegetables; that potatoes and cabbages be grown in the community vegetable gardens, and that sweet peas, geraniums, petunias, asters and gladioli be grown in the community flower gardens. It was also



decided that border flowers be sown around each individual plot. All pupils sowed the same kind of border flowers east and west, north and south. This arrangement produced a pleasing effect when the flowers came into bloom.

Garden records were kept by each pupil interested in the work. In these record books were recorded such interesting observations as garden cultivation, preparation of soil, time and depth of sowing seeds, weeds, weather conditions, conservation of moisture, etc.

We are glad to be able to say that

our garden venture in 1915 was quite successful, as shown by the exhibition held early in September. The best samples of vegetables and flowers produced in the garden were placed on exhibition in the class rooms. These were judged and prizes awarded for the best exhibits. Vegetables and flowers produced in the community gardens were sold and the proceeds donated by the pupils to the Saskatchewan hospital unit.

Before freezing up our garden was again well manured, and ploughed, and the pupils are looking forward with hope and pleasure to the coming spring.

## ALBERTA

BY J. C. MILLER, D.Sc., PROVINCIAL DIRECTOR OF TECHNICAL EDUCATION

**T**HE last was the first year during which the special Government grants in aid of instruction on science, agriculture and gardening have been in effect. For



JAS. C. MILLER, B.Sc., Ph.D.  
Director of Technical Education for Alberta

three summers, courses in those subjects have been offered at the summer school for teachers to enable them to qualify to carry on the work successfully and thereby earn for

themselves and their school board the grant allotted for this work. About four hundred teachers have completed one summer's work in agriculture and gardening and one hundred the two summers' work in agriculture and gardening. Seventy-five teachers have now completed the two summers' work in nature study, agriculture and gardening required to secure the special certificate in elementary science, which a teacher must hold to be eligible for the special grant. Thirty-five teachers responsible for instruction in science and agriculture in high schools have completed one summer's work in the special courses in these subjects organized especially for them.

### PUBLIC APPRECIATION

That the value and importance of giving practical instruction in agriculture and gardening with a scientific basis in the public and high schools are being realized by the public is shown clearly by the extent to which local districts have undertaken the work and the number of districts preparing ground for the introduction of practical gardening this year. Not only the rural schools but also many of the town and city schools

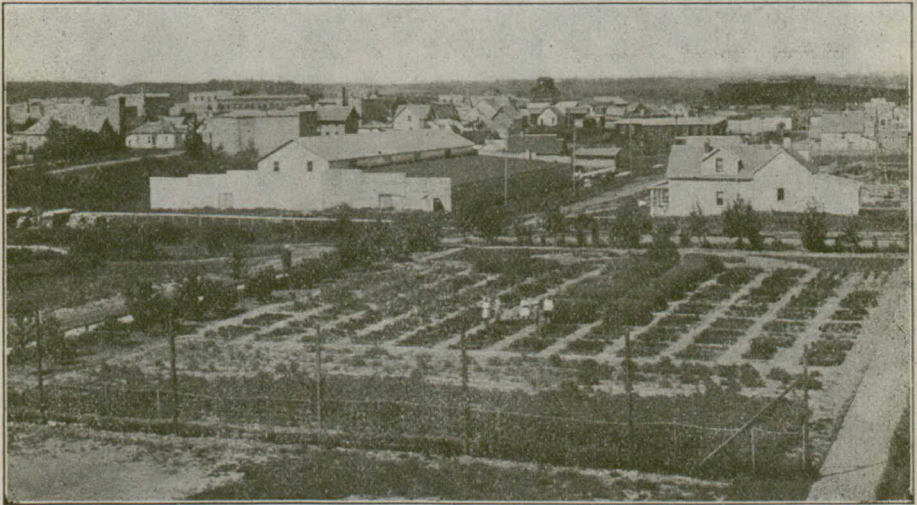


made a very creditable beginning last year. Three of the city schools in Edmonton, one of the schools in Lethbridge, the schools in Camrose, Ponoka, Wetaskiwin, Olds, Stettler, Wainwright, Coaldale and Blairmore have made good progress. Some work is being done in at least one hundred of the rural schools. In several the work is of a distinctly superior character.

#### THE PLAN PURSUED

As agriculture is an examination subject in Grade VIII and again in Grade XI, and as emphasis is placed upon the practical phases of the work in nature study which precedes the agriculture of Grade VIII and the

work in botany, zoology and physics which precedes the agriculture for Grade XI, when the practical gardening is undertaken in the village and town schools, the usual practice has been to include the whole school, including the teachers themselves in the garden plan. Quite properly the upper grades, high school students and teachers, utilize their plots for experimenting, testing and demonstration work, while the lower grades give their attention to methods of cultivation and becoming familiar at first hand with the varieties of vegetables, flowers, vines and shrubs that can be grown successfully in this district and the varying methods of cultivating and caring for them.



SCHOOL GARDEN, RED DEER, ALBERTA

Showing plots of pupils and teachers of the Public and High Schools. A splendid example of what can be done in town districts

#### EDMONTON CITY SCHOOLS

**I**N the city of Edmonton an effort was made at three of the city schools to carry on school garden work. In each case it was a woman teacher who assumed the chief responsibility and in two cases it was the primary teacher. All three teachers, Miss Cuming, Miss Good-

man and Miss Bell, have been students at the summer school for teachers. The most successful as well as the most extensive garden was at the Highlands school. Its success is largely due to the untiring energy and effective leadership of Miss Elizabeth Cuming, who was



assisted by the active co-operation of the other teachers on the staff, especially the principal, Mr. Davis, and Miss Laughlin, another teacher who has had the advantage of instruction in agriculture and gardening at the summer school.

The superintendent of schools, Mr. W. G. Carpenter, gave the teachers every support and encouragement.

The school grounds not being available on account of building operations going on, vacant land across

fence line with a three-foot pathway inside and adjacent to this border. The ground thus enclosed was divided into plots 4 by 10 feet with a two-foot path between them. In the centre of the plot of ground was an old basement filled with roots and manure and covered with water and matted slough grass. After much labour this was fixed into the most interesting and ornamental spot in the whole garden—water, rockery and flower garden effects. The flow-



HARVEY SCHOOL GARDEN

Sunflower borders are used as protection against the wind

the street from the school owned by Mr. W. J. McGrath, was placed at the disposal of the school for garden purposes. The year before the ground had been broken and partially cleared and planted in potatoes. Early in the spring it was ploughed and disced and the boys of Grades VII and VIII cleared away the remainder of the brush and stumps.

The general plan provided for a two-foot grass border around the

ers planted were dwarf nasturtiums, golden glow, larkspur, columbine, sweet William, pinks, spireas, dahlias, petunias, pansies, poppies, stocks, snapdragon. For borders alyssum, verbena and lobelia were used.

The general plan of the garden being laid out, and each pupil, with the exception of those in Grade I, having made and drawn the plan for his or her own garden plot, the garden was prepared and planted. Each



child planted six rows of vegetables and the remainder of the plot in flowers. In Grade I each child was responsible for only half of one of the standard plots.

Some experimental plots were arranged for the senior class, involving various tests for seed in relation to growth and condition (a) large and small, (b) frosted and normal, (c) whole and broken, (d) deep and shallow sowing, (e) thick and thin seeding.

The summer house or garden bower was made with linoleum poles given

children in keeping it up to standard, especially during vacation.

At the close of the garden season a special day was arranged to which the parents, members of the school board and officials from the Department of Education were invited.

#### TABER'S SUCCESS

The most successful town school garden was the one in Taber, a town near the city of Lethbridge and in the dry farming belt.

No fewer than five of the teachers on the staff have attended the summer school for teachers one or more summers. The principal, Mr. Lynd, was one of the thirty-five high school teachers to take advantage of the courses offered last summer.

In their efforts to develop instruction and practical work the school board were helped greatly by the active interest and support of the Women's Institute and the Agricultural Society. The two acres of ground adjacent to the school used for the garden were placed at the service of the school board by the Hon. A. J. McLean. Early in the spring this land was cleared, ploughed and thoroughly cultivated, no less than twenty loads of manure being worked into the soil. A small water tank was installed at the end of the garden in an elevated position so that hose could be used in watering. The school board provided funds for equipment, initial clearing and cultivating and the water tank. The Agricultural Society and the Women's Institute provided seed and money for prizes. Superintendent Fairfield of the Dominion Experimental Farm at Lethbridge assisted by supplying special seed potatoes for about twenty boys who undertook to demonstrate this production.

In judging, the following system of rating was used:

Arrangements.....	15	points.
Cultivation.....	25	"
Freedom from weeds.....	20	"
Vigour, Maturity and general effect.....	40	"



HARVEY SCHOOL GARDEN

The pupil gardeners are beside the plot for testing quality and vitality of wheat seed

by the Hudson's Bay Company. Around it were planted canary bird vine, hops, tall nasturtiums, African pipe gourd and runner beans.

The ladies of the Highland's Improvement Society, of which Miss Cuming is a member, provided sufficient funds to secure two prizes for each room, a first for the boys and a first for the girls. Committees were appointed to take turns in visiting the garden and co-operating with the



Mr. Lynd in writing of what may be spoken of as the school side of the work says:

"We arranged the plots—over 250 in all—as recommended by Dean Howes at the summer school. The rows were three feet apart and the plots within the row 2 ft. apart. The size of the plots was 4 by 10 feet. The rows were lettered and the plots numbered—G. 8 would be plot 8 in row G. If the number indicated the township the letter indicated the range. Each pupil of the upper grades had a plot. Some of the high school

side was sown more thickly than the south side. The only observable difference made by the fertilizer was in the case of the peas, where the soil without artificial fertilizer grew larger vines than did the soil treated with potash. The south side of the plot was sown at the rate of a pea to every inch. The latter grew just as large as the former and appeared to protect each other more. The grains dealt with in this manner were flax, corn, small oats, large wheat, small grained wheat, alfalfa and millet.

"The pleasure and profitable ex-



SCHOOL GARDEN, TABER, ALBERTA, 1915  
Showing plots of the pupils of Grades I to XI, inclusive

pupils had two plots each, one for vegetables and one for flowers. In addition to these individual plots larger spaces 12 by 12 feet were allotted for vines.

"In the high school plots we experimented with three fertilizers to test the need of the soil for nitrogen, potash and phosphorus. In the same plots we also tested thick and thin sowing, e.g., the east and west halves of a plot were treated with different fertilizers while the north

perience of the community, children and teachers in the work this year will lead to even better results next year. As there is land to spare it is planned to make arrangements with the Dominion Experimental Farm to have a small demonstration unit and to do considerable in planting trees and shrubbery. If the plans of those interested are fully realized the school garden grounds will become the beauty spot and an inspiration to the children and community."







