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A LIST OF ORNAMENTAL SHRUBS

Common Name	Scientific Name in Text	See Notes on page
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Barberry	*Berberis* spp.	19
Beauty Bush	*Kolkwitzia amabilis*	22
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Broom	*Cytisus* spp.	21
Burning Bush	*Euonymus* spp	21
Bush Clover	*Lespedeza formosa*	22
Caragana	*Caragana* spp.	19
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Ornamental Shrubs for Canadian Gardens

THE USES OF SHRUBS IN THE LANDSCAPE

In recent years Canadians have had more time and means to develop adequate gardens around their homes. This has led to an increase in the general knowledge and appreciation of garden design and to a greater demand for variety so that the garden may be attractive throughout the whole year. The planning and planting of each garden presents individual problems that cannot be dealt with in a general discussion. There are, however, four general uses for shrubs in the development of a property, each of which calls for certain characteristics in the shrubs used.

Boundary Plantings

Shrubs are used in boundary plantings to give privacy within the grounds, to screen unsightly objects, and to unify the garden scheme by providing a frame and background for the garden proper. Such plantings require dense growth of sufficient height to shut off the view, and variety in height to render the skyline interesting. On small town properties the boundary planting will probably take the form of a hedge, or climbers may be grown on a fence. On large properties such plantings will comprise dense masses of trees and shrubs through which gaps, or vistas, are left to reveal desirable views.

The effect created by the whole foliage mass is important. Shrubs are chosen, therefore, for their rapid, dense growth, average spreading habit and mid-green color of foliage, rather than for their individual attractiveness. Height will be governed by the desired skyline. Bloom should be in sufficient mass to create an effect at a distance, although this is less important than with shrubs that will be seen in more detail.

Specimens and Accent Points

Shrubs as specimens or accent points lend emphasis to particular features of the design. Such shrubs stand alone, and are seen in detail. They should be of neat and pleasing growth habit, and must have some particularly attractive feature such as bloom, vari-colored foliage, or ornamental fruit to warrant a special position. Specimen shrubs should not be scattered indiscriminately where they will distract attention from the main features of the garden picture. In the front of the property the house will dominate the picture, and it is much better to help it to do so than to create opposition by poor planting of ornate specimens.

Foundation Planting

The view of the house may be helped by framing it with masses of green foliage. On small properties, groups of neat shrubs of average spreading habit and medium to dark green foliage will draw the eye to the house, and build up from the horizontal line of the ground to the vertical lines of the house. This gives an impression of permanence that cannot be attained by planting herbaceous plants along the foundation.

If the house is high and narrow, tall shrubs such as lilac should be placed just beside the front corners, but not hiding them. This will give added width, particularly if the shrub plantings can be carried out farther on each side and gradually tapered off to the ground by using lower growing shrubs.

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If the house is wide and rambling, tall columnar plants, like the pyramid cedar, or erect growing shrubs, like the large mock orange, may be planted in front of the bare wall spaces to break up the extra width. Modern ranch-type homes call for low shrubs of rounded or horizontally branching type.

The idea of having the house "peek" over a solid green bank of shrubs is becoming less popular as appreciation of good architectural design increases. Such plantings are advisable only to hide high or poorly designed foundation lines.

Good points of architecture, such as an attractive entrance, may be emphasized by the proper placing of shrubs of definite and suitable form. The upright lines of colonial and Georgian doorways may be accented by framing with columnar plants or emphasized by contrasting low globular forms, depending upon which is more fitting. The lines of the spreading farmhouse type are carried out by the soft, spreading lines of deciduous shrubs, or contrasted by the occasional upright form of a columnar juniper or Lombardy poplar in the background. Sometimes attention is drawn to an attractive feature by emphasizing it with a particularly showy shrub, but generally foundation planting should depend on beauty of form, rather than on a spectacular display of colored foliage.

Plants that grow into trees, such as spruce, pine, and native white cedar, have no proper place in foundation planting. Choose plants that when full grown will not hide desirable lines of the house, or shut out light.

Partition and Background

In the garden surrounding the house, shrubs are used to separate the various areas. Here they act as partitions between the "rooms" of the garden, and as backgrounds for the more colorful displays of herbaceous plants. Because these partitions are always seen in elevation, they must be visualized as they will appear at maturity.

When good shrub plantings are considered in this way, they comprise three general classes.

Dominant

The height of these garden groups and partitions is governed by the scale of the whole garden. Diversity of skyline, however, adds charm to the design so plantings are introduced that emphasize particular points. Thus tall shrubs add boldness to the promontories, while deep masses of plantings in a shrub border mark entrances or frame views. To shrubs used in such situations the term "dominant" is applied. They should be of erect, stiff habit of growth, coarse in texture, and unusual in color of foliage or bark. Lilac is frequently used as a dominant plant; viburnums, or, in milder climates, the purple leaved plum, are suitable, while small trees like Japanese lilac, flowering crab, or silver birch are often used.

Fillers

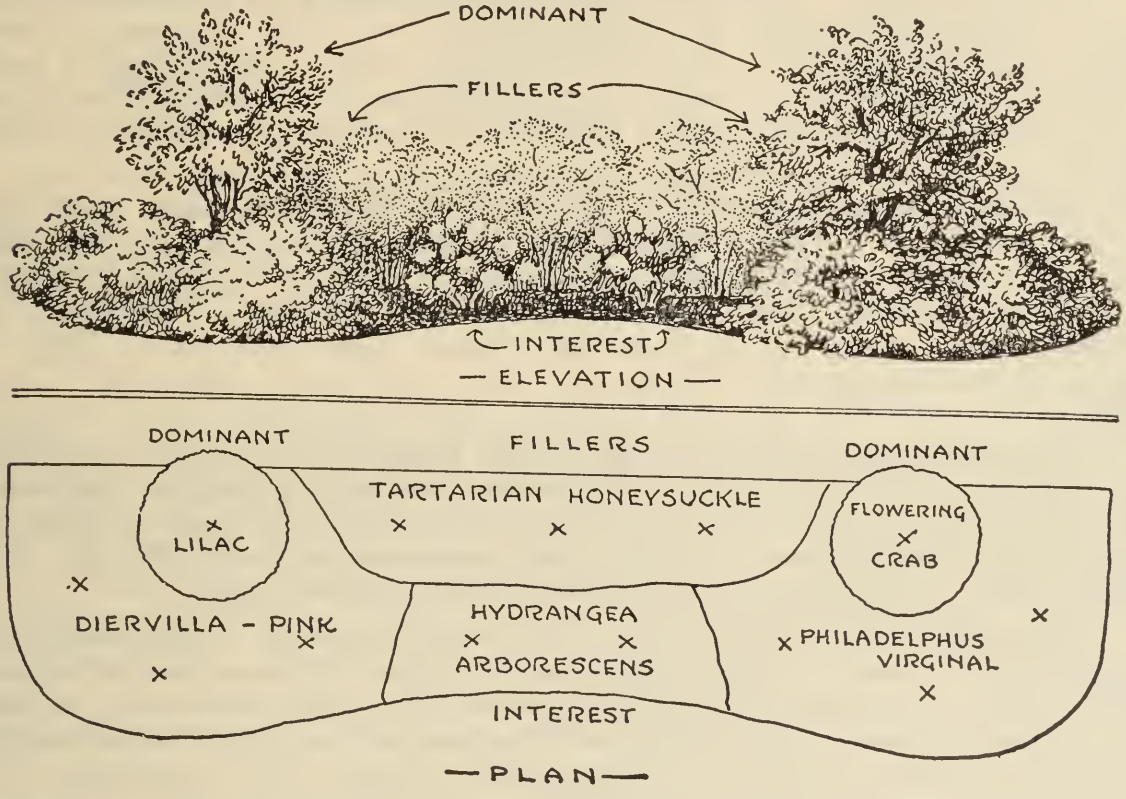
Height, of course, is relative. Tall shrubs are dominant simply because they are taller and more conspicuous than the general shrubs of the group termed "fillers". These are shrubs of average height chosen mostly for their ability to blend together. They may at some season be particularly attractive in bloom, or the fall foliage may be striking, but their primary purpose is to bind the more interesting garden features into one picture.

Interest

Some points of the design will require emphasis without extra height, or even with height diminished. In an informally curving border, bays will be deepened and low spots emphasized by a group of particularly pleasing plants, which draw the "interest" because of bloom, foliage, or habit of growth.

Horizontal or low spreading habit will draw the eye down from the round-headed spreading shrubs. Light, or variegated foliage will hold the attention and so emphasize the point at which such shrubs are planted.

While these plants are needed to give character to the grouping, distinct contrasts of this sort must be in the minority or they defeat their purpose. Each shrub in a group that is to be seen closely must be attractive, but unless the general effect is blended, with only an occasional note of contrast, there will be too much variety for the eye to take in at once. Contrast should be used sparingly and shrubs blended according to texture and foliage color.



Plan and perspective of shrub group showing (*a*) Dominant, (*b*) Fillers, (*c*) Interest shrubs.

Texture

Texture in shrubs means the coarseness or fineness of twigs and foliage. Coarse texture tends towards dominance and so should be kept in the background except where extreme boldness is desired. Because the detail in fine-textured shrubs is indistinct at short distances, such plants create the illusion of lightness and increased distance, which is desirable in small gardens. The most pleasing general arrangement is to have the fine-textured shrubs in the foreground gradually blending to coarser ones at the back.

Foliage Color

The same rule of blend rather than contrast applies to arranging shrubs on the basis of foliage color. Bright color in the foreground blending to the darker blue-greens and purples in the back gives an illusion of depth whereas a reversal tends to flatness.

The points to watch, therefore, are height, habit of growth, texture, and foliage color. If these are right a pleasing mass of foliage is assured throughout the season. Bloom, color of autumn foliage and fruit, and decorative wood are additional features that add to the desirability of a shrub. Since soil can be modified it need not influence the selection of shrubs except for large plantings.

The tables at the back of this bulletin give information about each shrub grown at the Central Experimental Farm that is considered worthy of a place in the garden. No table can enable the inexperienced layman to create a really artistic grouping. That can come only through a thorough knowledge of shrubs coupled with training in design so that one may visualize the sort of picture he wishes to create. However, the tables will help to prevent the mistakes that often discourage people from further attempts at landscape development.

PROPAGATION OF SHRUBS

In nature, plants reproduce by seed, or by sending up suckers from their roots. Some shrubs, such as dogwood, throw out roots wherever a branch becomes covered with soil. This is known as layering. The branch or sucker merely has to be dug up, severed from the parent plant at a point below the new roots, and the young rooted plant placed in its permanent position, or nursery row.

Most ornamental shrubs are horticultural developments, either sports from a single species, or hybrids resulting from crossing two or more species. Such plants do not come true from seed, and as many of them do not throw up suckers, or root by layering, they are propagated by "cuttings", "grafting", and "budding".

Seed

Seed should be saved only from healthy individual plants that are typical of the species to be reproduced. To prevent loss by dropping, the seed should be harvested as soon as it is ripe. The cones of conifers, such as cedar and cypress, should be gathered as soon as they commence to open at the tip. Most pods, berries, and pulpy fruits will show maturity by their color.

Most seeds should be dried and cleaned before sowing. Some berries may be left intact. Seeds of some plants, such as cedar, cypress, and fall ripening maples, may be cleaned and stored over winter in a dry, cool room, in closed tins or jars. However, most shrub seeds require after-ripening before they will germinate. This necessitates storage under slightly moist conditions. This process, known as stratification, is usually carried out in the following manner:

A layer of half sand and half moist peat moss about one inch deep is placed in the bottom of a wooden box, and a piece of burlap or copper screening placed over it. The peat should be thoroughly soaked and the water squeezed out firmly by hand before mixing with the sand. A shallow layer of seed is then spread over the screen, and another piece of screen placed over the seed. Then more sand and peat, followed by another layer of screen, seed, etc., is added, and the layers repeated, until the box is full with a sand and peat layer on top. The box must be protected from mice, and placed in a cool room. The temperature varies with the species, but should be between 32° and 40°F. The boxes must be watched carefully, and the seeds sown as soon as germination starts.

As different species require different storage treatments to secure the best germination, the following groups, with notes on their treatment, may prove helpful. They are compiled mainly from tables prepared by Dr. L. C. Chadwick, Professor of Horticulture, Ohio State University, together with observations by the author.

(1) Sow in cold frames as soon as gathered. These may also be cleaned, air dried, and stored in closed containers until spring.

Amorpha	*Cytisus*	*Rhodotypos*
Berberis	*Exochorda*	*Sambucus*
Caragana	*Genista*	

(2) Clean and store dry until stratification. Stratification period two to three months.

Ligustrum	*Malus*	*R. multiflora*
Lonicera	*Rosa rugosa*	

(3) Clean and store dry until stratification. Stratification period three to four months.

Amelanchier	*Prunus*	*R. Hugonis*
Euonymus	*Rosa carolina*	*R. setigera*

(4) Stratify in fall for four months or more.

Cornus	*Hamamelis*	*R. rubrifolia*
Crataegus	*Ribes*	*Viburnum*
Halesia	*Rosa canina*	

(5) Clean, and treat with concentrated sulphuric acid for one-half to one hour, then wash thoroughly and stratify for three to four months. This treatment will usually save a year in germination.

Cotoneaster	*Symphoricarpos albus*

Early spring is the usual time to sow seed except where otherwise noted above. The seedbed should have been thoroughly prepared the previous season. A piece of level, well-drained land protected from the prevailing winds is the best site. The best soil is finely pulverized rich sandy loam. To save labor in weeding, it should be kept in fallow during most of the previous season. As soon as the soil is fit to work in the spring, dig the bed deeply and remove all stones and rubbish. Then rake the soil into level beds, roll lightly, and broadcast the seed thinly over the surface, or plant in rows about 2 to 3 inches apart. Roll the seed in lightly and cover to about twice its depth with finely sifted soil.

Keep the soil moist but not wet until the seed germinates. To conserve moisture, a thin covering, such as burlap, may be placed over the bed until germination commences, or the bed may be covered with pulverized peat moss.

For the first few weeks of the young plant's life the chief dangers are from drying out, or from the attack of fungi that cause "damping-off". The latter is particularly prevalent in thick stands of young plants where the soil has been allowed to remain wet rather than moist. Thin sowing coupled with careful watering is the best means of prevention.

The seedlings should be partially shaded for the first few weeks but later given full sunlight. The young plants may be left in the seedbed until they are one year old. They are then planted in beds six inches apart each way, or set out in nursery rows in the field, according to their rate of growth.

Transplant the plants every second year in the nursery, until they are ready for permanent planting. This creates a compact fibrous root system that makes planting reasonably safe at any size.

Cuttings

Most shrubs are horticultural varieties that do not come true from seed, but may be grown from either hardwood or greenwood cuttings.

Hardwood Cuttings

Many shrubs grow readily from cuttings taken in the fall after a few light frosts have ensured the thorough maturity of the wood of the past season's growth. This wood is cut into lengths containing two to four healthy leaf buds. Make the cuts cleanly with a sharp knife, with the basal cut just below

and the top cut just above a leaf bud. The cuttings will be from 6 to 10 inches long. Tie them in bundles, with the butts all pointing the same way, and bury them horizontally in sharp sand in a cool cellar or cold frame.

In the spring plant them out about six inches apart, in nursery rows, in well-drained sandy loam soil. Usually they are planted on a slant against the side of a trench with only the top bud, or pair of buds, above ground. Pack the earth firmly about the lower end so that it will not dry out. Keep the cuttings free of weeds, and transplant every second year. Usually at the end of two years they will be large enough to be placed in their permanent positions.

The following shrubs are commonly propagated from hardwood cuttings:—

Cornus	*Ligustrum*	*Rosa* (species)
Deutzia (coarse)	*Lonicera*	*Sambucus*
Forsythia	*Philadelphus* (coarse)	*Spiraea*
Hydrangea arborescens	*Ribes*	*Tamarix*
		Weigela

Immature, Softwood, or Greenwood Cuttings

Most shrubs, including the above, may be reproduced by means of cuttings of immature terminal growth. As this method involves more careful handling and attention, it is usually practiced only with those sorts that will not root from dormant cuttings of mature wood.

Softwood cuttings are of two main types: (a) Young terminal growths from 2 to 4 inches long, cut off just below a leaf joint or node; (b) Young lateral growths from 2 to 6 inches long torn from last year's wood, with a heel of last year's wood attached. The lower leaves are trimmed off, leaving three or four leaves at the tip. In the case of some very large leaved sorts, such as some lilacs, the top pair of leaves are usually cut in half. The correct time to take these cuttings will vary with the species and the season. Generally they should be taken when growth in length is almost complete, but before the wood begins to ripen.

Plant the cuttings in a mixture of half sand, half peat moss, in cold frames, and shade from direct sunlight. Keep the frames closed except for a little ventilation during mid-day, and spray the cuttings lightly with cold water at frequent intervals during the day. The secret is in keeping air temperature low and humidity high to prevent wilting of the leaves.

Experiments have shown that automatically controlled, intermittent mist is superior to the older method described above. The installation is too costly to be practical except for commercial nurserymen.

The following shrubs are commonly grown from immature cuttings:—

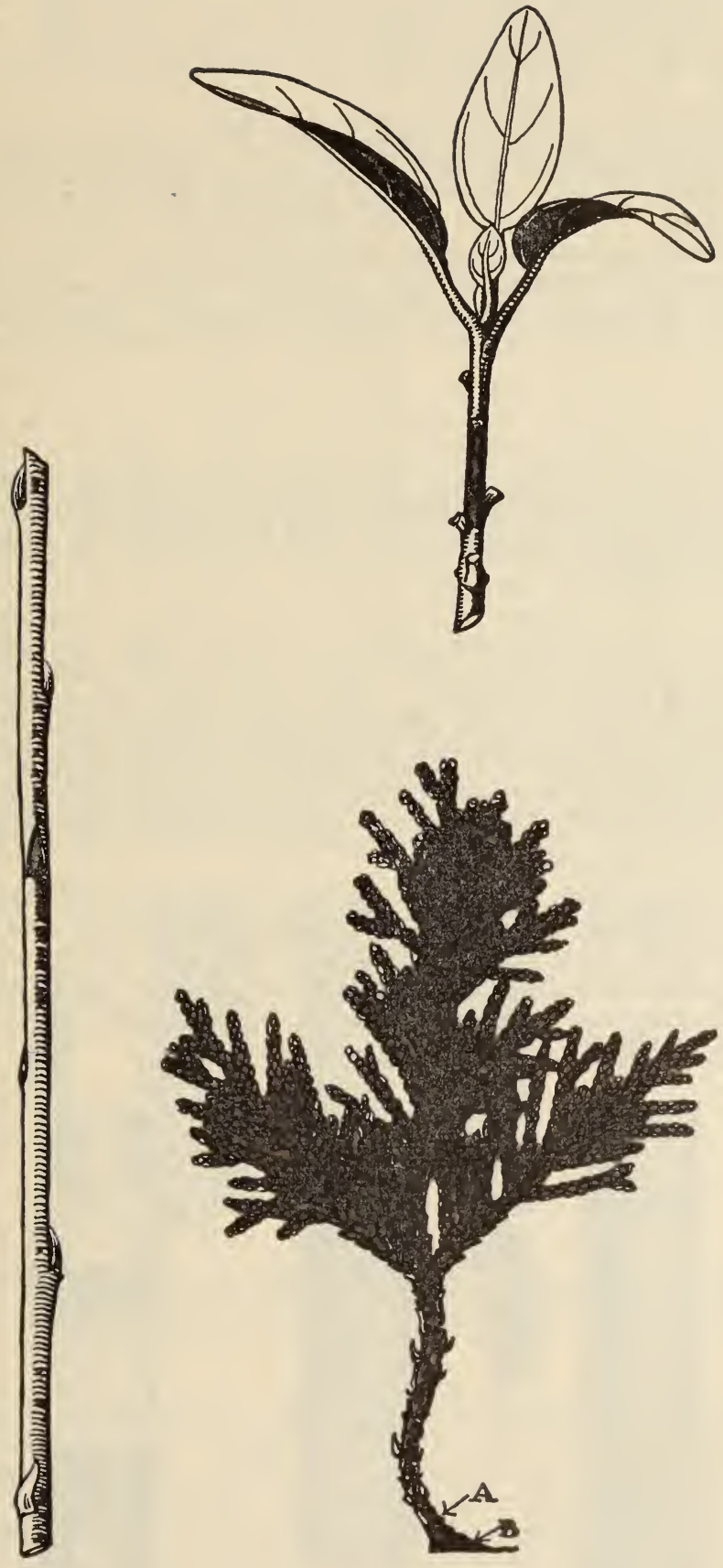
Clematis	*Forsythia*	*Philadelphus* (slender)
Cotoneaster	*Hydrangea paniculata*	*Syringa* (species)
Daphne	*Mahonia*	*Viburnum*
Deutzia gracilis		

However, almost all plants will grow in this way under proper conditions of temperature and humidity.

Growth Substances, or Plant Hormones

In recent years substances called plant hormones have been widely advertised to stimulate root development from softwood cuttings. Several tests have been carried on at the Central Experimental Farm with good results.

For those growing limited quantities, the safest practice is to purchase one of the commercial preparations, and follow the manufacturer's directions, remembering that deviation from the recommended treatment may cause complete destruction of cuttings. In general, the dust treatments prove most satisfactory.



Left, cutting of mature wood; upper right, cutting of immature or "soft" wood; lower right, conifer cutting. (*a*) beginning of current season's growth, (*b*) heel of old wood.

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Layering

Layering is used chiefly in private gardens. As only a few young plants can be produced from each parent the method is not sufficiently rapid for commercial use. The principle is to induce the plant to produce roots from its branches, then to cut off the branch below the root, and thus secure a ready-made growing plant.

Two methods are used: (1) Earth is banked up around the plant in July so that roots will be produced from the base of each branch covered. The plant is then dug up and divided, or the rooted branches removed and the stock plant left for future use. (2) Branches of the parent plant are bent over, pegged flat on the ground and covered with earth to a depth of three or four inches, leaving the tips of the lateral branches above ground. This is usually done in July or August after the period of active growth is over. The branches are lifted the following year after roots are formed and the rooted portions cut off and planted.

Grafting

Wherever shrubs will not come true from seed nor strike satisfactorily from cuttings, other methods must be adopted. Grafting is the means most commonly used in the propagation of many trees, but the method is not popular with shrubs other than lilacs.

Budding

Ornamental horticultural varieties that do not strike readily from cuttings are usually propagated by budding. The actual time varies with the species, locality, and season, but in most cases the work is done in July or August. The proper time is towards the end of the season of active growth, when the thin bark will peel back from the wood without cracking but sap flow is not sufficient to exude from the wound. At this time also the buds in the axils of the leaves will be fairly well developed.

The stock upon which the desired variety is to be budded is usually as close a relation as can be grown readily from seed, or cuttings, and one which is sufficiently hardy to stand the climate where it is to be grown. Lilac varieties are usually budded on common lilac, or privet, though green ash has proved perfectly satisfactory as a stock at Ottawa. Purple plum is budded on wild plum, and roses on wild rose stocks of various species.

Shield budding. (*a*) stock prepared for bud; (*b*) bud shield; (*c*) bud in place; (*d*) wrapped.

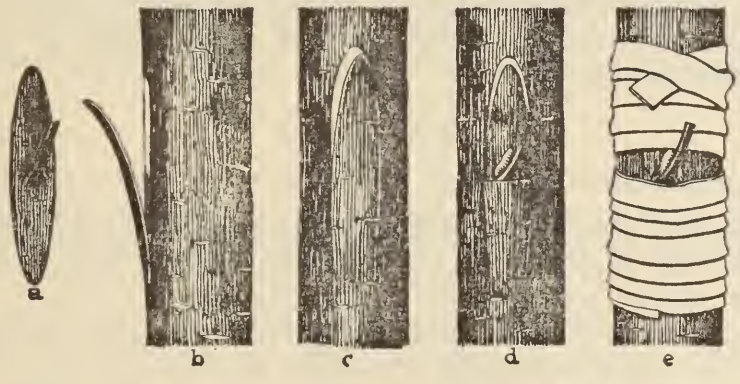
The stock should be from $\frac{3}{8}$ to $\frac{5}{8}$ inch in diameter. In order that the bud may be placed as close to the root as possible without risking damage by flooding, pull the earth away from the north side of the stock exposing the stem below ground level. With a sharp, thin-bladed knife make a vertical cut low down on the north side of the stock about 1 to $1\frac{1}{4}$ inches in length. This cut should be just deep enough to penetrate through the bark to the wood. With a rolling motion of the knife blade, make a second somewhat crescent-shaped cut across the top of the first to form a "T" with the ends of the cross-piece drooping a little. This droop helps in the next step, which is to turn back the corner flaps of bark carefully to allow the bud to be inserted.

Take the buds from as nearly mature wood of the current season's growth as can be obtained. Trim leaves from the bud sticks but leave a portion of each leaf stalk as protection and as a handle to the bud in its axil. Keep the budsticks in water until they are needed.

With the knife, remove the bud from the stick with an accompanying shield of bark about one inch in length and wide enough to leave a margin of about 1/16 inch of bark on either side of the bud as shown in the illustration.

Hold the bud shield by the leaf stalk, and press it down into the cut on the stock so that it will be held in place by the corner flaps of bark on the stock. Remove any of the top of the bud shield that protrudes above the cross cut of the T. Bind the union firmly below and above the bud with raffia or rubber bands made for the purpose, taking care that the bud itself is not covered. After a few weeks, when the union is made, cut off the binding so that the bud will not be strangled.

If the work has been done at the proper time the bud will remain dormant until the following spring when the stock should be cut back to force growth into the bud. A few weeks later when the bud has made some growth the stock should be cut off flush with the union so that all growth will be forced into the bud, and the wound will heal over cleanly.



Jones' dry budding. (*a*) bud shield; (*b*) and (*c*) side and front views showing how bark is cut for insertion of bud; (*d*) bud in place and bark flap cut off level with base of bud; (*e*) bud tied in position with rubber band.

Sometimes it is necessary or desirable to bud shrubs at a season when the bark will not peel readily. A method known as Jones' dry budding may then be used, and is particularly useful when the buds are dormant. The principle is the same as in shield budding but, instead of making a T-shaped cut in the bark of the stock, a shallow slicing cut is made down the north side of the stock. This should be just deep enough to expose the cambium layer and should leave a thin flap of bark about one inch long attached to the stock at its base. The upper half of the flap is removed and the bud shield placed on the wound with the cambium of the bud shield in contact with the cambium of the stock. The lower

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half of the flap is drawn up over the lower half of the bud shield and this flap and the upper part of the bud shield bound in place. When the buds commence to grow the top of the stock is cut back as in shield budding.

CARE OF SHRUBS PRIOR TO PLANTING

Most people procure their shrubs from a nursery. These shrubs need proper care between the time of arrival and the time of planting.

Heeling In

As soon as the plants arrive from the nursery they should be unpacked and spread in a trench preferably in some shady spot where the soil is moist. The roots should be covered with earth packed firmly to exclude air. Should the roots appear dry they should be dipped in water or thin mud before "heeling in".

Deciduous shrubs are usually tied in bundles with the roots bare except for the moist moss packing. Bundles should be untied and the shrubs placed separately in the trench, but packed closely to conserve space. Shrubs that are "balled and burlapped", that is, that have the roots of each shrub and the accompanying earth tied firmly in burlap, should be "heeled in" as they are. If dry on arrival the ball may be dipped in water for a few minutes.

Shrubs that are in leaf should be shielded from the sun and have their tops syringed with cool water frequently until they are planted. Never leave plants lying around with roots exposed to sun or wind. Once the fine fibrous roots are dried out they are useless. A few minutes of sun or wind on bare roots may prove fatal.

Defect in Shipment

If there is any shortage in the shipment, or any fault to find with the condition of the stock, or the method of packing, the nursery should be advised immediately the shrubs are unpacked. Nurseries will be glad to learn of any real defects in the shipment but they cannot be expected to make good any defects not reported promptly.

PLANTING

Preparation of the Soil

Like other plants, shrubs repay amply for good feeding, but they are often neglected because the majority of them secure enough food from the average soil to keep them growing in a more or less healthy condition. As shrubs are permanent the best method of feeding is to prepare the soil properly before they are planted. With single specimens large holes may be dug and a liberal dressing of well-rotted manure dug into the bottom. Good rich earth may then be filled in around the roots of the shrub when it is planted. More frequently shrubs are planted in beds or borders. These should be double dug, or trenched with well-rotted manure.

Most shrubs prefer well-drained sandy loam though they will grow in a fairly wide range of soil. Where water-logged conditions exist artificial drainage may be supplied by using land tile, and the addition of manure and sandy soil helps to open up stiff clay.

In double digging, the top soil is removed from a section about 4 feet wide running across the width of the bed. This is placed to one side of the far end of the border. The second spade depth is then covered with 2 or 3 inches of well-rotted manure and this is turned into the subsoil just as in digging a vegetable garden. The top soil from the second section of the border is then

placed on top of the manured subsoil in the first section and the lower soil manured and dug, and so on until the end of the border when the top soil from the first section is used to cover the manured subsoil of the end section.

In digging up sod land, the sod should be skimmed off and dug into the bottom along with the manure. Under no circumstances use fresh or heating manure when planting shrubs.

Time to Plant or Transplant

Shrubs may be moved with reasonable safety at any time when they are dormant. Coniferous and evergreen shrubs should be moved during September or in the spring. With spring planting the plants are firmly established before the onset of winter. Frequently shrubs planted in the fall are heaved up by the frost and the roots dried out before they can be firmly packed again in the spring.

Digging the Hole

When it has been decided where the shrub is to be planted, dig a hole large enough to accommodate the roots when spread out naturally, and deep enough that rich loose earth may be placed in the bottom and the shrub planted a little deeper than it grew formerly. Budded or grafted shrubs should be planted with the union 2 or 3 inches below the surface. This will reduce suckering to a large extent.

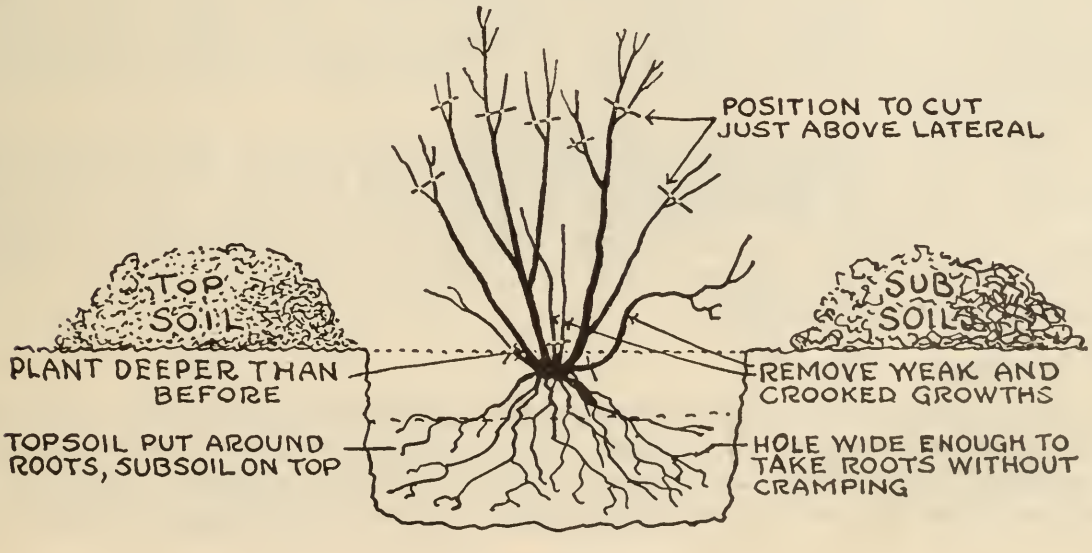
Pruning at Time of Planting

At the time of planting any broken roots or those that have been dried out should be cut off cleanly. Reduce the tops to correspond with the reduction in the root system and head back so that the bush will be symmetrically balanced. The correct method is to thin out the top by removing the weaker branches and those that cross and rub.

If the shrub has been well grown, little else will be necessary, but if it is tall and "leggy" each remaining branch should be cut back to a point just above a leaf bud or side branch that points outward. Take care to remove branches close to the parent branch so that no ugly stub is left to die and decay.

Planting

After the shrub has been pruned set it in the hole about an inch deeper than it grew formerly, with the roots spread out in a natural position. As the top soil is filled in around the roots the shrubs should be gently shaken up and



down to work the soil around each root. If the soil is sandy and water can be obtained, the hole should be flooded after the roots are covered with loose earth and the mud worked with a stick so that the water will carry fine soil down to fill up all air pockets. After the water has seeped away the remainder of the hole should be filled and the soil tramped down firmly. Clay soil should not be watered until after the hole is filled and tramped down, otherwise it will bake when it dries out and become impervious to water and air.

CARE OF SHRUBS

Watering and Cultivation

Shrubs should be watered until they are well established, and clean cultivation practiced by stirring up the surface of the bed lightly. Deep cultivation will cut many of the fine feeding roots, and should be avoided.

As soon as the shrubs are established a light application of commercial fertilizer may be scattered over the soil before watering. A pound to 50 square feet of bed surface is sufficient for young shrubs. Use a fertilizer that has about 10 per cent nitrogen, 6 per cent phosphorus, and 4 per cent potash.

Older Shrubbery

Older shrubs may be mulched in the fall with a liberal dressing of well-rotted manure. This may be lightly dug into the surface soil in the spring. The surface of the bed should be kept lightly stirred up until the end of July to keep down weeds and conserve moisture.

Fertilizers

While little accurate experimental work has been done to determine the best fertilizers for different shrubs and soils, it is beneficial to give them a start in the spring with a light application of commercial fertilizer. Quantity and type of fertilizer will vary with the size of shrub and type of soil, but in general an application of 1 pound to 25 square feet of bed area using a fertilizer containing 9 per cent nitrogen, 5 per cent phosphorus, and 7 per cent potash has given good results at Ottawa.

Quick-acting fertilizer should be applied in the spring so that the succulent growth produced may ripen before fall. Slow-acting fertilizers may be added at any time.

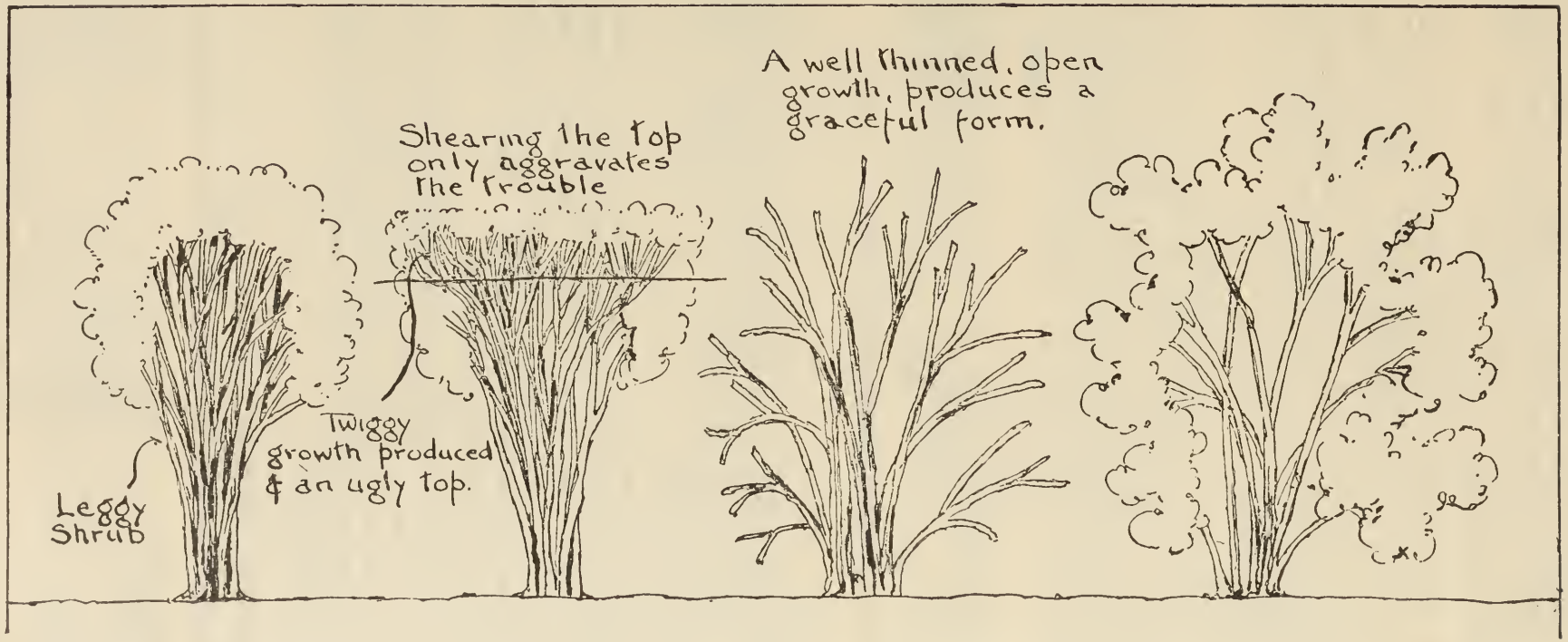
Pruning

The pruning of young shrubs at the time of planting differs considerably from the pruning of established shrubs for general maintenance, and from the pruning of old neglected shrubs for rejuvenation. The objectives of pruning are to produce a graceful, well-balanced shrub of proper height, and to open up the shrub to allow sufficient light and air into the center to produce healthy wood and flower buds.

These objectives can never be attained by clipping the tips of the branches to form a neat rounded ball. Except in trimming a hedge where thick, bushy growth is required, the branch tips of most shrubs should rarely be clipped. Sometimes a branch or two must be cut back to give the shrub a balanced shape, but this should always be done by cutting back to a lateral branch, or bud that points outward.

Maintenance

Shrubs may be divided into two main classes, those that bear their flowers at the ends of growth of the current season, and those that flower from terminal or axillary buds formed on growth of the previous season. The first class contains most of the late flowering shrubs such as *Hydrangea*, *Sorbaria*, and


A well thinned, open growth, produces a graceful form.
Shearing the top only aggravates the trouble
Twiggy growth produced & an ugly top.
Leggy Shrub

Genista. They should be pruned in spring by first removing all dead and weak wood close to the ground or to the parent branch from which it springs, and thinning out to a few of the healthiest canes by removing the oldest wood. Cut back the remaining canes to a point just above the second or third bud on last season's growth. This will induce the production of strong new growth, and consequently large bloom.

The second class contains the great majority of flowering shrubs. Most of these require pruning only every few years to keep them within bounds, and sufficient thinning out to prevent them from growing "leggy". For general maintenance these shrubs should be pruned immediately after flowering to induce maximum production of young healthy wood with a resulting full bloom the following season. Fall or spring pruning of these shrubs by removing the young wood reduces the crop of flowers.

In general removing an occasional old branch close to the ground will keep this class of shrub in fairly good shape. Remove only branches that will not harm the shape of the shrub, and cut them out without leaving a stub. Most suckers from the roots should be removed, leaving two or three to grow up to take the place of the old branches. In the case of named varieties of lilac, plum, or flowering crab that have been grafted or budded, all suckers should be removed.

Some shrubs of this class such as the hybrid mock oranges and weigelias produce heavier crops of bloom if the old wood that has just flowered is cut out each year back to a point at which new growth is in evidence.

See notes on pruning at end of this section.

Rejuvenation

With old shrubs that have been neglected for a number of years the treatment is more drastic. Such pruning is better done in spring. Severe reduction of branches later in the season seems to have an enervating effect, so that the shrub takes longer to recover.

The method is to cut out one-third or more of the old branches close to the ground, and to cut back the remaining old branches to a point just above their lowest lateral branch. This will force all growth into young wood and will result in the production of a quantity of suckers from the roots and adventitious shoots from the lower part of the old branches. These must be thinned out and encouraged to develop as normal branches.

The following spring or summer half or more of the remaining old branches should be removed close to the ground, and a year later the rest of the old branches should be removed, leaving a shrub formed entirely of new wood except for a few short trunks at the base. This young wood should be thinned out to form a well-balanced shrub.

Pruning of Different Genera:

Pruning necessary only to maintain desired size and shape.

Acanthopanax
Amelanchier
Berberis
Caragana
Cephalanthus
Cercis
Chaenomeles
Cotoneaster
Eleagnus
Euonymus
Exochorda
Forsythia
Halesia
Halimodendron
Hamamelis
Hibiscus syriacus
Hippophae
Kalmia
Ligustrum
Potentilla
Prunus
Rhamnus
Rhodotypos
Rhus
Shepherdia
Symphoricarpos
Viburnum

Cut out dead wood in spring. Thin out and head back remainder.

Clethra
Cytisus
Desmodium
Genista
Hydrangea
Kerria
Lespedesa
Rosa H.T.'s and Floribundas
Salix (grown for colored wood)
Spiraea A. Waterer
Sorbaria
Tamarix

Cut back severely every third or fourth spring to keep from growing "leggy".

Amorpha
Colutea
Cornus
Lonicera
Physocarpus
Ribes
Rosa rugosa
Rosa other species
Sambucus
Syringa (also cut the flowers each year after they fade)

Cut back old wood immediately after flowering to a point just above the second or third bud or lateral to force young growth or fruit spurs for next year's bloom.

Crataegus
Deutzia
Kolkwitzia
Malus
Mahonia
Philadelphus
Spiraea Vanhouttei
Weigela

INSECTS AND FUNGUS DISEASES

Insects of various kinds attack ornamental shrubs, disfiguring the foliage and sometimes seriously weakening the shrub. These are of three main classes: (1) Leaf eating insects such as caterpillars, sawfly larvae, and several beetles. These formerly were controlled, and still can be, by spraying with arsenate of lead at the rate of 2 tablespoons to 1 gallon of water. Later D.D.T. was used either as a dust or liquid. More recently methoxychlor has proved an effective control. (2) Sucking insects such as aphids, mites, scale insects, and leaf hoppers which pierce or rasp the surface tissue and suck the juices. These must be killed by a contact spray or fumigant. Formerly nicotine sulphate (Black Leaf 40%) or Rotenone powder were the most popular remedies but recently Malathion has become more widely used. (3) Borers that work beneath the bark or in the pith wood can be killed only by the injection of carbon tetrachloride into the individual holes, but this is tedious. The better method is to cut out and burn affected canes as soon as the damage is noticed.

Fungus diseases attacking shrubs are also of various types such as leaf spots, rusts, mildew, and stem cankers. Formerly they were controlled by finely powdered sulphur dust or wettable powder or by Bordeaux mixture which is a mixture of bluestone and lime in water. Many new fungicides have recently been developed such as Captan, Ferbam, and Zineb to control leaf spots and rusts, or Karathane and Manzate for mildew. Like boring insects, stem cankers are best cut out and burned.

Control. For the average gardener the simplest method of control is to use one of the all-purpose combination sprays recently put on the market. These contain the two types of insecticide and the two types of fungicide necessary to control most of the common pests in one operation. One must be careful to follow directions very closely.

Those who desire specific information regarding the identity or control of particular pests should get in touch with the Research Branch, Canada Department of Agriculture, Ottawa.

NOTES ON ORNAMENTAL SHRUBS

Many ornamental shrubs have been tested at the Central Experimental Farm at Ottawa and at the various branch farms throughout the country since planting was started in 1888. Records have been kept of the hardiness, height, habit of growth, etc. The following brief notes on those that have proved satisfactory may help the prospective planter.

Only those shrubs that have a fairly wide distribution are noted. There are several sorts that may be used with perfect safety in southern Ontario and British Columbia that cannot be grown in parts of the country that have a more severe climate. Again some shrubs, so hardy that they are used where other shrubs will not grow, are not mentioned here since hardiness is their only virtue.

In a country the size of Canada it is impossible to recommend a list of shrubs for use in all sections. Prospective planters may obtain advice from the various Experimental Farms.

All scientific names used here are taken from Rehder's "Manual of Cultivated Trees and Shrubs". The correct name appears in italics. Synonyms that have been in common use appear in brackets after the correct name. The botanical authority is given in each case.

Acer ginnala, Maxim, Amur maple. Frequently forms a small tree but usually a rather open "leggy" shrub. Foliage and seeds particularly attractive in fall when their brilliant red adds interest to a mass of foliage. Should be used as a background for lower shrubs of greater interest, or as fillers in large shrubberies.

Acer palmatum, Thunb. Japanese maple. Much the same as *A. ginnala* from a landscape point of view. Not nearly so hardy but more graceful and, due to the many forms with colored foliage, more ornamental. Not hardy enough to stand the climate at Ottawa, although it grows well along the St. Lawrence River.

Amelanchier, Shadbush. Several native species bloom early in the spring, and are ornamental at a time when there are few shrubs in bloom. Some, such as *A. alnifolia* var. *pumila*, are dwarf; others may become small trees. Perhaps the most ornamental is *A. laevis*, Wieg., which is covered with loose drooping racemes of white flowers early in May. Young leaves purplish and make a pleasing contrast with the flowers.

A. canadensis, Med. Much like *A. laevis*, but young leaves downy on both sides and appear more silvery. Known as juneberry, service berry, and saskatoon.

Amorpha canescens, Nutt. Lead plant. Attractive summer blooming shrub with compound leaves, and small, bluish flowers on long, close spikes. Grows about 3 feet high, and looks well on a bank or in any stony or rocky place. Blooms during June and July.

Amorpha fruticosa, L. Indigo. A larger, coarser and more open shrub than the above. Though interesting and useful when planted behind lower shrubs that will hide the bare lower branches, its chief attraction is its hardiness.

Atraphaxis Billardieri, Spach. Low spreading shrub with grayish green foliage. Produces numbers of small pink blooms in terminal clusters. A useful point of interest at the front of a shrubbery border particularly on dry soil where it can have a little shelter in winter.

Berberis Thunbergii, D.C. Japanese barberry. Low, compact, thorny shrub with bright green leaves that turn brilliant red in autumn. Flowers inconspicuous, but the red berries borne in profusion in the fall and through the winter make it very attractive as a hedge, or in the front of a shrub border.

The red or purple leaf variety *atropurpurea* also makes a good hedge or interest plant in the border.

The variety *minor* is a smaller, more compact form, good for edging borders in formal work.

A recently introduced form *parviflora erecta* is known in the trade as "true-hedge columnberry". Excellent hedge plant of narrow upright habit and attractive foliage. Not quite so hardy as *B. Thunbergii*. As the plants are very erect they should be planted from 6 to 9 inches apart.

Berberis Vernae, Schneid. Graceful but very thorny shrub with slender branches and dense clusters of small flowers, followed by red berries.

Berberis Koreana, Palib. Erect shrub with rather coarse branches, bright-green leaves larger than *B. Thunbergii*. Fruits retain their color and shrub appears to be as hardy as the Japanese barberry.

Caragana. Because the caraganas are so hardy and therefore useful on the Prairies and in the northern districts they are described below rather more fully then their average attractiveness would warrant.

Caragana arborescens, Lam. Siberian pea tree. One of the most useful hardy ornamental shrubs, reaching a height of 15 to 18 feet. Foliage attractive; yellow, pea-shaped flowers appear while the leaves are still young in May. Because of its great hardiness and its ability to withstand drought, it is particularly useful on the Prairies as a windbreak and for hedge purposes. Makes a good hedge in Eastern Canada also.

Variety *Lorbergii*, Koehne. Very attractive, fine-leaved form of graceful habit. There is also a dwarf variety *nana*, and a weeping one, *pendula*.

Caragana chamlagu, Lam. Upright bushy shrub about 4 feet high with dark green shiny foliage and reddish yellow flowers.

Caragana frutex, K. Koch. (*C. frutescens*). A commonly grown form of erect bushy habit and dull, light-green foliage, useful as a hedge or for massing as a background to more interesting shrubs. The one usually grown is the variety *macrantha*, Rehd. (*C. f. grandiflora*). Another fairly common variety with larger leaflets is *latifolia*. (*C. obtusifolia*). From an ornamental standpoint, however, they may all be considered as one shrub.

Caragana pygmaea, D.C. Differs greatly from the others, but has an attractiveness all its own. Comparatively low-growing shrub of spreading habit. Leaves duller green and narrower than either *C. arborescens* or *C. frutex*. Flowers which are in bloom in May, are orange and yellow. Makes a neat, low-growing hedge plant, though the leaves are too dull in color for best effect.

When top grafted as a "standard" on *C. arborescens* this makes an attractive "accent" plant in a formal border or as a specimen.

Chaenomeles japonica, Lindl. (*Cydonia japonica*, Hort. *Pyrus japonica*, Thunb, *P. Maulei*, T. Moore). Japanese quince. Not hardy at Ottawa, flower buds invariably killing to the snow line. Hybrid forms have proved a little hardier, and in some years very attractive. This shrub with its shiny bright-green foliage and brilliant red flowers, which open very early, is a fine plant for interest.

Chionanthus virginica, L. Fringe tree. Rather odd shrub similar in habit to lilac. Produces long, loose clusters of small white flowers but unfortunately not in great profusion at Ottawa where it is scarcely hardy.

Clethra alnifolia, L. One of the latest-blooming shrubs, being in flower from July to September. Has small, sweet-scented, white flowers that bloom in compact racemes. Succeeds best in rather moist soil. Another species, *Clethra acuminata*, is a taller grower, and quite hardy at Ottawa.

Colutea arborescens, L. Bladder senna. Rather dull looking shrub with small compound leaves. Useful as a "filler" in districts where the climate permits it to reach a good height.

Cornus alba, L. Siberian dogwood. Attractive shrubs with red bark and good, dark green foliage. Flowers small, yellowish white, in fair sized flattish clusters; fruit has a bluish white bloom. There are two varieties with variegated leaves *C. alba argentea-marginata*, Rehd. (*C. elegantissima* Hort.) which has a silver-edged leaf, and *C. alba spaethii*, Wittm. which has a golden variegation. Variety *sibirica* has lighter red bark and is not such a strong grower as the species.

Cornus alternifolia, L. The only dogwood with alternate leaves. Large shrub or small tree with dull purplish red bark and not particularly attractive.

Cornus stolnifera, Michx. Red osier dogwood. Red-barked spreading shrub useful in natural plantings where massed effects are desired. Variety *flaviramea*, Rehd., has bright yellow bark.

Cotinus coggygria, Scop. (*Rhus Cotinus*) Smoke tree. Very attractive shrub with distinctive, round bluish green foliage. Flowers small and greenish in large, loose clusters. Stems of the many sterile flowers are covered with long hairs that turn purple and give the impression of a cloud of smoke. Frequently kills back at Ottawa but the foliage alone is sufficiently attractive to render it useful.

Cotoneaster. Grown chiefly for their attractive, dark green foliage, and red or black fruits. Because of their hardiness they are proving particularly useful on the Prairies. In the East two species, *C. adpressa*, Bois, and *C. horizontalis*, Decne. are commonly used in rock gardens because of their low and spreading habit. *C. acutifolia*, Turcz. and *C. integerrima*, Med. are both useful shrubs as fillers as they have attractive foliage and habit of growth, and interesting fall fruit. These have proved particularly hardy. Another interesting species is *C. Simonsii*, Bak., a half evergreen species with attractive red fruit but unfortunately it is scarcely hardy at Ottawa.

Crataegus. Many hawthorns can be used effectively in large shrub groups where their attractive foliage and horizontal habit of branching create much interest. Species and varieties are so badly crossed that few can be definitely distinguished except by trained botanists. The following are among the most useful native sorts:—

C. coccinea, Sarg. Shrub or tree to 30 feet.

C. crus-galli, L. Shrub or tree to 30 feet.

C. rotundifolia, Moench. Shrub or tree to 18 feet.

C. punctata, Jacq. Horizontally branching tree or shrub to 30 feet.

C. succulenta, Lk. Shrub or low tree to 15 feet with more ascending branches. Proving useful on the Prairies.

Cydonia (see *Chaenomeles*).

Cytisus, Broom. None of these is very common in Eastern Canada though a few of the lower growing species are fairly hardy, and quite ornamental as subjects for the rock garden or as points of interest in sheltered bays of a shrub border. Perhaps the hardiest is *C. elongatus*, Waldst. and Kitt. with bright but rather pale yellow flowers. *C. ratisbonensis*, Schaeff., is very like it. These bloom the latter part of May and are quite showy.

C. nigricans, L. which blooms in June and July is more ornamental though not quite so hardy. Flowers a richer yellow and borne in long slender racemes. *C. purpureus*, Scop. and some of its varieties though killing to the snow line each year bloom well and are attractive. Their pink to purple flowers in May look well at the front of a shrubbery.

C. Beanii, Nichols Another yellow hybrid, also useful.

Daphne Cneorum. L. Low trailing shrub with pinkish purple flowers early in spring; useful in the rock garden where acid soil and good drainage can be provided.

D. Mezereum, L. Taller shrub to 2 feet rather straggly in habit; flowers white to rosy purple appearing before the leaves.

Daphne × *Burkwoodi*. The variety of this hybrid known as Somerset is a most popular bushy shrub of 3 feet with narrow bluish green foliage and a profusion of fragrant lavender flowers in early spring.

Deutzia. None of the deutzias is thoroughly hardy at Ottawa though *D. Lemoinei*, Lemoine, produces bloom occasionally. In warmer districts they are well known shrubs of bushy habit and profuse bloom.

D. gracilis, Sieb. and Zucc. and its varieties are low growing, free blooming shrubs suitable for the front of the shrubbery border where hardy.

D. scabra var. plena (*D. crenata fl. plena*, Hort.). The well-known Pride of Rochester, is a larger shrub with double pinkish flowers.

Eleagnus angustifolia, L. Oleaster, Russian olive. A hardy small tree or large shrub chiefly valuable for its gray-green foliage.

E. argentea, Pursh. Silver-berry. A better subject for the shrubbery border than the above. Spreading habit of growth with silvery gray-green leaves and small yellow flowers in July. Very hardy but not so drought resistant as the above. Both these shrubs are useful on the Prairies.

Euonymus. Spindle tree or burning bush. Attractive at Ottawa for the interest of their colored winged fruits. The taller forms *E. alata*, Reg., *E. atropurpurea*, Jacq. and *E. europea*, L. are too open and irregular in habit to make attractive shrubs except on large properties. *E. americana*, L. the strawberry bush, makes a fairly interesting shrub as a filler while *E. nana* is a low growing attractive form for use on rocky banks or large rock gardens.

Exochorda racemosa, Rehd. (*E. grandiflora*) Pearl bush. Slender-stemmed graceful shrub bearing terminal clusters of white flowers in spring.

Forsythia. Golden bells. These shrubs all have yellow flowers that appear early in the spring before the foliage. The majority are not thoroughly hardy at Ottawa and only bear flowers on the wood that was below the snow line. *F. suspensa*, Vahl. is a gracefully arching shrub that looks well in large masses. Variety *Fortunei* is similar though more erect and vigorous. The hybrid *F. intermedia* is probably the most attractive form.

F. ovata, Nakai has proved hardier than the others at Ottawa. It is naturally a lower, more bushy shrub with paler yellow flowers borne a little earlier and will prove a very valuable addition to the old favorite shrubs.

Genista tinctoria, L. Dyer's greenweed. Kills down to the snow line each year, but if cut back springs up vigorously and produces a mass of yellow flowers in the late summer. Interesting plant in shrubbery bays. Also various low forms useful for the rock garden.

Halesia carolina, L. Silver Bells. A large shrub only half hardy at Ottawa. It bears loose clusters of drooping white bell-like flowers.

Halimodendron halodendron, Vess. (*H. argenteum*). Salt tree. Useful shrub on the Prairies due to its hardiness and drought resistance. Grayish or pale bluish green foliage and purplish pink bloom at the end of June also prove useful in the East under special circumstances. Forms a good hedge that is impenetrably thorny. Suckers badly when on its own roots so specimen plants should be grafted on *Caragana arborescens*.

Hydrangea arborescens, L. Hills of snow. Forms a low, round, coarse looking shrub with numerous large heads of greenish to creamy-white flowers that continue from June to September. One of the most attractive shrubs in shaded situations. Should be severely cut back and thinned out each spring.

Hydrangea paniculata var. *grandiflora*, Sieg. The p.g. hydrangea, or four seasons, is the hardiest and one of the showiest forms of the genus. Produces large trusses of creamy-white to pinkish bloom in August and September and is very attractive massed in the shrubbery or trained as a standard (tree shaped) specimen on the lawn.

Ilex verticillata, Gray. American holly, useful only in large shrub plantings where natural effect is desired.

Kerria japonica, D.C. Rose of Japan. Kills to snow line each winter at Ottawa but puts forth new growth and usually blooms fairly well. Light green bark and leaves, with the yellow flowers late in May and June, make it useful at the front of the shrub border.

Kolkwitzia amabilis, Graebn. Beauty bush. Kills back in severe winters at Ottawa if exposed to wind but the graceful growth habit and profuse blooming make it an extremely attractive shrub. The pink flowers are trumpet shaped and smaller than those of Weigelia.

Lespedeza formosa, Koehn. (*Desmodium penduliflorum*) Bush clover. Not shrubby at Ottawa, as branches kill to ground every year, but strong stalks are thrown up each spring, and shrub has usually a profusion of rosy-purple flowers in late September and early October. Graceful and attractive when in bloom.

Ligustrum. None of the privets is thoroughly hardy at Ottawa though *L. vulgaris*, L. is fairly satisfactory and *L. amurense*, Carr. also makes a fair shrub. Whenever they will grow, their neat habit of growth and excellent foliage make them useful as fillers or shrubs for hedge planting.

Lonicera Morrowii. A. Gray. Morrow's honeysuckle. White to yellow flowers; shrub lower and more spreading in habit than the common bush honeysuckle. Ornamental and useful for many purposes. Needs regular pruning.

