

THE COUNTRYSIDE MANUALS



THE SUBURBAN
GARDEN GUIDE

BARNES





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THE SUBURBAN GARDEN GUIDE



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THE SUBURBAN GARDEN GUIDE

BY
PARKER THAYER BARNES

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THE SUBURBAN GARDEN GUIDE

THE BEST VEGETABLES FOR THE HOME GARDEN

Artichoke, Globe. A tall-growing vegetable which is grown for its flower-heads. It can be raised from seed or from suckers, the latter being the usual method, because then one is able to perpetuate good varieties. The varieties do not come true to name when grown from seed. Seeds sown one year will produce good flower-heads the following year; they can sometimes be had the same year by sowing the seed early indoors. The flower-heads are gathered just before the blue flowers begin to appear. The part eaten consists of the fleshy portion on the inside of the large outer scales and the "bottom," or receptacle, of the head.

Grow the artichoke in rich soil. It will bear for two or three years. Give it slight protection over winter. French Globe is a standard sort. The Jerusalem artichoke is grown for its root.

Asparagus. This vegetable is grown for its young shoots, and the quality depends upon the succulence of them. To get the best shoots, plant one-year-old roots and allow them to become well established before cutting begins; they should grow two full years before cutting. Grow asparagus in a light, rich, and well-

drained soil, to secure the best and earliest results. Stop cutting the shoots when peas become ripe—June 25 in the North. Cut off the stalks in the fall before the seeds mature (berries turn red), so that stray seedlings will not appear between the rows. Mulch heavily in the fall with manure. In the spring, use nitrate of soda. Conover's Colossal, Barr's Mammoth, and Palmetto, are the best green varieties. Mammoth white has white stalks.

Beans, Broad. But few people know this vegetable in this country, but it is highly appreciated in England. It is used as a shell-bean. They are as hardy as peas, but will not succeed in hot climates, and they are subject to bad attacks of the flea-beetle. Early Mazagan and Broad Windsor are standard sorts. When the pods have formed, break off the tops, to force the strength into the pods.

Beans, Bush Lima. These are two to four weeks earlier than the pole limas. There are three types. Dwarf Sieva, or Henderson's Bush Lima, is the earliest, but has small pods. The young beans, however, are delicious. Wood's Prolific, or the Improved Henderson, is a week later, and is a stronger grower and the pods are a little larger. The third type is Burpee's Bush Lima, which, while being dwarf, has large, broad pods, like the pole sorts.

The seedsmen have improved these original sorts, so that better or earlier forms can be had under such names as Burpee's Quarter Century, Dreer's Wonder,

Kumerle, Fordhook. All limas are ultra-tropical plants, so must not be planted until the ground is warm. Set the seeds on edge in the ground. Do not use strong nitrogenous manures in the spring; use, rather, phosphoric acid and potash. Nitrogen causes too much growth, and retards the season.

Beans, Pole Lima. Later than the dwarf sorts. The earliest of the tall ones is the Sieva, which has three-inch pods, each pod with three beans. They are delicious if picked before they have reached full size. Large White, Early Leviathan, Early Jersey, King of the Garden, Ford's Mammoth Podded, are all good varieties. The last two are late, but have pods five inches long. For fall use, plant Potato-leaved or Challenger. These do better in cool weather. Use poles ten feet long. In cool seasons, when the plants are making more growth than pods, cut the tops of the plants off when they reach the top of the pole, so that there will be more beans produced.

Beans, Bush. There are green and yellow beans. Burpee's Stringless Green Pod, Improved Round Valentine, Giant Stringless Valentine, Extra-Early Refugee, and Refugee or 1,000 to 1, are standard green-podded sorts, and mature in the order given. A good succession can be had by planting at the same time Burpee's Stringless Green Pod, Extra-Early Refugee, and 1,000 to 1. They will produce for two to four weeks after the first comes into bearing, and one or two further plantings of these varieties, ten days or two

weeks apart, will maintain a succession all summer. For the best beans, grow round-podded and stringless sorts.

Of the yellow, or wax beans, Burpee's White Wax, Kidney Wax, Rust-proof Wax, and Golden Wax, are all good varieties, but the first is probably the best. These are flat-podded. Pencil-Pod Black and Brittle Wax are two round-podded varieties that require seven to eight weeks to bear, but are good in appearance and flavor.

