## ANNUAL FLOWERS FOR CANADIAN GARDENS

By

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PLANS FOR ARRANGEMENT OF ANNUALS con hat 6 gigme


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## Annual Flowers for Canadian Gardens

L. H. Bailey in "Hortus Second" defines an annual as a plant that naturally completes its life within one year from germination to seeding and death. In this bulletin the word frequently denotes a plant that blooms the first year from seed, whether or not it completes its cycle and dies. For example, cornflower (Centaurea Cyanus) is an annual but Antirrhinum is a tender perennial and would continue growing if it were not killed by frost. It flowers the same year as the seeds are sown so it is considered to be an annual in this bulletin.

There are many ways in which annual flowers can be used and even the smallest garden can grow a few which will add to the appearance of the home. They are particularly useful for planting in the garden of a new house and will provide colour and interest before the permanent planting can be done. Many people who live in rented houses do not care to spend much money on the flower garden, but by a small outlay on seeds of hardy annuals much can be done to improve the appearance of the home and to provide flowers for indoor decoration.

Even in well established and well planned perennial borders there are bare places in the summer and autumn from which earlier flowering plants have disappeared. Such things as daffodils and tulips which add so much to the beauty of the spring garden leave large blank spaces when the leaves fade away. Seeds of shallow rooting annuals can be sown or one or two plants can be transplanted as near the bulbs as possible so that they can grow and fill in the bare space. Care must be taken to use suitable annuals for the position in colours that blend or are in pleasing contrast to the perennials which will be blooming at the same time.

In making a new plantation of shrubs space has to be left between each so that the individual plant has room to grow. This leaves much bare ground which could be planted with suitable annuals for a few years until the shrubs require more space. In planning a shrubbery border, room can be left in the front of the shrubs where groups of annuals can be planted. These will bloom when the flowering season of the shrubs is over and give colour and brightness to an otherwise dull corner.

If space permits, a special garden can be made for annuals in much the same way as a rose garden is made. Beds of various sizes and shape can be arranged to fill the space available. To get the best results, a plan of the layout of the beds should be made on paper, and the variety of plants to be used in each bed chosen. The simplest plan would be to use one kind of plant with a border of sweet alyssum (Lobularia) in all the beds. Petunias in mixed colours or a different coloured variety in each bed would be very effective. The alyssum would bloom in a few weeks after sowing the seed and be colourful until the petunias bloom. For any one who likes yellow flowers, calendula seeds could be sown in the beds in early May and if the seedlings are thinned out to six or eight inches apart there would be a good show of flowers all season. Many other plants and combinations of plants could be used but it would be best to grow the seedlings in a seed-bed or cold frame and transplant the young plants into the garden if any combination of plants is required.

## Explanation of Plan for Arrangement of Annual Flower Beds

The plan on the opposite page is not intended to be the complete plan for one garden. The position of the beds and the surrounding shrubbery and evergreens would be quite satisfactory but in a formal garden of this sort the flowers
should be arranged with some symmetry. That is, if marigolds and verbena were used in a bed on the right hand side, the same plants (or ones of similar colour and habit) should be used on the left. If the long border on one side is of mixed colours and informal arrangement, the border on the other side should match it. Carrying out all the combinations shown on the plan in one garden would be a great mistake.

The plan gives several arrangements for individual beds and sections of the long left-hand borders. The reader can choose the combinations of flowers he thinks most suitable for his own particular beds.

There are no flowers that give more satisfaction for house decoration than can be found among the annuals. They are truly "cut and come again" flowers as new blooms continue to appear if the old ones are cut off before seed pods form. The best way to grow flowers for cutting is in rows in the vegetable garden or between it and the lawn. A row of sweet peas trained up brush or chicken wire acts as a screen as well as providing quantities of flowers for cutting. By having a "cutting" garden there is always plenty for the house as well as for giving away to friends, without spoiling the appearance of the flower borders. If it is not possible to grow plants for cut flowers only, then some of the varieties that are grown for display should be chosen with the idea of using these for home decoration.

Still another way that these plants can be used is in a window box or on the flat roof of an apartment building. Annual vines can be grown in them and used to screen some unsightly view or to give privacy to the outdoor living room. When growing anything in boxes which are exposed to sun and wind, large quantities of water are required as evaporation rapidly dries out the soil.

## Seeds and Seed-Sowing

There are a large number of different kinds of annual flowers. In some kinds there are a number of varieties and among them can be found kinds suitable for all occasions and tastes. Seeds should be bought from reputable seed firms as poor seeds will not grow satisfactorily so are dear at any price.

Annuals are divided into three groups, hardy, half hardy and tender. The hardy ones are able to stand a great deal of cold so can be sown in the open as soon as the frost is out of the ground and the soil has dried. That is about the first of May in Ottawa. Half hardy ones require more heat and a longer growing season, so the seeds are sown in a greenhouse, hotbed or house in April. Tender ones require a long growing season, so the seeds have to be started in a greenhouse in March in order to have plants large enough to bloom in July.

## Soil

If the seeds are to be sown indoors in pots or flat boxes a good soil to use is made up of equal parts of loam and leaf mould with sufficient sand added to make it friable. In order to avoid the fungous disease known as "damping-off" it is desirable to sterilize the soil. There are various ways of doing this. Boiling water may be poured over the soil until the temperature rises to $180^{\circ} \mathrm{F}$. The soil should be covered to hold that temperature for half an hour and allowed to dry before placing it in the pots. Another method is to place a bushel of soil on the potting bench and sprinkle it with two and a half tablespoonsful of formalin in a quart of water. The soil should then be thoroughly mixed and allowed to stand for at least twenty-four hours before putting it in pots and flats.

The pots should have about an inch of broken crocks or small stones placed in the battom for drainage and the soil placed on top, filling the pots or flats to within an inch of the top. Half an inch or more of finely sifted soil is placed over this and a round board or can used to pack the soil firm and smooth, leaving
the surface $\frac{1}{4}-\frac{1}{2}$ inch below the rim of the pot. Some good gardeners prefer to use finely shredded sphagnum moss in place of the sifted soil. This has proved a very satisfactory medium for seed germination and has the added advantage of reducing damage from the damping-off fungus.

The pots should then be placed in a shallow tray of water and allowed to stand until the moisture soaks to the top. Then they are stood aside to drain, when they are ready for the seed. The seed is scattered thinly over the surface or sowed in rows in the flat boxes. The depth to which the seed is covered varies according to the size of the seed. Twice the diameter of the seed is generally considered the best depth to cover with finely sifted soil or moss. Very fine seed is lightly pressed into the surface and no soil cover is needed. After sowing, the pots should be covered with a pane of glass and a sheet of paper laid over the glass to shade the soil from the sun. As soon as the seeds begin to germinate the covering must be removed.

Great care is needed in watering seed pots and flats. If possible, it is better to stand them in shallow trays and let the water soak up from below rather than to water on the surface.

When the seedlings are large enough to handle they should be transplanted into flats in the greenhouse or into hotbeds. Three to six inches should be left between the plants, depending on the size they will grow. Hotbeds are made in early April in the Ottawa district but in milder districts they can be started earlier. As the weather becomes warmer the plants are gradually hardened by allowing more air into the frame until the sash is left off all the time and the plants are ready to put out in the garden in late May or June. The seedlings can be transplarited into cold frames if no hotbed is available but it must not be done until the severe weather is over. If no cold frame is available for hardening off the seedlings, it can be done by placing the flats outdoors during the warmest part of the day and bringing them indoors before the temperature cools. By gradually lengthening the time they are left outside they will be ready to plant outdoors when spring weather comes. By raising plants indoors they will come into bloom a week or two earlier than those that are started outside.

Although annual flowering plants do not require very rich soil the ground needs to be well supplied with available plant food and should be reasonably retentive of moisture, though well drained. In preparing the soil, well rotted manure is the best material to use but as this is seldom obtainable, leaf mould or pulverized peat moss will add humus to the soil and commercial fertilizers can be used to supply the extra plant food required. A useful complete fertilizer is one with the formula $4-8-10$. That means four per cent nitrogen, eight per cent phosphoric acid and ten per cent potash. One to two pounds to a hundred square feet of bed should be scattered over the ground and dug in a few days before planting time. Few annuals do well in acid soils so lime should be added when necessary. It frequently happens that in new gardens the subsoil as well as bits of bricks, stones and other rubbish have been left on the ground. This should be removed from the place where flowers are to be planted as nothing will do well under such conditions. Loam should be used to replace the material that has been removed.

The transplanting of the seedlings should be done on a dull, cloudy day when the ground is fairly moist. If the soil is very dry it should be watered and the plants can be shaded from the hot sun for a few days with paper. The distance apart to set the plants depends on the kind. Sweet alyssum should be six inches apart but giant zinnias require three times that space for full development.

When the plants are small the weeds can be kept under control by hoeing and if it is done thoroughly during the first few weeks they will not be troublesome later. When hoeing is not possible the beds should be weeded by hand.

In very dry weather, it may be necessary to water the plants. A thorough soaking of the roots once a week is better than sprinkling every day. In order to keep the plants blooming for a long period the flowers should be cut off when they fade. If they are left to form seed pods, the growth of young buds is checked as the strength of the plant is used in forming seeds.