Lonicera spinosa Alberti, Rehd. Albert's honeysuckle. A gracefully arching shrub of almost prostrate habit forming a mound of small, dark blue-green leaves. Has quantities of pink bloom in June and is useful for covering banks or in rock gardens.

Lonicera tatarica, L. Common bush or Tatarian honeysuckle. An excellent shrub, very hardy; has good growth habit and attractive foliage, bloom, and fruit. Many varieties have been tried at Ottawa. Among the best are:

latifolia, Loud. (*splendens*) Large leaves, pink flowers.

rosea, Reg. Flowers rosy pink outside, light inside.

alba, Loisel. Flowers pure white, medium size.

grandiflora, Rehd. (*alba grandiflora*) Leaves and white flowers larger than above.

sibirica, Pers. Flowers deep pink.

speciosa, var. Carleton. The most worth-while variety of *L. tatarica* grown at the Central Experimental Farm. Flowers large bright rose with darker lines inside.

Several other honeysuckles are proving useful at Ottawa, mainly interesting from a collection standpoint as they are similar to the above in landscape value.

L. chrysantha, Turcz. Flowers yellow, berries coral red, leaves dark green.

L. deflexicalyx, Batal. Flowers yellowish, fruit brick red, leaves bright green, more arching habit of growth than *tatarica*.

L. Korolkowii, Stapf. Flowers bright rose colored, fruit bright red, leaves smaller than *L. tatarica*, blue green and very attractive. One of the most ornamental shrubs when allowed sufficient space for full development.

L. Maackii, Maxim. Flowers white to yellow, fruit dark red, leaves dark. Tall erect shrub.

L. Ruprechtiana, Reg. Flowers white, fruit orange red, not so arching as *L. Morrowii*.

L. Xylosteum, L. Flowers white or yellowish, fruit dark red, leaves darker than the above and somewhat downy.

Mahonia aquifolium, Nutt. Oregon grape or holly-leaved barberry. An attractive low growing shrub. Leaves glossy above, sometimes have a pleasing bronzy tint. Edges toothed, and leaf, on the whole, is suggestive of that of English holly. Blooms freely in late May with numerous clusters of small, bright yellow flowers. While evergreen, the old foliage is usually browned and disfigured by winter unless protected with a little straw, but the new growth soon appears and the old foliage is not noticed. Increases rapidly by suckers, and excellent for underplanting in partially shaded places.

Malus. The flowering crabapples are deservedly popular small trees or shrubs, because of profusion of bloom in the spring, often used as dominant notes in the shrubbery or as lawn specimens. As most of them, however, are rather irregular in habit of growth, and those that bear fruit are untidy, they are better used in conjunction with other shrubs where they will not be conspicuous except when in bloom or fruit.

M. baccata, Borkh. Siberian crab. A large tree at Ottawa but useful in the shrub border in colder sections. Bears white flowers and small golden fruits in great profusion.

Malus floribunda, Sieb. Flowers deep carmine in the bud, changing to pale pink when open, fruit very small and red. A very handsome small tree.

M. ioensis plena, Rehd. Bechtel's crab. Good double pink.

M. pumila var. *Niedzwetzkyana,* Schneid. Young leaves, flowers, and fruit all red. Tree very irregular and only attractive when in bloom.

M. pumila Niedzwetzkyana C. E. F. hybrids have been introduced as "Rosybloom Crabs". Much superior to seed parent in form, flowers, and fruit. Of varying habit of growth with exceptionally fine single flowers shading from light pink to deep rose red according to variety. Clusters of small purplish red fruit borne well on into late fall. Foliage also ornamental, being of varying degrees of bronze green to red. Fruit of most varieties good for jelly making.

The following varieties are among the best:—

Early: Cowichan

Medium: Arrow
Makamik
Rosseau

Late: Baskatong
Sissipuk

For fruit: Cowichan
Geneva
Okanagan
Scugog

M. purpurea Eleyi, Rehd. Leaves and flowers red, fruit oval purplish red. Attractive shrub or small tree.

Philadelphus, Mock orange. These are deservedly among the most popular shrubs. There are forms for almost any use as they vary extremely in size and habit. All prefer a well-drained, sandy loam soil with partial or full sunlight, and repay by profuse bloom for regular thinning out of the old wood that has bloomed.

P. coronarius, L. Makes a splendid plant as a filler and its golden leaved variety *aureus* is the best shrub for gold color.

P. grandiflorus, Willd. A taller more erect shrub suitable as a dominant note in the shrubbery.

P. × *Lemoinei,* Lemoine. Smaller shrubs with smaller leaves and sometimes double flowers. There are many horticultural varieties of this hybrid and the best known are: Avalanche, Boule d'Argent, Candelabre, and Mont Blanc. All are fragrant but in further crossing with other species much of the scent has been lost.

Other good horticultural varieties tested at Ottawa are: Bouquet Blanc, Dame Blanche, Favorite, Glacier, Pavillon Blanc, Rosace, Virginal, and Voie Lactae.

Physocarpus opulifolius, Maxim. (*Spiraea opulifolia*) Ninebark. Coarse shrub with long arching branches and bark that shreds off. Effective as a filler in large groups or as a dominant plant in informal plantings. Red seed clusters attractive and the golden leaved variety is useful in lending emphasis to points in a large border.

Potentilla fruticosa, L. Shrubby cinquefoil. This native plant does well under cultivation and blooms continually from June until autumn. Flowers an attractive yellow. Several varieties, all very hardy and consequently useful.

P.f. grandiflora, Willd. Large bright yellow flowers, erect shrub.

P.f. pyrenaica, Willd. Dwarf compact form with yellow flowers. Suitable for rock garden.

P.f. Friedrichseni, Rehd. Large leaves, flowers pale yellow.

P.f. Veitchii, Bean. Flowers pure white, average size.

P.f. dahurica, Ser. Compact low form, white flowers.

Prinsepia sinensis, Oliver. A shrub chiefly valued for its attractive narrow, bright-green foliage. Hardy on the Prairies.

Prunus cerasifera Pissartii, Bailey, (*P. Pissardi*). A slender branched, erect growing plum with purple foliage and large, pink flowers. Too tender for Ottawa, but in milder districts is useful as an accent point.

Prunus cistina, Hansen. Purple leaved plants of the sandcherry are useful or accent.

Prunus glandulosa, Thunb. Flowering almond. Much like *P. nana* and *P. japonica*. The main difference is in the foliage.

Prunus japonica, Thunb. Similar to *P. nana* but with broader leaves.

Prunus nana, Stokes. Dwarf Russian almond. A small shrub that blooms early in May before the leaves are fully open. Flowers pink, or white in the variety *alba*. Very hardy, useful for spring color.

Prunus pennsylvanica, L. Wild red cherry, and *Prunus virginiana*, L. Choke cherry. These grow as trees at Ottawa but in colder districts are more shrubby in character and prove useful for spring effect.

Prunus tomentosa, Thunb. Down-leaf cherry. Ornamental in flower and bears useful fruit as well. Blooms early in May. Buds pink, petals white when open, calyx red. A very hardy bush cherry. Fruit small compared with cultivated sour cherries, but excellent when canned. Very hardy shrub, has reached a height of about 10 feet at Ottawa.

Prunus triloba plena, Dipp. Flowering almond. This double-flowered ornamental almond is one of the most attractive shrubs in spring, those on their own roots being the most satisfactory. When top-grafted on other stock they frequently winterkill, and at Ottawa are not at all satisfactory. Grown in bush form they bloom abundantly year after year. Double pink flowers in bloom before leaves fully out make this a striking looking shrub.

Rhododendron. A few species of this genus reasonably hardy at Ottawa but require pampering. Will survive only in acid soil in partial shade with shelter from winter winds. More novel than attractive at Ottawa but in more favored districts the following can be grown:

R. calendulaceum, *R. japonicum*, *R. Molle*, *R. mucronulatum*, *R. ponticum*,

R. roseum and *R. schlippenbachii*.

R. canadense (L.) Torr. The native Rhodora, prefers north facing, acid slopes and when happily situated makes a gay show for a short period in early spring.

Rhodotypos scandens, Mark. (*R. kerrioides*). White kerria. Where sufficiently hardy, this shrub is attractive at front of border. Has large white flowers and black fruits that persist well on into winter. Not satisfactory at Ottawa.

Rhus Cotinus L. Smoke tree. (see *Cotinus coggygria*.)

Rhus glabra, L. Smooth sumac. Native shrub chiefly valued for the brilliant red fall foliage and odd red fruits. Effective when massed on gravelly banks in natural plantings. Cut leaved variety *laciniata* has decorative foliage and may be used in a more refined setting.

Rhus typhina, L. Staghorn sumac. A large shrub or small tree. More coarse than the above, with the young wood covered with velvety hairs like a stag's horn.

Ribes alpinum L. Alpine currant. Broad spreading shrub of densely branching habit that bears greenish yellow flowers early in spring. The pistillate shrubs bear red fruits. Hardy and useful on the Prairies. Often used as a hedge. Variety *pumila*, Lindl., more dwarf and useful in the rock garden.

Ribes aureum, Pursh. Golden currant. Attractive shrub of spreading habit with yellow fragrant flowers appearing with the leaves. The golden colored fruits are also ornamental.

Ribes odoratum, Wendl. Buffalo currant. More spreading than the above with larger and more fragrant yellow flowers.

Robinia hispida, L. Rose acacia. Not hardy at Ottawa. Where hardy it makes a good hedge plant as it suckers freely and is spiny. Growth habit low and open. Rose purple flowers rather like sweet peas, attractive in June.

Rosa. Roses. Roses are among the most attractive shrubs. Two of the hardy species are mentioned below, but, in addition to these, there are such hardy shrubs as the Persian and Harison Yellow roses, Austrian briars, the Provence or Cabbage roses, the Moss roses, the Damask roses, the Scotch rose and others.

The various rose species are excellent in mass plantings. They flower later and the blooms usually last longer than with most shrubs. Fine combinations of color can be arranged in foliage and wood, as well as in bloom and fruit, and they should be used much more commonly than at present.

Rosa rubrifolia Vill. Red-leaved rose. Leaves purplish red making it a striking object during the growing season even when out of bloom. Flowers rather small, deep pink; fruit bright red, shows up well after leaves have fallen. Very hardy, succeeding well on the Prairies.

Rosa rugosa, Thunb. A beautiful rose with fine flowers and large, thick, shiny ornamental leaves. A white flowered variety is also good, as are a number of hybrids between *rugosa* and varieties of Hybrid Perpetual and Tea roses, most of which are quite hardy.

Salix, Willows. Most willows are trees and will not be discussed here at length. They are, however, so useful due to their hardiness and ability to grow, either in wet places or dry sandy areas, that they sometimes fill the place of shrubs very well by what is known as "Pollarding" or "Coppice." That is, the trees are continually cut back severely so that they are kept to shrub size. The growth is bushy, erect, and dense, and the principal effect is gained through the color of the bark, or the shiny green foliage. The chief willows used for this are *Salix alba* and its red and purple barked varieties.

Sambucus, Elder. Several species of elder make satisfactory shrubs near streams or other wet places. *S. racemosa*, L., the European red elder, blooms in May and has red berries. There is an attractive cut leaved variety called *tenuifolia*, Carr. An excellent strain, the Redman elder has been introduced by the Experimental Farm, Morden, Man.

S. canadensis, L. Blooms in June and July and has purple-black fruit. Variety *maxima*, Schwerin, has immense panicles of flowers and is very attractive. *S. nigra*, L., the European elder, is much like *canadensis* but blooms earlier. Chiefly used in its golden leaved form *aurea* though it also has an attractive cut leaved variety *laciniata*.