Beans, Pole. These are used either as snap-beans, or as shell-beans used green. White Creaseback (green) is the earliest. It requires eight to ten weeks to mature. Other good varieties, maturing in about the following order, are White Dutch Caseknife (green and best for cool situations), Old Homestead or Kentucky Wonder (green), Stringless Green-pod (green), Golden Cluster Wax (yellow), Sunshine Wax (yellow), Golden Carmine Horticultural (yellow, and the best of the yellow kinds), Lazy Wife, a popular and very prolific sort; the last is a fall bean. The yellow kinds are the best for the hot summer months. Plant a few hills of each for testing. You will know better, then, what kinds suit your particular needs.

Beets. Egyptian, Eclipse, and Edmund's, mature in the order given. Beets are better when young and tender; so, make sowings a couple of weeks apart. The thinnings can be used for "greens."

Broccoli. This is really nothing but a longer-seasoned and later-maturing cauliflower, but better

adapted than it for the cool North. Early White, Mammoth White, and Purple Cape, are good varieties.

Brussels Sprouts. Little cabbages that grow thickly clustered together on a tall stalk. It is a late-fall and winter vegetable, that is best after it has been touched by frost. It can be left outdoors during the winter, if protected by cornstalks or straw. It requires the same treatment as late cabbage. Grows two to three feet high, but there are dwarf varieties. Long Island, Dalkeith, Half-dwarf, are good varieties. Good seed is essential. The stocks soon deteriorate unless carefully selected.

Cabbage. Early Jersey Wakefield is the best early sort. The head is smaller than the late sorts, so can be planted closer together. All Head is a good intermediate variety, and Late Flat Dutch a good late variety. Early cabbages are started in the fall and carried over the winter in coldframes, or they can be started in February in the greenhouse and hardened-off before planting out. The late varieties can be started in seed-beds outdoors. Do not water the cabbages after they have matured, it will cause the plants to grow more and will split the heads. They will not keep then.

Cardoon. Similar to the Globe artichoke. It is too large a vegetable for the small garden, and valuable only where a very large variety is wanted. The leaves are gathered together and the earth drawn around the stalks to blanch them, like celery; unblanched, it is

not fit to eat. Large Spanish and Large Solid are two good varieties. It needs a rich soil.

Carrot. Like beets, they are best when young and tender. Grow Early Forcing, making several sowings for succession. For larger roots, plant Danvers or similar varieties.

Cauliflower. The culture is the same as for cabbage, but cauliflower demands, if it be grown successfully, cool, moist weather. Plan an early crop, one that will mature before the hot weather, and a late fall crop. Earliest Dwarf Erfurt is the best early. For cool climates, plant Early Snowball and Algiers for second-early and main crop, respectively. In warmer sections, make successive sowings of Earliest Dwarf Erfurt. It requires a moist, cool, and rich soil.

Celery. A leaf crop that requires a rich soil—one in which there is much nitrogen. Grow in trenches, so that it can be easily banked up for blanching. It can also be blanched by boards or paper placed closely about it to exclude the light; but earth-blanched celery has the most flavor. Early varieties can be blanched by planting close together in a coldframe and putting a shutter over the frame, to blanch. White Plume is the best early variety. Golden Self-blanching is nearly as early, and equally good, some people prefer it to White Plume. For main crop, grow Boston Market, a small variety with a very nutty flavor, and Giant Pascal, a larger, tender sort. Give an abundance of nitrate of soda.

Chard, Swiss. A beet that does not produce a large root. The leaves only are eaten. It can be served as beet "greens," or the mid-rib can be removed and served as asparagus. A fifteen-foot row will supply a family of three. When the leaves are cut off, a new supply is formed. There is no choice as to varieties, all are good.

Corn. Peep O'Day, Golden Bantam, Crosby's twelve-rowed, and Stowell's Evergreen, or Country Gentleman, will insure a succession; they will mature in the order named.

Corn Salad. Grown as a fall salad, and can be used as a substitute for lettuce, but it is not nearly so good.

Cress. Water cress can be grown in any small stream of water, or in soil kept constantly damp. Upland or curled cress can be grown in the garden or in "flats" in a frame. Make frequent sowings (once in 2 weeks). It gives piquancy to a salad.

Cucumbers. For an early crop, grow Early White Spine; second early, Cool and Crisp; for main crop, Long Green. Start a few plants indoors on inverted sod or in pots, for the earliest crop. Seed sown July 1 will produce fruits large enough for pickling by fall.

Dandelion. A pot-herb, or "green." They can be blanched and served as a salad. French Garden, Thick-leaved, and Large-leaved, are good sorts. Seeds sown any time up to June will be ready to cut the following spring. Needs rich land and nitrogenous manures.

Eggplant. A hot-climate plant, which must never receive checks during its growth. