OUR CANADIAN PRAIRIES.

BEING A DESCRIPTION OF
The Most Notable Plants of Manitoba; The Chief Noxious Weeds and How to Destroy Them; The Trees and Wild Fruits, along with Arbor Day Exercises and Poems.

Authorised by the Advisory Board of Manitoba.

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Manitoba Course of Agriculture.

FIRST SERIES.

OUR CANADIAN PRAIRIES.

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THE MOST NOTABLE PLANTS OF MANITOBA; THE CHIEF NOXIOUS WEEDS AND HOW TO DESTROY THEM; THE TREES AND WILD FRUITS, ALONG WITH ARBOR DAY EXERCISES AND POEMS.

Authorised by the Advisory Board of Manitoba.

C. BLACKETT ROBINSON,
TORONTO.

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OUR CANADIAN PRAIRIES.

PLANT LIFE IN MANITOBA.

I.

Manitoba delights in her prairies. In midsummer it is pleasant to stand, on a bright, warm day, in the middle of a great plain, with its stretches of waving grass, and see the fringe of trees on the far horizon. The great arch of Heaven above the spectator gives a sense of vastness. The level prairie suggests the sea. The poet Bryant speaking of the prairies wrote:

> "Lo, they stretch
> In airy undulations, far away,
> As if the ocean in his gentlest swell,
> Stood still, with all his rounded billows fixed,
> And motionless forever."

Over these plains once ran, in their freedom, herds of buffalo and antelope; and still on the unbroken prairie the skulls and bones of its former tenants are to be seen. Tens of thousands of these now extinct animals gained a bountiful living from the rich grasses of the prairies. Formerly herds of horses, numbering hundreds, roamed in winter and summer over the plains; and ponies, unaccustomed to the restraints of the stable, pawed the rich grass from under the snow in winter, and throve upon it.

After slumbering under the coat of snow for the winter, the earth, generally about the end of March, is set free from the icy bond of the north, the snow melts away under the warm sun, the ice of the streams begins to thaw, and the soil softens under the sun's rays. The change is marvellous.

The spring in Manitoba is so short that is has been said that the passage from winter to summer is almost immediate.

In April and May the strengthening sun seems to revive all nature. The buds of the trees and bushes begin to swell and the sap soon rises in the woody stems, and if a branch of the budding maple is broken the sap so pours forth that the trees are said to bleed. The birds coming back from their southern retreats now begin to be heard in the copses, and the anemones and violets peep up from the earth. All nature seems to respond to the voice of spring as she invites;

> "Come forth, oh ye children of gladness come,
> Where the violets lie may now be your home.
> Ye of the rose cheek and dew bright eye,
> And the bounding footstep, to meet me fly.
> With the lyre, and the wreath, and the joyous lay,
> Come forth to the sunshine, I may not stay."

The flowers that appear first, on the prairie, are white or pink or light blue; as the months go on the color deepens, until in August the prairie is one blaze of yellow, many of the flowers being of the Sunflower family. As we seek out our wild flowers, we find them very different from those of Ontario and the Eastern provinces. In the part of Manitoba bordering on the Lake of the Woods and Lake Winnipeg most of the wild flowers of Ontario are seen and these creep down the Roseau river toward Emerson, appear between Lakes Winnipeg and Manitoba, and along the north of the Saskatchewan. The settled parts of Manitoba and the Northwest Territories however, being chiefly composed of dry prairie have a herbage very different from that of the district east of the Red River and we shall find descriptions of the eastern flora of little help to us in the study of our prairie flowers.

II.

It was the rich grasses and fertile soil of our western region that attracted the first farmers to Manitoba, and the golden fields of grain prove every year how wise the movement was to make the great west a farmer's home. To the farmer the opening spring is the time of hope. As soon as the snow disappears he is ready to hurry upon the spots of his ploughed land which are dry and to engage in sowing the wheat for his crop of grain. If the weather will permit him to sow in April he feels fairly certain of a good return, but in Manitoba as in most places it is the farmer who is prompt, and willing, and ready who is successful.

Very often within three weeks after the sowing of the seed, the green blades cover the ground, and the fields in little more than a month present the appearance of a soft, green carpet.

While the grain sown thus starts so quickly, the trees and shrubs in Manitoba are late in shooting forth their leaves. This is well, for the nights are still chilly, and would nip the tender leaves. Unless the season be very late, by the middle of May or soon after, the trees are well covered with their green coat of leaves.

While it is cheering to see the beautiful wild flowers start so soon, yet the hurtful weeds are just as ready to make their appearance. No sooner has the season opened than in the old settlements the troublesome French weed is seen. Of this the cows are fond, and the bitter herb injures the milk and butter of the dairyman.

As the summer in our province is short the life of the farmer is a busy one, but it may be thoroughly pleasant, if he is methodical and has his work well in hand. It is the inspiring period of the year when in June and July he sees a change in his growing crop every day.

Though the season is short, yet the remarkable clearness of sky, and the length of the days give us as much sunshine as any eastern province. Being north of 49° N. our province, in its long days of June and July, has not complete darkness each night for more than two or three hours. The increased day adds nearly one-fifth to the length of our summer, and it is to this wealth of sunshine that Manitoba owes its golden grain. As soon as summer is well advanced the farmer sallies forth to cut his hay, which up to the present time has been fully supplied by the uncultivated prairie itself. The prairie grasses are most abundant and nutritious. By the end of August, in most of the years, our wheat harvest has come, and then the busiest time of the year crowds upon us. With labor-saving machinery the crops are gathered, and by the end of September are well in hand. The nights, which during the whole summer are cool in Manitoba, now in October begin to be frosty. September and October are the two most pleasant months of the year in the great west.

By the first of November our plant life has matured, and November winds bring back the period of rest to nature. The winter is almost as useful to the agriculturist as the summer. Nature then reposes, the soil is prepared for supporting the crop of the following year, and the prolific yield of Manitoba seems to be but the opening wide of the hand that has been so firmly closed during her steady winter.

FLOWERS AND GARDENS.

We are anxious that all the boys and girls in Manitoba should become fond of the flowers which bloom upon the prairies, or in the shelter of the trees and bushes along the streams. We intend in this little book to describe a number of our best known flowers and to have them gathered, and studied in the schools, and then preserved in the manner we shall describe.

The flowers are the beautiful things that the Creator has scattered here and there throughout the earth to make His creatures glad. We ought to know the common wild flowers by name, and seek the spots where the different species grow, and love to gather them into well chosen bouquets, and make collections of them as pressed flowers, and become acquainted with their forms and structures.

But besides this we should do something to bring the flowers from other lands and have them planted about our houses. Every home should have its flower garden. Boys and girls can begin gardens at their homes, if there are none there already.

Anyone who visits England is struck with the beautiful flower gardens, and even in front of the small cottages of the poor the little plot is laid out with flowers. In the very heart of the grimy cities, where coal dust and soot fill the air, many of the very poor have flowers, in a cracked pot or broken jug, growing on their window sills.

In Manitoba, with our rich black soil a garden may easily be made at every home. It need not be very large. Ask your parents for permission to have a small plot as your own and then when spring comes get spade and rake, and on the bright Saturday, when there is no school, start to dig the soil, and get it raked free of weeds, and stones, and chips and everything which disfigures it. Then plant in this, not too deep, seeds of one kind in a bed at regular spaces, and those of other kinds in other beds, and place little marked sticks with the name of each kind of seed, where it has been planted.

But you will say where shall I get the flower seeds? Now this difficulty can easily be met. Near the city of Brandon there is a fine farm kept up by the Dominion Government. It is called the Experimental Farm. Here all kinds of crops, grasses, and flowers which may be thought suitable for

Manitoba are grown. The superintendent of this farm is greatly interested in flowers and very anxious to see Manitoba advance.

This gentleman says that he will send seeds of Sweet William, and many other kinds of flower seeds free to the people and especially to the school children of Manitoba, who want to make gardens. Write to the Experimental Farm, Brandon, and you may thus be supplied. It would be well, in writing to the Superintendent or anyone for information, to enclose a postage stamp for the reply he may have to send you. This is a rule you should follow out all through life. It is nothing but honest and thoughtful so to do. But besides all this, there ought to be a garden made and kept in good order by the teacher and scholars at every school. One of the difficulties first to be met in this respect is that many school grounds in Manitoba are not fenced. It is to be hoped that the Department of Education will require trustees in every school district of Manitoba to fence the school grounds. When this is done the trustees should see to it, as we shall afterwards point out, that the soil, especially on the north and west sides of the school grounds, is thoroughly prepared in order that trees may be planted as a protection from the winds. In front of the school, or on some part of the grounds which does not interfere with the play ground, a plot should be chosen for flowers. Here a school garden can be made.

In England and Germany much attention is paid to this matter and the school gardens are very beautiful. Such gardens give the pupils a taste for flowers and here the children may learn how to make the gardens which we have spoken of as so desirable at their homes. Already in Manitoba some teachers have had gardens at their schools.

How much more like a place where young people are to be well and carefully educated, is a school house with its grounds thus laid out and made neat and attractive, than what is sometimes seen: an unpainted school house; no fence; the grounds covered with knots of wood, the play ground untidy; an unfinished well; and all looking as if no one cared for neatness, decency or beauty! The people of Manitoba should desire to see their school houses pleasant and attractive.

THE FLOWER OF THE HEART.

There grow a little flower once,
  That bloomed in a day,
And some said it would ever bloom,
  And some 'twould fade away;
And some said it was happiness,
  And some said it was spring,
And some said it was Grief and Tears,
  And many such a thing;
But still the little flower bloomed,
  And still it lived and throve,
And men do call it "Summer Growth,"
  But Angels call it "Love."

—Tom Hood.

HOW TO COLLECT AND PRESERVE PLANTS.

It will make our study much more interesting, if every boy and girl who is engaged in it is willing to make a neat and well-arranged collection of plants, and to have them dried and named for future use. Such a collection may be called the Scholar's Herbarium.

The drying of the plants is done by pressing them between folds of paper. The paper used for this purpose is soft and what the botanists call bibulous, that is paper which will soak up the moisture as blotting paper does. Blotting paper if not too soft will do very well, and the white varieties are best. Without crushing the parts of the flower, the plants are to be dried under strong pressure between dryers made up of from five to ten thicknesses of bibulous paper. This paper should be changed every day or two until it dries out again, and eight or ten plants can thus be dried together and in a few days will be quite finished.

Fine and delicate specimens ought to be dried in soft paper and great care should be taken in handling them. The paper in immediate touch with the flower should not be changed, but after the first day's drying any crease or fold in the specimen may be straightened out.

The dried specimens when ready should be mounted on a half sheet of hard, strong, white paper with a ticket on the lower corner as follows:

Common Name.....
Scientific Name.....
Locality.....
Date of Collection.....
Collector.....

Specimens, thus preserved and arranged in their natural orders, may best be kept in drawers. Sometimes when this is not possible a strong portfolio may be used.

In order that the herbarium may be of value care should be taken from the very beginning of the collection up to the time of naming and labelling it.

A specimen should consist of two shoots, each made up of the whole plant, if possible: one, of the leaves and flowers, and the other, in the latter stage of the plant's history containing the fruit. This may often be accomplished by collecting at the same time two specimens of the plant, one in its earlier and the other in its riper stage. In the case of herbaceous plants a portion of the root should be retained. For obtaining such specimens a little trowel or broad knife is very useful.

The specimens for the scholar's herbarium should be gathered on a dry day, and carried either in a tin box, made specially for the purpose, and fastened with a strap over the shoulder, or in a strong portfolio containing fifteen or twenty sheets of firm paper, and two or three sheets of white blotting paper for the delicate plants if the box or portfolio is wanting a small school basket may be used.

If the scholar should wish to make a collection of the seeds of the plants he may thus make a most interesting addition to his herbarium, but the seeds should be carefully dried in the sun, then wrapped in separate parcels in dry paper, and carefully named and marked. Such seeds, if kept in close boxes are apt to become damp and then musty.

It will form a delightful occupation in the long winter evenings of Manitoba for the scholar to take out his herbarium, examine each specimen, recall the spot from which he gathered it, and thus become familiar with the flora of his own Province. As he prepares for this pleasant evening task he can say with Cowper:

"Now stir the fire, and close the shutters fast,
Let fall the curtains, wheel the sofa round,
And while the bubbling and loud hissing urn
Throws up a steamy column, and the cups
That cheer but not inebriate, wait on each,
So let us welcome peaceful evening in."

HOW TO TELL THE FLOWERS.

It was stated in our first lesson that the plants of the prairie are very different from those of the Eastern provinces of Canada. These provinces belong to the wooded region of America, and many plants find shelter in the forest, which cannot live upon the open prairie. As Manitoba becomes more wooded this may change, for Professor Bessey of Nebraska says that if we plant trees upon the prairies almost all the wild flowers of the east will follow us to the west.

Our flora being so different from that of the east we can get very few cuts or engravings to help us in naming or describing our flowers. We hope however, that the Departments of Education and Agriculture will provide every school in the province with beautifully colored plates of thirty of our most notable wild flowers and of the eleven most noxious weeds. With these we may have some help becoming familiar with our plants.

But this is not enough. We aim at having a surer way of finding out all about our flowers. We aim at teaching some simple botany, and at being able to have each pupil of the Third Reader Classes able to take a flower, and examine it practically for himself or herself, and name and describe it by the plan we shall point out.

We propose the following, and hope it will be carried out unless a better method can be found. The regulations will provide for teaching Agriculture for Third Reader Classes twice a week during the year. As the flowers come out in May it would be well to begin this Reader early in April, and have its earlier pages and its plan familiar to the class. Besides having this book each pupil of the class should be provided with a note book, a stout needle fastened into a wooden handle, which any handy boy can make for himself, as well as a few sheets of drying paper spoken of in the preceding lesson. The teacher will have the magnifying glass belonging to the chemical box for II. Series, and will need to have a copy of Spotton's High School Botany. Should any others have magnifying glasses they will be found very convenient.

Thus provided, how shall we undertake the work? It will be better to have the Agriculture lesson in the afternoon. On the morning of the day on which the lesson comes let the pupils on their way to school gather any

flowers they may find on the prairie, and show them to the teacher. The teacher should then select one of the forty mentioned in this book as the choice for that day. During the noon hour let every scholar of the class find out upon the prairie for himself or herself two specimens of the chosen flower and bring them to the class ready for the afternoon work.

When the time for the lesson comes, each pupil, provided with his specimens and notebook, will begin the practical study. The scholar should count the different flower circles of the specimens and find out from the teacher the right name for each part and all the facts needed. Every pupil should do the work personally, using the needle to cut open the flower, and having the glass if needed.

The teacher will make upon the board the following empty schedule and thoroughly explain its purpose:

Stem				
Leaves				
ORGANS	NO.	COHESION	ADHESION	REMARKS
Calyx, Sepals				
Corolla, Petals				
Stamens				
Pistil, Carpels				

As the flower is studied and the schedule filled upon the board after the manner of the examples given in the appendix, each point is discussed by the teacher and class, and each scholar given the opportunity of pointing out some feature of the flower. Each scholar will take down in his notebook the points added to the schedule as they are marked on the blackboard. When all the blanks are filled then the steps should be revised, as it is of the first importance that the schedule be correct.

We are now ready to find the flower. Turn to the appendix of this book. The simple key here given is now to be used. Take it and pass down from Series to Class, and Class to Division and so on, referring to the schedule for the information needed in the search. At last if you are accurate, persevering, and skilful, the name of the Order will be reached to which the flower belongs. This is as far as this book will take you. This indeed is a great success you have gained, to have been able to take any flower upon the prairie and to work it down to its Natural Order. The teacher will now find the description of the Order wanted, in Part II. of Spotton, and will continue the search with the assistance of the class, using the schedule, which if

properly made will supply every point required. At last the exact flower with its genus and species is found, and it along with its common name will be written above the schedule. If the flower is one of the forty-one chosen, now compare it with the colored picture of the flower.

We can recommend this as a most interesting exercise. It will give great pleasure to every one who goes upon the search and who can succeed in fathoming the secret of the name and place of the flower. The process of study will fix the flower and its features firmly in the mind. When a scholar has done a large proportion of the forty chosen flowers, by the regular system proposed, he will be able without the help of the teacher to pursue botanical work successfully to any extent. It is hoped that many a pupil in Manitoba will this year make a good beginning of a Scholar's Herbarium.

THIRTY NOTABLE PLANTS.

Nature has arranged plants and trees in beautiful confusion. We do not find them placed in the regular form of a botanical table, but their natural harmony in copse, and valley, and plain attracts even the eye of childhood. Beds of anemones appear on the ridges, violets nestle away in the grass and shady nooks; the wild sunflower (with golden face) stands on the dry prairie, and the beauteous ladies' slipper seeks out the moist retreats; the prairie onion with its pink blossom is a constant companion of the traveller, and the wild pea entwines the horse's legs as he clambers from the river up the side of the valley; the orange lily decks the plain in July and the blue fringed gentian in September. And so in rich profusion has the wise Creator mingled the trees and shrubs and flowers in the landscape and given them to man for his profit and enjoyment.

So numerous are the kinds of plants that they bewilder us as we try to become familiar with them. But we have sought to choose thirty of the most beautiful, and most notable, along with eleven of the plants found most hurtful to agriculture, in order that we may be able to name them, and become acquainted with their special points and uses.

In choosing the thirty plants the plan followed by the author was to consult with several of his friends who are fond of flowers and have spent years in their study. One of these old friends lives in Battleford on the Saskatchewan, and is also well acquainted with the plants of the Red River Valley; another was for many years a resident of Emerson, and knows the flora of that region, and that of the Pembina Mountain as well; another young man born in the Province, encouraged in childhood by a learned friend, had grown to have a strong taste for botany; while a fourth engaged in teaching a country school in Manitoba applied the training begun in college, and became fond of wandering through the copses, and swamps and prairies in search of flowers. These four chose their lists of the thirty best known flowers of the prairies, and alongside them was placed the author's own list. From these a careful selection was made and we give in the Appendix the list of thirty which we have taken for description. They may not all be found in every part of Manitoba, but it is believed they will be as largely found as any thirty that can be selected.

The descriptions given need not be read in the order in which they come in this book. Whenever a flower is found by the scholars and it becomes the selected specimen for study in the school, then with it should be read the description given. The scholar or teacher need be no more anxious to find the flowers in their regular order, than the Great Author of Nature has thought it wise to arrange them in orders and species. But once known and studied and described, the flower if seen again, will become like the face of a chosen friend, and will when met in the fields be "a thing of beauty and a joy forever."

THE EARLY ANEMONE.

First among the flowers of spring upon the prairie peeps up our pretty purple Anemone. It is called the "Windflower" by some because it is said to open only when the wind blows; while others say it bears this name on account of its thriving in exposed or windy places. It certainly does seek the highest and bleakest spots on our prairie ridges. The Italian name, "Pulsatilla," given to the flower means "Shaken by the wind."

The early Anemone, sometimes called the "Pasque" or Easter Flower, well covered over as it is with a thick coating of short silky hairs, seems ready to resist the cutting north wind. A poet has said,

"Beside a fading bank of snow
A lovely Anemone blew,
Unfolding to the sun's bright glow
Its leaves of Heaven's serenest hue.
'Tis spring, I cried, pale winter's fled,
The earliest wreath of flowers is blown,
The blossoms withered long and dead
Will soon proclaim their tyrant flown."

The Anemone has a beautiful, palish purple blossom enclosed by six leaves, and underneath this on the stem is a circle or whorl of hairy leaflets arranged as if in a second cup to uphold the tender flower. These leaves when bruised have a very pungent smell, and from this the Anemone is called "Hartshorn plant." From its power to produce this refreshing odor it is known as the "Headache" plant. The six flower leaves or sepals of the Anemone form a cup, which does not look unlike the flower of the Crocus, one of the pretty Iris family, but it is quite a mistake to call the flower by the name of "Crocus," as some people wrongly do, for it belongs to the Ranunculus or Crowfoot family.

If you press aside the sepals, you will see sheltered within them a large number of reddish-yellow stamens clustering together. Each of these has a

club-like top or knob called the anther, and this is full of yellow dust, which is useful to fertilize the flower. Inside this cluster of stamens, when the flower is young and fresh, a number of green or white stems are seen, in a group, in the very centre of the blossom. These are called the carpels and they are numerous.

But as the weeks pass on, the flowers wither, and the sepals decay and fall away. Soon, too the stamens drop off, and the seeds are formed, each one having a long and silky tail which waves in the wind. So fine and light are these silky bodies, that they look like a puff of smoke, and from this fact some call the plant "Prairie Smoke."

The ancients had many superstitions about the Anemone, such as that the wind blowing over beds of it brought sickness, and the root or flower, if taken, is poison. These were mere fancies. The poets always attach thee idea of "expectation" to the Anemone.

THE FLOWER'S SECRET.

O'er the western prairie
In the fields of grain,
Through the northern forests
And the southern plain,

Come the lovely flowers
Ever sweet and bright.
Kindly sent to give us
Innocent delight.

Such a happy secret
Will its leaves unfold,
If you listen closely
When a flower you hold.

—Fanny Chadwick.

We love our Anemones, for these opening flowers speak to us of the coming summer, and as the sweet poet Whittier said,

"the windflowers sway
Against the throbbing heart of May."

Botanical Name:—*Anemone patens, Var. Nuttaliana.*

Natural Order:—*Ranunculaceæ.*

LITTLE ANEMONE.

Little Anemone
So frail and so fair,
Blooming so brave,
In the cold spring air.

Sweet little messenger,
Coming to tell
Summer is coming,
All will be well.

Out of the darkness,
Springing to life,
So brave and so tiny,
'Midst this great world of strife,

Standing so firm,
Though swayed by the breeze,
Seeming to say
By its pure petaled leaves

Out of the darkness,
Shall come forth light.
God in His wisdom,
Has made day and night.

Out of the darkness,
This pale thing is born;
Out of the shadows
Breaketh life's morn.

Little Anemone;
Great is thy part:
By thy silence and faith,
Thou may'st lessons impart.

HENRIETTA S. PIKE.

THE DWARF BUTTERCUP.

When the warm days of May and early June have come and all plant life in Manitoba is bursting forth in full strength, the "dwarf Buttercup" or rhomboid-leaved crowfoot, as it is called, appears. It does not grow more than eight inches high, and sometimes is not more than half of that. It is fond of the dry ground and high prairies, though many plants of the same family love the water.

Coming up so early, while still a cold wind from the north may blow upon it, the "dwarf Buttercup" is covered with a hairy coat to protect it from the wind. Around the root of the plant cluster the leaves which give it the name rhomboid-leaved, that is diamond-shaped, though the corners are softly rounded. As you look at the leaves farther up the you will find them quite different in form. They are slit up into parts, from three to five in number, and it is these separate portions, which being like the foot of the crow, give the plant the name Crowfoot.

When we come to examine the flower closely, it is seen to have five sepal-leaves in the calyx and within these are five rather large yellow petals. The yellow petals make up the corolla of the Buttercup, and no doubt the name Buttercup comes from the yellow color so like that of the butter made from the rich milk of the cows, as they come in with their swollen udders from the rich spring pastures.

The Buttercup has, like the Anemone, a great many stamens, for it belongs to the same family.

When the plant ripens, it again, like the Anemone, has its many seeds gathered together in a crowded cluster. Each of these seeds, called achenes, has a little curved beak. The shape of the seed is so peculiar that some see in it the form of a frog. It is said this is why the botanists called it Ranunculus; that is, a little frog. Other learned men, however say that the Roman writer Pliny called the flower by this name because many of the same family grew in the shallow water where the frogs abound.

The dwarf Buttercup is a brave little flower for it creeps up far into the Rocky mountains, and does not fear the snowfields on the mountain heights. The Crowfoots make up a large family, more fond however of the shady woods than of the open prairie. The juice of the plants of this order is often acid or bitter. Though the dwarf buttercup is harmless yet several of this family, such as Hellebore and Aconite, are very poisonous.

BOTANICAL NAME:—*Ranunculus rhomboideus.*

NATURAL ORDER:—*Ranunculaceæ.*

THE WILD COLUMBINE.

The large, nodding flowers of the wild Columbine draw the attention of anyone wandering in the woods along our streams. The flower is more than an inch long, and the plants from a foot or two feet high. Each stem terminates with a showy flower which hangs blossom downward.

Belonging, as it does, to the Crowfoot family which we have been studying, its leaves are cut or divided. They are compound, and each leaflet is lobed. One finding the Columbine notices at once its five reddish sepals, and its deep red petals, each of which has a long *pollen* spur, called the nectary or honey-bearer. The throat of each petal-tube is a bright yellow. Each of the tubular petals has the appearance of the corolla of a honeysuckle. Some have called this flower the honeysuckle, but this should not be done as that flower belongs to a different order.

The name Columbine is from the Latin word meaning a dove or a pigeon. Why it is so-called is hard to say. Some think the spur of the flower is like a pigeon's claw. The poet Darwin, who wrote the "Botanic Garden," made out in the five nectaries as they are seen on the top of the hanging flower something like a "Nest of young doves fluttering and elevating their necks as the parent approaches with food for them." Perhaps a better explanation is that given by another writer, who sees the dove thus: "Take the central petal of the left hand flower shown in a picture of the plant. The anthers might represent a spreading, feathery tail; the petal, the back; the two sepals a pair of wings; and the long nectary, terminating in a point, the neck and small head." It is certain that the school children in Britain pull apart the blue Columbine, which grows in gardens there, to see the dove thus shown.

Another name given the flower, is the Aquilegia. This is also from the Latin word, meaning the eagle and probably referring to the claws. Others think that the name Aquilegia means the water-carrier having reference, no doubt, to the bottle-shaped nectary or corolla spur.

In the Columbine, as in the other flowers of the Crowfoot family, the stamens are many, and within these is a crowd of carpels. When the flower dies and the seed ripens, it nods no longer, but becomes erect. The ripened fruit is a five-divided pistil, with a long, slender tail from each seed.

Though so beautiful, the Columbine has not been a favorite. One old writer speaks of it as a "thankless flower," and this name may have been given on account of the disposition to spread beyond the space allotted to it in the garden. Another writer says it is the emblem of those who are forsaken. Shakespeare speaks of it in his play of Hamlet, where the distracted Ophelia in saying

"There's fennel for you, and columbine,"

seems to use the flower as a symbol of ingratitude.

The flower is well known in all the provinces from the Atlantic Ocean to the Rocky Mountains and is called the Canadian Columbine. In some parts

of the west the red color of the flower fades away, and the whole corolla, both inside and outside becomes yellow, or even turns to a cream color or clear white. If Manitoba scholars will carefully transplant our Columbine from the woods to the gardens at their homes, it will grow very well.

BOTANICAL NAME:—*Aquilegia Canadensis.*

NATURAL ORDER:—*Ranunculaceæ.*

THE COMMON BLUE VIOLET.

No flower is better known than the little blue Violet. It nestles in many a retired plot of green grass, "with all the loveliest children of the shade." In every shaded corner, in woodland or on prairie from the Atlantic Ocean to the Pacific, the blue Violet is found—an emblem of simplicity and modesty.

The flower stands nodding on a slender scape or stalk, which rises from a cluster of heart-shaped leaves at the very root of the plant. The root itself is fleshy and thick, is slightly acrid in taste, and gives off no runners as some violets do. The five sepals have small ears like enlargements at the base. The five petals of the irregular corolla are of unequal size, and the lower one is one-spurred at the base. The petals are usually blue, but often vary, being purple, sometimes dotted with white, though a trace of blue is almost certain to be found on some part of the corolla. Though so irregular in form the violet is a good example of symmetry, for besides its sepals and petals being in fives, it has five stamens also. The stamens are broad and have inturned anthers and are united very closely over the pistil. The spur of the violet affords a very interesting study. From two of the stamens, you will see on splitting down the spur of the corolla, there proceeds a green heel-like projection filling up the spur. There has been much debate as to the use of this strange growth, but we are still in the dark about it. The pistil has a club-shaped style and the stigma is turned to one side when the flower ripens. The fruit is a pod containing only one cell. This pod which is filled with seeds, can be seen on close observation to be three-valved. The Violet, being found in every locality has been a favorite, and may be called the "poet's flower." Our great Shakespeare tells us the

"Violet is for faithfulness,"

and it is no wonder that the Arabian prophet Mahomet for this reason thought it the best of flowers. The Napoleon family in all its misfortunes has kept the Violet as its sign and token of devotion to a falling cause.

The scientific name given the Violet, *Viola cucullata*, refers to the same fact noted by the children in Great Britain who call the flower of the Violet

"cuckoo's shoes," probably from the resemblance to the foot of that bird.

From the modest little Violet let us learn the lesson of constancy. Many of us may never be great. We may spend our lives in some humble sphere, and if we do our best there, may be a blessing to our fellowmen, just as the modest Violet is to the lover of nature. Whatever our lot may be, we may wear the Violet and prove constant in our devotion to all that is good and worthy.

BOTANICAL NAME:—*Viola cucullata.*

NATURAL ORDER:—*Violaceæ.*

ROSES AND RUE.

A maiden walked in the garden fair,
Where lovely flowers perfumed the air,
Where fountains plashed and the shadows sweet,
Played o'er the grasses around her feet;
Where toiling bees hummed their busy song,
And blithe birds carolled the whole day long;

No Rue that bloomed on the garden wall,
No fragrant Lily erect and tall,
No bright Carnation or Fuchsia bell,
No Wallflower, Orchid or Asphodel,
Could win the maiden's admiring glance;
She passed them all with a look askance,

The blushing Peach and the low-hung Pear,
The luscious Grapes in abundance there,
Enticed her not—Plum and Nectarine
Might tempt in vain with their velvet sheen,
For from garden so bright to view
She gathered only—a sprig of Rue.

In life's fair garden rare pleasures lie,
And will you pass them neglected by?
Gather no bloom from life's summer bowers,
To fill with fragrance the winter hours?
Pleasure or pain may be plucked by you;
Will you leave the Roses to cull the Rue?

Who passes the blossom of kindness by,
And leaves Love's Lilies to droop and die;
Who gives no heed to Affection's flowers,
Plucks no ripe fruit from life's well-hung bowers,
Of Trust, or Sympathy, tried and true,
Has left life's Roses to cull its Rue.

POISON IVY.

Who has not met the sufferers from our Manitoba Poison Ivy? Some thoughtless person at a picnic, or lover of nature wandering through the woods along our rivers touches the dangerous plant and has severe blotches break out upon the face and hands, and suffers much inconvenience from it. In some cases the poisoning returns at certain times in succeeding years. It is important to know the Poison Ivy and avoid it.

Usually the harm is done by the person thinking it to be Virginia Creeper, a beautiful plant of the Vine family which grows widely. The two

may be easily distinguished by their leaves. The Virginia Creeper has a five-divided leaf, the Poison Ivy a three parted leaf, each leaflet being somewhat four-sided. Sometimes the Poison Ivy climbs by means of rootlets over rocks, walls and trees, at other times it is low and erect.

The flowers of the plant are small, and greenish or yellowish-white in color, some being perfect and others not. The flowers have a fine symmetry, the sepals, petals and stamens being in each case in fives. The fruit is a small, dry drupe.

The leaves of the Poison Ivy are somewhat divided or sinuated, and it is probably this that gives it some of the appearance of the oak, and leads to the plant being called by some the Poison Oak. Another plant related to this Ivy called the Poison Elder is also highly dangerous.

BOTANICAL NAME:—*Rhus toxicodendron.*

NATURAL ORDER:—*Anacardiaceæ.*

THE SENECA SNAKE ROOT.

Six very different plants are called by the name of Snake Root. In most cases the name seems given on account of the plant having a thick underground root-stock, from which the stems spring up. Several of the Snake Roots have qualities which make them useful medicines. The Seneca Root is perhaps the best known of these, and was long ago used by the Indians as a herb of healing. The name Polygala given it by the botanists, refers to the effect of the plant in producing milk in animals which eat it. The common name—milkwort—borne by it, means the same, the word wort being old English for plant.

Early in May, in Manitoba, the plant appears above ground with a bunch of small, reddish tops, and several stems spring from the same knotty root-stock. These grow six inches or more above the ground. The leaves are alternate on the stem, and are lance-shaped with rough margins.

The flower of Snake Root is very irregular. The sepals of the calyx which do not soon wither, though five in number differ much in appearance, the upper and the two lower being small and greenish, while the two on the side which are called “wings” are rounded, oval, large, and are colored like the petals.

The petals are striking in appearance. They are joined together and united to the stamen-tube, the middle one being keel-shaped. The stamens are six or eight in number, and are combined into a split sheath. The plant has one pistil. The Snake Root grows upon dry spots on the prairie, has a

bitter taste, and is somewhat aromatic. It is largely used in medicine, being a useful agent for clearing the throat and lungs. A syrup is made from the root and sold as the Extract of Seneca. Great quantities of the plant are gathered from different parts of Manitoba, and its collection is becoming a considerable industry. This year not less than 120,000 lbs. were exported from Winnipeg, and the dried root is sold at from twenty to thirty cents a pound. It is sent to Eastern Canada, the United States, to Germany, and many European countries.

The plant is largely found in the drier parts of the Red River Valley, Lake Manitoba District, and far up the Saskatchewan. The Indians and natives of the country are those chiefly engaged in collecting it. As soon as May comes they are on the lookout for it, and before the end of that month bring in to the merchants their first lots. The natives have great skill in finding the plant as it is making its way out of the ground in May, and with a sharp spade dig it up very expertly. They then wash the root and dry it in the sun. When the root is quite brittle, it is considered dry. The small, fine root is most valuable, and collectors are warned by the merchants against gathering the large, coarse and bulbous root. The trade in the Seneca Root is becoming quite important in Manitoba and the supply of the plant seems inexhaustible.

BOTANICAL NAME:—*Polygala Senega.*

NATURAL ORDER:—*Polygalaceæ.*

THE EVERLASTING PEA.

On our sheltered river banks, and on the most fertile spots, masses of climbing vines interrupt us as we wander in search of flowers. These are the matted stems of the Everlasting Pea, and are often covered with a downy coating. The stems are marked by leaflets, in pairs from four to six in number, with little narrow leaves or stipules, as they are called, at the base. The tendril as it twines from the end of this compound leaf enables us at once to tell the flower to be one of the pea family. The green calyx is small and five-toothed, though two of the teeth are shorter than the other three. But the corolla of the Pea attracts everyone's notice. It is very irregular and as you look closely at it you can imagine it to be a butterfly in purple. The ancients named the five petals which make up the corolla in a very pretty manner. The large leaf standing up so erect they called "the standard," the two leaves of the same shape and size, one on each side, they knew as the "wings," and noticing that the other two leaves were joined together in a round sack running out to a point, this became to them "the keel," although it is more like the prow of a boat.

Perhaps nothing about the Pea blossom is more beautiful than the grouping of the ten long stamens which are found enclosed within the keel of the corolla of the flower. Nine of the stamens grow out of a flattened narrow leaf and look like a strong brotherhood united together against all comers, but one solitary like a sentry standing before them makes up the number. The pistil of this plant is also most interesting. It has a flattened style, which is quite hairy on the side facing towards the solitary stamen. When the pistil ripens it forms the well-known pea-pod. Try to get a ripened pod of this flower, or what will do just as well, a pod from a sweet pea stalk in a flower garden, or from a field in which green peas are being gathered for dinner. Break open the pod and you will see that it contains only one cell, being like the two halves of a leaf folded together, along midrib. The row of seeds fastened like little flattened eggs are called ovules from the Latin word for egg. It is from ovules or seeds that the new pea plant will spring up the following year.

The pea is very useful for feeding cattle on our prairies. The herd when grazing are glad when they can become entangled in the matted peas, and take many a good mouthful before they leave the thicket. Where the pea grows we know the land is good, and prairie farmers value highly thickets of climbing peas. The pea is a humble, modest flower, twines upon any support it can reach, but is none the less useful. If you look closely you will see that it is not the plant which holds its head high like the bulrush that after all is most sought for and valued. Let us admire the

> "Vines with clustering bunches growing
> Plants with goodly burden bowing."

BOTANICAL NAME:—*Lathyrus venosus.*

NATURAL ORDER:—*Leguminosæ.*

THE PRAIRIE TURNIP.

On the dry plains from the Red River to the Rocky mountains grows a plant belonging, like the Everlasting Pea, to the Pulse family. It is very different in almost every way from the Everlasting Pea. It is from six to fifteen inches high and is quite erect. The plant is covered all over with roughish hairs and with curious dots or points. It springs up as a stout stem straight from a turnip-shaped root, which gives the common name to the plant, and, as we shall see, makes it celebrated.

The leaflets are rounded with the broad end farthest from the stem. The leaves branch out from the stem like the five fingers on your hand, and are

hence called palmate. The little blue flowers, each about half an inch long, are all closely arranged along the top of the stalk and form what is called a raceme, or long flower cluster.

Now let us examine one of the blossoms. The petals are united into a cup or calyx, but have five lance-shaped teeth; the corolla with its five petals is as real a butterfly-shaped blossom as that of the Pea. Notice again the shape of each petal, draw a picture of each in your note book, and mark them with their names.

The stamens as in the Pea are ten in number, but are in one brotherhood and have one-half of the anthers on the top of the stamens smaller than the other half. The fruit of the Prairie Turnip is, however, not so beautiful a pod as that of the Pea, but is thick, and shrivels up with its one seed upon the plant. The most striking thing about this plant is its root, which is about the size of a hen's egg and is well buried in the ground. The name given it by the botanists, "esculenta," is Latin and means eatable. The Indians and traders dig up this root, peel off the tough skin which covers it, and find the starchy substance sweet and very satisfying. When the root has been dried, it is easily powdered into a light flour, which may be used in the same way as wheat or barley flour.

The French traders who first came to the North-West were fond of it and called it in their tongue the "white apple," "ground apple," and the "prairie apple." As this useful root was used much by the Indians, before the whites came to the North-West, it is also known by the names of the two great Indian races as the "Dakota Turnip" and "Cree Turnip."

How good the great Father in Heaven is in providing his children with food may be seen in the following story. In the fifth year of this century, a trader named Pritchard, whose grand-children still live in Manitoba, was lost west of where Brandon city now stands. Becoming separated from his companions and losing his way, he crossed the Pipestone and Souris rivers, and reached the great plain between the Souris and Turtle Mountain. At last he found himself at a deserted hut which he knew, and this was forty or fifty miles from the nearest white man.

Here is what he says after several days of hardship: "I this day found a plant whose roots the Canadians call the Turnip of the Plains. But not having a knife or axe to make a stick, I had no hope of digging them up, the root being at least a foot in the ground and the ground extremely hard. The root is from two to three-and-a-half-inches long one-and-a-half-inches in girth, and by no means unpleasant to the palate." Finding at length a sharp stick, the trader succeeded in digging up the plant, and says further, "Having eaten a few raw, I returned to my encampment with about half-a-dozen, roasted

them for supper, and found myself greatly refreshed next morning." It was the Prairie Turnip that saved Pritchard. Worn to skin and bone, he was at last helped by a band of passing Indians, and after being lost forty days, was brought to the Fort at the mouth of the Souris. The old trader to his dying day thought his escape miraculous.

BOTANICAL NAME:—*Psoralea esculenta.*

NATURAL ORDER:—*Leguminosæ.*

TWO LITTLE ROSES.

One merry Summer day
Two roses were at play;
All at once they took a notion
They would like to run away!
    Queer little roses;
    Funny little roses;
To want to run away!

They stole along my fence;
They clambered up my wall;
They climbed into my window
To make a morning call;
    Queer little roses;
    Funny little roses;
To make a morning call!

—JULIA P. BALLARD.

THE WILD ROSE.

Most beautiful and most beloved of all the flowers of garden and field is the Rose. Like its companion the Lily it has ever been the poet's flower. The purity symbolized by the Lily and the affection betokened by the Rose have always been the qualities in humanity most valued by the world. These two flowers, so unlike each other, seem to blend in beautiful harmony. A writer has said: "From rose and lily we acquire our best ideas of what *exogens* and *endogens* really are; the twofold realm of floral nature universally acknowledges them the respective queens.... The names of the two are of oriental and very ancient birth."

The Rose is one of the most variable flowers as to the color of its petals. To us the red Rose is the common type though the white and yellow are well known. According to tradition white was the original color of the Wild Rose,

and the fact of there being so great a change shows the power which cultivation has of modifying flowers, especially in the number and color of their petals.

Poetry has playfully sought to account for the change as follows:

As erst in Eden's blissful bowers
Young Eve surveyed her countless flowers,
An opening rose of purest white
She marked with eye that beamed delight,
Its leaves she kissed, and straight it drew,
From beauty's lips the vermeil hue.

The skill of the gardener, added to the natural variability of the Wild Rose has resulted in a great variety of roses in our garden. No doubt the regularity of the flower, as it grew on the thorny stem, and the contrast between the rugged stem and the sweet and gentle flower, early drew attention to it. Its five or six petals, increased so enormously in the garden Rose, attracted attention by their regularity and delightful scent. The pleasant essence of roses is that most delightful perfume, attar of roses. A cluster of yellow stamens forming around the cup-shaped ovary reminds us of the Crowfoot family, and the ripened ovary or rose hip with its bright red skin which belongs to the calyx is known to everyone. Our prairie Wild Rose in its ripened fruit retains in the fleshy coating of the fruit, and its numerous seeds, a store of food for birds, and especially for the prairie chickens.

The important place taken by the Rose in the affairs of men is worthy of notice. The red and white Roses were the badges of the two parties, Lancastrians and Yorkists, in the great civil war which devastated England for generations. Shakespeare makes Plantaganet say:

"Let him that is a true-born gentleman
. . . . . .
From off the briar pluck a white rose with me."

and Somerset replies:

"Let him who is no coward, nor no flatterer
. . . . . .
Pluck a red rose from off this thorn with me."

How beautiful the turn given to the sweetness of the rose in Romeo and Juliet:

"What's in a name? That which we call a rose
By any other name would smell as sweet."

and, again, when fading nature is spoken of elsewhere by Shakespeare:

"The seasons alter. Hoary-bladed frosts
Fall in the fresh lap of the crimson rose."

Seek out the spots where the roses grow. There nature has placed the most fertile soil. There other wild flowers and useful herbs will be found springing up. Note carefully the character of the roses, for the botanists tell us that in Manitoba the Rose has not been well studied, and we may help to place them in their proper varieties.

While some may differ from us, we describe our Prairie Rose as follows:

BOTANICAL NAME:—*Rosa blanda.*

NATURAL ORDER:—*Rosaceæ.*

THE PHLOX AND ROSE.

One autumn day when skies were gray,
The gardener came to take away,
And give a corner of its own,
A Phlox which had with Roses grown,
And which had found among its roots,
In June, some green and tender shoots,
That soon the sweetest flowers bore,
That ever bush in garden wore,
And every week thereafter grew,
Until the Phlox had blossomed too,
Roses as lovely and as shy,
Half-hidden from the passer-by.
"Ah!" said the bush, that autumn eve,
"When you are gone how I shall grieve;
In summer days for me you've made,
From burning Sun a pleasant shade,
And in the winter-time thought I,
Still care and shelter will be nigh;
I love you more than I can tell.
How can I bear to say farewell?"
"Dear Rose," the stately Phlox replied,
"We must not part whate'er betide;
Such gratitude as yours, that brings
An offering of the sweetest things,
Before one's own fair blossoms grow,
I ne'er could find again I know;
Cling closer dear and you shall be,
Borne to my new abode with me."
The Rose obeyed, and hidden quite,
Haply escaped the gardener's sight;
And when again 'twas fragrant June,
And all the song-birds were in tune,
Peeping from out the Phlox's green,
Its lovely crimson blooms were seen.

—Margaret Eytinge.

THE THREE-FLOWERED AVENS.

This flower appears upon the prairie in May and continues through June. It was well known to the Romans who called it "Geum," a name referring to the good taste of its roots, which are said to smell like cloves.

Its beautiful stems are less than a foot high, and they are clothed with a rich foliage. A writer has said: "The finely cut leaf is suggestive of the much admired fern, and indeed in this respect it is superior to many of that family,

but it wants the delicacy of texture which, as much as elegance of form, gives the fern so much beauty."

The chief beauty of "Geum," however, consists in the rosy red flower stem which rises up in the midst of green leaves. This is three-branched, as its name implies. At the bottom of the three-forking stem are long and slender deep red bracts.

Each of the flowers has a bell-shaped calyx, whose teeth show that it is made up of five sepals; and five little bracts peer up between the five teeth. Belonging as this flower does to the Rose family, it has like most of that family five regular petals. In the Avens these are pale pink or white, but they are so modest that you must open the calyx to see them. Inside the petals is a numerous group of stamens. These yellow anther-bearing bodies are very numerous in all of the Rose family, as we saw they were also in the family to which the Anemone belongs.

When the petals and stamens fall off, the ripened head of the Avens is very pretty. As in the ripe Anemone the seeds, which are many and separate, have long plumose tails. These in their reddish hue follow the bright color of the stem. Some species of the Avens are used for making tea, and serve as a light tonic. When the leaves of this flower are gathered and dried and neatly arranged in a rosette they make a pretty ornament. These flowers are said to grow well in gardens, and Manitoba scholars will do well to transplant a few of them to their flower plots.

BOTANICAL NAME:—*Geum triflorum.*

NATURAL ORDER:—*Rosaceæ.*

THE SILVER WEED.

Creeping along the ground, the Silver Weed with its winding stem and pretty golden blossoms, looks to us, as we hurriedly pass it, like a yellow-blossomed strawberry plant. Indeed, it is closely related to the Strawberry, belonging to the same family—that of the Rose. This plant spreads wide its slender many-jointed runners, which are covered with white matted hairs. The running stems bear compound leaves. These are green on the upper side, but silvery-white beneath. Hence the name Silver Weed. The compound leaf has pairs of opposite leaflets, and a leaf at the end of the stalk.

It is from the five leaflets of a species closely related to this that the French name "Cinque-foil" is taken. Another name, "five-finger," is often used by us in speaking of the plant. The name (Potentilla) found below is

from a Latin adjective *potens*, meaning powerful, given because this plant was much used in medicine by the ancients. They thought "it good against all sorts of agues and fevers, that it cooled and attempered the blood," and that it had many other virtues. We do not now regard it of any such value.

Rising up from the axil of the leaf is a long stalk, or, as it is called, peduncle, bearing the yellow flower on its summit. As in the other flowers of the Rose family the sepals are five, but in this case they have five small leaves or bracts alternate with them, making the calyx look as if it were ten-cleft. The blossom has five roundish yellow petals. The stamens are very numerous.

When the flower ripens, the fruit consists of achenes or little nuts, which are collected in a sort of head. The styles of the pistils are fine and thread-like, and the seeds look as if they were covered by a growth of thin hair. Some botanists wish to group this plant with a number of other specimens, under a name meaning those that have seed bearing a head of hair.

The Potentillas are very numerous. Some varieties become troublesome weeds, but the cinque-foils of Manitoba, of which there are many, are harmless plants.

BOTANICAL NAME:—*Potentilla anserina.*

NATURAL ORDER:—*Rosaceæ.*

THE GREAT WILLOW HERB.

As the summer wears on, the Great Willow Herb, with its tall and striking appearance, attracts our attention. Growing from two to four feet high, its showy pink blossoms adorn the plant which springs up in great richness along the roadsides and on somewhat damp ground. It is especially abundant where the fires have lately swept away the herbage, and it might well be called the new settler's companion. The common name, "fire-weed," is given this plant on account of its being found so largely on land that has been newly burnt over.

The stem of the Willow Herb is strong, and grows up firm and erect. The leaves of the stem are almost without stalks, and are nearly lance-shaped. Being very narrow, and having much the appearance of willow leaves, the leaves of the fire-weed give the name of Willow Herb to the plant. It is the narrowness of the leaf that gives the second name found below.

As we look at the regular flowers of the Willow Herb we are struck with its resemblance to our common house plant, the Fuchsia, with its nodding flowers. The same beautiful symmetry of all the parts, shows it to belong to

the same order. If one of the flowers, which are arranged along the stem to form what is called a raceme, is taken the calyx is seen at a glance to have four teeth, thus showing four sepals; and the pretty pink petals are also four in number. A close look at the anthers which surmount the eight stamens will show them to be quite small. Very prominent in the corolla of the flower is the long style with its four-cleft stigma. When the anthers begin to give off their pollen, the style is curved backward and downward, and with stigma closed prevents fertilization. Shortly after, however, the style straightens and rises to its full height. At the same time the stigma opens its four little lobes and receives pollen from some other flower borne by the wings of some wandering bee. When the seed ripens it consists of a pod with a tuft of long silky hairs at the end. The name *Epilobium*, given below, seems to refer to this, for it means "upon the little pod."

The Willow Herb is one of the most stately and beautiful of our flowers, and is of great service in covering the black, unsightly spots left by the forest and prairie fires. Were it not for this the settler would often despair as he thought of his former cheerful home across the sea or in some eastern province; but when he sees such beauty springing out of desolation, he is encouraged to labor, knowing that the great Creator is the author and dispenser of the beautiful in nature around us.

BOTANICAL NAME:—*Epilobium angustifolium.*

NATURAL ORDER:—*Onagraceæ.*

THE EVENING PRIMROSE.

As we travel in any direction over the dry prairie of Manitoba, we see a tall, somewhat rough-looking plant with a light yellow flower. This is the Evening Primrose. Seen under the mid-day sun, its flowers are faded, and seem to be shrinking from his blazing heat.

The Evening Primrose is among flowers what the owl and the night-hawk are among birds. It loves the night. Attracted by its pleasant odor, we have sometimes come upon it in the evening, and have found its fragrant yellow blossoms in full bloom, and seemingly rejoicing in the falling dew. The stem of this flower grows from one to four feet high, and is covered with alternate, lance-shaped leaves and topped with flowers in a spike. The plant is generally found with a hairy covering.

Like the Willow Herb this flower is very beautiful in its symmetry. Thus it has four teeth in the calyx, and has four light yellow petals all separate from one another. The delicate petals fade very soon; indeed, become pale

after a single day's flowering. Their yellow corolla shines out so strongly in the darkness, that it attracts to it the night-insects, and its sweet fragrance is said to be the guide to the pink night-hawk moth which comes to burrow in its stamens and carry the pollen to another flower of the same species. Late in the season the flower of this Evening Primrose opens in the day instead of the night. The pistil is one, but the stigma is divided into four lobes, as in the other members of this order.

Those who live on our great plains may well delight in this beautiful flower, with its strange, night-blooming habit. The group to which this plant belongs is almost confined to North America. It was, however, known to the Greeks and Romans, and the name given below has been differently explained. Some say it comes from a Greek word which refers to the root of the plant having a smell like wine; others say that the juice of the plant was mixed with wine to make people feel jovial. We do not need either the wine itself or this mingled juice to make us feel glad. Good health, and steady habits, and a well-furnished and contented mind can give us more lasting pleasure than any such exciting aids.

BOTANICAL NAME:—*Œnothera biennis.*

NATURAL ORDER:—*Onagraceæ.*

THE WATER PARSNIP.

Those who have ventured into the swampy or wet places in Manitoba may have noticed a plant that calls to mind the ripening carrot or caraway of our gardens. It attracts us by its tall stem, which is from two to six feet in height. This is the Water Parsnip.

As we grasp its tall stem it is found to be hollow. Its leaves are alternate, are twice or thrice compound and the leaflets are coarsely toothed. The petioles or stalks of the leaves are broad and sheathing at their bases. It is, however, the flower cluster on the top of the stem of the plants of this family, which is most striking. The flowers of the Water Parsnip are very small and uninteresting, but they are elevated on stemlets, which are two or three inches long. These spring up from one point where there is a circle of bracts on the stem, and they branch out in the same way as the ribs of an umbrella, which start from the ring that holds them. This is called an umbel, and it is so striking that the large family to which the Water Parsnip belongs is known as the umbel-bearing family. This beautiful flower cluster sometimes by its sub-dividing stemlets makes a secondary set of umbels which are beautiful. With a calyx with five teeth, a corolla of five white

petals, and five stamens, this order shows a beautiful symmetry. When the flower has ripened the two seeds become quite prominent. As the seeds, which cohere to one another by their inner faces, become ripe they separate, and hang suspended from the top of the lengthened axis.

Each carpel is marked over with fine primary ribs, and sometimes with others intermediate, along side of which are curious oil tubes, filled with an aromatic oil. It is this oil which gives the flavor so prized in cakes, which contain caraway seeds.

The family to which the Water Parsnip belongs has some useful members, but also a number of very dangerous ones. Among the useful are the carrot, parsnip, parsley, and caraway of our gardens. To this order, however, belongs the Poison Hemlock which was used in ancient times in poisoning criminals, and by which it will be remembered the great Greek philosopher, Socrates, was condemned to die.

This deadly hemlock is sometimes confounded with a flower of the same family, named Sweet Cicely, which occurs in Manitoba and whose roots, on account of their pleasant taste, are much sought for by school children.

On account of the flowers and seeds of the umbel-bearing family being so small, it is very troublesome to distinguish its sub-divisions from one another, and the order is considered a difficult one, especially for beginners.

BOTANICAL NAME:—*Sium cicutæfolium.*

NATURAL ORDER:—*Umbelliferæ.*

WILD SARSAPARILLA.

As you wander through the woods on the banks of the streams in Manitoba during the month of July, a leafy plant with a stem little above the ground, and a single long-stalked leaf from one to two feet high rises above the ground. This bears a flowering umbel, somewhat resembling that of the Wild Parsnip, which attracts attention. The compound leaf, with its three-cleft divisions and its much-divided leaflets, supports the simple scape which bears the umbel of flowers. The small greenish-white petals, five in number, are surrounded by the toothed calyx which is attached to the ovary. There are five stamens, and the pistils vary in number. The fruit of this plant is characteristic and beautiful, forming, as it does, a cluster of dark berries later in the year.

The aromatic roots of this plant are sold as a substitute for the true Sarsaparilla. The real Sarsaparilla is a species of the same family, and goes by the name of Ginseng. It is pleasant, though slightly bitter in taste, and is

much valued in China for its medicinal properties, being thought a remedy for exhaustion whether of mind or body. Large quantities of this root are collected in some parts of North America and are shipped to China for use in that country. Ginseng is not regarded as of great value by our medical men.

Another member of the family—the Chinese Rice Paper Plant—is very well known. In making it useful in the arts, the pith of the papery Aralia is cut in thin leaves and then pressed flat. The naked long-stalked leaf of our native Aralia no doubt gives rise to the specific name borne by the plant.

BOTANICAL NAME:—*Aralia nudicaulis.*

NATURAL ORDER:—*Araliaceæ.*

THE SMOOTH HONEYSUCKLE.

Manitoba has many birds which come as visitors from the South, and in Summer flit from bush to bush and tree to tree. Among these the smallest and most brilliant in coloring is the Humming Bird. This bird is not found in the British Isles, but belongs to the Continent of America. As it darts about with buzzing sound in the summer sun it is sure to find the Honeysuckle. The Honeysuckle has such long, tubular flowers, that it seems as if nature had given it to the Humming Bird as a special prize, for its long and slender bill is almost the only one that can reach to the bottom of the Honeysuckle.

Our Honeysuckle is a beautiful, twining plant from three to five feet high, finding its support on some of the stronger trees or shrubs that skirt our rivers. It is very smooth, and is covered over with a bloom such as that which rubs off upon your hand from a cabbage leaf. Hence the botanists call it glaucous. The leaves are mostly oval and the edges are entire. They have no stalks and often fold around the stems. The topmost leaf opens out in a flat and rounded shape. The flowers are grouped together in whorled clusters.

As we examine the calyx we find that its teeth are very short and unimportant, but the corolla is the glory of the Honeysuckle. In our plant the corolla is a pale yellow tube, rough and hairy within. It gapes wide open, and has a lower lip quite narrow, which has opposite it the upper four-lobed lip which is broad. Within the tube of the corolla stand the five stamens. When these have cast their pollen and the seed has ripened, they, along with the colored corolla, wither away, and leave the red berry with calyx-teeth gathering firmly around it. How wonderful is the provision of nature for the delicate objects which it produces!

The beauty of the Honeysuckle, with its twining stem, has always appealed to the imagination of the poets. Shakespeare, in describing the fairies, makes Queen Titania say:

> "Sleep thou and I will wind thee in my arms,
> So doth the woodbine....the sweet
> Gently entwist."

The Honeysuckle is trained in gardens to twine about pillars and cover garden houses. In one of Shakespeare's plays a striking picture is thus drawn:

> "The pleached (*i.e.* inwoven) bower
> Where Honeysuckles, ripened by the sun
> Forbid the sun to enter, like favorites
> Made proud by princes, that advance their pride
> Against the power that bred them."

In describing the sweet smell of the Honeysuckle after a shower of rain, an old writer says:

> "It spreadeth forth his sweet lilies like ladies' fingers among the thorns."

The Honeysuckle has always been a favorite with children, and indeed its name is said to have been given from the custom of children formerly sucking its trumpet-shaped flowers for the sake of the sweet juice they contain.

BOTANICAL NAME:—*Lonicera Sullivantii.*

NATURAL ORDER:—*Caprifoliaceæ.*

THE WILD SUNFLOWER.

A Canadian botanist describes our Wild Sunflower as "very abundant in the prairie region from Lake of the Woods to the Rocky Mountains, and northward to the forest line." Growing on the open plains and pushing its way into the wheat fields, the Wild Sunflower, as it lifts its yellow petals towards the heavens, seems a pale reflection of the brilliant orb, the sun, that shines so brightly both in the summer and winter in the Manitoba sky.

In few countries in the world is there so great a proportion of sunshine as in North-Western Canada, and the Sunflower might be chosen as our emblem.

No less than twenty-two species of Sunflower are found in North America, including the common garden Sunflower, and eleven of them occur in Canada.

It has always appealed to the imagination of the peoples of America—savage and civilized. It was admired by the Mexicans and was employed in their sculpture. A writer has said: "Like the lotus of the East, it is equally a sacred and artistic emblem, figuring in the symbolism of Mexico and Peru, where the Spaniards found it rearing its aspiring stalk in the fields, and serving in the temples as a sign and a decoration, the sun-god's officiating handmaidens wearing upon their breasts representations of the sacred flower in beaten gold."

Our Wild Sunflower grows with its rough and hairy stem from three to ten feet high, and so has been called by botanists the "gigantic Sunflower." Its stem has along it lance-shaped leaves, and these are green on both sides, an unusual thing. The flowers of the Sunflower are what are called composite. Scholars must be careful to notice that the cup supporting the compound flowers is not a calyx but a gathering of bracts or scales.

When looking at the Composite family, you must not be misled. The bright yellow leaves all around the flower are each separate flowers, but in the Sunflower these which are broad like a strap have neither stamens or pistils. Inside of these, however, there are perched upon the top of the receptacle plenty of tubular flowers. These are called disk flowers. They are gamopetalous, and are each provided with stamens and pistils, being thus called perfect flowers. These are so small that you must use to study them a magnifying glass.

Many people are discouraged in the study of the Sunflower. There is no need of this. If the two kinds, ray flowers and disk flowers, are distinguished, and care taken to examine each carefully, any painstaking scholar may work out many of the composite flowers. Each of the ripened achenes or nutlets upon it has two chaffy stalks which fall off.

Before leaving this gigantic Sunflower, we may notice that the roots often become thick, something like the tubers of the potato. This reminds us of the fact that the Jerusalem artichoke, which is grown in our gardens, has potato-like tubers also. This artichoke is a species of Sunflower, and it is curious that the name Jerusalem given it is a corruption of the Italian word "*girasola*" meaning a Sunflower. The Sunflower has become a favorite in some schools of modern art, which pride themselves on being æsthetic.

BOTANICAL NAME:—*Helianthus giganteus.*

NATURAL ORDER:—*Compositæ.*

THE MOUNTAIN AND THE SUNFLOWER.

I know a Mount the gracious sun perceives
First when he visits, last, too, when he leaves
The world; and, vainly favored, it repays
The daylong glory of his steadfast gaze
By no change of its large calm front of snow.

And underneath the mount, a flower I know,
He cannot have perceived, that changes ever
At his approach, and, in the lost endeavor
To live his life, has parted, one by one,
With all a flower's true graces, for the grace
Of being but a foolish mimic sun,
With ray-like florets round a disk-like face.

Men nobly call by many a name the mount
As over many a land of theirs its large
Calm front of snow like a triumphant targe
Is reared, and still with old names, fresh names vie
Each to its proper praise and own account:
Men call the Flower, the Sunflower, sportively.

I choose for my device
A sunflower outspread like a sacrifice
Before its idol.

THE CONE FLOWER.

Very closely related to the wild Sunflower is the Cone flower of our western prairies. It is a joyous looking flower, and as we see its bright face of yellow leaves with the prominent elevation of black or brown in the centre, it suggests to us the familiar and friendly name—Black-eyed Susan—given to the flower in some parts of the country.

It is one of the abundant Composite flowers springing up on our plains in midsummer. Being about two feet high and very bright in color it divides our attention with the wild orange lily which appears about the same time. It is one of the flowers that goes to make the Manitoba prairie one blaze of yellow in August.

Like the stems which are stout and hairy the leaves are rough, and while the upper leaves are long and narrow, and set close to the stem, the lower are broad with leaf stalks. Its botanical name given at the close is after a celebrated Swedish botanist. The name 'hirta,' means rough or uneven, referring to this hairy feature of the stem and leaves.

The flower is well worthy of close examination. The yellow flowers around the outside are called ray flowers, and from their being so flat and broad are known as strap-shaped. These strap-shaped corollas in the Cone flower are neutral, that is, have neither stamens nor pistils. The disk flowers which are lawn or black in color are in the Cone flower crowded on a conical receptacle which rises in the middle of the flower. It is this which gives the common name to the flower. The corollas on the disk are all perfect, that is, have both stamens and pistils, and when the fertilized pistil ripens there may be seen on the withered head the mature achenes or seed, and these are flat and four-sided.

Like the wild Sunflower the Cone flower has no pappus or down, but the top or chaff of each seed has a sharp hairy tip which is quite marked.

Our prairie Cone flower which may be somewhat troublesome to our farmers in the future, has already been carried to the eastern provinces and states and is said to be giving some anxiety as a weed to the overworked farmers of the East.

BOTANICAL NAME:—*Rudbeckia hirta.*

NATURAL ORDER:—*Compositæ.*

THE ASTERS.

The wind-flower and the violet,
They perished long ago.
The wild rose and orchis died
Amid the summer glow;
But on the hills the Golden Rod,
And the Aster in the wood
And the Yellow Sunflower by the Brook
In autumn beauty stood.

LITTLE DANDELION.

Gay little dandelion lights up the meads,
Swings on her slender foot, telleth her beads,
Lists to the robin's note poured from above;
Wise little dandelion asks not for love.
Cold lies the daisy banks clothed but in green
Where in the days agone, bright hues were seen.

Wild pinks are slumbering, violets delay,
True little dandelion, greeteth the May,
Brave little dandelion; fast falls the snow,
Bending the daffodil's haughty head low.
Under that fleecy tent, careless of cold,
Brave little dandelion counteth her gold.

—Helen B. Bostwick.

THE GOLDEN ROD.

Every Province of the Dominion of Canada and also, it is said, every State of the American Union, has the tall, yellow-topped Golden Rod as a familiar flower. Its rich flower stands on a stalk growing from two to seven feet high; and the varieties of the Golden Rod, with their varied appearance, perplex and confuse the youthful botanist. There are said to be no less than eighty species of this plant in North America, and sixty-one of these are found in Canada.

The one we have selected belonging to the species serotina, meaning "late ripe," has a straight stem, which is often smooth or glaucous. The leaves are lanceolate, and very sharply serrate. The heads which are very difficult to examine have the ray flowers yellow, except in one or two whitish species. The tubular flowers are perfect. In the Golden Rod there is a pappus or down, and in the species we are describing it consists of numerous slender and hair-like bristles.

The botanical name of Golden Rod means to make whole, and was given under the impression that the plant had useful properties for healing human diseases.

This is the third flower from the Compositæ that we have described. As this order forms so large a portion of our prairie herbage we may quote the words of the brilliant writer, Mr. Grant Allen, concerning it:

"If we look into the Daisy (and this applies to almost all of the Compositæ) we see that its centre comprises a whole mass of little yellow bells, each of which consists of corolla, stamens and pistil. The insect which alights on the head can take his fill in a leisurely way, without moving from

his standing place; and meanwhile he is proving a good ally of the plant by fertilizing one after another of its numerous ovaries. Each tiny bell by itself would prove too inconspicuous to attract much attention from the passing bee; but union is strength for the Daisy as well as the State, and the little composites have found their co-operative system answer well; that late as was their appearance on the earth they are generally considered to be the most numerous family, both in species and individuals, of all flowering plants."

Another writer has said: "Our roadsides every autumn are lined by tall Golden Rods, whose brown velvety clusters are composed of masses of tiny seeds whose downy scales are set for their aërial flight."

BOTANICAL NAME:—*Solidago serotina.*

NATURAL ORDER:—*Compositæ.*

SONG OF THE GOLDEN ROD.

"How in the world did I happen to bloom
All by myself, alone
By the side of a dusty, country road,
With only a rough old stone.

"For company?" And the golden-rod,
As she drooped her yellow head,
Gave a mournful sigh. "Who cares for me,
Or knows I'm alive?" she said.

"A snow-white daisy I'd like to be,
Half hid in the cool, green sod;
Or a pink spiræa, or sweet wild rose—
But I'm *only a Golden Rod*.

"Nobody knows that I'm here, nor cares
Whether I live or die;
Lovers of beautiful flowers, who wants
Such a common thing as I?"

But all of a sudden she ceased her plaint,
For a child's voice cried in glee,
"Here's dear little lovely Golden Rod;
Did you bloom on purpose for me?

"Down by the brook the tall spiræa
And the purple asters nod,
And beckon to me—but more than all
Do I love you, Golden Rod."

She raised the flower to her rosy lips,
And merrily kissed its face,
"Ah, now I see," said the Golden Rod;
"How this is the very place

"That was meant for me; and I'm glad I bloomed
Just here by the road alone,
With nobody here for company
But a dear old mossy stone."

THE BELL FLOWER.

Nodding on the prairies, the slender Blue Bell is met on all lands during the summer. It is said to have come to us from Europe, and is no doubt the same as the celebrated Scottish Blue Bell.

The flower has awakened great poetic praise in Scotland and we may pay the same honor to our Canadian species.

The patriotic Scotchman sings:

"The Rose summer's emblem is England's chosen tree,
And France decks her shield with the stately Fleur-de-lis,
But brighter, fairer far than those, there blooms a flower for me,
'Tis the Blue Bell, the Blue Bell on Scotland's grassy lea."

Still higher in poetic flight another writes:

"Let the proud Indian boast of his jessamine bowers,
His pastures of perfume and rose-colored dells,
While humbly I sing of those wild little flowers,
The Blue Bells of Scotland, the Scottish Blue Bells.

Sublime are your hills when the young day is blooming,
And green are your groves with their green crystal wells.
And bright are your broadswords, like morning dews gleaming
On Blue Bells of Scotland, the Scottish Blue Bells.

Awake ye light fairies that trip o'er the heather,
Ye mermaids arise from your coralline cells,
Come forth with your chorus all chanting together
The Blue Bells of Scotland, the Scottish Blue Bells."

The Campanula or Bell flower is slender, branching, and from six inches to a foot in height. The root-leaves are heart-shaped, and wither early, while the stem-leaves are many, and are long and narrow. The bright blue corollas nodding from their hair-like stems are the beauty of the plant. The sepals are in fives, the corolla though a tube is five-lobed, and the stamens are also five in number. There is one pistil with three stigmas.

Some differences of opinion have prevailed as to what species our North-West Blue Bell most nearly approaches. Though our Blue Bell is called round-leaved yet the round leaves are rarely obvious. Taken altogether we hold to the name given below. The name Hare Bell is also given to this flower. It is without doubt one of the most beautiful of our prairie flowers.

Botanical Name:—*Campanula rotundifolia.*

Natural Order:—*Campanulaceæ.*

THE WINTERGREEN.

In northern climates no plants are more appreciated than the evergreens. The beautiful coating of white snow pleases us for a time, but we delight to

find beneath it the green leaves retaining life, and giving us the promise of returning spring. Great purposes are served to the farmer by the sleep of nature during winter, but the humble Wintergreen reminds him the growing fields and verdure-clad trees of the coming season.

The Wintergreen belongs to the Heath family, which is a large and important order, containing another plant called by some the Wintergreen, which with its red berries is best known as Teaberry and Boxberry. To the same family belong the Scottish Heather, which, with its pretty pink bells, appeals to the hearts of Scottish exiles in every part of the world, and the Labrador tea used in arctic regions for a beverage, as well as the strange corpse plant or Indian pipe found growing along the Red River. The Heaths are a family chiefly of the north temperate zone.

In the Wintergreen, growing up from an underground running root-stock appears a cluster of green leaves, thin and dull, elliptical in shape, and longer than the stalk bearing them. These leaves in their attractive cluster resemble somewhat those of the common pear tree which the Romans knew by their word "Pyrus," a name from which that given at the close of this description is derived. These broad leaves were supposed in England to be useful for the healing of bruises and sores, and so were applied as plasters. Being used for bruises of the shin or fore-*part of the leg this plant has often been known as Shin leaf.

Springing out of the cluster of sheltering leaves rises an upright scaly scape, which is surmounted by a many-flowered raceme of pretty white nodding flowers. These suggest the appearance of the Lilies of the Valley as we first look at them.

Examining a single flower, we see that the small calyx is five-parted and unwithering, and within this are the five petals, which are rounded, rather spreading and greenish-white in color. The flower is quite regular, and the symmetry is maintained by there being ten stamens, and even by the long style having on its top a five-lobed stigma. The seeds of the ripened ovary are very small, resembling saw-dust.

In July, rather towards the end of the month, will be a good time to be on the lookout for the Wintergreen with its pretty raceme of nodding flowers.

Botanical Name:—*Pyrola elliptica.*

Natural Order:—*Ericaceæ.*

THE BIRD'S-EYE PRIMROSE.

No more celebrated or more favorite flower than the Primrose is known to us. Pliny states that it was under the care of the superior gods, and hence its great fame. Its regular form and simple beauty render it attractive. It is often known in England as the cowslip, and from its yellow flowers a pleasant drink called cowslip wine is sometimes made.

The name Primrose is given from the fact that the true Primrose comes up very early in the spring, and so is well described by the Latin word for first. The term primula refers to the same thing.

Our Prairie Primula is a low-lying plant, and sends up a tuft of veiny leaves from the root. These leaves are simple, and in our plant have a white mealiness, at least when young. The specific name in the schedule means mealy and refers to this. Springing from the root and coming up among the leaves are scapes or single stems from three to eight inches high. Each of these scapes has several flowers upon its branching stemlets, and forms what is called an umbel. Coming now to the flower the calyx is tube-shaped, angled and has five teeth. The beautiful salver-shaped corolla is the attractive feature which has drawn to the flower so much attention. In our species the five lobes are of a pale lilac color, and have a yellow eye. The resemblance of this yellow centre to the eye of a bird is embodied in the common name of the flower.

The corolla of the flower may be easily separated from the stem. A surprise is now in store for us, as we slit it down with a needle. Five little mealy stamens are found nestling within the tube. When the corolla is pulled off there is left on the stem the single pistil with one style. Cutting with a sharp knife across this pistil which is known as the ovary, and looking at it with the small magnifying glass, the cup is found to be full of seeds. When the ovary ripens it forms a capsule, or dry seed vessel, which splits up into five valves to allow the seed to escape, and to be carried elsewhere to produce new plants.

The family to which the Primula belongs has several well-known plants, many bearing a resemblance in the corolla to our species. One of these is called the Loose Strife, and Linnæus, the great father of Botany says this flower was so-called after a king of Sicily whose name meant the peacemaker. The Loose Strife was sometimes placed upon the yokes of oxen, as it was supposed to make them gentle and submissive. We have on the prairies, growing quite abundantly, one of the plants called Loose Strife with its small yellow flower. Though yellow seems the original color of the Primrose and its relations, yet they are found of many different colors now. Another member of this family is Pimpernel or “Poor Man’s Weather

Glass." There is also a very small species of the primrose which blooms early in Manitoba.

Shakespeare often refers to the Primrose, and one of his characters says:

"Witness this Primrose bank whereon I lie."

Wordsworth also, speaking of prosaic Peter Bell, says:

"A Primrose on the river's brim
A yellow primrose was to him
And it was nothing more."

and again,

"Primroses, the spring may love them
Summer knows but little of them."

BOTANICAL NAME:—*Primula farinosa.*

NATURAL ORDER:—*Primulaceæ.*

THE POOR MAN'S WEATHER GLASS.

"I'll go and look at the Pimpernel,
And see if she thinks the clouds look well;
For if the sun shine
And 'tis like to be fine
I will go to the Fair.
So Pimpernel, what bode the clouds in the sky?
If fair weather, no maiden so merry as I."

Now the Pimpernel flower had folded up
Her little gold star in her coral cup
And unto the maid
A warning, she said
Though the sun shines down
there's a gathering frown
O'er the bright blue of the clouded sky
So tarry at home for a storm is nigh.

THE FRINGED GENTIAN.

Late in the autumn appears upon the prairie one of our most striking and remarkable flowers. This is the blue fringed Gentian. It is no wonder the poets have looked upon it with a loving eye.

Children readily find out for themselves upon the prairie this autumn flower, growing one or two feet high, with its stem sparingly covered with

lance-shaped leaves. It is to the terminal blue flower that it owes its popularity. The flower is very symmetrical having its circles occurring in fours. The calyx lobes though four are somewhat unequal, but the funnel-shaped corolla has the deep blue color.

Studying the corolla we find its funnel-shaped tube dividing in four spreading lobes. These are finely fringed and give the name to the flower. Slitting down the corolla the four stamens are seen, and within this one pistil with two stigmas. The lance-shaped ovary when it ripens contains a pod with a very large number of minute seeds.

It is generally noticed as a peculiarity of flowers that they occur in the same localities year after year, so that each boy and girl may come to know the spots in which they may find their favorite plants. This is impossible with the Gentian as it is very variable and seldom occurs in the same place two years in succession. Probably this occurs from the seed being so small and being easily carried from place to place by the winds of early winter.

The Gentian family has very decided characters both in appearance and properties. Its juice is a bitter tonic, and the family has a reputation for possessing medicinal virtues. Indeed, good old King Gentius of Illyria was so great a believer in its powers that his name has clung fast to it.

BOTANICAL NAME:—*Gentiana crinita.*

NATURAL ORDER:—*Gentianaceæ.*

FRINGED GENTIAN.

Thou blossom, bright with autumn dew,
And colored with the heaven's own blue,
That openest when the quiet light
Succeeds the keen and frosty night.

Thou comest not when violets lean
O'er wandering brooks and springs unseen,
Or columbines, in purple dressed,
Nod o'er the ground-bird's hidden nest.

Then doth thy sweet and quiet eye
Look through its fringes to the sky,
Blue—blue—as if that sky let fall
A flower from its cerulean wall.

Thou waitest late, and come'st alone,
When woods are bare and birds have flown,
And frosts and shortening days portend
The aged year is near his end.

I would that thus, when I shall see
The hour of death draw near to me,
Hope, blossoming within my heart;
May look to heaven as I depart.

—BRYANT.

THE BINDWEED.

What is a weed? This is a question not easily answered. A plant used in one country as ornamental is found to be a pest in another, and is hence called a weed. As we have seen, our beautiful Willow Herb is known to some as the fire-weed. One writer has defined weeds as follows:—"Whatever plants grow among corn or grass, in hedgerows or elsewhere, and which are of no use to man, injurious to crops, unsightly or out of place, are denominated *weeds*." Probably, if this definition be taken, the trailing Bindweed, as its name implies, may be considered out of place, but its pretty pink-white flowers attract us by their beauty.

Sometimes the thickets along the streams in Manitoba become a scene of beauty, decorated with the bells of the Bindweed. As the botanical name Convolvulus implies, the stem as it winds its way around plants and logs and brush heaps is contorted and twisted in the most remarkable manner, giving rise to the true description: "Flowering stems extensively prostrate." The whole plant is more or less shielded by a soft hairy covering.

As we examine the flower we see that it has a calyx of five sepals, and that these overlap and enfold each other. The corolla is the object of interest to us. It is a regular tube some two inches long, and is between funnel form and bell-shaped. Its color varies from almost white to rose color. The flower is so like that of the morning glory, a relation of our Bindweed, that many people call our plant by that name.

To the same family as our Bindweed belongs the sweet potato, which grows in our Southern and Middle States, and which is found on sale in our cities. These potatoes are the tubers of a species of Convolvulus, and it is to them that Shakespeare refers in his play of the Merry Wives of Windsor, when bluff John Falstaff prays for a 'rain of potatoes.' Some have thought that the Woodbine spoken of by Shakespeare was our Convolvulus or Bindweed, but this seems unlikely.

BOTANICAL NAME:—*Convolvulus repens.*

NATURAL ORDER:—*Convolvulaceæ.*

MORNING GLORY.

Creeping through the casement,
Slanting to the floor in dusty, shining beams,
Dancing on the door in quick fantastic gleams,
Comes the new day's light, and pours in tideless streams.
Golden Morning Glory.

In the lonely basement,
Rocking in the sun the baby's cradle stands;
Now the little one thrusts out his rosy hands;
Soon his eyes will open; then in all the lands
No such Morning Glory.

—H.H.

THE THREE-FLOWERED NIGHTSHADE.

Though a modest flower, indeed called in the far west a weed, the three-flowered Nightshade, belongs to a very distinguished family. To the Nightshade or Solanum family belong that great boon to mankind, the common potato, the tomato that has become so important an article of diet, and the somewhat less well-known egg-plant. Were these all, the Nightshade family would attain fame simply for its benefits to man. But to the same family belongs tobacco, which has been so great a bane to the human family, the thorn apple (not our white thorn fruit), which has poisonous seeds, and

the henbane, or Nightshade which destroys life. Indeed, the fruits of most of this family are narcotic, that is, in small doses produce sleep, but in large quantities stupor or even death. The family, however, belongs much more to the warmer climates than to our northern zone.

Our humble Nightshade is a low spreading, slightly hairy plant, with oblong leaves which are divided by rounded indentations. As its name implies, it has each of the peduncles, which spring up, branching into three flowers.

As we examine the flower we are struck with its resemblance to the flower or blossoms of the common potato. The calyx is five-parted, and within it is the wheel-shaped, gamopetalous corolla. The white corolla, with its yellow centre speaks to us at once of the Solanum family. The stamens partake of the yellow coloring at the centre, and five in number protrude from the rotate corolla. There is but one pistil, but it produces a two-celled berry. While some of this family have red berries, yet the fruit of our Nightshade is a green berry, as huge, as a small cherry.

To the Nightshade family also belongs the wild cherry found upon our plains.

Botanical Name:—*Solanum triflorum.*

Natural Order:—*Solanaceæ.*

BEARD TONGUE.

Rivalling the Willow Herb with its tall showy blossoms is the dull purple flower of our prairie Beard Tongue. The plant is from one to two feet high, and on the top is clammy or viscid, and covered with soft hairs. It is a perennial, that is, it springs from the same root year after year. It branches out from the base, is simple above and has opposite leaves—the upper without stalk and clasping the stem.

The flowers are very showy, and take the form of a slender open cluster. As an individual flower is looked at the calyx is seen to be five-parted. The corolla is gamopetalous, but is slightly dilated or open.

It is the blossom of the Beard Tongue that gives it its unique appearance. Sometimes we see in plants what is called a freak of nature. For example, in the orchis family many of the blossoms assume curious forms, such as those of butterflies and other insects. This very family to which Beard Tongue belongs contains the snap-dragon with which the children play, and in which they see the gaping mouth and protruding tongue, like that of some reptile.

The Beard Tongue gives this strange effect. The corolla, though tubular, is two-lipped, having two lobes on the upper lip, and three on the lower.

The chief part of this remarkable appearance is produced by an eccentric stamen. While four of the stamens within the corolla are modest and retiring, the fifth one which has no anther, and is thus sterile, is separate from the other four, and like a Russian sentinel in shaggy fur coat, stands apart as if on guard. It is this stamen that gives its name to the flower.

The Beard Tongue possesses but one pistil, which is two-celled; and this on ripening is filled with numerous small seeds, which are quite wingless.

The same appearance of oddity runs all through the family to which the Beard Tongue belongs. The flower of one of the family is so like a glove that it is known as the false fox-glove; while another—the monkey flower—is so-called from the appearance of the grinning corolla. There is a white Beard Tongue of another species which grows to a great height.

BOTANICAL NAME:—*Penstemon pubescens.*

NATURAL ORDER:—*Scrophulariaceæ.*

WILD BERGAMOT.

One of the best known summer flowers of our prairie is the Wild Bergamot. As we gather a specimen of it and hold it before us we repeat the well told description of the mint family to which it belongs, given by a late writer. He says: "A member of the Mint family usually exhales an aromatic fragrance which aids us to place it directly. If to this characteristic is added a square stem, opposite leaves, a two-lipped corolla, four stamens in pairs—two being longer than the others—or two stamens only, and a pistil whose style rises from a four-lobed ovary which splits apart in fruit into four little seedlike nutlets, we may be sure that one of the many Mints is before us."

If we examine the flower closely we see that the calyx is slightly curved, is quite elongated, and is very hairy on the throat. The corolla is two-lipped and is thus the best example of the labiate corolla which gives the name of the order found below. The corolla is an inch long, and is purplish or purplish-dotted. It has the stamens, which are two in number, and also the elongated style protruding beyond the end of the pistils.

The ovary, however, is the most distinctive feature of the family to which the Wild Bergamot belongs. We sometimes come upon a flower with two-lipped corolla, opposite leaves and five stamens, and yet we find that it may not be a Mint at all.

The Verbenas are much like the mints, and so are the plants of the family of Beard Tongue, which we have just described; but the Wild Bergamot or any of the Mint family may be told from these others by the fact that the Mints all have a well-marked four-lobed ovary, which, when it ripens, forms four little seedlike nutlets or achenes.

The aromatic character of Wild Bergamot arises from the leaves having small dots. These contain a volatile oil, and being crushed, give rise to strong odor. It is probably from the holes or fistulas in the leaves that the second name below is given. The chief name of the plant comes from a famous old botanist.

BOTANICAL NAME:—*Monarda fistulosa.*

NATURAL ORDER:—*Labiatæ.*

LADIES' SLIPPER.

With a stem two feet high, loving damp meadows, but growing also on the sandy ridges dividing our prairie swamps, stands the notable plant, our larger yellow Ladies' Slipper. It belongs to the large orchis family, which however, is chiefly known in tropical regions, and is famous for the exceeding beauty and quaintness of its flowers. Our Ladies' Slipper is accompanied by another well known in Canada, the pink or crimson Ladies' Slipper; and it has a large number of other relations in the orchis family, even in our northern regions.

The orchids have so many forms, and are so highly colored that they form a department of flower culture almost by themselves. Rich flower fanciers in Great Britain have orchid houses in which they gather from all parts of the world the profusion of the flowers they love. It is a delight to visit one of these great collections. So strong is the taste for orchids that a rare bulb has been known to sell in London for a hundred guineas—more than five hundred dollars.

Our Ladles' Slipper differs from the tropical and European varieties in that it has no bulb, but has a root of many tufted fibres. The leaves, which are alternate, and grow on the tall hairy stem, are broadly oval and acute, and are many-nerved and which are thin and distinct, are long and lance-shaped. It is, however, the corolla of the Ladies' Slipper that is so distinctive. It consists of three petals. One of these is large and conspicuous. It is called the lip, and by a twist is separated from the other two. This petal is so enclosed as to appear like a closed up shoe, or old-time slipper. It is this part that gives the name, the botanical term meaning Venus' slipper or, as we

call it, Ladies' Slipper. On our western plains the plant is known as the moccasin plant, referring after the same manner to its resemblance to an Indian shoe.

Before the lip of the corolla, in the axis of the flower, is the column. On each side of it is a fertile stamen with its short filament. Each anther is two-celled and contains one or more masses of pollen. On the upper side is a triangular petal-like body, which stands for the fertile stamens of the other orchids. The style is broad, and also moist and rough.

The orchids have great attraction for lovers of the beautiful. One poet speaks of the "Orchis rare, with varied beauty," and the elder Darwin in the "Botanic Garden" says.—

"With blushes bright as morn fair orchis charms."

though, this no doubt, refers to the crimson varieties.

BOTANICAL NAME:—*Cypripedium pubescens.*

NATURAL ORDER:—*Orchidaceæ.*

THE ORANGE-RED LILY.

Many of the plants of the eastern provinces are not found upon the prairies. But the beautiful Orange Lily which grows abundantly in Ontario, and is found all along the north shore of Lake Superior, and on the banks of the rivers down to Hudson Bay, is a striking flower upon the plains west of Winnipeg, and even in the valleys up to the very heart of the Rocky Mountains.

By its height of two or three feet, and its bright color, the Orange Lily catches the eye of the smallest child, while it claims the attention of the wisest man:—

"Consider the lilies of the field, how they grow;
They toil not, neither do they spin;
And yet I say unto you that Solomon in all his glory,
Was not arrayed like one of these."

Like the other members of the Lily family, this flower springs from a scaly bulb, which gives it a firm hold in the ground, and enables it to support its long and sturdy stem. The simple straight stem as it ascends is at short intervals covered with numerous narrow leaves, which we call sessile, as they have no stalks. These leaves at the upper point are gathered into a whorl, or cluster, of four or five, and from this springs up the stalk that bears the red lily.

The sepals, each narrowing down at the base into a claw, enclose the blossom, making the open bell-shaped tube of a large and showy flower. The dark spots on the sepals guide the bee to the plant where, penetrating to their bases, it seeks out the nectaries, or little furrows of honey, which are found there. How wonderful, this provision made for the busy bee, as it visits flower after flower, to gather honey for its store!

One of the most striking features of the Prairie Lily is the group of six stamens standing up erect in the middle of the flower, surmounted by their anthers. As the wind blows the Lily to and fro, the anthers, which are black or brown, are called versatile because they are suspended by the middle on the tops of the filaments or stalks, are seen to rock up and down. They are covered over with the dark anther dust or pollen, which leaves a yellow mark on your finger if you touch them.

Surrounded by this tall brotherhood of stamens the lonely pistil of the Orange Lily rises. It is in the very centre of the flower, its lower part or stalk being called the style, and if you note closely the knob on the top of the style, which is known as the stigma, you will find it to have three lobes. The pistil receives the pollen dust upon the stigma, and then the seed is formed.

In some parts of Manitoba the Orange Lily is found much lighter in color, its sepals being pale yellow and having no dark spots upon them. This is the same flower, but from its lighter hue it is spoken of as an "albino." The sepals in this case are a little narrower than in the full-blown Orange-red Lily.

BOTANICAL NAME:—*Lilium Philadelphicum.*

NATURAL ORDER:—*Liliaceæ.*

THE WILD ONION.

Hero and there on the dry prairie the observing traveller sees springing up a pink or rose color cluster of flowers on a single scape, from six inches to a foot in height. The traveller takes hold of it, finds it cannot easily be pulled up by the roots, and on raising the blossom to his nose distinctly recognizes the smell of onions. He is surprised to find that the delicate flower with its linear-flattened leaves is really the Wild Onion.

Now determined to examine it carefully, the investigator, with some sharp instrument, digs up the plant, and sees that it has a distinct bulb, and belongs to the Lily family. The stalk is naked, and the flower upon it nods. The nodding blossom is what is known as an umbel, and contains a number of separate flowers.

One examining closely a single flower finds it to consist of six entirely colored sepals. Inside this perianth are the stamens, six in number, and awl-shaped. The style is on a short ovary, and bears a simple stigma. When the fruit ripens, it is a capsule or pod, of three valves, containing minute black seeds like those of the onion.

The botanical name given at the close is the old Latin word for garlic, a well known member of the onion family, and the specific name refers to the notable blossom which appears upon it. Closely related to our Wild Onion are the chives which were used for the borders in kitchen gardens. The cultivated onion is of importance as a food, and Bermuda is famous for its onions.

BOTANICAL NAME:—*Allium Cernuum.*

NATURAL ORDER:—*Liliaceæ.*

PERENNIALS.

Precious the hardy green that frost survives;
Pleasant it is, when January's snow
Melts, for a space, and brooks resume their flow,
To pass the garden paths where Primrose thrives;
Where scarlet Columbine its honey hives
Safe 'neath the sod, shielding with leafage low,
Its future flowers; where all the Violet's glow
Lives in its leaves, eluding winter's gyves,
Sweeter and fairer than fair summer's brood,
Fancy sees here Heartsease and Violet,
And fringed Pink in bursting calyx set,
And brave red Bergamot and quaint Monkshood,
Gold-powdered Snapdragon, Carnation fine,
And balmy bloom of Honeysuckle vine.

THE CARMEN HILL CONVENTION ON NOXIOUS WEEDS.

On a sunshiny morning in the third week of July the pretty Manitoba village of Carmen Hill was alive with excitement. That day the Annual Convention of the Farmer's Institute was to meet in the village. Carmen Hill was not a large place, but it was prosperous. It was situated on a branch of the Canadian Pacific Railway, and was the centre of an excellent agricultural district. Its churches and schools were well built, and its people were known as orderly, intelligent and enterprising.

The little town was a model of cleanliness. Its houses were chiefly painted white; they were neatly fenced, and most of them had well kept gardens about them. The streets were well laid out, and thriving rows of Manitoba maples were to be seen upon the waysides.

Carmen Hill and the surrounding country had been settled by an industrious colony of Ontario farmers, who had obtained a promise that no lands should be sold to speculators. Accordingly every half section in the two townships was well settled upon, except the eight sections belonging to the Public Schools and the Hudson's Bay Company. The village schoolmaster, who was fond of humor, was in the habit of saying that this was "Sweet Auburn, loveliest village of the plain."

THE GATHERING.

By eleven o'clock the Winnipeg train had arrived bringing a large number of farmers from all parts of the province to the convention. The farmers were met by a committee of the people of the settlement, and conducted to the Agricultural Hall, where with true Manitoba hospitality, the visitors were to be entertained to dinner.

The sight of the day was, however, that of the farmers driving in from the surrounding country. They drove from the comfortable homesteads dotting the townships, and the whole open space of two acres around the hall was soon covered here and there with waggons and buggies, and the horses taken out stood knee deep in the yellow sunflowers and July lilies of the prairie. Not less than fifty homesteads were represented, and the stalwart farmers' sons, dressed well in holiday garb, were soon busy talking over the

prospects of the season, and especially what steps could be taken to make farming pay well.

The train from Winnipeg had brought a number of persons who were to take a leading part in the convention. President Senior was there to represent the Central Farmers' Institute, Hon. Mr. Simpson for the Government, Mr. Stafford of the Experimental Farm, and Professor Floral of Winnipeg. Then a number of the leading stock raisers and cattle breeders of the province, besides a specially large number of those who take an interest in dairying had come. The thrifty runners' wives and their handsome daughters soon had dinner ready, and all were supplied with a hearty meal. The greater part of what was on the tables had been grown on the farm, and a stranger looking on would have said at once, "This is a land of plenty."

As the Professor looked at the company he remarked to President Senior:—"Where can be seen a more interesting gathering than this? Here there is intelligence and worth, and along with them simplicity of life. Here no questions of rank are raised. All are independent. Living upon their own farms, lords of the soil, they are free electors, choose their own representatives in parliament, their municipal councillors and school trustees. They have every right and privilege. There are no freer, happier people on earth than our Canadian farmers."

THE FIRST SESSION.

At two o'clock, according to notice, President Senior took the chair, and the people, filling the hall to the very door, were called to order.

President Senior, who was a farmer, a man of intelligence and experience, arose and said:—

Farmers of Manitoba:

As President of the Central Institute I welcome you to our Convention to-day. The farmer's life is one of anxiety and work, and it is well to meet as we do to-day, in the interval between haying and harvest, to discuss matters of importance. Farming needs intelligence. Our fathers thought that scientific training could be of no value in farming. We have seen a better way. British Agriculture has taught us in the departments of farming proper, of dairying and stockraising, that our products may be improved, our soil improved, our labor lightened, and our profits increased by knowing more of our calling. The day for ignorant, unintelligent farming has gone by.

The chief subject of our Convention, as fixed by the committee of arrangements, is that of "Noxious Weeds." Our province is yet sparsely settled. Few of the plants hurtful to Agriculture grow naturally in Manitoba. But, as farmers come from the eastern provinces and from our mother land across the sea, new plants come with them. Some ten weeds hurtful to Agriculture have already been introduced, coming in seed imported from the east, brought in car loads of stock and implements, and even carried on the

wheels of through trains on the railways. These troublesome strangers, such as Mustard, the Canada Thistle, and others to be mentioned, are becoming a danger to us. Our beautiful black prairie soil, so rich to grow almost every variety of useful herb, unfortunately produces weeds with equal ease. We have accordingly met to discuss the dangers of such weeds and consider ways of destroying them.

Hon. Mr. Simpson, on being called upon, gave a most interesting address. He stated that it has become a matter of greatest moment to Manitoba to adopt means for extirpating the weeds, as otherwise they threaten in the older settled districts to make agriculture impossible. He gave the following statement from a pamphlet he had prepared for distribution among the farmers:—

LOSS ENTAILED BY WEED GROWTH.

1. Weeds draw from the soil much of the plant food which would otherwise be used by the growing crops.

2. When they grow rank they choke the crops.

3. More power and time are needed to cultivate weedy than clean land.

4. A weedy crop is harder to cut.

5. More time is needed to bind it.

6. More labor and heavy lifting is required in stooking, pitching, stacking, threshing and marketing.

7. Weedy grain is harder to dry, and in wet seasons, loss is often caused by the grain being sprouted.

8. It discourages the farmer and brings him into contempt among his neighbors and passers by.

9. If eradication is attempted the cost is very great indeed.

PRINCIPLES OF LIFE AND DESTRUCTION.

Weeds may be divided into three classes:

1. Annuals, which grow from the seed and produce seed each year. These can only be destroyed by getting the seed to sprout and killing the new plant before it has time to seed.

2. Biennials, which grow from seed and produce seed the second year. Means of extermination the same as for annuals.

3. Perennials, which spread both by seeds and roots. Seeds must first be got to sprout, and afterwards the leaves which take in the food be kept cut close down to the ground. The plant cannot then get food from the air and the roots must die.

AGENCIES OF PROPAGATION.

1. Foul seed.

2. Cleanings of stock and grain cars.

3. Threshing machines and binders, plows and other implements carrying the roots of perennials.

4. Cattle carrying seeds on their feet and in their droppings.

5. Wagon wheels and horses' feet in driving over fields, especially in wet weather.

6. Feeding foul grain whole or imperfectly crushed.

7. Spreading manure which has not been heated.

8. Allowing seeds to mature on manure piles.

9. Birds.

10. Wind.

11. Water, etc.

PREVENTIVES.

1. Never sow foul seed even if clean seed costs double the price. Count the after cost.

2. Cleanings of cars should be collected and destroyed.

3. No matter on whose farm a threshing machine has been working, see that it is thoroughly swept down from top to wheels, and run empty at least two minutes before coming to your farm.

4. Do not thresh on different spots. Have your regular threshing sites and watch them carefully.

5. Clean down binders and implements before moving from foul to clean fields.

6. If possible get your farm fenced in order to keep your neighbor's cattle from straying over your fields.

7. See that your wagon wheels and boxes and horses' feet are clean before driving over your fields.

8. Allow no man to drive across your fields, even to secure a near cut.

9. Get all your "feed" crushed, even though you think it is clean.

10. Never spread fresh manure on your fields nor allow weeds to mature on your manure pile. Watch your water courses.

11. Never allow weeds to ripen on your farm, and encourage your neighbors to take the same precaution.

IN DESTROYING WEEDS HAVE MODERATE EXPECTATIONS.

Owing to the facts:

1. That the means at the command of most farmers are limited.

2. That our seasons are short.

3. That as the seeds are in many cases mixed through the whole cultivated soil, we must not expect to succeed too easily. Even with the very best care and skill the work of destruction will take a long time. Besides, some careless, selfish souls will allow weed seeds to mature, and such persons cannot be reached either by kind advice or by threats.

DON'T DESPAIR.

At the same time we would say don't despair. It is a work that must be done, and success more or less must follow.

GENERAL PRINCIPLES OF EXTERMINATION.

1. Secure sprouting of all seeds lying on the surface before plowing down. Therefore in the fall cultivate shallow with disc, spade, or cut-away harrow, or three-moulded gang plow, harrow well and leave till seeds have sprouted.

2. Do not allow plants to form seed before plowing under because many of them (such as French weed, Mustard and Buckwheat) will mature seed under ground.

3. In the case of Perennials never allow a leaf to show above ground. Every time this occurs it is so much labor lost.

4. Observe thoroughness. In the case of summer-fallow or hoed crops never allow one plant to produce seed. A great many after keeping their summer-fallow or hoed crops clean till harvest are tempted in the busy season to neglect them; they allow a few plants to mature seed and thus lose the fruits of their whole summer's labor. This may not at first sight appear; but suppose that a given piece of land has 300 weed plants planted on it and all but one is destroyed, but that one escapes and produces 300 seeds, at the beginning of next season the account will stand thus 300-299 = 1 x 300 = 300, and the cultivator is just where he was twelve months before, except perhaps that the weeds are closer together.

The honorable gentleman having taken his seat, the President called upon Professor Floral to discuss the various noxious weeds. Professor Floral on rising stated that in his morning address he would take up five of the noxious weeds at present found in Manitoba; three of them he would call Crucifers, and the other two were grasses. He spoke as follows:—

Mr. President and Gentlemen:

First of our troublesome weeds is Wild Mustard. It is an annual, that is, it seeds and dies down in one year. It grows from one to four feet high; the stems are somewhat hairy, and its leaves are lyre-shaped. The flowers are yellow, and grow in terminal racemes. Each flower has four withering sepals, and the yellow corolla of four petals has the appearance of a cross, and so is called cruciferous. The stamens, six in number, are four long and two short. It is the fruit of the Mustard family which is so notable. The single pistil of the Mustard ripens into a pod which has a thin partition, and the pod splits open to let out the seed.

Of the same family, and worse even than the Mustard, in the Red River valley, is the French Weed. This was imported originally from France to Quebec, and was brought to the prairies in the old fur-trading days. It has been called the "stinking weed" from its bad odor, Mithridate Mustard, and La Violette by the French-speaking people. The plant is known in England as "pennycress." It is annual or biennial.

It is a smooth, low plant, growing from six inches to a foot in height. Its root-leaves are undivided, stem-leaves arrow-shaped and clasping, and it has small white or purplish

flowers. These flowers follow the cruciferous model given above. The pod, half an inch in diameter, is orb-shaped, flattened and deeply notched at the top.

A late arrival in Manitoba, which promises to be hurtful, is the Shepherd's Purse, also a crucifer. It is a low plant with small white flowers, and like the Mustard and French Weed in its properties. It is readily known by its little pod—the Shepherd's Purse—like an inverted heart in shape, with its valves boat-shaped. In recent years it has been distributed to different parts of the province.

Botanical Names.	Common Names.	Natural Order.
Brassica sinapistrum.	*Wild Mustard.*	*Cruciferæ.*
Thlaspi arvense.	*French Weed.*	”
Capsella bursa pastoris.	*Shepherd's Purse.*	”

Of the hurtful grasses we may speak shortly. The first of those is Couch Grass. It is known as Quick or Quitch Grass. It is a near relative of wheat, and is a nutritious grass, but it is troublesome by its spreading so rapidly. It is perennial, grows from seed, but also very largely from the underground stems. In the central part of Manitoba it grows very readily, and some regard it as a native of the Province. Our soil seems to favor the spread of plants with quick growing underground root-stocks. In some parts of the western region it is called Blue Joint or Blue Stem.

The other member of the grass family which is troublesome is Wild Oats. It is an annual, and is very like the cultivated oat in appearance, only the flower cluster is more straggling, and the leaves are yellower. It is said that the seed will grow after being buried in the ground for a century.

Botanical Names.	Common Names.	Natural Order.
Agropyrum glaucum.	*Couch Grass.*	*Gramineæ.*
Avena fatua.	*Wild Oats.*	”

HOW TO DESTROY THEM.

At this stage the Professor ceased speaking, and on the call of the President, Mr. Stafford, of the Experimental Farm, said:—

Mr. President and Farmers of Manitoba

“You have heard of five of our most troublesome weeds. The question for us is, “How may we get rid of them?” If we realize the danger to agriculture in these innocent looking plants we shall make it matter of earnest thought. It is ignorance alone that prevents farmers declaring war against these enemies. We shall consider together the three crucifers—the Wild Mustard, French Weed, and Shepherd's Purse.

How to destroy these three troublesome weeds of the Mustard family is the first question. The Wild Mustard, French Weed and Shepherd's Purse all need the same treatment. They all spread by the seed, and not by the root. The plan to destroy them is to encourage the seeds, which are scattered in great numbers from the pods every year, to grow, and when the plants are very small, and can be easily destroyed, to use every effort to overcome them. Some plants may be killed by sowing the ground with a heavy grain

crop, which shades and smothers the weeds. But as these three are all rapid growers this plan will not kill them. When the field troubled with these weeds is not too large, a root crop, kept perfectly clean by hoeing and cultivating, will destroy them, and this plan will at the same time get a good crop of roots from the land.

When the fields where the weeds are bad are to be treated, summer-fallowing is the only plan that will succeed, and one season is generally not enough to kill all the weeds.

Let us see how the summer-fallowing is to be done. The land should first be disk-harrowed as early in spring as possible. This will start the weed seeds on the surface. Then the field should be ploughed shallow, and harrowed every week or ten days, so that all the weed seeds turned up may sprout. When all are finely started then the field should be ploughed deeply, so as to bury all the sprouting weeds. The new soil so turned up is then to be worked thoroughly with cultivator and harrow until the fall frosts set in and stop the growth. It is hard work to kill weeds. In the next year, if the weeds have been pretty well killed, a crop of barley or some late grown grain may be tried. If it is found that the weeds are still abundant, then a hoed crop, or a second summer-fallowing, must follow.

Wild Oats may be treated in the same way as these three plants, or a crop of barley may be sown for fodder, and cut when the head of the barley is partly formed. If this is done the Wild Oat plants will be cut before they have had time to grow to seed. This plan followed for a number of years will kill Wild Oats.

Couch Grass, spreading as it does both from seed and root-stocks, requires a special plan. The summer-fallow should be cross-ploughed, and well worked with spring-tooth harrows or cultivators, so as to bring the grass roots to the surface, when the sun will soon dry them out. Small patches of this weed can often be killed by ploughing thinly with a breaking plough, and backsetting as for new land.

Another plan found to work well in a year of rank growth, is to plough the land early in June, and sow the same to barley. The Couch Grass is sometimes by this means completely smothered."

After Mr. Stafford had taken his seat a lively discussion ensued. Many gave their experience of successful destruction of these weeds. Naturally some unwise suggestions were made, but the audience was polite enough not to laugh at these proposals. It was generally agreed that Mr. Stafford's plans would succeed. The meeting, after a very successful session, adjourned at five to meet in the evening at eight o'clock.

THE EVENING MEETING.

The long interval of three hours gave many of the farmers of Carmen Hill settlement time to drive home to attend to necessary duties on the farm. The attendance of neighboring farmers was somewhat smaller, but the hall was again well filled. The meeting was pleasant, the evening, like most of the summer nights in Manitoba, cool and agreeable. During the interval the committee appointed had met and, under the chairmanship of Professor

Floral, and with the assistance of Mr. Stafford, prepared a report on the remaining noxious weeds.

The secretary of the committee read as follows:—

To the Farmers' Institute:

Your committee finds that six other noxious weeds, in addition to those described by Professor Floral, need attention in Manitoba. These are:—1. Black Bindweed; 2. Canada Thistle; 3. Common Tumbleweed; 4. Western Tumbleweed; 5. Common Purslane; 6. Russian Thistle.

1. Black Bindweed.—Like most of our noxious weeds the Bindweed has been imported to Manitoba. It is an annual, which spreads in all directions over the ground, winding about any object that may come in its way. When it grows well it forms a mat, smothering all other plants. The twisting stem is roughish, and the joints are naked. The blossoms are in small pink and white racemes. Each flower has a calyx with three outer divisions keeled, and is five-parted. The stamens are eight in number, and the styles or stigmas three. The seed is a three-angled achene, having a brown husk.

It is destroyed readily by a clean hoed crop, or early-ploughed summer-fallow. As its seeds mature early, a late-ploughed summer-fallow only encourages its growth. (*Polygonum convolvulus.*)

2. Canada Thistle.—The Canada Thistle also comes from Europe to be a pest in our fields. Though from abroad, it has formed a strong affection for our rich Manitoba soil. It is perennial, and grows as a slender plant from one to two feet high. Its roots are extensively creeping, and almost baffle the farmer as he tries to destroy them. The leaves are oblong, cut, and prickly-margined. The flowers, which are composite, are rose-purple. The blossoms are gamopetalous, and are all perfect with their five-toothed corollas, and five included stamens. The seed is a ripened achene, and is remarkable for the attached calyx, which takes the form of a well-marked pappus, known popularly as "thistle-down." This pappus serves as a wing, and enables the seed to be carried everywhere by the wind. It is this, along with its quickly growing roots, which makes the Canada Thistle so troublesome. It is the plague of the Red River valley.

The Canada thistle can be destroyed by earnest effort, though in strong clay-loam land it spreads rapidly, both from seed and roots. It is very hard to kill, and is called by the farmers a "stubborn weed." The only plan found to kill it completely is to keep its leaves from even appearing above the ground. If this is done thoroughly, either by means of a clean root crop or summer-fallow, the roots will soon decay for want of air and sunlight. It is, however, a loss of time and labor for the farmer to work early and late at his field, and allow the thistles on the roadsides or unoccupied land near him to go to seed and send a new crop of the flying thistle-down to seed his field again. Manitoba will not escape from the Canada Thistle until the thistles on the roadsides and unoccupied land are cut down and never allowed to go to seed. Strong laws to effect this should be passed and carried out. (*Onicus arvensis.*)

3. Common Tumbleweed.—Rolling over the plains of Manitoba in the autumn, the Common Tumbleweed is a striking object as it is blown before the wind. It is an annual weed of coarse aspect with alternate obtuse-pointed leaves, on spreading whitish stems, which are diffusely branched. The flowers are greenish and crowded in close small clusters. The sepals are three in number and pointed. The seed is small. On ripening, the plant which stands on a single stem breaks off at the root, and thus becomes the

plaything of the winds. When carried against a fence or any obstruction these plants pile up to a great height and become a troublesome thing to the farmer.

This weed is destroyed by the same means used in dealing with those of the Mustard family. The seeds of the Tumbleweed, however, seldom sprout until the heat of summer, and it is therefore not necessary that the summer-fallowing should be begun so early in the season. However, cultivation must be kept up late in the autumn to prevent seed forming before winter. (*Amaranthus albus.*)

4. Pigweed or Western Tumbleweed.—Another species of the same family as the Tumbleweed grows on our western prairies, and is known as the Western Tumbleweed. It, too, is roughish and more or less hairy. Its leaves are dull green in color, and have long petioles. The thick spikes are all crowned with a stiff panicle. Stamens and sepals are five in number. This plant, like its relative just described, is imported. It belongs originally to tropical America. The name Pigweed is familiarly given to this as well as to another species.

In destroying this weed the same plan is followed as in the case of the Common Tumbleweed. (*Amaranthus retroflexus.*)

5. Common Purslane.—Coming to us as a pest from Europe and the Eastern Provinces is the Common Purslane with its pale yellow flowers. It is prostrate and very smooth. Its leaves are rounded, wedge-shaped. The flowers are sessile and open only on sunny mornings. The flower bud is flat and acute. The stamens are from seven to twelve and the style is deeply five to six-parted. It has a one-celled, globular, many-seeded pod, from which the top separates like a lid. This plant is rapidly following settlement. It is no doubt from this useless fleshy plant, somewhat like Chickweed, but with succulent loaves, that the common proverb "as mean as pusly" has arisen.

This weed, seldom found in grain fields, is becoming very common in our gardens in Manitoba. It is a heat-loving plant and the seed seldom sprouts until midsummer. It is almost impossible to kill this plant by cutting, for it will keep on in bloom and will even ripen seed after the stem is cut from the root. The plants when cut or rooted up should be raked off the garden and burnt. (*Portulaca oleracea.*)

6. Russian Thistle.—Much alarm has risen during the past few years on our western prairies on account of this plant. It seems to have come to America from Russia, probably in seed brought by the Mennonites. It has proved a great annoyance in Nebraska and Dakota, but has not yet done much damage in Manitoba. It belongs to the Goosefoot family, so that the name "thistle" is misleading. In its early stages it has a soft, velvety leaf, but this when ripened becomes hard and covered with sharp spurs. These mixed with the wheat are very troublesome. It grows from two to five feet in height, and forms a bush of the same diameter. When ripened in the autumn it breaks off the stem and, becoming a tumbleweed, is carried by the wind for miles across the prairie. The Manitoba government has taken active measures to meet this pest, and it is hoped that these will be successful.

The Russian Thistle has only very recently been heard of in Manitoba. We have yet to learn the way to destroy it, should it become troublesome in this country. From the experience of Dakota, where this plant is much more common than with us, it seems that hoed or cultivated crops kept clean, or fallow properly worked, will destroy it. At the same time it is said that summer-fallowing, done as it generally is, produces some of the largest 'tumblers,' and only spreads the seed more widely over the adjoining land. Any Thistle plants missed by the plough or cultivator should be hoed up, for it is these separate plants that produce the large round tumbleweeds. (*Salsola kali—Var. tragus.*)

The report having been adopted, and some routine business transacted, the Convention adjourned.

At the close of the evening meeting, which had been of great profit to all who had attended, the visitors were taken by the hearty people of Carmen Hill and accommodated for the night. On the following morning there was a business session of the Convention. By the time of the arrival of the west train for Winnipeg, the Convention was over, and the well rewarded party reached the city in good time.

THE SONG OF THE MANITOBA FARMER

I have found a home—a home at last
Where the sky is blue and clear,
And I want no forest its shadows to cast
On the land I love so dear.
For the choice I make is the rolling plain,
Where the wind sweeps fresh and free,
And the youthful bloom of my new domain
Still crimsons my cheek as you see.

The wild rose blossoms beneath my eaves,
Where the swallow builds her nest,
And the prairie flowers peep atween the sheaves
Which the reaper clasps to his breast.
The water-fowl lingers among my lakes
Where else can she happier be?
And when she at last a farewell takes,
'Tis to return in the spring to me.

Do you want a home for these who sigh
Where the busy shuttle plays;
For a breath of air and a clearer sky
And for brighter and better days?
Do you want a home for the men you reared
To honor the sweating brow,
By whom country and queen are always revered
Whether guiding the state or the plough?

Then send them to me—to my home in the West
My prairies have waited long
For the ploughshare to cleave their grassy breast
And the reaper's merry song.
With bounteous fields of waving grain
And a sky that is blue and clear
I'll reward the labor of hand and brain
In the home I love so dear.

—Hon. G. W. Ross.

SHAKESPEARE PRAISES COUNTRY LIFE.

As You Like It.—Act II.

Scene 1.—The Forest of Arden.

Enter Duke and other exiled lords in the dress of Foresters.

Duke.—"Now, my co-mates and brothers in exile,
Hath not old custom made this life more sweet
Than that of painted pomp? are not these woods
More free from peril than the envious court?
Here feel we but the penalty of Adam—
The seasons' difference: as the icy fang
And churlish chiding of the winter's wind,
Which when it bites and blows upon my body,
Even till I shrink with cold, I smile and say,
This is no flattery; these are counsellors
That feelingly persuade me what I am.
Sweet are the uses of adversity;
Which like the toad, ugly and venomous,
Wears yet a precious jewel in its head;
And thus our life, exempt from public haunt,
Finds tongues in trees, books in the running brooks,
Sermons in stones, and good in everything.
I would not change it."

ARBOR DAY—ITS IMPORTANCE TO MANITOBA.

The words Arbor Day ought to fall like sweet music upon the ears of all who are lovers of nature. Arbor Day comes with the budding trees and springing flowers of May, the month of song. The tree as it flourishes, and spreads its branches, or gives its leafy shade, is the symbol of the upright and kind-hearted man. Its growth is the pledge of increasing strength and usefulness. No object in nature is more beautiful than a thriving tree. It is the type of the most heavenly organization known among men, as under its leaves the birds nestle in safety. A day set apart for the service of the growing tree claims our highest regard.

And if the tree should be an object of great consideration to men everywhere, much more ought it to be so in Manitoba. Through a variety of causes large portions of Manitoba are treeless. The prairie with its unrivalled richness is there, but the eye desires to see it relieved by trees; and the flocks and herds long, in the sultry days of July, for the shade of which the Roman poet Horace spoke, under what he calls "the wide spreading beech tree." The beautiful and the useful combine when we sing the song of the forest tree.

The people of Manitoba ought to devote their best energies to tree-planting at the present time. In some seasons the prairies suffer from dryness. Trees will increase the rainfall and the dews, and make nature fresh and green. The growth of trees will free us from the heat and drought of

> "Afric's barren sand
> Where naught can grow, because it raineth not,
> And where no rain can fall to bless the land,
> Because nought grows there."

Water in the streams becomes very shallow in the summer; trees will assist in keeping the water courses supplied. The northern blasts in winter, and the burning winds of the south in summer, blow with sweeping power over the open plains; the growth of trees will check the breeze and give shelter to plant and beast and man.

Some parts of Manitoba suffer from summer frosts. The extensive planting of trees will prove a remedy. Some persons may dispute this, but there seems good ground for stating it. "The Department of l'Ardeche in France, which has been denuded in the last thirty years, has suffered from

spring frosts formerly unknown. The same thing is seen in Alsace since the forests of the Vosges were cut down." And science shews clearly that the trees keep the heat in the ground under them, and so equalize the temperature. The tree is a peacemaker between warm mother earth and the clear cold sky.

The requirements of country and city are equally supplied by the growth of trees. Fuel, lumber and material for railways, telegraphs, and the like are supplied by the thoughtful tree planter. The welfare and prosperity of the farmer is essential to the wellbeing of Manitoba. Every new means of producing wealth should be used. Here is one. An American writer has said of a western state, which it is declared was one of the most treeless states of the American Union, but is to-day through tree-planting one of the best wooded: "As a source of profit the raising of trees in Nebraska ranks next to the raising of stock. A quarter section planted with maple mammoth aspen and the like would in ten years yield a satisfactory return for the investment." How well the quaint old English poet, Spenser, shews the value of the trees:

"Much can they praise the trees so straight and high,
The sailing pine, the cedar proud and tall,
The vine prop elm, the poplar never dry,
The builder oak, sole king of forests all,
The aspens good for staves, the cypress funeral.

The laurel, meed of mighty conquerors
And poets sage, the fir that weepeth still,
The willow worn of forlorn paramours,
The yew obedient to the bender's will,
The birch for shafts, the hedge thorn for the mill,
The myrrh sweet bleeding in the bitter wound.
The warlike beech, the ash for nothing ill.
The fruitful olive, and the plantain round,
The carver holme, the maple seldom inward sound."

Surely the boys and girls of Manitoba will keep Arbor Day! Surely dwellers in the city will line the streets with rows of sheltering trees! Surely the farmers of Manitoba will make tree planting one of their chief occupations!

HOW TO PREPARE FOR ARBOR DAY.

Boys and girls are fond of holidays. They look forward to them with pleasure. The Queen's Birthday is loyally kept in Canada, and we celebrate Dominion Day as the birthday of united Canada. Arbor Day is also a holiday, and though it comes in the same month as the birthday of our

beloved queen, yet we can well afford a second holiday, devoted to the good purpose of dotting the land with beautiful trees.

But Arbor Day will be of little service unless there has been a faithful preparation for it. If trees are to be planted about our school houses and farm homesteads, and in our gardens, and along our roadways and streets, there must be good work done in the preceding year. The north and west sides of the school lot or farmer's house, being where shelter is needed from the north and west winds, should be first selected. A strip about ten yards wide is marked out and if 100 trees are to be planted it should be at least twenty-five yards long, if 200 twice that length, and so on. The plot selected is prepared in the spring of one year to be ready on Arbor Day of the following season. The prairie is to be broken by good ploughing three inches deep, and then well rolled to flatten the sod. On its being back-set the ploughing ought to be from five to seven inches deep. All the summer through the plot should be harrowed and cultivated in order that weeds may be kept down and the soil thoroughly pulverized. This is the previous season's preparation for Arbor Day. When the ground is prepared it is essential that it be securely fenced before a single tree is planted upon it.

When the sun is strengthening in March and the days begin to recall spring to us, it is time to have Arbor Day in mind. Steps should be taken to obtain trees for planting. Some people say that the seeds of the former year should have been gathered from the maple or other trees, but it is the opinion of those who know best that it is better to transplant trees which have been grown in the nursery or experimental farm and have them ready for May. Others say that they can go to the groves in spring and dig up trees and transplant them. But this is objected to also. These trees are generally large and do not thrive so well; they have grown up in the shade of taller trees, have few fibrous roots and are apt to fail when planted on the open prairie. It is well to take the advice of intelligent and tried men, and they tell us that small trees two feet or thereabout in height taken from the nursery or experimental farm will thrive the best.

Having written by the middle of March to Mr. Bedford of the experimental farm for the number of trees wanted, giving him full instructions as to how and when they may be sent, the work is fairly under way for Arbor Day. When the package of trees comes it should be carefully placed away in a cool damp place until arrangements are made for its use.

It would be well that tree-planting be carried on not only on the school site, but also in many of the farms and gardens on Arbor Day. The teacher might be a leader in obtaining the number of trees required, and in stirring up an interest in this matter. It is not a trifling idea which is embodied in

Arbor Day. It is, as has been shown, a thing lying at the foundation of the prosperity of Manitoba.

"The joys that unborn eyes shall see—
These things he plants who plants a tree."

A TREE AND HOW TO PLANT IT.

Manitoba is a new Province and the future home of many millions. Its people are from the eastern provinces of the Dominion and from many parts of Europe. But whatever their original home, in almost all cases, they come from regions where the trees beautify the landscape. When our settlers look out at first upon the vast prairies, while they have a sense of its grandeur, yet they feel the need of trees to make it homelike. It is a public duty to make our broad land attractive to the strangers who come to us. Every one should feel bound to plant a tree a year. If this were done Manitoba would soon become a well wooded province.

"What does he plant who plants a tree?
He plants, in sap and leaf and wood,
The love of home and loyalty
And far cast thought of civic good.
A nation's growth from sea to sea
Stirs in his heart who plants a tree."

But how is it to be done? When the ground has been well prepared as spoken of in a former lesson, and Arbor Day has come with trees all ready to plant, then early in the morning the bright-eyed boys and girls of Manitoba ought to be on their way to school. A thousand schools should all be alive that day, each scholar anxious to plant a tree. The school should have ready from the poems and selections of this book or from other sources a programme of recitations and readings, and the larger boys might have a good debate prepared on some question like the following: Is there any life more independent than that of the farmer? Is country life happier than city life? Is agriculture more important to Canada than mining or commerce? Is rural life the best for nurturing a healthy race? Is country life more conducive to morality than town life? Is mixed farming best for Manitoba? Is Canada a favorable land for the agriculturist? Are farmers deeply interested in a good educational system? Do Manitoba towns and cities depend on successful agriculture for their prosperity?

The morning exercises over, the noon time may be pleasantly spent. In some places the teacher and scholars and their friends meet in the school house at mid-day for an Arbor Day social gathering. It is good to be social

and friendly, and how pleasant a thing it is when all the people of the School District, without regard to creed or nationality, meet together for Arbor Day dinner. Hard work is needed in Manitoba to subdue the soil, but we need quite as much the holiday and social gathering to help us to know our friends and neighbors. Manitoba is so much a land of strangers—of people from every country—that we ought to cultivate each other's acquaintance, and everyone may see some good and gain some useful ideas by knowing his neighbors better. No one nationality has all the good qualities, and we shall see something to respect in every class of our people.