If one wishes to grow some seed for later use, then a strong healthy plant should be chosen and some of the flowers allowed to set seed and grow to maturity. When the seed pods are full grown and begin to change colour they should be gathered and dried in a cool, airy place or seedheads can be covered with a muslin bag and allowed to ripen on the plant. When thoroughly ripe and dry, the seed must be cleaned and stored in tins or paper bags.

## Insects

Some years cutworms are very destructive to young plants. They cut through the stem at ground level and the top is found lying on the surface of the ground. These caterpillars often can be found just below the surface of the soil but if they are very numerous it is easier to destroy them by the use of poisoned bait. This is prepared by mixing 1 tablespoonful of paris green with 1 quart of bran and then adding a little water-just enough so that the mixture will crumble through the fingers like damp sawdust. One teaspoonful of the bait should be sprinkled around, but not touching, the stem of each plant at dusk on a warm evening. If the night is cold the cutworms will not come out to feed. The bait is deadly poison so must be kept out of the way of children and livestock.

Aphids, green, red, brown and black are controlled by spraying with nicotine sulphate. Two teaspoonsful to a gallon of water in which 2 tablespoonsful of soap flakes have been dissolved is the strength to use and spraying should begin as soon as any of the insects are seen. Choose a calm, warm day when the temperature is $70^{\circ} \mathrm{F}$. or higher.

There are other insects that are sometimes troublesome and any which are noticed should be sent, with the damaged leaves or stems, to the Division of Entomology, Department of Agriculture, Ottawa. Plants showing signs of disease should be sent to the Division of Botany, Central Experimental Farm, Ottawa.

## A Descriptive List of Annuals

The botanical names of the plants are corrected to agree with those in "Hortus Second" by L. H. Bailey and Zoe Bailey. Where these names are unfamiliar the better known botanical name is given also, for example, Alyssum see Lobularia. Names of horticultural varieties are not listed, as new ones are introduced so frequently that a list soon becomes out of date, Descriptions of the varieties available are found in all seed catalogues. The common name of each plant is given when any could be found.

Acroclinium see Helipterum roseum.
Adlumia fungosa (cirrhosa). Mountain Fringe, Allegheny-Vine. This is really a biennial but is easily raised from seed sown in spring. The leaves are fern-like and quite attractive. The flowers are white or purplish and resemble those of bleeding-heart in shape. It does well in a cool, damp, shady place and will climb over bushes and fences.

Ageratum Houstonianum (mexicanum). Floss-Flower. This neat growing plant is useful for edging beds and borders. The flowers are borne in large clusters and are lavender blue but the shade varies in different varieties. Height 4 to 8 inches.

Althaea rosea. Indian Spring. The annual variety of hollyhock resembles the well known biennial plant but as it blooms a little later and continues blooming until frost it can be used to continue the blooming season of the bed after the biennials are over. Sow the seeds in the greenhouse in April. Height 5 to 6 feet.

## Alyssum maritimum see Lobularia maritima.

Amaranthus. These plants are grown for their coloured foliage, which is very effective in beds. They are easily raised from seed sown indoors in April or in the open in May when the soil has warmed up.
A. caudatus. Love-Lies-Bleeding. This has large coarse foliage with small reddish-purple flowers arranged in drooping rope-like panicles. Height 3 to 5 feet.
A. hybridus var. hypocondriacus. Prince's-Feather. The panicles of reddish or reddish-brown flowers are erect. The foliage is red. Height 2 to 3 feet.
A. tricolor. Under this species are listed var. melancholicus with maroon coloured foliage. Height $2 \frac{1}{2}$ to $3 \frac{1}{2}$ feet.
var. salicifolius. Fountain Plant. It has long drooping leaves changing from bronze-green to orange-red. Height 2 to 3 feet.
var. Josephs Coat is similar. Height 1 to 2 feet.
Ambrosia mexicana. see Chenopodium Botrys.
Anchusa capensis. Alkanet, Bugloss. This is really a biennial, but the plants will bloom the first year if seed is sown indoors in April. The rich blue flowers are very attractive. Height 1 to $1 \frac{1}{2}$ feet.

Antirrhinum. Snapdragon. Although not true annuals, these plants are always treated as such in Canada. The seed should be sown indoors in early April and the seedlings transplanted as soon as they are large enough to handle. They are planted out in the garden in June and should start into bloom in July and continue until severe frost kills them. They are grouped according to the height of the plants and a large number of varieties of beautiful colours are available in each group.

## Height

| Tall | $2 \frac{1}{2}$ to 3 feet |
| :---: | :---: |
| Intermediate | 1 to 2 feet |
| Dwarf | 6 to 15 inches |
| Bedding | 6 to 9 inches |
| Rock Hybri | 3 to 6 inches |

Arctotis steoechadifolia var. grandis. Blue-eyed African Daisy. The greyish-green foliage is an attractive setting for the daisy-like flowers. The florets are white, washed on the outside with blue. The centres are blue also. Height 1 to $1 \frac{1}{2}$ feet.

Artemisia sacrorum viridis. Summer Fir. This plant resembles a small fir tree and is useful for the back of a border or for a small hedge. Height 3 to 6 feet.

Asperula orientalis (azurea-setosa). Blue Woodruff. The foliage is finely cut and the pale blue flowers are arranged in small clusters. It is a dainty plant with a faint fragrance. Height 1 foot.

Aster. See Callistephus.
Balsam. See Impatiens.
Bartonia aurea see Mentzelia.

Brachycome iberidifolia. Swan River Daisy. This is a neat growing plant with quantities of blue daisies, about one and one-half inches across. There are varieties with mauve and white flowers also. Height, 1 foot.

Browallia americana (elata). This is a compact growing plant with dark green glossy leaves and rich blue flowers. If seed is sown indoors in April the plants will bloom from July until frost. Height 1 to $1 \frac{1}{2}$ feet.

Calendula officinalis. Pot Marigold. This has long been a favourite flower in gardens as it is very hardy and self sows freely. There are a number of improved forms which are more attractive than the old-fashioned kind. The seed can be sown in the borders or started early and transplanted later. If the flowers are cut before setting seed the blooming season will continue until severe frost. Height 1 to 2 feet.

## Calliopsis. See Coreopsis.

Callistephus chinensis. China Aster. The aster is a very popular annual and where it grows well there is no doubt it is one of the best. Unfortunately it is subject to several diseases, some of which live over in the soil, so it is not advisable to grow asters in the same soil for two years in succession. Any unhealthy plants should be dug up and burned as soon as seen. "Wilt-resistant" seed can be obtained of many varieties and should be bought when possible. For early flowers the seed is sown indoors in April but plants grown from seed sown outdoors will bloom from the middle of August until severe frost kills them. There are two distinct types of aster plants, branching and upright. The latter are more compact and are useful for edgings or beds, but in some of them the stems are too short for cut flower arrangements. The branching varieties have long stems and grow into large plants if given plenty of room-a foot or a foot and a half is none too much space between the plants. The earliest variety to bloom is Queen of the Market and is recommended for districts where the season is shout. The later blooming types give the best flowers with long stems, which make them very valuable for cutting. It used to be easy to recognize the different types of asters but now the old names are seldom used. The following, which can be obtained in various colours of pink, lavender, purple as well as white, cover the season:

Queen of the Market
Early Beauty
Giant Crego
Giant Goliath
Campanula. Bellflower. The majority of the species of Campanula are perennials but two are annuals and worth growing.
C. macrostyla. This species has open bell-shaped purple flowers, 2 inches across with an inch-long stigma which is very conspicuous. Height 1 to 2 feet.
C. ramosissima (C. Loreyi). This has much smaller flowers but it is dainty and attractive. Height 1 foot.

Celosia argentea var. cristata. Cockscomb. The common name describes the shape of the flowers, which are rich maroon in colour. The seed should be sown indoors in April. Height 1 to $1 \frac{1}{2}$ feet.
C. argentea var. plumosa. This plant is much more attractive as the flowers are arranged in plume-like heads. The colours are very rich and include lemon, gold and various shades of red. Height 1 to $1 \frac{1}{2}$ feet.
C. argentea var. Childsii. Chinese Woolflower. In this variety the heads are round instead of pointed but are similar to plumosa in colour.

Centaurea Cineraria. Dusty Miller. This is grown for its greyish foliage. It is really a tender perennial but plants for bedding purposes are often grown from seed each year. There are other varieties and species of plants which have greyish foliage and it is difficult to name them correctly as they seldom are seen in flower. Height 1 foot.
C. Cyanus. Cornflower, Bachelor's Button. This is one of the easiest annuals to grow from seed sown outdoors. If allowed to do so, it will seli-sow and plants will come up year after year. The blue varieties are the most attractive but others in pink and white are also valuable in the garden. All are useful for cutting. Height 1 to 3 feet.
C. gymnocarpa. Dutsy Miller. This is another perennial which in the seeding stage is used as a foliage plant. The leaves are greyer and more deeply cut than those of C. Cineraria.
C. Moschata. Sweet Sultan. A half-hardy annual the seed of which should be started indoors. The fragrant flowers resemble thistles but there are no prickles on the stems. There are white, mauve and yellow flowering varieties. Height 2 feet.

## Cheiranthus Allionii. See Erysimum asperum.

Chenopodium Botrys. Ambrosia is the name that this plant is generally called. The green flowers are quite small and clustered along the stems. They have a spicy scent that is popular with many people. Height 1 to 2 feet.

Chrysanthemum. The annual chrysanthemums are not much like the fall blooming plants generally known as chrysanthemums but they are quite attractive. Like many composite flowers they are beloved by the tarnished plant bug, the small insect that sucks the juice out of the young buds and so destroys the symmetry of the flowers. If these can be controlled or in districts where they are not numerous, chrysanthemums should be grown in quantity both for their showiness in the garden and for cut flowers.
C. carinatum and $C$. coronarium are the species from which these annual chrysanthemums are derived. The ray florets are various shades of primrose and yellow, more or less marked with brown. The centre florets vary in colour, some matching the rays while others are brown in contrast to them. Height 2 to 3 feet.
C. Parthenium. Feverfew. This plant is grown for its yellowish-green foliage which is used for edging beds and borders as well as for carpet bedding. There are several varieties sold by seedsmen which vary in size and compactness. If grown for the foliage the buds should be pinched out. The white daisy-like flowers are attractive but spoil the neat effect that the foliage alone gives. Height 6 to 12 inches.
C. segetum. Corn Marigold. This species is a weed in Old Country grain fields but the variety grandiflorum has large yellow daisies which are excellent for cut flowers. Height 2 feet.

Clarkia. The garden varieties are attractive flowering plants easily grown from seed sown where they are to bloom.
C. elegans. Varieties of this species have long sprays of flowers in various shades of pink as well as red and white. There are both single and double forms. Height 2 to $2 \frac{1}{2}$ feet.
C. pulchella. A smaller growing plant which has narrower leaves and slightly broader petals, but in general effect it is not so showy. Height 1 to $1 \frac{1}{2}$ feet.

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Cleome spinosa. Spider flower. An unusual looking plant with long spikes of pink flowers with very long stamens. It is rather a coarse growing plant and needs room to develop. Height 4 to 5 feet.

Cobaea scandens. Cup and Saucer Vine. Although a tender perennial this plant grows rapidly from seed if sown indoors in April. It has clean attractive foliage and is useful for growing in front of verandahs or over archways. The bell-shaped flowers are violet. Height 20 feet.

Coreopsis. Tickseed. There are several species of this plant, all easily grown from seed sown where it is to flower. The blooms are attractive in the garden and useful for cutting.
C. Drummondii. This variety has bright yellow ray florets with purplebrown disks. Height 2 feet.
C. Stillmanii. (Leptosyne Stillmanii). The bright yellow flowers are smaller than many but are borne in great profusion. It is useful for the rock garden. Height 1 foot.
C. tinctoria. (Calliopsis marmorata). There are several forms of this variety which have finely cut foliage and bloom well if the seed pods are removed. The flowers have pointed ray florets and are yellow with markings and spots of brown. Height 8 to 15 inches.

Cosmos. The finely cut dark green foliage and its branching habit of growth would make this a useful plant for hedges even if the flowers were not so attractive. It is important when buying seeds of cosmos to obtain earlyflowering varieties as there are kinds which need such a long season of growth that they do not bloom in Canadian gardens. The flowers are useful for cutting and the plants bloom until severe frost. The seed can be obtained in mixture or in separate colours such as pink, lilac, crimson and white. There are double-flowering forms also. Height 3 to 5 feet.

The varieties Orange Flare and Burpee's Yellow are dwarfer growing plants with beautiful flowers which are very useful for cutting. Height 3 feet.

Cucurbita Pepo var. ovifera. Yellow-flowered Gourds. These are really trailing plants but in order to have the fruits grow to perfection and to be able to see them the vines are trained on supports. They are similar to pumpkin and squash in habit of growth but the fruits, which resemble apples, pears, eggs, oranges and other similar things are not edible but are grown for their appearance only. After they are well ripened and thoroughly dry the hard skins are varnished or waxed and used for ornaments during the winter. The seeds can be sown outdoors as soon as the ground is warm, but it is better to start them in pots indoors in districts where the season is short. A substantial trellis or arbour is required on which to train the plants as they are heavy when full of fruit.

Cuphea platycentra (C. ignea) Cigar-Flower. The showy narrow red tube with a white mouth edged with black is really the calyx and the corolla is inconspicuous. The seed should be sown indoors in March and the seedlings planted in a warm sunny place when danger of frost is over. Height 1 foot.

Dahlia. Named varieties of dahlias have to be propagated from tubers but seeds of the various types can be bought and seedlings come fairly true to type though they vary in colour. The early flowering dwarf types known as Coltness Gem and Unwin Dwarf hybrids make very satisfactory bedding plants and are the best to grow from seed. It should be sown indoors in March and the seedlings transplanted into individual pots when large enough to handle. Another shift into larger pots will be required later. The plants must be carefully
hardened off before planting into permanent quarters in June or when danger of frost is over. The tubers can be dug up and stored in a frost-proof cellar, if desired. Height 2 to 3 feet.

Delphinium. Larkspur. The annual delphiniums are not so well known as the perennial form but they are equally beautiful and useful in the garden and for cut flowers.
D. Ajacis, Rocket Larkspur, D. consolida, Stock-Flowered Larkspur. These are the two species from which the horticultural varieties have been derived. There are various strains which vary in height and size of flower. The colours in both types are very beautiful and include white, pink, rose, red, light and dark purple. The seeds can be sown where they are to grow as soon as the soil warms up or started indoors in April and transplanted later. They bloom early in July. Height 2 to 4 feet.
D. grandiflorum. Bouquet Larkspur. This is often listed as D. chinense in catalogues. Although it is a perennial it blooms in a few weeks after sowing the seeds. The foliage is finely cut and the plant has a branching habit. The blue colour of the flowers is very fine. There is a white variety also. Height 15 inches.

Dianthus Pink. Most plants of this genus are perennials and are valuable for use in the border and rock garden but there are some very fine annual flowering species.
D. chinensis. Indian Pink, Chinese Pink. This species and its variety Heddewigii are very showy and easy to grow. They are useful for cutting also but have no perfume. The flowers are large and some are single and others double. There is a great variety in colour; white, pale pink, rose, red, and mixtures of these colours are found. The seed should be started indoors in April. Height 8 to 12 inches.

Dianthus. Sweet Wivelsfield. This is a hybrid and very similar to the annual sweet william that is listed by some firms. They are very like the biennial sweet william but bloom in July if the seed is sown indoors in April. Height 1 to $1 \frac{1}{2}$ feet.

Didiscus. see Trachymene.
Dimorphotheca aurantiaca. Cape-Marigold. These are daisy-like flowers in beautiful shades of cream, lemon and orange. They grow quiekly from seed and in a sunny spot bloom all summer. The plants spread and make a row about two feet wide covered with bloom. Height 1 to $1 \frac{1}{2}$ feet.

Dolichos Lablah. Hyacinth Bean. An interesting climber with rosy-purple pea-shaped flowers followed by deep purplish-red seed pods. The seed should be sown indoors in April so that the plants will bloom early. Height 10 feet:

Echinocystis lobata. Wild-Cucumber. Another useful climber which will clamber over shrubs, fences and rubbish piles if allowed to do so. It is indigenous to many parts of Canada and its long sprays of creamy-white flowers are often seen in the hedgerows. It will grow fifteen or more feet and will transform the appearance of an old shed or fence. The seed should be sown where it is required to grow. Seedlings will spring up from self-sown seed but are easily destroyed when necessary.

Echium plantagineum. Vipers-Bugloss. This is a near relation to blueweed which is sometimes seen in quantities in the fields. The annual species is easy to grow and the plants, are covered with lilae-blue flowers all summer. Height 2 feet.

Erysimum asperum (Cheiranthus Allionii) Siberian Wallflower. This is really a biennial but will bloom in summer from seed started indoors in spring. When once established in the garden it self-sows freely and the young seedlings live over winter and bloom early in summer. The flowers are brilliant orangeyellow and are very showy and attractive. Height 1 to 2 feet.

Eschscholzia californica. California-Poppy. This is really a perennial but is grown as an annual in Canada. The seed should be sown where the plants are to bloom. They are very showy and attractive with their finely cut greyishgreen foliage and brilliant orange flowers. There are varieties with cream, primrose and pink blooms and also ones with double flowers but the rich orange of the old variety is as attractive as any. For the rock garden a variety called Miniature Primrose, with small flowers on stems a few inches high, is useful.

## Four-o'clock. See Mirabilis.

Gaillardia pulchella var. picta. Annual Gaillardia. The perennial species is the well known blanket flower and some of the annual flowering ones are very similar and have single flowers of yellow with brownish-red markings, others have tubular florets, purplish-red with yellow tips. All are easy to grow and will bloom all summer if started early. Height 1 to 2 feet.

Gilia lutea. This is listed by seedsmen as Leptosiphon roseus, L. hybridus. It is a very attractive dwarf plant with finely-cut foliage and small star-shaped flowers in red, pink, yellow and cream. It is suitable for growing in the rock garden. Height 3 to 6 inches.

Godetia amoena, G. grandiflora. These are the two species from which the garden forms have been derived. The seeds can be sown outdoors in May or started indoors a month earlier. They do best in light soil in a sunny position. There are several types; tall ones with flowers in long loose sprays of single or double flowers, and compact growing varieties which make neat bushes of flowers. The colours are various shades of pink and the texture of the petals reminds one of silk. Height 1 to $2 \frac{1}{2}$ feet.

Gomphrena globosa. Globe Amaranth. This makes a neat upright-growing plant with quantities of ball-shaped flowers that are useful for winter bouquets. They dry well and keep their colour. The one with purple flowers is the best, but from a packet of mixed seed white, pink, orange and yellow flowering varieties are obtained. Height $1 \frac{1}{2}$ to 2 feet.

Gypsophila elegans. Annual Baby's-Breath. The white flowers of the annual variety are larger than those of the well known perennial species but they can be used in much the same way when cut. The seed should be sown outdoors in early spring. Height 1 to 2 feet.

Helianthus annuus. Sunflower. There are many varieties of annual sunflowers. Some are very tall and have large heads of yellow flowers, others are small and have brownish ray florets. All are easily raised from seed which should be sown where the plants are to bloom. Most of the varieties are only suitable for the back of the border or for a hedge or sereen. Birds are very fond of the seeds and it is interesting to watch the goldfinches busy feeding on them in late summer. Height 5 to 10 feet.
H. debilis. Miniature Sunflower. This species is a smaller plant of bushy habit with quantities of small flowers which are very useful for cutting. Height 2 to 3 feet.

Helichrysum bracteatum. Strawflower. These, the most popular of everlasting flowers, should be grown in an inconspicuous place as the flowers should be cut in the bud stage for drying for winter bouquets. The cut blooms should be tied into small bunches and hung head down in an airy place until thoroughly
dried. There are a number of beautiful colours in a good mixture, including white, orange, pink and maroon. They do best in good loamy soil, from seed sown indoors in April. Height 2 to 3 feet.

Heliotropium. Heliotrope. Though a perennial this plant will flower in summer if seed is sown indoors early in April. The flowers are borne in clusters in various shades of violet and purple. The fragrance is well known but the amount varies in different plants. Choice seedlings can be potted and kept indoors over winter and cuttings can be rooted so that beds or borders of plants uniform in colour, fragrance and height can be obtained. Height 1 to 2 feet.

Helipterum Manglesii. Rhodanthe. An attractive everlasting flower with drooping daisy-like flowers in pink and white. They bloom early from seed and must be gathered before fully open. Height 1 to $1 \frac{1}{2}$ feet.
H. roseum. Acroclinium. This is an attractive plant in the garden with pink flowers which remind one of an English daisy that has grown larger than usual. The flowers should be gathered when half open and dried if required for winter bouquets. Height 1 to 2 feet.

Iberis amara. I. umbellata. Candytuft. The annual candytufts are derived from these species but they are sold under variety names. The seed should be sown in fairly good soil rich in humus where the plants are to flower. They need plenty of room to grow and should be carefully thinned out to eight or ten inches apart. If the seed pods are kept cut off the blooming season will be lengthened. For a continuous display seeds should be sown at intervals during the summer. Height 6 to 18 inches.

Impatiens Balsamina. Garden Balsam. These are upright growing plants with thick transparent looking stems around which the short-stemmed flowers grow out from the axils of the leaves. A tuft of bright green leaves tops the stem. The individual flowers are very beautiful and in the modern varieties the leaves do not hide the flowers as they used to do in the older varieties. The double flowers are white, pink or red. Height 1 to 2 feet.

Ionopsidium acaule. Diamond-Flower. A very dwarf compact plant which covers itself with small violet coloured flowers. It prefers some shade and moisture but will grow in crevices in flagged walks if not too dry. Height 2 to 3 inches.

Ipomœea purpurea. Common Morning Glory. This species is one of the most useful annual climbers for covering a trellis or training up the side of a verandah. Seed is sold in mixture and many beautiful colours are found among the seedlings. The seed coats are rather hard and some people recommend soaking them in warm water for twenty-four hours, before planting.
I. tricolor. Heavenly Blue morning glory belongs to this species. The flowers are a wonderful colour and the vines are very floriferous from midsummer onwards if seed is started indoors in spring. It can be sown outdoors as soon as the soil warms up. It prefers light sandy soil and does not require any fertilizer. The new variety Pearly Gates is similar except for the colour which is creamy white.

## Jacobaea see Senecio.

Kochia scoparia var. trichophila. Summer Cypress, Firebush, Belvedere. The flowers of this plant are inconspicuous and it is grown for the effect of its neat bush-like habit. In spring and summer it is covered with narrow light green leaves which, with the stems, turn crimson in autumn. The seed can be started indoors but will grow well if sown outdoors in spring. When once established it self-sows and young seedlings can be transplanted to suitable positions. It is an excellent plant for a hedge. Height 2 feet.

Lagenaria leucantha. White-flowered Gourd. This is the plant from which the large fruited gourds known as dipper, Hercules club and calabash gourd are obtained. They are similar in growth and need the same treatment as Cucurbita.

Lathyrus odoratus. Sweet Pea. Few flowers are more popular than well grown sweet peas, especially for use in decorating the home. Their beautiful colours and delicate fragrance make them suitable for all occasions. To grow them successfully is not very easy in places where the summers are hot and dry, as they prefer coolness and moisture, though they require sunshine also. When required for cutting it is convenient to grow them in rows in the vegetable garden or in some place where a hedge is required.

For best results the ground should be prepared in fall by digging a trench two feet deep and two feet wide. A thick layer of thoroughly rotted manure should be mixed with the soil and the whole turned back into the trench, leaving the surface of the soil rough so that as much of it as possible is exposed to the action of winter weather. When manure is not obtainable, peat moss or some other form of humus can be used. As sweet peas require slightly alkaline soil, some lime should be added if the soil is acid. As early as possible in spring, that is to say, as soon as the frost is out of the ground and the soil has dried, a complete fertilizer with a formula $4-8-10$ should be added at the rate of five pounds per hundred feet of row. A trench six inches deep should be opened out and the seed set about three inches apart and covered with two inches of soil. When the plants have grown three or four inches high they should be thinned out to six inches apart. The trench should be gradually filled up as the plants grow. As sweet peas do better if they have some support when quite young, twigs should be placed in position as soon as the plants begin to grow. The permanent supports can be made of brush, if available, or chicken wire. The latter must be attached firmly to posts placed in the ground at intervals of six or ten feet.

To obtain large exhibition blooms one or two stems only are allowed to grow and each of them tied to a bamboo cane and the tendrils and side shoots are cut off. The ground should be kept well cultivated and in dry weather a thorough soaking with water is necessary about once a week. In mild districts seeds can be sown in late autumn but the results are uncertain and it is only suggested as an interesting experiment. There are a great number of varieties listed by dealers and a selection of suitable colours can be seen in catalogues. The "Spencer" varieties are the ones with large waved petals. The old grandiflora varieties are seldom listed. Cupid sweet peas are dwarf growing plants suitable for the front of a border.

Lavatera trimestris. Annual Lavatera. There are several varieties of this attractive plant and the one called Loveliness is probably the best. The deep pink flowers are large and borne in great profusion on bushy plants. The leaves are nearly round and deep green in colour. A row of these plants makes a beautiful flowering hedge. Height 2 to 3 feet.

## Leptosiphon see Gilia.

## Leptosyne see Coreopsis.

Limonium Bonduelli, L. sinuatum. Statice. These species are very similar when grown in the garden except in colour. Bonduellii has yellow flowers and sinuatum has blue, lavender or white ones. The long branching sprays are attractive in the garden but are generally grown for winter bouquets as the flowers dry well and keep their colour all winter. Height 1 to 2 feet.
L. Suworowii. The flowers of this species are different as they are very small and clustered together on a long narrow spike. They are rose-pink and dry well for winter use. Height 1 foot. The seeds should be started indoors as the plants are slow growing when young.

Linaria maroccana. Toadflax. This is an easily grown annual which makes neat clumps of upright habit covered with flowers. They are borne in long sprays and resemble small snapdragon blooms with spurs. There are many coloured forms, including pinks, purples, yellows, as well as pure white. Height 1 foot.

Linaria. Fairy Bouquet is a strain useful for the rock garden. Height 4 to 6 inches.

Linum grandiforum. Scarlet flax. The rich colour of this annual flax makes it a general favourite. It grows easily from seed sown outdoors in spring and blooms all season. Height about 1 foot.

Lobelia Erinus. Lobelia. It is from this species that most of the modern varieties have been developed. It is not an easy plant to grow but the neat bushlets covered with the small blue flowers are very attractive for edging beds or borders. Some varieties have pinkish flowers and others white but they are not so attractive as the blue flowering forms. The seeds are very small and must be started indoors in March. The tiny seedlings should be transplanted into flats as soon as the second pair of leaves show. As they are very small they need careful handling. From flats they should be transplanted into hotbeds and, as the weather becomes warmer, gradually hardened off before planting in the open. The compact forms are used for edgings and the trailing or spreading varieties are also used for this purpose and for window boxes. Height 6 to 12 inches.
L. tenuior. This species is a larger plant of upright habit with flowers at least double the size of the ordinary varieties. The colour of the blooms is blue, mauve or white. Height 1 to 2 feet.

[^1]Malcomia maritima. Virginian Stock. This small flowered plant makes a pretty border from early July until frost if the seed is sown in early May where the plants are to bloom. Height 6 to 12 inches.

Malope trifida. Malope. This member of the mallow family is easy to grow from seed sown outdoors. The flowers are rosy-purple in colour and are produced in profusion. There is also a white variety. Height 2 to 3 feet.

Mathiola bicornis. Night-Scented Stock. This plant is grown for the perfume of the flowers, which fills the air in the evening. The blooms are single and lilac coloured, but as they remain closed all day they are not attractive, so should not be planted in a very conspicuous position. Height 6 to 10 inches.

Mathiola incana. var. annua. Ten Week Stocks. When buying seed of stocks for growing outdoors in most parts of Canada the early flowering strains of the Ten Weeks varieties should be obtained otherwise some of the plant may not bloom during the season. Disappointment may also be caused by the number of plants which have single flowers. This cannot be avoided as there are always some single flowering plants even in the best strains of seed. Seeds should be sown in a greenhouse in April or in a hotbed as early as one is ready for use in spring. The plants sometimes are attacked by disease so should not be grown in the same ground two years in succession. There are dwarf and tall varieties in several beautiful colours, including white, rose, crimson and light and dark mauve. They have a pleasing fragrance. Height 8 to 24 inches.

Mentzelia Lindleyi (Bartonia aurea). This is listed in catalogues as Bartonia. It has large golden yellow flowers which are very attractive. These plants do not transplant well but will flower in July if seed is sown early in May where it is to grow. Height 1 to 2 feet.

Mirabilis Jalapa. Four-o'Clock, Marvel-of-Peru. The common name of this plant refers to the habit of the flowers, which open in the afternoon and close in the morning. It is a tender perennial with tuberous roots but is generally treated as an annual. Seed sown indoors in April will produce plants that will bloom in July. The neat bushes with shining green leaves are covered with flowers in late summer. The seed is generally sold in mixture including pink, red, yellow and white varieties. The tubers can be dug and stored like dahlias in a frost-proof cellar for the winter if desired. Height 2 to 3 feet.

Nasturtium. see Tropaeolum.
Nemesia strumosa. This is a very showy annual of medium height. Seed should be started indoors in April in order to have plants blooming in the garden in July. The large flowered types are the most attractive for general planting and the colours include orange, red, pink and white. The dwarf varieties Blue Gem and White Gem have quantities of small flowers on neat compact plants. Height 8 to 15 inches.

Nemophila Menziesii (insignis). Baby Blue-Eyes. This annual, which does well in a cool, moist position, has a low compact trailing habit of growth with quantities of small blue flowers. Some varieties are white with dark eyes. The seed can be sown in the open ground or started indoors. Height 3 to 12 inches.

Nicotiana alata var. grandiflora (N. affins). Tobacco. The seed should be sown inside in April though it occasionally self-sows when once established in the border. The flowers are white and very fragrant when they open in the evening. As the plants are untidy looking during the day when the flowers close up it is advisable to plant them at the back of the border where they are not so noticeable in the daytime. Height 2 to 3 feet.

Nicotiana. Crimson Bedder. It is dwarfer than the white form and the flowers do not close up during the day but it lacks the fragrance of the white one. It is very useful for filling up gaps in a perennial border. Height 1 to 2 feet.

Nierembergia caerulea. Cup-Flower. A half-hardy perennial which is cultivated in Canada as an annual. Seed started indoors early in April will bloom in July and continue until frost. The blue cup-shaped flowers cover the plants with bloom. Height 6 to 8 inches. Purple Robe is an improved variety.

Nigella damascena. Love-in-a-Mist. An unusual looking plant with finelycut foliage and blue flowers which are followed by ornamental seedpods. The seed can be sown where the plants are to bloom or may be started indoors. Height 12 to 18 inches.

Oenothera acaulis ( $O$. taraxacifolia). Dandelion-leaved Sundrop. This is a prostrate plant with large white flowers which take on a rosy shade as they fade. It is really a biennial but blooms the first summer if the seed is sown indoors in April. Height 6 inches.
O. Drummondii. An annual species with large pale yellow flowers. Height 1 foot.
O. trichocalyx. A biennial which flowers the first year from seed started indoors. This is a more upright growing species, with white fragrant flowers. Height 1 foot.

Papaver. Poppy. The seeds of poppies are very small so must be sown in fine soil and very thinly covered with sifted soil. The seedlings do not transplant well so it is advisable to sow the seed where it is to grow.
P. Rhoeas. Corn Poppy. This is the common field poppy of Europe from which the well known Shirley poppies have been derived. There are a number of strains in which many shades of pink are found, as well as red and white. There are also double flowering varieties. If the seed pods are kept cut off, the plants will continue to flower over a long period. Height 1 to 2 feet.
$P$. somniferum. Opium Poppy. The foliage of these annuals is quite different to the rich green of Shirleys as both stems and leaves are greyish-green. There are single varieties in several colours, including white, light and dark red, pink and maroon. The flowers are large, some being 4 to 5 inches across. The double varieties have the centre petals finely cut. They are very full and almost as round as a ball. The varieties listed as carnation-flowered, peony-flowered and mikado belong to this species. Height 2 to 3 feet.

Petunia hybrida. Petunia. Of all the flowers grown as annuals the most satisfactory in most districts is the petunia. It does well in ordinary garden soil and although it prefers full sunlight it will do fairly well in a partially shaded position. For early flowering the seeds should be sown indoors in April but they will grow quite well if sown outdoors in May or as soon as the ground is warm in spring. There are several types of petunias and many varieties in each class. The large flowering frilled, ruffled and double varieties should be started indoors and need more care than others. The new "America All Double Colossal Shades of Rose" is a very fine strain, with flowers of various shades of pink. Any plant that seems to be worth keeping can be potted and taken indoors for the winter and cuttings taken from it in spring if more plants are desired. When potting, the tops should be cut back for about one-half their length and the roots trimmed. For ordinary garden purposes the balcony and bedding types are the most effective. New varieties are introduced every year. Cheerful, a salmon pink, is very choice and grows about 10 inches high. Bright Eyes is similar in colour to Rosy Morn but the white centre is more pronounced. The plant is dwarfer and grows only about 7 inches tall. Most catalogues list a large number of
varieties in various shades of blue, maroon, ptnk and purple. If a large space is to be filled the balcony types can be used but for neat borders the bedding or dwarf bedding types are most suitable. Petunias can also be used satisfactorily for window boxes which get plenty of sunshine and few plants will give so continuous a display of bloom.

Phacelia campanularia. This is a pretty blue flowered bell-shaped annual which blooms early from seed sown where it is to grow. Height 8 to 12 inches.

Phlox Drummondii. Annual Phlox. This is a very attractive plant and blooms freely over a long period when the seed is started indoors. It will be a few weeks later if the seed is sown where the plants are to flower. In good soil which does not dry out too much the plants will spread for a foot or two. There are a number of showy varieties named for the colour of the bloom, including white, chamois, pink, light and dark red, mauve and purple.
P. Drummondii compacta. A dwarf compact form, is useful for edgings where space is limited. Height 6 to 8 inches.

Polygonum orientale. A variety of this, called Sutton's Ruby Gem, has light green leaves and narrow spikes of small pink flowers borne well above the foliage. It could be used for a low hedge or for the back of a border. If the seed is started indoors the plants bloom from the end of June until frost. Height 3 to 4 feet.

Portulaca grandiflora. Purslane, Rose-Moss. A light soil in a warm sunny position suits this plant to perfection. The seed should be scattered thinly over the soil and raked in. When once established it will self-sow every year. The plants spread over the ground and soon cover a wide area. There are many different colours among the seedlings and any that are disliked can easily be pulled out. The flowers close up at night and do not open on dull days. The plants are generally killed by the first frost but the seeds live in the ground all winter and germinate early in spring.

## Pyrethrum see Chrysanthemum.

Reseda odorata. Mignonette. This sweet scented flower does not transplant well so the seed should be sown in the place where it is to grow. The spikes of brownish-green flowers are borne in great profusion and are very useful for cutting as well as for the sweet fragrance which is so noticeable in the garden on summer evenings. There are a number of varieties listed. Height 1 to 2 feet.

Rhodanthe see Helipterum.
Ricinus communis. Castor-Oil Plant. The seeds of this plant should be started indoors in March It is not very suitable for a private garden but the large exotic looking leaves make a fine show in the centre of beds in parks: The colour of the leaves varies, some being green, others purplish-red, according to the variety. Height 4 to 6 feet.

Rudbeckia bicolor. Annual Coneflower. This is a valuable plant in the garden and for cutting. The brown markings on the yellow ray florets are very effective. Seed can be sown outdoors or started inside. Height 1 to 2 feet.

Salpiglossis sinuata. From this species the beautiful showy annuals of gardens have originated. The seed should be sown indoors in April and the seedlings transplanted to their permanent beds in June or when danger of frost is past. The trumpet-shaped flowers are gorgeously coloured and gold, red and velvety purple with various stripes and marks are found among them. They make an excellent show in the garden and are useful for cutting. The foliage is rather scant so, some more leafy plant should be grown in front of them. In a place exposed to wind the plants should be staked to prevent the flowers from
being knocked down onto the soil. There is a compact growing form with smaller flowers. Height 1 to 3 feet.

Salvia splendens. Scarlet Sage. Although a tender perennial, this plant will bloom in late June from seed sown indoors in March if an early-flowering variety like Harbinger is used. The bright-scarlet flowers are particularly noticeable late in the season and continue to give a splash of colour until severe frost. Height 1 to 2 feet.

Sanvitalia procumbens. The double flowering form is a very useful plant for the rock garden as it makes mounds of green covered with small flowers with yellow ray florets and brown disks which look like miniature sunflowers. It is easily grown from seed sown outdoors. Height 6 to 8 inches.

Scabiosa atropurpurea. Sweet Scabious, Pincushion-flower. This is a good plant, both for the border and for cutting. The stems are strong and wiry and hold the rounded flower heads well above the foliage. They can be obtained in many beautiful colours, including lavender, blue, pink, rose, maroon and white. The seed can be started indoors for early bloom, but they do very well if sown where they are to flower. If the seed heads are kept cut off they will bloom until severe frost. Height $2 \frac{1}{2}$ feet.

Schizanthus. Butterfly-flower. This plant does better in the greenhouse than outdoors at Ottawa. Probably the summers are too hot and dry for it. The pretty fern-like foliage is attractive and the unevenly shaped flowers come in many combinations of colours. The seed should be started indoors and the young plants carefully handled as they do not transplant well. Height 1 to 2 feet.

Sedum caeruleum. Blue Stonecrop. The small fleshy leaves are typical of Sedum but the pretty pale blue flowers are unusual. It is a small spreading plant suitable for filling vacant spaces in the rock garden. The seed should be sown where the plants are to bloom. Height 2 to 3 inches.

Senecio Cineraria (Cineraria Maritima). Dusty Miller. This is a plant grown for its foliage which is almost white. Height 1 to 2 feet.

Senecio elegans (Jacobaea elegans). Purple Ragwort. In order to have this plant bloom before frost the seed must be sown indoors in March or early April. The flower heads are not very large but several are borne in a cluster. They come in various shades of purple as well as white. The colour of the purple flowering ones is unusual in annuals. Height 1 to 2 feet.

Silene Armeria. Sweet William Catchfly. This plant self-sows very freely and the young seedlings live over winter and come into bloom early in spring. If seed is sown outdoors early in May the flowers appear in June and continue until frost. The clusters of small star-shaped flowers are deep rose and show up well above the greyish-green foliage. Height 1 to $1 \frac{1}{2}$ feet.

## Statice see Limonium.

Tagetes. Marigold. There used to be three distinct groups of marigolds, African T. erecta, French T. patula and T. signata (now called T. tenuifolia) but in recent years the plant breeders have introduced so many new kinds that it is difficult to elassify them. Good descriptions are generally given in seedsmen's catalogues. They are all of bushy habit and have attractive rich green foliage. Some of the old varieties of African Marigold grew into large bushes with very few blooms but the newer varieties flower in July and continue until frost. The semi-dwarf varieties of French marigolds, such as Harmony, are comparatively small but bloom continuously from June until severe frost. The flowers have yellow centres surrounded by a row of reddish-brown florets. Flash,
introduced in 1945, is covered with single flowers all summer. The colour varies according to the age of the bloom; reddish-brown on opening, then changing to gold. Height 1 to $1 \frac{1}{2}$ feet.


#### Abstract

T. tenuifolia var. nana. A very dwarf form with single yellow flowers which is very useful for edging or for filling a blank space in the rock garden. Height 6 to 8 inches.

Trachymene caerulea (Didiscus caerulea). Blue Lace-Flower. The pale blue flowers are arranged in large clusters and are attractive in the garden as well as for indoor decoration. The seed should be started indoors. Height 1 to 2 feet.


Tropaeolum majus. Nasturtium. An annual that is useful as well as ornamental as the leaves and buds can be used for seasoning and the seeds make excellent pickles. The showy flowers are well known and are generally some shade of yellow, orange or brownish-red. The climbing varieties will soon cover a fence, a hedge, or sprawl over rocks or unsightly places. The seedlings do not transplant well so it is advisable to sow the seeds where they are to grow. The dwarf varieties are useful for edging and flower more profusely in poor soil than in a rich one. The Gleam strain with double flowers needs the same treatment. The original Golden Gleam was fragrant. Nasturtiums are sensitive to early fall frosts so it is advisable to cover them if an extra cold night comes early in autumn. To control the black aphids which are often very troublesome, spraying with a tobacco solution should be started early in the season. If the lice once become numerous they will soon destroy the plants.
T. peregrinum (T. canariense). Canary-Bird-Flower. This is a useful vine with light green leaves and bright yellow flowers. They are quite different from nasturtiums but can be used for the same purposes as the climbing varieties.

Ursinia. Jewel-of-the-Veldt. There are several species of this which seem very similar. The flowers are richly coloured orange-yellow daisies with a dark band near the centre. The foliage is finely cut and adds to the attractiveness of the plant. Seed can be sown outdoors or started in the greenhouse. Height 1 to 2 feet.

Venidium fastuosum. This is a coarse growing plant with large vivid coloured flowers, the ray florets orange and the disks black. The seed should be started indoors in April and the soil should not be rich as they flower better on rather poor soil. Height 1 to 2 feet.

Verbena hybrida. Although a tender perennial, these plants flower in a few months from seed sown indoors in early April. They have a spreading habit of growth and will fill a space two feet across in good soil in a sunny position and will bloom until severe frost. The sweet scented flowers are borne in umbels and a great number of colours can be found, including white, pink, scarlet, maroon, violet and purple. Height 1 to $1 \frac{1}{2}$ feet. There are compact forms which are useful for edging the border.

Viola hybrida. Bedding Viola. This plant is a perennial but will bloom in summer if seed is sown indoors in early April. The plants are compact and very floriferous and will bloom until severe frost if the faded flowers are removed. They will be found useful for planting in front of a perennial border in places where the early bulbs have died down. When the plants become overgrown and untidy the tops should be cut off and new growth will start from the root. There are a great number of varieties in shades of yellow, blue, purple as well as white. Violas are self-coloured and the flowers are smaller than many pansies. Height 6 to 8 inches.
V. tricolor. Pansy. To get the best results from pansies the seed should be sown in cold frames in July and transplanted into rich soil when the seedlings
are large enough to handle. If planted in their permanent place in the fall in mild districts or in May in cold ones they should flower well most of the sumamer. To have large flowers rich soil and moisture in dry weather are necessary. Height 6 to 8 inches.

## Viscaria. see Lychnis.

Zinnia elegans. Zinnia. This is said to be the species from which the modern horticultural zinnias have been derived. In cold districts the seeds should be sown indoors in April but at Ottawa they have flowered in the middle of August from seed sown outdoors on May 1. There are a number of classes which vary in size from dwarf plants with blooms 1 inch across to tall bushes with blooms 4 to 5 inches. All colours seem to be available except blue. They are very attractive in the garden and are useful for cutting for decorating the home. They grow best in full sun but will bloom in partial shade. Height 6 inches to 4 feet.
Z. linearis. This is a single flowering species which is useful for edging borders or for the rock garden. The blooms are orange with a broad maroon zone at the base of the rays. They have a spreading habit so should be planted about a foot apart. Height 8 to 10 inches.

Ornamental Grasses. There are a number of grasses with attractive flowering spikes which are useful when dried for adding to winter bouquets. The spikes should be gathered before the pollen begins to shed and hung up to dry in an airy place. The seed can be started indoors or sown outside. The following kinds have done well at the Central Experimental Farm, Ottawa:

Agrostis nebulosa. Cloud Grass. Height 1 foot.
Briza maxima. Great Quaking Grass. Height 1 foot.
Eragrostis tenella. Love Grass. Height 1 to 2 feet.
Lagurus ovatus. Hare's-tail-Grass. Height 1 foot.
Pennisetum Ruppelii. Purple Fountain Grass. Height 2 to 3 feet.
Pennisetum villosum (longistylum). Feather Top. Height 2 to 3 feet.
Tricholaena rosea. Ruby Grass. Height 2 to 3 feet.

## Lists of Twelve Annuals Best Suited to Various Sections of Canada

The lists have been contributed by the Superintendents of the Farms and Stations named, with the exception of the list for Ottawa which has been compiled by the Horticultural Division. The botanical names have been used so as to make them uniform with those in the descriptive lists.

Ottawa, Ontario

| Ageratum | Eschscholzia | Tagetes |
| :--- | :--- | :--- |
| Alyssum | Petunia | Tropæolum |
| Calendula | Phlox Drummondii | Verbena |
| Delphinium | Scabiosa | Zinnia |

Antirrhinum
Clarkia
Delphinium
Gilia lutea

Agassiz, British Columbia
$\begin{array}{ll}\text { Godetia } & \text { Salpiglossis } \\ \text { Malope } & \text { Tropæolum nanum } \\ \text { Petunia } & \text { Verbena } \\ \text { Phlox Drummondii } & \text { Zinnia }\end{array}$
a . Beaverlodge, Alberta

| Antirrhinum | Gilia lutea | Phlox Drummondii |
| :--- | :--- | :--- |
| Callistephus | Lathyrus | Salpiglossis |
| Clarkia elegans | Linaria | Schizanthus |
| Eschscholzia | Mathiola annua | Viola |
|  | Brandon, Manitoba |  |
| Antirrhinum | Delphinium | Mathiola annua |
| Centaurea | Eschscholzia | Petunia |
| Coreopsis | Lathyrus | Phlox Drummondii |
| Cosmos | Malope | Schizanthus |
|  | Charlottetown, Prince Edward | Island |
| Celosia plumosa | Gilia lutea | Nigella Miss Jekyll |
| Clarkia | Helichrysum | Portulaca |
| Cosmos | Lathyrus | Schizanthus |
| Dimorphotheca | Malope grandiflora | Verbena |

Callistephus
Cosmos
Dimorphotheca
Lathyrus

Antirrhinum
Callistephus
Cosmos
Delphinium
Ageratum
Antirrhinum
Callistephus
Cosmos

Antirrhinum
Callistephus
Delphinium
Impatiens Balsamina

Antirrhinum
Callistephus
Celosia plumusa
Cosmos
Antirrhinum
Calendula
Cereopsis
Dianthus

Antirrhinum
Calendula
Cereopsis
Dianthus

Gilia lutea
Lathyrus
Linaria
Mathiola annua
Brandon, Manitoba
Delphinium
Eschscholzia
Lathyrus
Malope

Phlox Drummondii
Salpiglossis
Schizanthus
Viola

Mathiola annua
Petunia
Phlox Drummondii
Schizanthus

Gilia lutea
Helichrysum
Lathyrus
Malope grandiflora
Fort Vermilion, Alberta

| Lavatera | Phlox Drummondii |
| :--- | :--- |
| Linaria | Salpiglossis |
| Mathiola annua | Verbena |
| Mentzelia Lindleyi | Zinnia |

Fredericton, New Brunswick

| Lathyrus | Salpiglossis |
| :--- | :--- |
| Mathiola annua | Tagetes |
| Papaver | Tropæolum |
| Phlox Drummondii | Verbena |

Harrow, Ontario
Dahlia (Dwarf) Salvia
Lobularia Tagetes
Petunia Verbena
Phlox Drummondii Zinnia
Indian Head, Saskatchewan

| Lathyrus | Tagetes |
| :--- | :--- |
| Malope | Tropæolum |
| Petunia | Verbena |
| Phlox Drummondii | Zinnia |

Kapuskasing, Ontario

| Delphinium | Phlox Drummondii |
| :--- | :--- |
| Dianthus | Verbena |
| Lathyrus | Viola |
| Lobelia | Zinnia |

Kentville, Nova Scotia
Gaillardia Salpiglossis
Mathiola annua Tropæolum
Nemesia
Phlox Drummondii

Verbena
Zinnia

| Dimorphotheca | Linaria | Petunia |
| :---: | :---: | :---: |
| Eschscholzia | Mathiola annua | Phlox Drummondii |
| Iberus | Mentzelia | Verbena |
| Lathyrus | Papaver | Zinnia |
| L'Assomption, Quebec |  |  |
| Alyssum | Dianthus chinensis | Mathiola annua |
| Antirrhinum | Gomphrena | Phlox Drummondii |
| Callistephus | Helichrysum | Salvia |
| Dianthus (Carnation) | Lathyrus | Tropæolum |
| gnimaz shi Lennoxville, Quebec mefl wrowT |  |  |
| Ageratum | Lobelia | Salvia |
| Amaranthus | Mathiola annua | Tagetes |
| Antirrhinum | Petunia | Verbena |
| Callistephus | Phlox Drummondii | Zinnia |
| Tuthany | Morden, Manitoba |  |
| Alyssum. | Mathiola annua | Scabiosa |
| Antirrhinum | Nicotiana | Tagetes |
| Callistephus (Queen of the Market) | Petunia | Verbena |
| Cosmos | Phlox Drummondii | Zinnia |
| Nappan, Nova Scotia |  |  |
| Antirrhinum | Cosmos | Petunia |
| Callendula | Helipterum Manglesii | Phlox Drummondii |
| Callistephus | Impatiens | Salpiglossis |
| Chrysanthemum | Mathiola annua | Verbena |
| Saanichton, Vancouver Island, British Columbia |  |  |
| Antirrhinum | Godetia | Reseda |
| Callistephus | Mathiola annua | Salpiglossis |
| Cosmos | Nemesia | Verbena |
| Dimorphotheca | Phlox Drummondii | Zinnia |
| Scott, Saskatchewan |  |  |
| Antirrhinum | Lobelia | Phlox Drummondii |
| Callistephus | Mathiola annua | Salpiglossis |
| Delphinium | Nemesia | Tagetes |
| Lathyrus | Petunia | Verbena |

Ste. Anne de la Pocatiere, Quebec

| Callistephus | Lathyrus | Phlox Drummondii |
| :--- | :--- | :--- |
| Clarkia | Mathiola annua | Salpiglossis |
| Cosmos | Nigella, Miss Jekyll | Salvia |
| Delphinium | Petunia | Zinnia |

## Summerland, British Columbia

| Alyssum | Clarkia | Petunia |
| :---: | :---: | :---: |
| Antirrhinum | Gilia lutea | Phlox Drummondii |
| Brachycome | Lobelia | Salpiglossis |
| Callistephus | Nemesia | Zinnia |
| Swift Current, Saskatchewan |  |  |
| Antirrhinum | Lathyrus | Petunia |
| Callistephus | Lobelia | Salpiglossis |
| Dianthus | Lobularia | Verbena |
| Gaillardia | Mathiola annua | Viola |
| Twelve | Best Annuals for Outside | Sowing |
| Ottawa, Ontario |  |  |
| Calendula | Eschscholzia | Papaver |
| Centaurea Cyanus | Godetia | Portulaca |
| Cosmos | Heliathus | Reseda |
| Dimorphotheca | Lobularia | Tropaeolum |
| Agassiz, British Columbia |  |  |
| Clarkia | Iberis | Salpiglossis |
| Delphinium | Linaria | Schizanthus |
| Gilia | Malope | Tropaeolum |
| Godetia | Phlox Drummondii | Zinnia |
| Beaverlodge, Alberta |  |  |
| Antirrhinum | Eschscholzia | Papaver |
| Calendula | Lobularia | Phlox Drummondii |
| Gallistephus | Linaria | Schizanthus |
| Cosmos | Mathiola annua | Viola |
| Brandon. Manitoba |  |  |
| Calendula | Linaria | Mentzelia |
| Coreopsis | Linum | Papaver |
| Cosmos | Lobularia | Portulaca |
| Godetia | Malope | Reseda |
| Charlottetown, Prince Edward Island |  |  |
| Callestephus | Lathyrus | Papaver |
| Clarkia | Malope | Reseda |
| Dimorphoteca | Mathiola bicornis | Schizanthus |
| Helipterum (Rhodanthe) | Nigella Miss Jekyll | Tropaeolum |
| Harrow, Ontario |  |  |
| Calendula | Eschscholzia | Lobularia |
| Centaurea Cyanus | Gaillardia | Portulaca |
| Coreopsis | Helianthus | Scabiosa |
| Delphinium Aisa | Linaria | Zinnia |

## Indian Head, Saskatchewan

Calendula
Centaurea
Clarkia
Delphinium

Calendula
Clarkia
Datura
Delphinium
Iberis
Lathyrus
Malcomia
Malope

Kapuskasing, Ontario
Iberis
Lathyrus
Linaria
Lobularia
Kentville, Nova Scotia

| Calendula | Godetia |
| :--- | :--- |
| Coreopsis | Gypsophila |
| Delphinium | Iberis |
| Gaillardia | Lobularia |

Lacombe, Alberta

| Calendula | Iberis | Papaver |
| :--- | :--- | :--- |
| Chrysanthemum | Lathyrus | Portulaca |
| Delphinium | Linaria | Reseda |
| Eschscholzia | Mentzelia | Tropaeolum |

Ageratum
Amaranthus
Clarkia
Cosmos

Iberis
Papaver
Petunia
Portulaca
Reseda
Tagetes
Viola
Zinnia
Lethbridge, Alberta
Calendula
Centaurea moschata
Delphinium
Dimorphotheca
Godetia
Lathyrus
Lavatera
Lobularia
Morden, Manitoba
Calendula
Clarkia
Godetia
Lathyrus
Lavatera
Linaria
Nigella
Nappan, Nova Scotia
Calendula
Centaurea Cyanus
Cosmos
Delphinium
Helianthus
Iberis
Lathyrus
Linaria
Papaver
Petunia
Reseda
Tropaeolum

Malcomia
Papaver
Reseda
Tropaeolum

Malcomia
Papaver
Phlox Drummondii
Tropaeolum

L'Assomption, Quebec

| Saanichton, British Columbia |  |  |
| :---: | :---: | :---: |
| Calendula | Mimulus | Reseda |
| Centaurea Cyanus | Myosotis | Tagetes |
| Cosmos | Papaver | Tropaeolum |
| Godetia | Phlox Drummondii | Zinnia |
| Scott, Saskatchewan |  |  |
| Eschscholzia | Lobularia | Portulaca |
| Iberis | Malcomia | Reseda |
| Lathyrus | Nemesia | Tagetes |
| Linum | Papaver | Tropaeolum |
| Ste. Anne de la Pocatiere, Quebec |  |  |
| Chrysanthemum | Dimorphotheca | Iberis |
| Clarkia | Eschscholzia | Lavatera |
| Cosmos | Godetia | Mentzelia |
| Delphinium | Helichrysum | Reseda |
| Summerland, British Columbia |  |  |
| Brachycome | Lobularia | Salpiglossis |
| Clarkia | Papaver | Schizanthus |
| Dimorphotheca | Phlox Drummondii | Tagetes |
| Gilia | Reseda | Tropaeolum |
| Swift Current, Saskatchewan |  |  |
| Calendula | Eschscholzia | Mentzelia |
| Centaurea Cyanus | Godetia | Reseda |
| Clarkia | Lathyrus | Tagetes |
| Dimorphotheca | Linaria | Tropaeolum |