Sorbaria sorbifolia, A. Br. (*Spiraea sorbifolia*). Ash-leaf spirea. Suckers badly and rarely forms a bush of attractive habit. Should be planted near the front of the border where it can be kept in control but far enough back so that its lower branches may be screened by low shrubs of more attractive habit. Useful for its attractive foliage, large fuzzy heads of small white flowers borne in July, and ability to grow in shade.

Spiraea. The spiraea or meadow-sweet family provides many of our finest shrubs. All low to medium height with characteristically fine wood and small to medium leaves. Only the most popular and useful are given here. Typically bushy or graceful plants, bearing flowers profusely in June or July, usually placed in intimate relationship with the house or at the front of a large shrubbery.

S. alba, Dur. A white blooming native shrub useful in damp situations. In July it bears good sized panicles of bloom that are often open and leafy.

S. × *arguta*, Zabel. The showiest of the early flowering sorts. Flowers white in round headed umbels appearing with the leaves. Graceful when in bloom but requires regular pruning to retain a good shape.

S. × *Billiardii*, Herincq. Much like the *S. alba* but with bright pink flowers in narrow and more dense panicles.

S. bumalda, Burvenich. Not so commonly grown as its varieties. Best known of these is Anthony Waterer, a compact shrub with narrow, dark green leaves and flat heads of light, bright crimson flowers in midsummer. *Froebeli* (*S. callosa Froebeli*) is taller with broader leaves and similarly colored flowers.

S. media, Schmidt. One of the earliest hardy spireas flowering a little later than *S. arguta*, but much hardier. Not so graceful as either the latter or *S. Vanhouttei*, but, when in full bloom and well covered with compact clusters of white flowers, it is very ornamental, especially desirable for the Prairies. Sometimes found under the name of *S. oblongifolia*, which is a synonym of *S. media subintegerrima*, and little different from the type.

S. Thunbergii, Sieb. Small graceful shrub with narrower leaves than *S. arguta*, of which it is a parent. Flowers white, appearing with the leaves. Foliage turns bright orange and red in fall. Not really hardy at Ottawa.

S. trichocarpa, Nakai. A fairly recent introduction that is promising. A shrub with gracefully arching branches, apparently hardier than *S. Vanhouttei* and may be used in place of the latter in slightly colder districts.

S. × *Vanhouttei.* Attractive and popular shrub commonly but erroneously known as bridal wreath. Needs no description here as its gracefully arching form and free blooming habit are known to all. Should have careful pruning every few years as soon as the blooming period is over.

Symphoricarpos. The species most commonly planted in the East is *S. albus*, Blake. Snowberry. Large white berries make it very ornamental in the fall. This is the *S. racemosus* of nursery catalogues. Variety *laevigatus* is a taller shrub with even larger berries borne in larger clusters. *S. orbiculatus*, Moench. (*S. vulgaris*) Indian currant, is conspicuous in the fall for its red berries, useful in natural plantings. A more recently introduced hybrid, *S. Chenaultii*, Rehd., is a neat little shrub with gracefully arching branches and fine foliage. Bears attractive red berries but it usually kills to the snow line at Ottawa.

Syringa. Lilac. Many species of this genus grow at Ottawa. All are tall attractive shrubs for the garden but space does not permit mention of any but the most useful. Usually they have large foliage of a rather dark color which renders them excellent as dominant shrubs.

Syringa japonica, Decne. Japanese Lilac. A small tree form frequently grown as a large shrub. Has white flowers in large rather loosely spreading panicles, which open towards the end of June. Two other shrub forms similar from an ornamental viewpoint are *S. amurensis* and *S. pekinensis.*

S. Josikaea, Jacq. Hungarian lilac. Commonly planted because it blooms after the common lilac is over. Very like *S. villosa* but with deeper lilac flowers. An Ottawa hybrid between this and *S. reflexa* has been developed which is an excellent shrub with rosy lilac flowers in large panicles, this is *S. josiflexa* variety Guinevere. There is also a hybrid variety called Kim with deep lilac flowers.

S. persica, L. Persian lilac. A somewhat smaller shrub than the others with neat foliage and earlier bloom.

S. × *Prestonae*, McKelvey. A cross between *S. villosa* and *S. reflexa* developed at the Central Experimental Farm. The shrubs are strong and of erect habit though a few have slightly arching branches like *S. reflexa* when in bloom. Bloom considerably later than common lilac and trusses larger and more openly graceful. Several named varieties varying slightly in time of bloom and ranging in color from light lilac pink to a very deep lilac.

The following varieties cover the range in time and color:—

Light colored, Audrey	Dark, Jessica
Desdemona	Calphurnia
Ursula	Alice
Virgilia	Elinor

More recent hybrids produced at the Central Experimental Farm are: Bellicent, Oberon, Romeo. Elaine, Gwynn, Ethel M. Webster, and Fountain.

S. villosa, Vahl. One of the many Chinese species. A strong growing, coarse-textured shrub that is quite like, and blooms just after, *S. Josikaea.* As the bloom is not so attractive as *S.* × *Prestonae* it is useful only as an individual in a collection.

S. vulgaris, L. Common lilac. Deservedly one of the best known and most frequently planted shrubs. Many fine varieties varying from white to deepest purple and from single to double. Of the several hundred named varieties the following are among the best:—

White Single:	Mont Blanc	Intermediate Single:	Decaisne
	Vestale		Mme F. Morel
White Double:	Edith Cavell	Intermediate Double:	Paul Thirion
	Jeanne d'Arc		Président Poincaré
	Mme Lemoine		Président Viger
Pale Single:	Jacques Callot	Dark Single:	Congo
	Lucie Baltet		Monge
	Maréchal Foch		Mrs. W. E. Marshall
Pale Double:	Emile Gentil		Negro
	Katherine Havemeyer		Réaumur
	Président Fallières	Dark Double:	Charles Joly
	Président Grévy		Mrs. Edward Harding
	Thunberg		

Tamarix. Tamarisk. These late blooming, pink flowered shrubs with their very fine scale-like foliage should be planted more often in districts where they are hardy. They look extremely well in bays in the shrub border planted between groups of coarser textured shrubs, or wherever their interesting growth is needed to attract the eye. Unfortunately they kill back badly at Ottawa and need careful pruning to maintain good shape. *T. pentandra,* Pall. seems to be the hardiest though *T. odessana,* Stev. will winter well in a sheltered position and is more useful as it is a lower shrub more suitable for small gardens.

Viburnum. Several native species of viburnum are good shrubs to use in natural plantings on account of their ornamental flowers, foliage, and fruits, and because they will succeed in shady places where other shrubs will not. One of the most attractive of these is *V. cassinoides,* L. Withe-rod. This flowers in June and is from 6 to 9 feet tall. Taller species that make attractive small trees are *V. Lentago,* L. sheep berry, and *V. prunifolium,* L. black haw. These have white flowers, black fruit and attractive foliage. Another sort that is distinct in habit of growth and foliage is *V. dentatum,* L. arrowwood.

V. Carlesii, Hemsl. Ornamental low shrub with large clusters of fragrant pinkish flowers appearing at same time as leaves. Needs shelter at Ottawa until it becomes well established. A newer hybrid *V. Juddii* seems superior.

V. Lantana, L. Wayfaring tree. Tall shrub with attractive foliage, large flat clusters of white flowers, and showy fruit turning from red to dark purple as it ripens.

V. Opulus, L. European cranberry. Attractive shrub usually grown in its sterile variety *roseum* (sterile) which is the common snowball, or guelder rose. This old-time favorite has of recent years fallen into disrepute due to its susceptibility to the attack of aphids.

V. trilobum, Marsh. (*V. opulus*) Highbush cranberry. A native sort commonly used in gardens. Much like the snowball, but hardier and bears red fruit. Variety Manitou is superior.

Weigela florida, Kœhne. (*Diervilla rosea, D. candida,* etc.). Most varieties commonly grown in Canada belong to this species; color range from white to red and the bloom spread over a long period. Useful, attractive shrubs for general purposes. Variety Bristol Ruby is a profuse bloomer, making a fine point of interest as a foundation shrub or at the front of a border. Variety *venusta* is graceful and free flowering, probably the most satisfactory at Ottawa where weigelas need a sheltered location.

SHRUBS FOR VARIOUS PURPOSES AND SITES

The following tables give information of a more definite nature and should be studied in conjunction with the section on the uses of shrubs in the landscape, pages 3 to 5, to be of real assistance in the selection of shrubs for definite purposes.

Due to the wide range of soil and climate throughout Canada, a table of this sort is limited in its usefulness, particularly in respect to the height of shrubs, and consequently their habit of growth.

The abbreviations used in the color of foliage column are as follows: L.G.—Light green; G.—Mid-green; D.G.—Dark green; G.G.—Gray green. Usually the gray effect is produced by the underside of the leaf being grayish white. Y.G.—Yellow green; B.G.—Blue green; P.—Purple; P.G.—Purple green; G.W.—Green white; R.G.—Red green; a small "s" signifies that the leaf is shiny.

Under the heading of soil the word "loam" means that the shrub needs good loam soil which is well drained. The other words are self explanatory; they do not mean necessarily that the shrub prefers "wet" soil or "poor" soil, but that it will grow under those conditions where others will not.

The same applies to the column headed "light". All shrubs prefer sunlight to develop into well-shaped specimens, but some will grow in partial shade.

Name	Habit of growth	Foliage		Bloom		Soil	Light	Remarks	Use in landscape composition
		Texture	Color	Color	Period				
				SHRUBS OVER 12 FEET					
Amelanchier canadensis	Erect	Medium	G.	White	May	Various	P. shade	Black berries	Natural plantings
Caragana arborescens	Erect	Fine	L.G.	Yellow	May-June	Various	Sun	Good hedge	Filler
Philadelphus grandiflorus	Erect	Coarse	D.G.	White	June-July	Various	Sun	Regular pruning	Dominant
Rhamnus Frangula	Erect	Medium	G.	Inconsp.		Clay	P. shade	Black berries	Filler hedge
Rhus typhina	Open irregular	Medium	R.G.	Greenish		Gravelly	Sun	Red seed heads	Natural plantings
Syringa japonica	Round top	Coarse	D.G.	White	June-July	Various	Sun	Latest to bloom	Use standards as specimens
S. × Prestonae	Erect	Coarse	G.	Pink, Mauve	June	Sandy loam	Sun	Very large trusses	Dominant, all lilacs get leggy at this height
Syringa villosa	Erect	Coarse	G.	Lavender	June	Sandy loam	Sun	Disagreeable odor	Dominant, all lilacs get leggy at this height
Syringa vulgaris	Erect	Coarse	D.G.	White Purple	May-June	Various	Sun	Regular pruning	Dominant, all lilacs get leggy at this height
Viburnum prunifolium	Horizontally branching small tree	Medium	G.	White	May-June	Moist	P. shade	Black berries	Dominant in natural groups
				SHRUBS—9-12 FEET					
Chionanthus virginica	Erect open	Medium	D.G.	White	June-July	Moist	Sun	Misty bloom	Odd, dominant
Hydrangea paniculata grandiflora	Erect open	Coarse	G.	White, Pink	Aug.-Sept.	Dry	Sun	Prune in spring	Standard specimen
Lonicera Maackii	Erect	Medium	D.G.	White	May-June	Various	Sun	Red berries	Dominant
Philadelphus cordifolius	Erect	Coarse	D.G.	White	June-July	Loam	Sun		Dominant
Prunus triloba	Erect	Coarse	G.	White-Pink	May	Clay	Sun		Standard specimen
Philadelphus coronarius aureus	Erect	Medium	G.	White	June-July	Loam	Sun		Filler
Rosa × rubrosa Carmenetta	Arching	Medium	R.G.	Pink	July	Various	Sun	Red fruits	Mass for foliage effect
Syringa Josikaea	Erect	Coarse	G.	Lilac	June	Various	Sun	Prune regularly	Mass, dominant
S. × Prestonae	Erect	Coarse	G.	Pink-Mauve	June	Sand loam	Sun	Prune regularly	Dominant specimen
Syringa vulgaris	Erect	Coarse	D.G.	White-Purple	May-June	Various	Sun	Prune regularly	Dominant specimen
Viburnum Lantana	Erect	Coarse	R.G.	White	May	Moist	P. shade	Black berries	Dominant mass
Viburnum Lentago	Erect	Coarse	G.G.	White	May	Moist	P. shade	Black berries	Use for gray foliage
Viburnum molle	Spreading	Coarse	G.	White	June	Moist	P. shade	Black berries	Mass for natural planting