When the forenoon exercises and the noonday festivities are over, then comes the afternoon tree planting. The trees are all ready. The ground should, shortly before Arbor Day, have been ploughed eight or ten inches deep and harrowed fine, and in the forenoon of the day marked by a horse drawing a four-foot marker both ways over the prepared ground. The ground is thus divided into squares four feet each way. Then each pupil has a right to plant a tree. Three or four of the larger boys should each have a spade. The spade makes a good deep hole, and the tree is planted behind the spade. The tree ought to be planted pretty deep, two or three inches deeper than the plant was grown, and around it the ground tramped solid. When the trees are all planted, the work of the day is done and the gathering may be closed in such a way as the teacher sees fitting.

Sometimes Arbor Day is wet and unsuitable for the work proposed. In that case it is better that a day or two later should be chosen and the exercises carried on on that day. So far as farmers are concerned, they ought to have a tree-planting week beginning with Arbor Day, and devote a part of the time to the same method of planting on their farms as we have described. The same plan can be adapted to towns and cities.

When the tree is planted the work is however only partly done. The plot where the trees are planted is to be cultivated thoroughly and often, to keep the ground clean and mellow. Experience has shown that this should be done for from four to seven times each year for four years, after which time the trees shade out the weeds, and save further work. The trees should not be trimmed until after they shade each other and the ground sufficiently to smother the weeds.

We look forward to the time when the wisdom and industry of our people will make Manitoba a land of forest trees. Let us bend every energy to accomplish this, that we may join in a hearty forest song:

"A song for the beautiful trees
A song for the forest ground—
The garden of God's own land,
The pride of His centuries."

AN ARBOR DAY EXERCISE.

(*Eight boys and eight Manitoba trees.*)

SCHOLAR A.—Fathers, mothers and fellow-pupils. We are gathered together to celebrate our Arbor Day. It has been said, "It is counted an honor to raise a splendid pile of stone or marble, to paint a sublime picture, to compose a brilliant ode. Perhaps the man who multiplies trees of glorious sort achieves in his day quite as good an end. He makes the world richer than he found it, a good that any man may be proud to accomplish. I would rather be able to reflect in my old age that I had been the originator of a hundred oaks and cedars that, in days to come, shall help to make my country glad and beautiful, than have it recorded of me that my will had been proved at a million, and leave no memorial besides."

I speak the praises of the oak, noted for its strength:

A glorious tree is the old gray oak:
He has stood for a thousand years—
Has stood and frowned
On the trees around,
Like a king among his peers;
As around their king they stand, so now,
When the flowers their pale leaves fold
The tall trees round him stand, arrayed
In their robes of purple and gold,
He has stood like a tower
Through sun and shower,
And dared the winds to battle;
He has heard the hail,
As from plates of mail,
From his own limbs shaken, rattle;
He has tossed them about, and shorn the tops
(When the storm has roused his might)
Of the forest trees, as a strong man doth
The heads of his foes in fight.

Unite with me my eight companions in repeating:

"A song to the oak, the brave old oak,
Who hath ruled in the greenwood long:
Here's health and renown to his broad, green crown,
And his fifty arms so strong.
There's fear in his frown when the sun goes down,
And the fire in west fades out;
And he showeth his might on a wild midnight,
When the storms through his branches shout."
(*Quercus macrocarpa.*)

SCHOLAR B.—My tree is the birch. We have two birches in Manitoba. One is the Canoe birch of which Longfellow tells in Hiawatha,

"Give me of your bark, O birch tree!
Of your yellow bark, O birch tree!
Growing by the rushing river,
Tall and stately in the valley."

The Manitoba birch, called the low birch, is a small tree, very humble, not being more than eight feet high, yet not to be despised. I am very glad to say that one of the uses of the birch has in our day almost entirely passed away. Its twigs were used by the village school masters to punish unruly boys. We live in happier days. Our teachers appeal to our good sense, and we try to obey because it is right to do so. Too much whipping only makes boys worse, and they come to think little of doing wrong, where the birch is used. How well Shakespeare says:

"Having bound up the threatening twigs of birch,
Only to stick it in the children's sight
For terror, not to use; in time the rod
Becomes more mock'd than fear'd."

We rejoice at the departure of the birch from our schools. (*Betula papyrifera* and *Betula pumila.*)

SCHOLAR C.—I sing the praises of the Hazel tree. It is not tall or strong, but it is useful. We gather its brown nuts on the way to school, and we see the squirrels snatching away a few to put in their hoard for later use. Shakespeare speaks of a beautiful girl:

"Kate, like the hazel twig
Is straight and slender; and as brown in hue
As hazel nuts, and sweeter than the kernels."

Fellow scholars, I do not know whether you believe in fairies or not, but nearly all the poets have written about them, and the queen of the fairies did not despise the hazel nut as her carriage.

Oh then I see Queen Mab has been with you!
She comes
"In shape no bigger than an agate stone
On the forefinger of an alderman,
Drawn with a team of little atomies
Athwart men's noses as they lie asleep,
Her chariot is an empty hazel nut,
Made by the joiner squirrel or old grub
Time out of mind the fairies' coach makers."

(*Corylus Americana.*)

SCHOLAR D.—Unite with me in celebrating the American Mountain Ash. Its red berries make it an object of beauty and we are glad to have so pretty a shrub in Manitoba. The European Mountain Ash is called the Rowan tree.

I am glad to give you to-day the well-known song:

Oh! Rowan tree, Oh! Rowan tree, thou'lt aye be dear to me,
Entwined thou art with many ties of home and infancy.
Thy leaves were aye the first of Spring, thy flowers the Summer's pride;
There was not such a bonny tree in all the country side.
Oh! Rowan tree.

How fair wert thou in summer time, with all thy clusters white,
How red and gay thy Autumn dress, with berries red and bright!
On thy fair stem were many names, which now no more I see,
But they're engraved on my heart—forgot they ne'er can be.
Oh! Rowan tree.

We sat beneath thy spreading shade, the children round thou ran,
They pulled thy bonny berries red, necklaces they strang;
My mother! oh! I see her still, she smiled our sports to see,
With little Jeanie on her lap, and Jamie at her knee!
Oh! Rowan tree.

* * * * * * *

Now all are gone! we meet no more beneath the Rowan tree;
But, hallowed thoughts around thee twine of home and infamy.
Oh! Rowan tree.

(*Pyrus Americana.*)

SCHOLAR E.—No tree is more common in all parts of Manitoba than what is called the Ash-leafed Maple. Sir John Franklin on his famous journey through our great north country saw it everywhere and named it. It is not a large tree, and many from the eastern provinces tell us that it is not the true maple. However its sweet sap is boiled down into a pleasant syrup! Our greatest Canadian botanist says, "This is the 'sugar maple' of Manitoba

and the North-West, and is destined to be the shade tree of all the prairie cities."

All hail to the broad-leaved Maple!
With her fair and changeful dress—
A type of our youthful country
In its pride and lowliness;
Whether in Spring or Summer,
Or in the dreary Fall,
'Mid Nature's forest children,
She's fairest of them all.

Down sunny slopes and valleys
Her graceful form is seen,
Her wide, umbrageous branches
The sunburnt reaper screen;
'Mid the dark-browed firs and cedars
Her livelier colors shine,
Like the dawn of the brighter future
On the settler's hut of pine.

She crowns the pleasant hill-top,
Whispers on breezy downs,
And casts refreshing shadows
O'er the streets of our busy towns;
She gladdens the aching eye-ball,
Shelters the weary head,
And scatters her leafy glories
On the graves of the silent dead.

When winter's frosts are yielding
To the sun's returning sway,
And merry groups are speeding
To sugar-woods away;
The sweet and welling juices,
Which form their welcome spoil,
Tell of the teeming plenty,
Which here waits honest toil.

When sweet-toned Spring, soft-breathing,
Breaks Nature's icy sleep,
And the forest boughs are swaying
Like the green waves of the deep;
In her fair and budding beauty,
A fitting emblem she
Of this our land of promise,
Of hope, of liberty.

(*Negundo aceroides.*)

SCHOLAR F.—I ask you to remember the beautiful tree, our Green Ash. Like most of our Manitoba trees it is not large.

"The ash her purple drops forgivingly,
And sadly, breaking not the general hush;
The maple swamps glow like a sunset sea,
Each leaf a ripple with its separate flash;
All round the woods' edge creeps the skirting blaze,
Of bushes low, as, when on cloudy days,
Ere the rain falls the cautious farmer burns his brush."

(*Fraxinus Viridis.*)

SCHOLAR G.—Perhaps the best shade tree for Manitoba is the White Elm. It is a firmer tree than the Ash-leafed Maple. Its leaves are so numerous and fitted to give us shade in the sultry summer days that it has been called "a forest on a single tree." Oliver Wendell Holmes with true appreciation said:

> "If it is something to make two blades of grass grow where only one was growing, it is much more to have been the occasion of planting an oak which shall defy twenty scores of winters, or an elm which shall canopy with its green cloud of foliage half as many generations of mortal immortalities. I have written many verses, but the best poem I have produced are the trees I planted on the hillside which overlooks the broad meadows, and scalloped and rounded at their edges by loops of the sinuous Housatonic."
>
> (*Ulmus Americana.*)

SCHOLAR H.—I sing the Grape Vine. It has been thought that Manitoba is too far north for the growth of the more delicate fruits. But here the grape grows wild, as if Nature wished to give us hope of being able with shelter and skill to produce the valuable fruit of the grape. In years to come our experimental farms and intelligent gardeners will no doubt try to cultivate from our wild grape a stock of useful prairie grape vines. The grape vine has been a constant emblem of the poets. Its growth has always been emblematic of peace:

"In her days every man shall eat in safety,
Under his own vine, what he plants, and sing
The merry songs of peace to all his neighbors."

(*Vitis cordifolia.*)

Long may peace remain as the possession of our beloved Canada!

Our Arbor Day selections are ended.

The exercises may be fitly closed by singing "God Save the Queen."

WE ARE SEVEN MANITOBA GIRLS.

(*Seven thrifty girls describe the Prairie Wild Fruits.*)

First Pupil.—We are seven Manitoba girls. Seven is the perfect number, and although we do not claim perfection yet we intend to do our best to tell you of our prairie wild fruits. Each of us has two to tell you of. The wild fruits are our special possession. We believe that all girls should be brought up to house-keeping and especially to know how to prepare good and wholesome food. Manitoba is not noted for its fruit. We hope to have cultivated apples, pears and plums and cherries, bye and bye, but at present we have chiefly our small fruits. I have to describe to you two of these—the Wild Strawberry and Wild Raspberry. Botanists tell us both of these belong to the Rose family. The wild strawberry is known to everybody. It grows everywhere in our province, and is seen spreading by its vigorous runners. Its fruit is chiefly made up of the ripened receptacle, and on the outside of this the little seeds appear. When its white blossoms have faded, and its pretty red berries hang in drooping flower clusters it is a joy to see it in the long grass in June and July. It is largely sought for in Manitoba, and when prepared is stored up for winter use. (*Fragaria Virginiana.*)

My other fruit is the Red Raspberry. This grows in thickets, especially where the woods have been burnt away. Its woody, prickly stems grow upright, and its light red fruit attracts the berry pickers. We are glad to get up a party to go away to the "berry patch" to combine work with pleasure. The fruit of the raspberry is a hemisphere of little drupes adhering together. Each drupelet contains the juicy pulp, and in the centre of this the seed. When the hemisphere is plucked off the stalk the enlarged white receptacle is left behind. Probably the raspberry is the best of all the small fruits. I am glad it is so common in Manitoba. (*Rubus strigosus.*)

Second Pupil.—I have to tell of two of our most beautiful fruits, the Wild Cherry and Wild Plum, both of the Rose family. The cherry tree is a tall shrub with grayish bark, having leaves somewhat oval with serrate edges. There are several varieties of the cherry found in the different districts of Manitoba, but the botanists have not quite determined them yet. All of us however know the cherry. Shakespeare makes a pretty picture when he says:

> "When he was by, the birds with pleasure look,
> That some would sing, some others in their bills
> Would bring him mulberries and ripe red cherries,
> He fed them with his sight; they him with berries."

(*Prunus Virginiana.*)

More common and more useful is our Wild Plum. It grows on a thorny tree from seven to twenty feet high. Its leaves are very veiny and smooth when mature. The fruit varies in color, being yellow, orange or red. It is very pleasant to the taste, but often has a bitter skin. The bitterness can be taken away by scalding the plums before they are preserved for use. The wild plum is perhaps the best wild fruit in Manitoba, and it is being cultivated with some success into a much better fruit. The plum has not been a favorite of the poets, but it is much appreciated for common use. Prunes, which are sold in our shops, are the dried product of plums from abroad. (*Prunus Americana.*)

THIRD PUPIL.—To me have been given two fruits more noted for their beauty than for use. They also belong to the rich Rose family. They are the Saskatoon-berry and the scarlet fruit of the White Thorn. The saskatoon is the commonest prairie fruit. Where strawberries, raspberries, cherries and plums all fail, this hardy fruit will thrive. It has several varieties, some of them growing as a tree to nearly thirty feet in height, but our common saskatoon is a shrub from two to ten feet high, with leaves somewhat broad. The fruit is purplish but is sweet and edible. In the absence of other fruit it is largely used, but it cannot compete with the huckleberries, which are brought in tons from the swampy region of the Lake of the Woods, and sold upon the prairies. This shrub is also known as the Shad-bush, and the fruit as the June-berry and Service-berry. (*Amelanchier Canadensis.*)

The Thorn Apple is very beautiful upon the trees, but is not of much value as a fruit. The tree is thorny, and in spring has pretty white blossoms. The fruit is coral red. Branches of the ripened fruit are sometimes broken off and used for ornament in our houses. The tree is found in coulees and stream valleys throughout the prairies nearly to the Rocky Mountains. (*Cratægus coccinea.*)

FOURTH PUPIL.—My task is a much more humble one than that of those who have just gone before me. I have to tell you of the Dwarf Cherry or Sand Cherry, and the Ground Plum. These are not so well known or so important as those already mentioned. The sand cherry belongs to the Rose family with which we are acquainted. It is smooth, and trailing, and is from six inches to six feet high. Hence, it is called the dwarf cherry. The leaves are lance-shaped, and narrow down towards the base. They are pale underneath. The fruit is somewhat oval, and dark red or nearly black when ripe, without bloom. The stone is about the size of a large pea. The fruit is rather sour, but trials are being made with this tree at the Experimental Farm, Brandon, and there they are hopeful that this fruit, on being improved, will yet be most valuable. It is by improving and developing our own wild

plants that we are most likely to obtain hardy and prolific fruit-bearers. (*Prunus pumila.*)

The other fruit to be mentioned is the Ground Plum. It belongs to the Pea family. Its leaflets are narrow and oblong, and the flowers are in a short raceme. The blossom is violet-purple, and the fruit is a plum-shaped pod. When the pods, which are nearly solid, have reached the size of hazel nuts, they prove a valuable addition to the list of early vegetables. Cooked like green peas they make a pleasing dish, intermediate in taste between early peas and asparagus. The pods become hard and corky when dry. (*Astragalus caryocarpus.*)

FIFTH PUPIL.—No one could be more fortunate than I, when I can present to you the Black Currant and the Wild Gooseberry. These both belong to the well-known Saxifrage family. They grow very freely in our prairie thickets. The thornless and prickless branches of the black currant bear heart-shaped leaves. The racemes are drooping and downy. The black smooth fruit is much sought for by the settlers. This fruit, on being cultivated in the gardens, will lose much of its rankness, and prove of great value as a small fruit. (*Ribes floridum.*)

Fierce in appearance, covered as it is with prickles, but sweet and agreeable to the taste, the wild gooseberry is much used, when partially ripe, for cooking. Gooseberry is a corruption of gorseberry, a name given in England to coarse prickly herbage, and our wild gooseberry well deserves the name. In the absence of better fruit the gooseberry is much sought for, though Shakespeare makes one of his characters speak of things in his age "as not worth a gooseberry." (*Ribes cynosbati.*)

SIXTH PUPIL.—I have two fruits to describe, not so well known as those preceding, but likely to become important in Manitoba and the Territories. These are the Buffalo berry and the Silver berry. They belong to the Oleaster family. They both grow on shrubs or small trees. The Buffalo berry tree is from five to eighteen feet high, and is somewhat thorny. Its leaves are wedge-shaped and are silvery on both sides. The berry is small and scarlet red. It is of a pleasant acid taste, and when cooked is very much valued where it is known. It is thought this may yet become a most important small fruit on the prairies, and it is being cultivated and improved for that purpose. (*Shepherdia argentea.*)

The Silver berry is not likely to be so well known. The shrub on which it grows is from six to twelve feet high. The flowers are silvery without, pale yellow within and fragrant. The fruit is about the size of a large currant. It is dry and mealy and can be eaten. (*Elæagnus argentea.*)

SEVENTH PUPIL.—Two wild fruits remain. These are the High Bush Cranberry and the Wolf berry. They belong to the Honeysuckle family. The High Bush Cranberry is called in Manitoba the Pembina berry from the Indian name for the same, "Nepimenan." It is a smooth upright shrub from four to twelve feet high, and is very abundant in Manitoba copses. Its leaves are ribbed and three-lobed. Its fruit which grows in a beautiful cyme is light red and contains a flat oval stone. The fruit is acid, and, while the stone is troublesome, this berry is yet very serviceable and agreeable. It is largely used in the country. The guelder rose or snow-ball tree is a cultivated form of this tree. (*Viburnum opulus.*)

More for ornament than use we mention the Wolf berry, which grows abundantly on our prairies. It is a low branching shrub with leaves downy underneath and flowers in dense spikes. The fruit is white but little valued. (*Symphoricarpus occidentalis.*)

ANOTHER EXERCISE FOR ARBOR DAY.

(*Eight boys write Short Essays on the Amentifers and Conifers of Manitoba.*)

SCHOLAR A.—To-day we celebrate our useful forest trees. One of these is the Common Poplar. It constitutes the "bluffs" scattered over our prairies. You may have noticed, that before a storm its leaves seem turned with the white sides outward, and tremble in the breeze. The botanists call it the "Trembling Poplar"; and some know the tree by the name "Aspen," which means the same thing. This tree bears in the spring a long silky catkin which appears on the trees before the leaves. This catkin or ament gives the name Amentiferous. The greenish-white bark of the Poplar is very smooth. Our Poplar is a quick growing tree and is much used for fuel throughout the country. Its catkins, however, fall off and disfigure the lawns, and it sprouts too freely from the roots for it to be called a good shade tree. With all its faults we love our Poplar. (*Populus tremuloides.*)

SCHOLAR B.—In all the river valleys throughout the prairie region from the Red River westward to the Rocky Mountains grows a tall and spreading tree commonly called the Cottonwood. Macoun tells us that at Big Stick Lake, north of the Cypress hills there was a grove of these trees of very large size. These had escaped the prairie fires, being surrounded by sand and were over fifty feet high. The Cottonwood has on one tree only catkins or tassels that bear flowers with stamens, while on another are those only with pistillate catkins. The cotton from the seeds is blown everywhere and proves a great trouble to the tidy settler's wife. It covers everything in the house.

This catkin is only found, however, on the tassels which bear pistils. If you wish to be free from the flying cotton only plant those trees which bear the red tassels. Both green and red catkins grow on the trees in Spring before the leaves come out. (*Populus monilifera.*)

SCHOLAR C.—I have another of the catkin-bearing trees to describe. This is the Balsam Poplar. It grows to a great size, and is wide-spread upon the prairies. It is often seen one hundred and fifty feet high and seven feet thick. On the Mackenzie River many of these great trees fall at flood time into the river, and are carried down to the Arctic Ocean, where on the islands and sea-shore they are used as fuel. Even in the great Yukon Valley in Alaska this tree grows abundantly. A variety of this tree is cultivated as the Balm of Gilead. The Indian name Tacamahac is also given to it. Most of its names refer to the fact that its large buds are varnished over with a plentiful fragrant resin. (*Populus balsamifera.*)

SCHOLAR D.—Is it not strange that no less than four of the few trees we have on the prairies belong to the Willow order? The Aspen, Cottonwood, and Balsam Poplar all do so, and now I am to write a few words about the Hoary Willow. I am sorry that the Willow has always been looked upon as the emblem of desertion. Shakespeare sometimes so used it. You remember how poor Ophelia in the great drama of "Hamlet" was drowned:

> "There is a willow grows askant the brook,
> That shows its hoar leaves in the glassy stream,
> There, with fantastic garlands did she come
> . . . . . .
> There on the pendent boughs, her coronet weeds
> Clambering to hang—an envious sliver broke:
> When down her woody trophies and herself
> Fell in the weeping brook."

And of the Jews in captivity the memory is preserved: "By the rivers of Babylon there, we sat down: yea we wept when we remembered Zion: we hanged our harps upon the willows."

Manitoba has a wide extent of wet land covered with the Hoary Willow. Willow bark has a bitter principle, which irritates the eyes in the smoke from the burning branches, and the native people of Manitoba use Willow bark in tanning skins of the deer and other animals. (*Salix Candida.*)

SCHOLAR E.—The tree I wish to speak of is the Basswood. This grows in some parts of our Province. It does not bear aments, but its wood resembles that of the Cottonwood tree. It grows to a great height, and in the spring is very attractive with cream-colored clusters of flowers, honey-bearing and fragrant. Its light wood gives the name Whitewood, while Basswood comes from its having sweet, mucilaginous fibres or bast just beneath the bark. In

England a species of this tree is called the Lime tree, perhaps from the sticky juice, as Wordsworth says:

"Like the lime
That foolish birds are caught with."

This tree with its rich blossom is a favorite of the bees. Of the good man in Virgil who so loved his garden, it was told:

> "Here planting among the shrubs, white lilies, vervain, and esculent poppies, he equalled in his contented mind the wealth of kings. The first was he to pluck the rose of spring and the first to gather the fruits of autumn. Lindens had he and Limes in great abundance; he therefore was the first to abound with prolific bees and to store in the frothy honey from the well-pressed combs." (*Tilia Americana.*)

SCHOLAR F.—It is my great privilege to speak first of one of the Conifers. This is a name given to all those trees which have seed cones. These are fertilized by the downy yellow pollen dust which all who have been in a Pine forest in spring know so well. I cannot speak of the Pine which is found so abundantly along the lakes and on the Ottawa. It is a source of wealth to Canada, but it does not grow in Manitoba. We have, however, on the sand hills and in the dry woods the White Spruce. It may be told from Black Spruce, which grows west of Lake Winnipeg, by its narrow drooping cones never under an inch in length, and the scales pale straw color or brown at maturity. I presume it was the juice and gum of this tree which Jacques Cartier, the early explorer of Canada, found to work as if by magic in curing his men of scurvy during their winter stay in Canada three centuries and a half ago. The Spruce is likely to become an ornamental tree in our Province, and its evergreen branches are a joy to us in their contrast with winter's winding sheet of snow. (*Picea alba.*)

SCHOLAR G.—My story is of the stately Tamarack. Great forests of it grow in Eastern Manitoba, and with the Black Spruce it occupies nearly all the swampy ground north of our prairie lakes to the base of the Rocky Mountains. This tree belongs to the Larches, and is sometimes known by the Indian name Hackmatack. The cones of the Tamarack are like those of the Spruce. The leaves are needle-shaped, soft and hanging. There are fertile catkins of a crimson or red color on some of the trees. Tamarack forms a large part of the fuel of Winnipeg. The fact that the wood of this tree is hard and very resinous makes it a good fuel. It is also used for railway ties and for many like purposes. It is not, however, so durable as the White Cedar, which is now brought from the country lying fifty or sixty miles east of Red River. The Larch is a stately tree, and has a drooping and graceful appearance. (*Larix Americana.*)

SCHOLAR H.—Last of the eight I come with the Creeping Juniper. Our leading Canadian botanist says: "In the east it is usually found along rivers and lakes, creeping down the banks or lying flat on the sand or rocks: on the other hand, on the prairie, it often covers wide areas of level, sandy ground, to the almost total exclusion of other vegetation." It has small catkins along the side of the prostrate stem, and its leaves are of two kinds, viz., awl-shaped and scale-shaped. The scale-shaped leaves have a little gland upon the back full of resin. The fruit is a bluish-black berry with white bloom, and this gives the evergreen creeping branch, with its strong odor, some importance to the lover of nature. This is the last of our Manitoba wild trees and shrubs.

A great American thinker said: "Without doubt, better trees there might be than even the most noble and beautiful now. I suppose God has in his thoughts much better ones than he has ever planted on this globe. They are reserved for the Glorious Land. Beneath them we may walk." (*Juniperus Sabina var. procumbens.*)

MY PRAIRIE HOME.

Come back, O friend, to your prairie home,
To the plains that are wide like the sea;
To the brown foot-hills where the cattle roam,
Where the wind, the wind blows free!

The wind blows free and the cattle graze,
And the eagle soars on high;
While the land lies asleep in the smoky haze,
And faint comes the ground-bird's cry.

The ground-bird's cry and the plover's call,
And the whistle of hawk I hear;
While the blackbird flock, like a sable pall,
On the sedgy bank appear.

On the sedgy hank of the ruffled pool,
Where the sportful wind careers;
You may joy in the plash of its waters cool,
And drown in their depths your fears.

You may drown the fears that oppress you sore,
And the cares so wearily rife;
And blessed peace shall be yours once more,
As in spring-time years of life.

Come then from the city's din and roar,
From breathing its heavy air;
From dim-eyed search of that wondrous lore,
That the strifes of men prepare.

You can 'scape from the strife of tongues away,
And be here alone with God;
While all about you the stars of day,
Shine bright in the prairie-sod.

—W. P. McKenzie.

HOPES OF MANITOBA.

Softly the shadows of prairie-land wheat,
Ripple and riot adown to her feet;
Murmurs all nature with joyous acclaim,
Fragrance of summer and shimmer of flame
Heedless she hears while the centuries slip
Chalice of poppy is laid on her lip.

Hark! From the east comes a ravishing note
Sweeter was never in nightingale's throat:
Silence of centuries thrills to the song,
Singing their coming awaited so long;
Low, yet it swells to the heaven's fair dome,
Child-lips have called the wild meadow-land Home.

Deep, as she listens, a dewy surprise,
Dawns in the languor that darkens her eyes:
Swift the red blood through her veins, in its flow,
Kindles to rapture her bosom aglow;
Voices are calling where silence has been,
"Look to thy future, thou mother of men!"

Onward and onward! Her fertile expanse
Shakes as the tide of her children advance,
Onward and onward! Her blossoming floor
Yields her an opium potion no more;
Onward! and soon on her welcoming soil,
Cities shall palpitate, myriads toil.

—Emily McManus.

MAY.

May, the month of song and story
Singing birds and fairest flowers;
May, the month of nature's glory
Sunshine bright and gentle showers.

Listen to the robins singing
Mid the branches of the trees,
Listen to the bluebirds' carol
And the drowsy hum of bees.

All the land is filled with sunshine,
Every heart is light and gay;
Nature smiles upon her children,
For it is the month of May.

May, the month of song and story,
Singing birds and fairest flowers;
May, the month of nature's glory,
Sunshine bright and gentle showers.

—W. G. Park.

INVITATION TO THE WOODS.

Oh, come away to the grave old woods,
Ere the skies are tinged with light;
Ere the slumbering leaves of the gloomy trees,
Have thrown off the mists of night.
Ere the birds are up,
Or the floweret's cup,
Is drained of its fresh'ning dew,
Or the bubbling rill
Kissing the hill
Breaks on the distant view;
Oh, such is the hour
To feel the power
Of the quiet, grave old woods!
Then, while sluggards dream
Of some dismal theme,
Let us stroll,
With prayerful soul,
Through the depths of the grave old woods.

Oh, come away to the bright old woods,
As the sun ascends the skies;
While the birdlings sing their morning hymn,
And each leaf in the grove replies.
When the golden-zoned bee,
Flies from flower to tree,
Seeking sweets for its honeyed cell,
And the voice of praise,
Sounds its varied lays,
From the depth of each quiet dell;
Oh, such is the hour
To feel the power
Of the magic, bright old woods!
Then, while sluggards dream
Of some trifling theme,
Let us stroll,
With studious soul,
Through the depths of the bright old woods.

—Charles Sangster.

THE HEART OF THE TREE.

What does he plant who plants a tree?
He plants a friend of sun and sky;
He plants the flag of breezes free,
The shaft of beauty towering high;
He plants a home to heaven anigh
For song and mother-croon of bird
In hushed and happy twilight heard—
The treble of heaven's harmony—
These things he plants who plants a tree.

What does he plant who plants a tree?
He plants cool rain and tender shade;
And seed and bud of days to be,
And years that fade and flush again;
He plants the glory of the plain;
He plants the forest's heritage;
The harvest of a coming age;
The joy that unborn eyes shall see—
These things he plants who plants a tree.

What does he plant who plants a tree?
He plants, in sap and leaf and wood,
In love of home and loyalty,
And far-cast thought of civic good—
His blessing on the neighborhood,
Who, in the hollow of his hand,
Holds all the growths of all our land;
A nation's growth from sea to sea,
Stirs in his heart who plants a tree.

—*The Century.*

WOODMAN, SPARE THAT TREE.

Woodman, spare that tree!
Touch not a single bough!
In youth it sheltered me,
And I'll protect it now.
'Twas my forefather's hand
That placed it near his cot,
There, woodman let it stand;
Thy axe shall harm it not.

The old familiar tree,
Whose glory and renown
Are spread o'er land and sea,—
And would'st thou hack it down?
Woodman, forbear thy stroke,
Cut not its earth-bound ties;
Oh, spare that aged oak,
Now towering to the skies!

When but an idle boy
I sought its grateful shade;
In all their gushing joy,
Here, too, my sisters played.
My mother kissed me here;
My father pressed my hand—
Forgive the foolish tear;
But let the old oak stand.

My heart-strings round thee cling,
Close as thy bark, old friend;
Here shall the wild-bird sing,
And still thy branches bend.
Old tree! the storm still brave!
And, woodman, leave the spot;
While I've a hand to save,
Thy axe shall harm it not.

—G. P. Morris.

PLANT A TREE.

He who plants a tree
Plants a hope.
Rootlets up through fibres blindly grope;
Leaves unfold into horizons free.
So man's life must climb
From the clouds of time
Unto heavens sublime.
Canst thou prophesy, thou little tree,
What the glory of thy boughs shall be?

What the glory of my boughs shall be!

He who plants a tree
Plants a joy;
Plants a comfort that will never cloy.
Every day a fresh reality.
Beautiful and strong,
To whose shelter throng
Creatures blithe with song.
If thou couldst but know thou happy tree,
Of the bliss that shall inhabit thee.

He who plants a tree
He plants peace.
Under its green curtains jargons cease,
Leaf and zephyr murmur soothingly;
Shadows soft with sleep
Down tired eyelids creep.
Balm of slumber deep.
Never hast thou dreamed, thou blessed tree,
Of the benediction thou shalt be.

He who plants a tree
He plants youth;
Vigor won for centuries in sooth;
Life of time that hints eternity!
Boughs their strength uprear,
New shoots every year
On old growths appear.
Thou shalt teach the ages, sturdy tree,
Youth of soul is immortality.

He who plants a tree
He plants love;
Tents of coolness spreading out above
Wayfarer, he may not live to see.
Gifts that grow are best;
Hands that bless are blest;
Plant, life does the rest.
Heaven and earth help him who plants a tree,
And his work its own reward shall be.

—Lucy Larcom.

PLANTING FOR THE FUTURE.

In youth's glad morning hour,
All life a holiday doth seem;
We glance adown time's vista long
Beholding but the sunny gleam.

The happy hearts that meet to-day,
In a loving band are drawn more near
By the loving end that crowns our work,
Planting trees for a future year.

O tender trees! ye may thrive and grow,
And spread your branches to the sun,
When the youthful band assembled here,
Has reaped life's harvest, every one.

When the shining eye shall lose its fire,
When the rosy cheek shall fade away,
Thou'lt drink of the dew and bask in the light,
Forgetful of this Arbor Day.

The bounding heart, the active limb,
The merry laugh and sparkling jest,
Be mingled with the things of earth,
And sink to solitude and rest.

But o'er this ground with branching arms,
These trees shall cast their leafy shade,
And other hearts as light and gay,
Shall reap the shelter we have made.

So let our planting ever be,
Something in store for a future year,
When homeward with our harvest bound,
We'll meet the master without fear.

—H. B. Wright.

THE GIFT OF THE FOREST.

First Pupil:

"Give me of your bark, O birch tree!
Of your yellow bark, O birch tree!
Growing by the rushing river,
Tall and stately in the valley!
I a light canoe will build me,
Build a swift Cheemaun for sailing,
That shalt float upon the river,
Like a yellow leaf in autumn,
Like a yellow water lily!"

Second Pupil:

And the tree with all its branches
Rustled in the breeze of morning,
Saying with a sigh of patience,
"Take my cloak, O Hiawatha!"

Third Pupil:

"Give me of thy boughs, O cedar!
Of your strong and pliant branches,
My canoe to make more steady,
Make more strong and firm beneath me!
Through the summit of the cedar
Went a sound, a cry of horror,
Went a murmur of resistance,
But it whispered, bending downward,
'Take my boughs, O Hiawatha!'
Down he hewed the boughs of cedar,
Shaped them straightway to a framework,
Like two bows he formed and shaped them,
Like two bonded bows together."

Fourth Pupil:

"Give me of your roots, O Tamarack!
Of your fibrous roots, O larch tree!
My canoe to bind together
That the water may not enter,
That the river may not wet me!"

Fifth Pupil:

And the larch, with all its fibres,
Shivered in the air of morning,
Touched his forehead with his tassels
Said, with one long sigh of sorrow,
"Take them all, O Hiawatha!"

Sixth Pupil:

"Give me of your balm, O fir tree!
Of your balsam and your resin,
So to close the seams together
That the water may not enter,
That the river may not wet me."

Seventh Pupil:

And the fir tree, tall and sombre,
Sobbed through all its robes of darkness,
Rattled like a shore of pebbles,
Answered wailing, answered weeping,
"Take my balm, O Hiawatha!"

All:

Thus the birch canoe was builded
In the valley, by the river,
In the bosom of the forest;
And the forest life was in it,
All its mystery and magic,
All the lightness of the birch tree,
All the toughness of the cedar.
All the larch's supple sinews;
And it floated on the river,
Like a yellow leaf in autumn,
Like a yellow water lily,

—LONGFELLOW.

GREAT VOICES ON ARBOR DAY.

First Pupil:

"The groves were God's first temples,
Ere man learned
To hew the shaft, and lay the architrave
And spread the roof above them—ere he framed,
The lofty vault, to gather and roll back
The round of anthems, in the darkling wood,
Amidt the cool and silence, he knelt down
And offered to the Mightiest solemn thanks
And supplications."

—BRYANT.

Second Pupil:

"I shall speak of trees, as we see them, love them, adore them in the fields where they are alive, holding their green sun-shades over our heads, talking to us with their hundred thousand whispering tongues, looking down on us with that sweet meekness which belongs to huge but limited organisms—which one sees most in the patient

posture, the out-stretched arms, and the heavy, drooping robes of those vast beings, endowed with life, but not with soul—which outgrow us and outlive us, but stand helpless, poor things—while nature dresses and undresses them."—HOLMES.

Third Pupil:

"Give fools their gold and knaves their power;
Let fortune's bubbles rise and fall;
Who sows a field, or trains a flower,
Or plants a tree, is more than all.

For he who blesses most is blest;
And God and man shall own his worth,
Who toils to leave as his bequest
An added beauty to the earth."

—WHITTIER.

Fourth Pupil:

"There is something nobly simple and pure in a taste for the cultivation of forest trees. It argues, I think, a sweet and generous nature to have this strong relish for the beauties of vegetation, and this friendship for the hardy and glorious sons of the forest. There is a grandeur of thought connected with this part of rural economy.... He who plants an oak looks forward to future ages, and plants for posterity. Nothing can be less selfish than this."—IRVING.

Fifth Pupil:

"What conqueror in any part of 'Life's broad field of battle' could desire a more beautiful, a more noble, or a more patriotic monument than a tree planted by the hands of pure and joyous children, as a memorial of his achievements."—LOSSING.

Sixth Pupil:

"Oh Rosalind, these trees shall be my books,
And in their barks my thoughts I'll character,
That every eye which in this forest looks,
Shall see thy virtue witnesses everywhere."

—SHAKESPEARE.

Seventh Pupil:

"There is something unspeakably cheerful in a spot of ground covered with trees, that smiles amidst all the rigors of winter, and gives us a view of the most gay season in the midst of that which is the most dead and melancholy."—ADDISON.

Eighth Pupil:

"As the leaves of trees are said to absorb all noxious qualities of the air, and to breathe forth a purer atmosphere, so it seems to me as if they drew from us all sordid and angry passions, and breathed forth peace and philanthropy."—IRVING.

Ninth Pupil:

"I care not how men trace their ancestry,
To ape or Adam; let them please their whim;
But I in June am midway to believe
A tree among my far progenitors,
Such sympathy is mine with all the race,
Such mutual recognition vaguely sweet
There is between us."

—LOWELL.

Tenth Pupil:

"Trees have about them something beautiful and attractive even to the fancy. Since they cannot change their plan, are witnesses of all the changes that take place around them, and as some reach a great age, they become, as it were, historical monuments, and, like ourselves, they have a life growing and passing away, not being inanimate and unvarying like the fields and rivers. One sees them passing through various stages, and at last, step by step, approaching death, which makes them look still more like ourselves."—HUMBOLDT.

Eleventh Pupil:

"Summer or winter, day or night,
The woods are an ever new delight;
They give us peace, and they make us strong,
Such wonderful balms to them belong;
So, living or dying, I'll take my ease
Under the trees, under the trees."

—STODDARD.

THE CLASS TREE.

Tune—God Save the Queen.

Grow thou and flourish well
Ever the story tell
Of this glad day;
Long may thy branches raise
To heaven our grateful praise
Waft them on sunlight rays
To God away.

Deep in the earth to-day,
Safely thy roots we lay
Tree of our love;
Grow thou and flourish long;
Ever our grateful song
Shall its glad notes prolong
To God above.

Let music swell the breeze,
And ring from all the trees,
On this glad day;
Bless thou each student band
O'er all our happy land;
Teach them Thy love's command
Great God, we pray.

—Arbor Day Manual.

In the merry month of May
Comes our gladsome Arbor Day,
And with cheerful voice we raise
Hearty notes of grateful praise.

All the buds and bees are singing;
All the lily bells are ringing;
All the brooks run full of laughter,
And the winds come whispering after,
What is this they sing and say?
It is May!

Hail beauteous May! that dost inspire
Mirth and youth and warm desire;
Woods and groves are of thy dressing,
Hill and dale doth boast thy blessing.

Robins in the tree-tops
    Blossoms in the grass;
Green things a-growing
    Everywhere you pass.

Sudden little breezes;
    Showers of silver dew;
Black bough and bent twig
    Budding out anew!

Pine tree and willow tree,
    Fringed elm and larch
Don’t you think that May time’s
    Pleasanter than March?

In botanizing a flower the pupil will trace it down to the Order In the following Key, and then turn to the Order as found by the Index In Spotton's Botany, Part II., to get the genus and species.

KEY TO THE FAMILIES OR ORDERS OF PLANTS.

SERIES I. PHANEROGRAMS.

Plants producing true flowers and seeds.

CLASS I. DICOTYLEDONS OR EXOGENS.

Distinguished ordinarily by having net-veined leaves, and the parts of the flowers in fours or fives, very rarely in sixes. Wood growing in rings, and surrounded by a true bark. Cotyledons of the embryo mostly two.

SUB-CLASS I. ANGIOSPERMS.

Seeds enclosed in an ovary.

DIVISION I. POLYPETALOUS EXOGENS.

Two distinct sets of Floral Envelopes. Parts of the corolla separate from each other.

A. Stamens more than twice as many as the petals.

* *Stamens hypogynous* (*inserted on the receptacle.*)

† *Pistil apocarpous* (*carpels separate from each other.*)

RANUNCULACEÆ.—Herbs. Leaves generally decompound or much dissected.

ANONACEÆ.—Small trees. Leaves entire. Petals 6, in 2 sets.

MAGNOLIACEÆ.—Trees. Leaves truncate. Fruit resembling a cone.

MENISPERMACEÆ.—Woody twiners. Flowers diœcious. Leaves peltate near the edge.

Brasenia, in

NYMPHÆCEÆ.—Aquatic. Leaves oval, peltate: the petiole attached to the centre.

MALVACEÆ.—Stamens monadelphous. Calyx persistent. Ovaries in a ring.

Podophyllum, in

BERBERIDACEÆ.—Calyx fugacious. Leaves large, peltate deeply lobed. Fruit a large fleshy berry, 1-celled.

†† *Pistil Syncarpous.* (*Stigmas, styles, placentæ, or cells, more than one.*)

Actæa, in

RANUNCULACEÆ, may be looked for here. Fruit, a many-seeded berry. Leaves compound.

NYMPHÆACEÆ.—Aquatics. Leaves floating, large, deeply cordate.

SARRACENIACEÆ.—Bog-plants. Leaves pitcher-shaped.

PAPAVERACEÆ.—Juice red or yellow. Sepals 2, caducous.

CAPPARIDACEÆ.—Corolla cruciform, but pod 1-celled. Leaves of 3 leaflets.

HYPERICACEÆ.—Leaves transparent-dotted. Stamens usually in 3, but sometimes in 5, clusters.

CISTACEÆ.—sepals 5, very unequal, or only 3. Ovary 1-celled, with 3 parietal placentæ.

MALVACEÆ.—Stamens monadelphous, connected with the bottom of the petals. Calyx persistent. Ovaries in a ring.

TILIACEÆ.—Trees. Flowers yellowish, in small hanging cymes, the peduncle with a loaf-like bract attached.

** *Stamens perigynous* (*inserted on the calyx.*)

Portulaca, in

PORTULACACEÆ.—Low herbs, with fleshy leaves. Sepals 2, adhering to the ovary beneath. Pod opening by a lid.

ROSACEÆ.—Leaves alternate, with stipules. Fruit apocarpous, or a drupe, or a pome.

*** *Stamens epigynous* (*attached to the ovary.*)

Nymphæa, in

NYMPHÆACEÆ.—Aquatic. Leaves floating. Flowers white, large, with numerous petals gradually passing into stamens.

B. Stamens not more than twice as many as the petals.

* *Stamens just as many as the petals, and one stamen in front of each petal.*

BERBERIDACEÆ.—Plant dull-purple. Leaves decompound. Anthers opening by uplifting valves.

PORTULACACEÆ.— Sepals 2. Styles 3-cleft. Leaves 2, fleshy.

VITACEÆ.—Shrubs, climbing by tendrils. Calyx minute.

RHAMNACEÆ.—Shrubs, not climbing.

Lysimachia, in

PRIMULACEÆ, is occasionally polypetalous. Flowers yellow, in axillary spikes; the petals sprinkled with purplish dots.

** *Stamens either just as many as the petals and alternate with them, or not of exactly the same number.*

† *Corolla irregular.*

FUMARIACEÆ.—Corolla flattened and closed. Stamens 6.

VIOLACEÆ.—Corolla 1-spurred. Stamens 5. Pod with 3 rows of seeds on the walls.

BALSAMINACEÆ.—Corolla 1-spurred, the spur with a tail. Stamens 5. Pod bursting elastically.

POLYGALACEÆ.—Lower petal keel-shaped, usually fringed at the top. Anthers 6 or 8, 1-celled, opening at the top. Pod 2-celled.

LEGUMINOSÆ.—Corolla papilionaceous. Filaments often united. Ovary simple, with one parietal placenta. Leaves compound.

†† *Corolla regular or nearly so.*

1. Calyx superior (*i.e.*, **adherent to the ovary, wholly or partially.**)

(a) *Stamens perigynous* (*inserted on the calyx.*)

Cratægus, in

ROSACEÆ.—Shrubs. Stamens occasionally from 5 to 10 only. Leaves alternate, with stipules. Fruit drupe-like, containing 1-5 bony nutlets.

SAXIFRAGACEÆ.—Leaves opposite or alternate, without stipules. Styles or stigmas 2; in one instance 4. Ovary 1-celled, with 2 or 3 parietal placentæ.

HAMAMELACEÆ.—Shrubs. Stamens 8; styles 2; Flowers yellow in autumn.

HALORAGEÆ.—Aquatics. Stamens 4 to 8. Styles or sessile stigmas 4.

ONAGRACEÆ.—Flowers symmetrical. Stamens 2, 4 or 8. Stigmas 2 or 4, or capitate.

LYTHRACEÆ.—Calyx apparently adherent to, but really free from, the ovary. Stamens 10, in two sets. Leaves mostly whorled.

(b) *Stamens epigynous* (*on the ovary, or on a disk which covers the ovary.*)

Euonymus, in

CELASTRACEÆ.—Shrub, with 4-sided branchlets, not climbing. Leaves simple. Pods crimson when ripe. Calyx not minute.

UMBELLIFERÆ.—Flowers chiefly in compound umbels. Calyx very minute. Stamens 5. Styles 2. Fruit dry, 2-seeded.

ARALIACEÆ.—Umbels not compound, but sometimes panicled. Stamens 5. Styles usually more than 2. Fruit berry-like.

CORNACEÆ.—Flowers in cymes or heads. Stamens 4. Style 1.

2. Calyx inferior (*i.e.*, **free from the ovary.**)

(a) *Stamens hypogynous* (*on the receptacle.*)

CRUCIFERÆ.—Petals 4. Stamens 6, tetradynamous. Pod 2-celled.

CISTACEÆ.—Petals 3. Sepals 5, very unequal; or only 3. Pod partly 3-celled.

DROSERACEÆ.—Leaves radical, beset with reddish glandular hairs. Flowers in a 1-sided raceme.

Elodes, in

HYPERICACEÆ.—Leaves with transparent dots. Stamens 9, in 3 clusters.

CARYOPHYLLACEÆ.—Styles 2-5. Ovules in the centre or bottom of the cell. Stem usually swollen at the joints. Leaves opposite.

LINACEÆ.—Stamens 5, united below. Pod 10-celled, 10-seeded.

GERANIACEÆ.—Stamens 5. Carpels 5—they and the lower parts of the 5 styles attached to a long beak, and curling upwards in fruit.

OXALIDACEÆ.—Stamens 10. Pod 5-celled. Styles 5, distinct. Leaflets 3, obcordate, drooping at nightfall.

ERICACEÆ.—Anthers opening by pores at the top, or across the top. Leaves mostly evergreen, sometimes brown beneath; but in one instance the whole plant is white.

(b) *Stamens perigynous* (*plainly attached to the calyx.*)

SAXIFRAGACEÆ.—Leaves opposite or alternate, without stipules. Styles or stigmas 2; in one instance 4. Carpels fewer than the petals.

CRASSULACEÆ.—Flowers symmetrical. Pod 5-angled and 5-horned.

LYTHRACEÆ.—Stamens 10, in 2 sets. Calyx enclosing, but really free from the ovary. Leaves mostly whorled.

(c) *Stamens attached to a fleshy disk in the bottom of the calyx tube.*

ANACARDIACEÆ.—Trees, or shrubs, not prickly. Leaves compound. Stigmas 3. Fruit a 1-seeded drupelet.

CELASTRACEÆ.—Twining shrub. Leaves simple. Pods orange when ripe.

SAPINDACEÆ.—Shrubs, or trees. Fruit, two-winged, and leaves palmately-veined. Or, Fruit an inflated 3-celled pod, and leaves of 3 leaflets. Styles 2 or 3.

(d) *Stamens attached to the petals at their very base.*

Claytonia, in

PORTULACACEÆ.—Sepals 2. Leaves fleshy. Style 3-cleft.

AQUIFOLIACEÆ.—Shrubs, with small axillary flowers, having the parts in fours or sixes. Fruit a red berry-like drupe. Stigma sessile. Calyx minute.

DIVISION II. GAMOPETALOUS EXOGENS.

Corolla with the petals united together, in however slight a degree.

A. Calyx superior (adherent to the ovary.)

** Stamens united by their anthers.*

COMPOSITÆ.—Flowers in heads, surrounded by an involucre.

LOBELIACEÆ.—Flowers not in heads. Corolla split down one side.

*** Stamens not united together in any way.*

† Stamens inserted on the corolla.