## Lists of Annuals for Special Purposes

Edging Beds and Borders

Ageratum Antirrhinum
Dimorphotheca
Eschscholzia
Gilia
Iberis

Antirrhinum
Callistephus
Celosia plumosa
Dahlia Dwarf

Ionopsidium
Limnanthes
Lobelia
Lobularia
Nierembergia
Portulaca
Beds
Dianthus Heddewigii Tagetes
Mathiola annua Verbena
Petunia
Phlox Drummondii
Hedges
Artemisia
Cosmos
Dahlia

Helianthus
Kochia
Lavatera

Sanvitalia
Sedum Caeruleum
Tagetes
Tropaeolum
Viola
Zinnia linearis

Viola
Zinnia

Polygonum
Ricinus
Tagetes

## Climbers

| Adlumia | Dolichos | Lagenaria |
| :---: | :---: | :---: |
| Cobaea | Echinocystis | Lathyrus |
| Cucurbita | Ipomoea | Tropaeolum |
|  | Fragrance |  |
| Centaurea moschata | Lobularia | Petunia |
| Chenopodium Botrys | Mathiola annua | Phlox Drum |
| Heliotropium | Mathiola bicornis | Reseda |
| Lathyrus | Nicotiana alata | Verbena |
|  | Foliage |  |
| Amaranthus | Chrysanthemum | Ricinus |
| Artemisia | Kochia |  |
| Centaurea gymnocarp | Perilla |  |

## Everlasting Flowers for Winter Bouquets

| Ammobium | Helichrysum | Limonium |
| :--- | :--- | :--- |
| Gomphrena | Helipterum | Xeranthemum |

## Cut Flowers

Antirrhinum
Brachycome
Browallia
Calendula
Callistephus
Celosia
Centaurea
Chenopodium
Chrysanthemum
Coreopsis
Cosmos
Dahlia

Amaranthus
Calendula
Coreopsis
Cosmos
Delphinium

| Delphinium | Phlox Drummondii |
| :--- | :--- |
| Dianthus | Polygonum |
| Didiscus | Reseda |
| Dimorphotheca | Rudbeckia |
| Gaillardia | Salpiglossis |
| Gypsophila | Scabiosa |
| Helianthus | Schizanthus |
| Lathyrus | Tagetes |
| Lavatera | Tropaeolum |
| Mathiola | Verbena |
| Nemesia | Viola |
| Papaver | Zinnia |

## Annuals that Self-Sow

Eschscholzia
Helianthus
Kochia
Lobularia
Malcomia

Phlox Drummondii
Polygonum
Reseda
Rudbeckia
Salpiglossis
Scabiosa
Schizanthus
Tagetes
Tropaeolum
Verbena
Viola
Zinnia

Nicotiana
Papaver
Portulaca
Reseda
Silene

Annuals Which Will Flower in Partial Shade

Celosia
Clarkia
Cleome
Coreopsis
Delphinium
Godetia
Iberis

Ionopsidium
Lobelia
Lobularia
Malcomia
Mirabilis
Nemophila
Nicotiana

Oenothera Drummondii
Petunia
Phacelia
Phlox Drummondii
Polygonum
Verbena
Viola

## Drought Resistant

Brachycome
Browallia
Calendula
Celosia
Centaurea Cyanus
Centaurea moschata

Antirrhinum Rock
Hybrids
Dimorphotheca
Eschscholzia
Coreopsis
Dimorphotheca
Eschscholzia
Gaillardia
Helianthus
Nemesia

Petunia
Portulaca
Sanvitalia
Sedum
Tagetes
Tropaeolum

## For Rock Gardens

Iberis
Ionopsidium
Linaria
Lobularia

Nemophila
Nierembergia
Portulaca
Sanvitalia

For Window Boxes
Lobularia
Petunia
Phlox Drummondii
Reseda

Tropaeolum
Verbena
Viola
Zinnia Pompon

## List of Common Names of the Plants Described in this Bulletin with the Botanical Name under which they can be found

| Common Name | Botanical Name |  |
| :---: | :---: | :---: |
| African Daisy, Blue-eyed. | Arctotis |  |
| African Daisy, Golden.... | Dimorphotheca |  |
| African Marigold....... | Tagetes |  |
| Alkanet .............. | Anchusa |  |
| Allegheny-vine | Adlumia |  |
| Alyssum, Sweet | Lobularia |  |
| Amaranth, Globe | Gomphrena |  |
| Ambrosia ...... | Chenopodium |  |
| Aster | Callistephus |  |
| Aster, Chinese | Callistephus |  |
| Baby Blue-Eyes | Nemophila |  |
| Babys-Breath | Gypsophila |  |
| Bachelors Button | Centaurea |  |
| Balsam | Impatiens |  |
| Bartonia | Mentzelia |  |
| Bean, Hyacinth | Dolichos |  |
| Bellflower . | Campanula |  |
| Belvidere | Kochia |  |
| Blue-Eyed African Daisy | Arctotis |  |
| Blue Lace-Flower . . . . . . | Trachymene |  |
| Blue Stonecrop | Sedum |  |
| Blue Woodruff | Asperula |  |
| Bugloss | Anchusa |  |
| Bugloss, Vipers | Echium |  |
| Burning Bush | Kochia |  |
| Butterfly-Flower | Schizanthus |  |
| California-Poppy | Eschscholzia |  |
| Canary-Bird-Flower . | Tropaeolum |  |


| Common Name-Con. | Botanical Name-Con. |
| :---: | :---: |
| Candytuft | Iberis |
| Cape-Marigold | Dimorphotheca |
| Carnation | Dianthus |
| Castor-Oil-Plant | Ricinus |
| Catchfly, Sweet Will | Silene |
| China Aster | Callistephus |
| Chinese Pink | Dianthus |
| Chinese Woolflower | Celosia |
| Cigar-Flower | Cuphea |
| Climbing Fumitory | Adlumia |
| Climbing Nasturtium | Tropaeolum |
| Cockscomb . | Celosia |
| Coneflower | Rudbeckia |
| Cornflower | Centaurea |
| Corn Marigold | Chrysanthemum |
| Cucumber, Wild | Echinocystis |
| Cup-and-saucer-vine | Cobaea |
| Cup-Flower | Nierembergia |
| Cypress, Summer | Kochia |
| Daisy, African | Dimorphotheca |
| Daisy, Swan River. | Brachycome |
| Diamond-Flower | Ionopsidium |
| Dusty Miller | Centaurea |
| Fairy Bouquet | Linaria |
| Evening Primrose | Oenothera |
| Feverfew ...... | Chrysanthemum |
| Flax, Scarlet | Linum |
| Floss-Flower | Ageratum |
| Fountain Plant | Amaranthus |
| Four-o'clock | Mirabilis |
| Fumitory, Climbing | Adlumia |
| Garden Balsam . . . | Impatiens |
| Globe Amaranth | Gomphrena |
| Gourd . . | Cucurbita, Lagenaria |
| Heliotrope | Heliotropium |
| Hollyhock | Althaea |
| Hyacinth Bean | Dolichos |
| Immortelle | Ammobium |
| Indian Pinks | Dianthus |
| Jewel-of-the-Veldt | Ursinia |
| Larkspur | Delphinium |
| Love-in-a-Mist | Nigella |
| Love-Lies-Bleeding | Amaranthus |
| Mallow | Malope |
| Marigold, African | Tagetes |
| Marigold, Cape . | Dimorphotheca |
| Marigold, Corn | . Chrysanthemum |
| Marigold, French | Tagetes |
| Marigold, Pot . . | Calendula |
| Marvel-of-Peru | Mirabilis |
| Mignonette | Reseda |
| Morning Glory Vine | Ipomøa |
| Mountain Fringe | Adlumia |
| Nasturtium | Tropaeolum |
| Night-Scented Stock | Mathiola |




[^0]:    SCALE
    SCALE
    $\star$
    

[^1]:    Lobularia maritima (Alyssum maritimum). Sweet Alyssuml For edging beds and borders, there is no plant that is easier to grow or that gives a longer period of bloom than sweet alyssum. The ordinary kind is rather straggly in habit so many people prefer the more compact forms such as Little Dorrit. About August, when the flowers are going to seed, it is a good plan to take a pair of shears and cut off the plants at two inches above the ground. They will be unsightly for a few days but in a week or so they will be covered with green and starting into bloom again. They will continue to flower until hard frost. After cutting back, the plants should be watered if the weather is dry. The variety Violet Queen is very compact and a rich violet colour which does not fade. Height 6 inches.

    Lupinus. Lupine. The lupines generally seen in gardens are perennials but there are several annual flowering species. The flowers are very similar though the plants do not grow so large. The Hartwegii varieties are the most popular for the annual flower border as they can be obtained in a number of beautiful colours, including blue, rose, red and purple and white. Height 2 to 3 feet.

    Lychnis Viscaria. Generally called Viscaria in catalogues, this plant has been improved in recent years and now there are several varieties which vary in height and habit as well as in colour. The compact forms which make neat, small, upright plants are useful for edging the border and could be used in the rock garden. The blue and pink ones are particularly attractive. Height 8 to 12 inches.