SHRUBS—6-9 FEET

Cotinus coggygria	Open spreading	Medium	B.G.	Purple smoke	July	Moist	Sun	Feathery seed cl.	
Cotoneaster integerrima	Erect	Medium	D.G.	Small pink	June	Dry	Sun	Red berry	Mass
Cornus alba sibirica	Spreading	Coarse	R.G.	White	May–June	Moist	P. shade	Red bark	Mass, for effect of bark
Cornus stolonifera flaviramea	Spreading	Coarse	G.	White	May–June	Moist	P. shade	Yellow bark	Mass, for effect of bark
Hydrangea paniculata grandiflora	Spreading	Coarse	G.	White pink	Aug.–Sept.	Dry	Sun	Prune in spring	Mass or dominant
Lonicera tatarica	Spreading	Medium	Y.G.	White pink	May–June	Various	P. shade	Red berry	Specimen or filler
Philadelphus coronarius	Spreading	Medium	G.	White	June–July	Various	Sun	Prune regularly	Mass
Philadelphus coronarius aureus	Spreading	Medium	Y.G.	White	June–July	Various	Sun	Prune regularly	Emphasis
Physocarpus opulifolius	Spreading	Medium	D.G.	White	June	Various	P. shade	Red seed clusters	Mass
Physocarpus opulifolius aureus	Spreading	Medium	Y.G.	White	June	Various	Sun	Red seed clusters	Emphasis
Prunus cerasifera Pissartii	Erect	Medium	P.	Pink	May	Clay loam	Sun	Not hardy at Ottawa	Accent
Rhus cotinus—*see* Cotinus.									
Ribes Aureum	Spreading	Medium	D.G.	Yellow	May	Various	P. shade	Yellow currants	Mass filler
Rosa Harison Yellow	Spreading	Fine	Y.G.	Yellow	June	Clay loam	Sun		Mass
Rosa rubrifolia	Open spreading	Fine	P.	Deep pink	June	Clay loam	Sun	Red hips	Mass for interest of foliage and fruit
Sambucus canadensis	Spreading	Coarse	Y.G.	White	May	Wet	P. shade	Black fruit	Mass
Sambucus racemosa	Spreading	Coarse	R.G.	White	May	Wet	P. shade	Red fruit	Mass
Syringa vulgaris (varieties)	Open crest	Coarse	D.G.	White purple	May–June	Various	Sun	Careful pruning	Specimen, dominant
Viburnum Opulus	Erect spreading	Coarse	D.G.	White	June	Wet	P. shade	Spray in spring for aphis	Dominant, mass
Viburnum trilobum	Erect spreading	Coarse	D.G.	White	June	Wet	P. shade	Red berries	Dominant, mass

SHRUBS—4-6 FEET

Amorpha fruticosa	Open spreading	Medium	Y.G.	Purplish	June	Dry	Sun	Leggy	Filler
Caragana frutex	Erect	Fine	L.G.	Yellow	May–June	Various	Sun	Suckers	Mass filler
Caragana arborescens Lorbergii	Erect	Fine	Y.-G.	Yellow	May–June	Various	Sun	Very fine foliage	Interest
Cornus elegantissima	Spreading	Coarse	W.G.	White	May–June	Moist	Sun	Attractive foliage and red bark	Interest specimen
Cotoneaster acutifolia	Spreading	Medium	D.G.	Pinkish		Various	Sun	Red berries	Mass filler
Forsythia intermedia	Spreading	Medium	Y.G.	Yellow	May	Various	P. shade	Bloom before leaves	Filler or interest
Forsythia ovata	More bushy	Medium	Y.G.	Yellow	April–May	Various	P. shade	Hardier than above	Filler or interest
Halimodendron halodendron	Bushy	Fine	G.G.	Pink	June	Dry	Sun	Very thorny	Interest of foliage
Hippophae rhamnoides	Open bushy	Fine	G.W.	Inconsp.		Dry	Sun	Foliage silvery	Interest of foliage better than above
Lespedeza formosa	Erect bushy	Fine	G.	Purple	Sept.	Various	Sun	Kills to snow line	Odd, interest of late bloom
Ligustrum amurense	Bushy	Medium	D.G.	White	June	Various	Sun	Sheltered position	Filler, hedge
Lonicera Morrowii	Horizontal	Medium	B.G.	Yellow	June	Various	Sun	Red berries	Interest
Philadelphus × Lemoinei erectus	Erect	Fine	G.	White	June–July	Various	Sun	All require careful regular, pruning	Many named varieties like these
Philadelphus hybrid Avalanche	Bushy	Medium	G.	White	June–July	Various	Sun		All useful as filler or interest
Philadelphus hybrid Virginal	Open erect	Medium	D.G.	White	June–July	Various	Sun		Specimen interest
Rosa blanda	Erect	Medium	R.G.	Pink	June	Various	Sun	Red hips, smooth wood	All roses need to be in masses as filler or points of interest
Rosa rugosa	Erect	Medium	G.	White–red	June	Various	Sun	Suckers, red hips	All roses need to be in masses as filler or points of interest
Sambucus nigra aurea	Bushy	Coarse	Y.G.	White	June	Various	Sun	Gold foliage, cut back each spring	Emphasis, interest
Sorbaria sorbifolia	Open erect	Medium	D.G.	White	July	Moist	P. shade	Kills back each year but useful	Interest, suckers badly
Spiraea × arguta	Erect bushy	Fine	Y.G.	White	May	Various	Sun	Regular pruning	Interest
S. × Billiardii	Erect bushy	Medium	R.G.	Pink	July	Moist	Sun		Interest or filler
Spiraea media	Erect bushy	Fine	G.	White	May	Various	Sun	Hardy	Filler
Spiraea trichocarpa	Erect bushy	Med.-fine	G.	White	May	Various	Sun	Hardier than Vanhouttei	Filler
S. × Vanhouttei	Erect bushy	Fine	B.G.	White	June	Various	Sun	Very fine shrub	Specimen filler
Syringa persica	Erect bushy	Medium	D.G.	Lilac	May	Various	Sun	Earliest lilac	Interest, filler

Name	Habit of growth	Foliage		Bloom		Soil	Light	Remarks	Use in landscape composition
		Texture	Color	Color	Period				
SHRUBS—4–6 FEET									
Tamarix pentandra	Open erect	Fine	B.G.	Pink	July–Sept.	Dry	Sun	Sheltered position	Interest
Viburnum Carlesii	Open	Coarse	G.G.	Pink	May	Moist	P. shade		Specimen interest
Weigela florida rosea	Bushy	Coarse	Y.G.	Rose	June–Aug.	Various	Sun	Needs slight shelter	Filler
SHRUBS—2–4 FEET									
Amorpha canescens	Bushy	Fine	G.G.	Blue	June	Dry	Sun		Interest of foliage
Berberis Thunbergii	Bushy	Fine	G.	Inconsp.		Various	P. shade	Fall colors and berries	Interest and hedge
Berberis Thunbergii atropurpurea	Bushy	Fine	P.	Inconsp.		Various	Sun		Interest of foliage hedge
Caragana pygmaea	Bushy	Fine	G.	Yellow	June	Various	Sun	Very fine foliage	Interest, standards used as specimens
Chaenomeles japonica (Cydonia)	Bushy	Medium	G.s	Red	April–May	Various	Sun	Needs shelter	Filler
Daphne Mezereum	Open erect	Medium	B.G.	Pinkish	April–May	Moist	Sun	Flowers before leaves	Interest
Deutzia × Lemoinei	Bushy	Medium	G.	White	June	Various	Sun	Sheltered position	Interest
Genista tinctoria	Bushy	Fine	G.	Yellow	Aug.–Sept.	Sandy	Sun	Cut back each spring	Interest
Hydrangea arborescens	Spreading	Coarse	Y.G.	White	July–Aug.	Various	P. shade	Cut back each spring	Interest, mass
Kerria japonica	Spreading	Medium	G.	Yellow	May–June	Various	Sun	Cut back each spring	Interest, mass
Mahonia Aquifolium	Spreading	Coarse	D.G.s.	Yellow	May	Sandy	P. shade	Black berries, evergreen	Interest, with conifers
Philadelphus × Fleurs de Neiges	Bushy	Medium	Y.G.	White	June–July	Various	Sun	Regular pruning	Interest, many varieties with similar uses
Potentilla fruticosa	Bushy	Fine	G.	Yellow	June	Sandy	Sun		Interest, filler
Prunus nana	Bushy	Fine	G.G.	Rose pink	May	Clay	Sun	Very hardy	Interest, filler
Ribes alpinum	Bushy	Medium	G.	Yellow	May–June	Various	Sun	Very hardy	Filler, interest
Robinia hispida	Open spreading	Medium	D.G.	Pink-lilac	June	Various	Sun	Needs shelter	Filler, interest
Rosa Hugonis	Spreading	Fine	G.	Yellow	June	Various	Sun	Black hips	Mass low roses on banks or against background of evergreens
Rosa acicularis	Spreading	Fine	B.G.	Pink	June	Various	Sun	Red hips	
Spiraea × bumalda A. Waterer	Bushy	Fine	D.G.	Pink	July	Moist	Sun	Needs slight shelter	Interest
Spiraea callosa alba	Bushy	Fine	L.G.	White	July	Moist	P. shade	Needs slight shelter	Interest
Spiraea Thunbergii	Bushy	Fine	L.G.	White	May	Dry	Sun	Bloom as leaves open	Interest, filler
Symphoricarpos albus laevigatus	Bushy	Medium	B.G.	Inconsp.		Moist	Shade	White berries	Interest, filler
Symphoricarpos Chenaultii	Spreading	Fine	G.	Inconsp.		Moist	P. shade	Very attractive foliage	Interest, filler
Weigela × Eva Rathke	Spreading	Medium	G.	Red	June–July	Various	Sun	Sheltered position	Interest specimen
Weigela florida alba	Bushy	Medium	Y.G.	White	June–Aug.	Various	Sun	Sheltered position	Filler
SHRUBS UNDER 2 FEET									
Cytisus nigricans	Erect	Fine	B.G.	Yellow	May	Dry	Sun		All these low shrubs are useful in rock gardens or as interest at front of borders
Cytisus purgans	Erect	Fine	B.G.	Yellow	May	Dry	Sun		
Cytisus purpureus	Procumbent	Fine	B.G.	Purple	May	Dry	Sun		
Cotoneaster horizontalis	Procumbent	Fine	D.G.	Inconsp.		Dry	Sun		Useful on walls
Cotoneaster adpressa	Procumbent	Fine	D.G.	Inconsp.		Dry	Sun		
Daphne Cneorum	Procumbent	Fine	B.G.	Purplish pink	April–May	Acid	Sun		
Euonymus radicans	Trailing	Medium	G.W.	Inconsp.		Moist	P. shade	Needs shelter	Interest of variegated foliage
Lonicera spinosa Alberti	Arching	Fine	D.G.	Pale pink	June	Dry	Sun	Forms a mound	Covering banks

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