DIPSACEÆ.—Flowers in heads surrounded by an involucre. Plant prickly.

VALERIANACEÆ.—Flowers white, in clustered cymes. Stamens fewer than the lobes of the corolla.

RUBIACEÆ.—Leaves, when opposite, with stipules; when whorled, without stipules. Flowers, if in heads, without an involucre.

CAPRIFOLIACEÆ. Leaves opposite, without stipules; but, in one genus, with appendages resembling stipules.

†† Stamens not inserted on the corolla.

CAMPANULACEÆ.—Herbs with milky juice. Stamens as many as the lobes of the corolla.

ERICACEÆ.-Chiefly shrubby plants. Stamens twice as many as the lobes of the corolla.

B. Calyx inferior (free from the ovary.)

** Stamens more than the lobes of the corolla.*

LEGUMINOSÆ.—Ovary 1-celled, with 1 parietal placenta. Stamens mostly diadelphous.

Adlumia, in

FUMARIACEÆ.—Plant climbing. Corolla 2-spurred.

MALVACEÆ.—Filaments monadelphous. Carpels in a ring.

ERICACEÆ.—Chiefly shrubby plants, with simple entire leaves. Stamens twice as many as the lobes of the corolla.

POLYGALACEÆ.—Anthers 6 or 8, 1-celled, opening at the top. Pod 2-celled. Flowers irregular; lower petal keel-shaped, and usually fringed at the top.

OXALIDACEÆ.—Stamens 10, 5 of them longer. Styles 5, distinct. Leaflets 3, obcordate, drooping at nightfall.

*** Stamens just as many as the lobes of the corolla, one in front of each lobe.*

PRIMULACEÆ.—Stamens on the corolla. Ovary 1-celled, with a free central placenta rising from the base.

**** Stamens just as many as the lobes of the corolla, inserted on its tube alternately with its lobes.*

† Ovaries 2, separate.

APOCYNACEÆ.—Plants with milky juice. Anthers converging round the stigmas, but not adherent to them. Filaments distinct.

ASCLEPIADACEÆ. Plants with milky juice. Anthers adhering to the stigmas. Filaments monadelphous. Flowers in umbels.

†† Ovary 4-lobed around the base of the style.

Mentha, in

LABIATÆ.—Stamens 4. Leaves opposite, aromatic.

BORRAGINACEÆ.—Stamens 5. Leaves alternate.

††† Ovary 1-celled; the seeds on the walls.

HYDROPHYLLACEÆ.—Stamens 5, exserted. Style 2-cleft. Leaves lobed and cut-toothed.

GENTIANACEÆ.—Leaves entire and opposite; or (in Menyanthes) of 3 leaflets.

†††† *Ovary with 2 or more cells.*

AQUIFOLIACEÆ.—Shrubs. Corolla almost polypeptalous. Calyx minute. Fruit a red berry-like drupe. Parts of the flower chiefly in fours or sixes.

PLANTAGINACEÆ.—Stamens 4. Pod 2-celled. Flowers in a close spike.

Verbascum, in

SCROPHULARIACEÆ.—Corolla nearly regular. Flowers in a long terminal spike. Stamens 5; the filaments or some of them woolly.

POLEMONIACEÆ.—Style 3-cleft. Corolla salver-shaped, with a long tube. Pod 3-celled, few seeded; seeds small.

CONVOLVULACEÆ.—Style 2-cleft. Pod 2-celled, generally 4-seeded; seeds large. Chiefly twining or trailing plants.

SOLANACEÆ.—Style single; pod or berry 2-celled, many-seeded.

**** *Stamens fewer than the lobes of the corolla; the corolla mostly irregular or 2-lipped.*

LABIATÆ.—Ovary 4-lobed around the base of the style. Stamens 4 and didynamous, or occasionally only 2 with anthers. Stem square.

VERBENACEÆ.—Ovary 4-celled, but not lobed; the style rising from the apex. Or, Ovary 1-celled and 1-seeded. Stamens didynamous.

LENTIBULACEÆ.—Aquatics. Stamens 2. Ovary 1-celled with a free central placenta.

OROBANCHACEÆ.—Parasitic herbs, without green foliage. Ovary 1-celled, with many seeds on the walls. Stamens didynamous.

SCROPHULARIACEÆ.—Ovary 2-celled, with many seeds. Stamens didynamous, or only 2.

DIVISION III. APETALOUS EXOGENS.

Corolla (and sometimes calyx also) wanting.

A. Flowers not in Catkins.

* *Calyx superior* (*i.e.*, *adherent to the ovary.*)

SAXIFRAGACEÆ.—Small, smooth herbs, with inconspicuous greenish-yellow flowers. Stamens twice as many as the calyx lobes, on a conspicuous disk.

HALORAGEÆ.—Aquatic. Leaves finely dissected. Stamens 4 or 8. Ovary 4-lobed.

ONAGRACEÆ.—Herbs, in ditches. Stamens 4. Ovary 4-celled, 4-sided.

ARISTOLOCHIACEÆ.—Calyx 3-lobed, dull purple inside. Ovary 6-celled.

SANTALACEÆ.—Low plants with greenish-white flowers in terminal clusters. Calyx-tube prolonged, and forming a neck to the 1-celled nut-like fruit.

ELÆAGNACEÆ.—Shrubs with scurfy leaves. Flowers diœcious. Calyx 4-parted, in the fertile flowers apparently adherent to the ovary, and becoming fleshy in fruit.

** *Calyx inferior* (*plainly free from the ovary.*)

† *Ovaries more than one and separate from each other.*

RANUNCULACEÆ.—Calyx present, colored and petal-like. Achenes containing several seeds, or only one.

RUTACEÆ.—Prickly shrubs, with compound transparent-dotted leaves, and diœcious flowers.

†† *Ovary only one, but with more than one cell.*

CRASSULACEÆ.—Herbs, in wet places. Pod 5-celled and 5-horned.

PHYTOLACCACEÆ.—Herbs. Ovary 10-celled and 10-seeded.

EUPHORBIACEÆ.—Herbs. Ovary 3-celled, 3-lobed, protruded on a long pedicel. Juice milky.

SAPINDACEÆ.—Trees. Ovary 2-celled, and 2-lobed. Fruit two 1-seeded samaras joined together. Flowers polygamous.

RHAMNACEÆ.—Shrubs. Ovary 3-celled and 3-seeded; forming a berry.

URTICACEÆ.—Trees. Leaves simple. Ovary 2-celled, but fruit a 1-seeded Samara winged all round. Stigmas 2.

††† *Ovary only one, 1-celled and 1-seeded.*

POLYGONACEÆ.—Herbs. Stipules sheathing the stem at the nodes.

URTICACEÆ.—Herbs. Stigma one. Flowers monœcious or diœcious, in spikes or racemes. No chaff-like bracts among the flowers. *Or*, stigmas 2; leaves palmately-compound.

AMARANTACEÆ.—Herbs. Flowers greenish or reddish in spikes, *with chaff-like bracts interspersed*. Stigmas 2.

CHENOPODIACEÆ.—Herbs. Flowers greenish, in spikes. *No chaff-like bracts.* Stigmas 2.

OLEACEÆ.—Trees. *Leaves pinnately-compound.* Fruit a 1-seeded samara.

URTICACEÆ.—Trees. *Leaves simple.* Fruit a 1-seeded samara winged all round.

LAURACEÆ.—Trees. Flowers diœcious. Sepals 6, petal-like. Stamens 9, opening by uplifting valves.

THYMELEACEÆ.—Shrubs with leather-like bark, and jointed branchlets. Flowers perfect, preceding the leaves. Style thread-like.

B. Flowers in Catkins.

* *Sterile or staminate flowers only in catkins.*

JUGLANDACEÆ.—Trees with pinnate leaves. Fruit a nut with a husk.

CUPULIFERÆ.—Trees with simple leaves. Fruit one or more nuts surrounded by an involcure which forms a scaly cup or bur.

** *Both sterile and fertile flowers in catkins, or catkin-like heads.*

SALICACEÆ.—Shrubs or low trees. Ovary 1-celled, many-seeded; seeds tufted with down at one end.

PLATANACEÆ.—Large trees. *Stipules sheathing the branchlets.* The flowers in heads.

MYRICACEÆ.—Shrub with resinous-dotted, usually fragrant, leaves. Fertile flowers one under each scale. Nutlets usually coated with waxy grains.

BETULACEÆ.—Trees or shrubs. Fertile flowers 2 or 3 under each scale of the catkin. Stigmas 2, long and slender.

SUB-CLASS II. GYMNOSPERMS.

Ovules and seeds naked, on the thin face of an open scale; or, in Taxus, without any scale, but surrounded by a ring-like disk which becomes red and berry-like in fruit.

CONIFERÆ.—Trees or shrubs, with resinous juice, and mostly awl-shaped or needle-shaped leaves. Fruit a cone, or occasionally berry-like.

CLASS II. ENDOGENS OR MONOCOTYLEDONS.

Distinguished ordinarily by having straight-veined leaves (though occasionally net-veined ones), and the parts of the flowers in threes, never in fives. Wood never forming rings, but interspersed in separate bundles throughout the stem. Cotyledon only one.

DIVISION I. SPADICEOUS ENDOGENS.

Flowers collected on a spadix, with or without a spathe or sheathing bract. Leaves sometimes net-veined.

ARACEÆ.—Herbs (either flag-like marsh plants or terrestrial), with pungent juice, and simple or compound leaves, these sometimes net-veined. Spadix usually (but not always) accompanied by a spathe. Flowers either without a perianth of any kind, or with 4-6 sepals.

TYPHACEÆ.—Aquatic or marsh plants, with linear straight-veined leaves erect or floating, and monœcious flowers, heads of flowers cylindrical or globular, no spathe and no floral envelopes.

LEMNACEÆ.—Small aquatics, freely floating about.

NAIADACEÆ.—Immersed aquatics. Stems branching and leafy. Flowers perfect, in spikes, generally on the surface.

DIVISION II. PETALOIDEOUS ENDOGENS.

Flowers not collected on a spadix, furnished with a corolla-like, or occasionally herbaceous, perianth.

A. Perianth superior (adherent to the ovary.)

* *Flowers diœcious or polygamous, regular.*

HYDROCHARIDACEÆ.—Aquatics. Pistillate flowers only above water; perianth of 6 pieces.

DIOSCOREACEÆ.—Twiners, from knotted root-stocks. Leaves heart-shaped, net-veined. Pod with 3 large wings.

** *Flowers perfect.*

ORCHIDACEÆ.—Stamens 1 or 2, gynandrous. Flowers irregular.

IRIDACEÆ.—Stamens 3.

B. Perianth Inferior (free from the ovary.)

ALISMACEÆ.—Pistil apocarpous; carpels in a ring or head, leaves with distinct petiole and blade.

SMILACEÆ.—Climbing plants, with alternate ribbed and net-veined petioled leaves. Flowers diœcious.

Triglochin, in

ALISMACEÆ.—Rush-like marsh herbs. Flowers in a spike or raceme. Carpels when ripe splitting away from a persistent axis.

LILIACEÆ.—Perianth of similar divisions or lobes, mostly 6, but in one case 4. One stamen in front of each division, the stamens similar.

Trillium, in

LILIACEÆ.—Perianth of 3 green sepals and three colored petals.

PONTEDERIACEÆ.—Stamens 6, 3 long and 3 short. Perianth (blue) tubular, of 6 lobes. Aquatics.

JUNCACEÆ.—Perianth glumaceous, of similar pieces.

ERIOCAULONACEÆ.—In shallow water. Flowers in a small woolly head, at the summit of a 7-angled scape. Leaves in a tuft at the base.

DIVISION III. GLUMACEOUS ENDOGENS.

Flowers without a true perianth, but substituted by thin scales called glumes.

CYPERACEÆ.—Sheaths of the leaves not split.

GRAMINEÆ.—Sheaths of the leaves split on the side away from the blade.

SERIES II. CRYPTOGAMS.

Plants without stamens and pistils, reproducing themselves by spores instead of seeds.

CLASS III. ACROGENS.

Stems containing vascular as well as cellular tissue.

FILICES.—Spores produced on the fronds.

EQUISETACEÆ.—Spores produced on the under-side of the shield-shaped scales of a terminal spike or cone.

LYCOPODIACEÆ.—Spore-cases produced in the axis of the simple leaves or bracts.

EXPLANATION OF TERMS.

Achene.....A small dry seed.
Adhesion.....Union of two things alike.
Aesthetic.....Connected with the tasteful.
Albino.....Lacking all coloring matter.
Annual.....Of only one year's duration.
Anther.....The pollen-bearing part of a stamen.
Aromatic.....With strong, pleasant odor.
Axil.....Angle formed by a leaf with the stem.

Beak.....The tip.
Bibulous.....Absorbing water.
Bract.....A small modified leaf.
Bouquet.....A well-arranged bunch of flowers.
Bulb.....An underground leaf-bud.
Bulrush.....A tall, straight swamp plant.

Calyx.....The outer cup of a flower.
Capsule.....A dry seed pod.
Class.....The first chief division of plants.
Claw.....Slender base of a petal.
Cohesion.....Union of two unlike parts.
Corolla.....The second circle of a flower.
Compound leaf.....One divided into separate leaflets.

Disk.....The centre of a composite flower.

Endogens.....Stems growing throughout their whole substance.
Exogens.....Stems growing by layer outside layer.

Family.....Used as equal to Order.
Flora.....All the plants of a region or climate taken together.

Gamopetalous.....Petals more or less united.
Genus.....A division of a family.
Glaucous.....Covered with bloom.

Herbarium.....A collection of dried plants.

Irregular.....Unequal in similar parts.

Keel.....The two united petals of a pea blossom.
Key.....The table for determining plants.

Natural Order.....A group made up of genera.
Narcotic.....Giving sleep in small doses; death in large.
Nectary.....A gland with secretion of honey.
Neutral.....Having neither stamen nor pistil.

Organ.....An individual part of a flower.
Ovary.....Seed vessel.
Ovule.....The small body which becomes the seed.

Panicle.....A loose, irregular compound flower cluster.
Peduncle.....A primary flower stalk.
Perfect.....Having both stamens and pistil.
Perennial.....Lasting year after year.
Petal.....A flower leaf of the corolla.
Petiole.....Footstalk of a leaf.
Pistil.....Seed-bearing organ of the plant.
Pod.....A long dry fruit.
Pollen.....Small dust of the anther.
Prostrate.....Lying flat on the ground.

Raceme.....A flower cluster with pedicles bearing flowers to same level.
Receptacle.....The produced end of the stem.
Rhomboid.....Somewhat lozenge-shnped.
Rose hip.....The red fruit of the rose-bush.
Rotate.....Wheel-shaped.

Salver-shaped.....With tube expanding into flat limb.
Scape.....A peduncle rising from the ground.
Schedule.....A table containing the points of a flower.
Sepal.....The leaf of a calyx.
Series.....A division or classification.
Sessile.....Without footstalk.
Sheath.....A tubular envelope.
Sinuated.....Wavy.
Species.....A permanent group of existing plants.
Split-sheathed.....Envelope open down the side.
Spur.....A hollow tubular extension, usually honey-bearing.
Stamens.....The third circle of a flower.
Standard.....The large leaf of a pea blossom.
Stem.....The main, ascending axis of a plant.
Sterile.....Unproductive.
Stipule.....A small leafy appendage at the base of a petiole.

Style.....The prolonged tube of the ovary.
Strap-shaped.....Flattened form of outside corolla of some Compositæ.
Symmetry.....Regularity as to number of parts.

Tendril.....The twining prolonged midrib of a leaf.
Three parted.....Cut into three parts.
Tonic.....Stimulating.
Tuber.....A thickened underground stem.
Tubular.....Tube-like and hollow.

Umbel.....A flower with stalks like ribs of an umbrella.

Versatile anther.....Attached by the middle.
Volatile.....Going off in vapor.

Whorl.....Circle of leaves around a stem.
Wing.....One of the side petals of a pea blossom.

FOUR MODEL SCHEDULES.

ANEMONE PATENS VAR. NUTTALIANA. (Easter Flower.)

STEM: Herbaceous; hairy.				
LEAVES: Net-veined, parted, hairy.				
ORGANS.	NO.	COHESION.	ADHESION.	REMARKS.
Calyx Sepals	5-7	Separate	Inferior	Blue.
Corolla	0	0	0	0
Stamens	Many	Separate	Hypogynous	Withering.
Pistil Carpels	Many	Separate	Superior	True seeds, Achenes.

PRIMULA FARINOSA. (Bird's-eye Primrose.)

STEM: Scape from root bears flowers in umbels.				
LEAVES: Radical, deep-veined, net-veined, cordate, incised.				
ORGANS.	NO.	COHESION.	ADHESION.	REMARKS.
Calyx Sepals	5	Gamosepalous	Inferior	Five-sided.
Corolla Petals	5	Gamopetalous	Hypogynous	Salver-shaped, Yellow-centre.
Stamens	5	Epipetalous	Hypogynous	Opposite.
Pistil Carpels	1		Superior	Ovary, one-celled, many seeded is central placenta.

HELIANTHUS GIGANTEUS. (Wild Sunflower.)

STEM: Rough or hairy, 3 to 10 feet high, branched above.				
LEAVES: Lance-shaped, pointed, rough, set close to the stem opposite.				
ORGANS.	NO.	COHESION.	ADHESION.	REMARKS.
Calyx				Receptacle chaffy.
Corolla	5	Gamopetalous		
Stamens	0			
Pistil	0			
Stamens	5	Epipetalous		Anthers united.
Pistils	2	United		Ripen into achenes.

LILIUM PHILADELPHICUM. (Orange Lily.)

STEM: Rising from a coated or scaly bulb.				
LEAVES: Parallel-veined, linear, lanceolate.				
ORGANS.	NO.	COHESION.	ADHESION.	REMARKS.
Calyx Sepals	6	Separate	Inferior	With narrow claw, orange-red.
Corolla Petals	0	0	0	0
Stamens	6	Separate	Hypogynous	Opposite, anthers versatile.
Pistil Carpels	1 3	Stigma, three-lobed, united	Superior	Ovary, three-celled.

THIRTY NOTABLE PLANTS OF MANITOBA.

No.	Common Name.	Scientific Name.	Order.	Time of Flowering.
1	Early Anemone	*Anemone patens. Var Nuttaliana*	Ranunculaceæ	April-May.
2	Dwarf Buttercup	*Ranunculus rhomboideus*	„	May-June.
3	Wild Columbine	*Aquilegia Canadensis*	„	May-July.
4	Poison Ivy	*Rhus toxicodendron*	Anacardiaceæ	Summer.
5	Common Blue Violet	*Viola cucullata*	Violaceæ	Summer.
6	Seneca Snake Root	*Polygala Senega*	Polygalaceæ	June-July.
7	Everlasting Pea	*Lathyrus venosus*	Leguminosæ	Summer.
8	Prairie Turnip	*Psoralea esculenta*	„	July.
9	Wild Rose	*Rosa blanda*	Rosaceæ	Summer.
10	Three-flowered Avens	*Geum triflorusa*	„	May-July.
11	Silver Weed or Five Finger	*Potentilla Anserina*	„	July.
12	Great Willow Herb	*Epilobium angustifolium*	Onagraceæ	Summer.
13	Evening Primrose	*Œnothera biennis*	„	Summer.
14	Water Parsnip	*Sium cicutæfolium*	Umbelliferæ	Aug.-Sept.
15	Wild Sarsaparilla	*Aralia nudicaulis*	Araliaceæ	June-July.
16	Smooth Honeysuckle	*Lonicera Sullivantii*	Caprifoliaceæ	August.
17	Wild Sunflower	*Helianthus giganteus*	Compositæ	Aug.-Sept.
18	Golden Rod	*Solidago serotina*	Compositæ	Aug.-Sept.
19	Cone Flower	*Rudbeckia hirta*	„	July-Sept.
20	Bell Flower	*Campanula Rotundifolia*	Campanulaceæ	Summer.
21	Wintergreen	*Pyrola elliptica*	Ericaceæ	July.
22	Bird's-eye Primrose	*Primula farinosa*	Primulacæ	July-Aug.
23	Fringed Gentian	*Gentiana crinita*	Gentianaceæ	Late Summer.
24	Bindweed	*Convolvulus repens*	Convolvulaceæ	Summer.
25	Three-flowered Nightshade	*Solanum triflorum*	Solanaceæ	Summer.
26	Beard Tongue	*Penstemon pubescens*	Scrophulariaceæ.	Summer.
27	Wild Bergamot	*Monarda fistulosa*	Labiatæ	Summer.
28	Ladies' Slipper	*Cypripedium pubescens*	Orchidaceæ.	June-Aug.
29	Orange Lily	*Lilium Philadelphicusa*	Liliaceæ	Summer.
30	Wild Onion	*Allium cernuum*	„	Summer.

NOXIOUS WEEDS OF MANITOBA.

No.	Common Name.	Scientific Name.	Order.	Time of Flowering.
1	Wild Mustard	*Brassica sinapistrum*	Cruciferæ	Summer.
2	French Weed	*Thlaspi arvense*	„	Summer.
3	Shepherd's Purse	*Capsella bursa-pastoris*	„	Summer.
4	Common Purslane	*Portulaca oleracea*	Portulacaceæ	Summer.
5	Common Tumbleweed	*Amaranthus albus*	Amarantaceæ	Summer.
6	Western Tumbleweed (Pig weed)	*Amaranthus retroflexus*	„	Summer.
7	Canada Thistle	*Onicus arvense*	Compositæ	Summer.
8	Russian Thistle	*Salsola kali. Var. tragus*	Chenopodiaceæ	Late Summer.
9	Black Bindweed	*Polygonum convolvulus*	Polygonaceæ	Summer.
10	Wild Oats	*Avena fatua*	Gramineæ	Late Summer.
11	Couch Grass	*Agropyrum glaucum*	„	Summer.

WILD FRUITS OF MANITOBA.

No.	Common Name.	Scientific Name.	Order.
1	Wild Strawberry	*Fragaria Virginian*	Rosaceæ.
2	Wild Raspberry	*Rubus strigosus*	„
3	Wild Cherry	*Prunus Virginiana*	„
4	Wild Plum	*Prunus Americana*	„
5	Saskatoon Berry	*Amelanchier Canadensis*	„
6	White Thorn	*Cratægus coccinea*	„
7	Sand Cherry	*Prunus pumila*	„
8	Ground Plum	*Astragalus caryocarpus*	Leguminosæ.
9	Black Currant	*Ribes floridum*	Saxifragaceæ.
10	Wild Gooseberry	*Ribes cynosbati*	„
11	Buffalo Berry	*Shepherdia argentea*	Elæagnaceæ.
12	Silver Berry	*Elæagnus argentea*	„
13	High-bush Cranberry	*Viburnum opulus*	Caprifoliaceæ.
14	Wolf Berry	*Symphoricarpus occidentalis*	„

TREES AND SHRUBS OF MANITOBA.

No.	Common Name.	Scientific Name.	Order.
1	Common Poplar	*Populus tremuloides*	Salicaceæ.
2	Cottonwood	*Populus monilifera*	„
3	Balsam Poplar or Balm of Gilead	*Populus balsamifera*	„
4	Hoary Willow	*Salix candida*	„
5	Mossycup Oak	*Quercus macrocarpa*	„
6	Canoe and Low Birch	{*Betula papyrifera*} {*Betula pumila*}	„
7	Hazel-nut	*Corylus Americana*	„
8	Basswood	*Tilia Americana*	Tiliaceæ.
9	Mountain Ash	*Pyrus Americana*	Rosaceæ.
10	Ash-leafed Maple	*Negundo aceroides*	Sapindaceæ.
11	Green Ash	*Fraxinus viridis*	Oleaceæ.
12	White Elm	*Ulmus Americana*	Urticaceæ.
13	Wild Grape	*Vitis cordifolia*	Vitaceæ.
14	White Spruce	*Picea* or *Abies alba*	Coniferæ.
15	Tamarack	*Larix Americana*	„
16	Creeping Juniper	*Juniperus Sabina. var. procumbens.*	„

TRANSCRIBER NOTES

Misspelled words and printer errors have been corrected. Where multiple spellings occur, majority use has been employed.

Punctuation has been maintained except where obvious printer errors occur.

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[The end of *Our Canadian Prairies* by George Bryce]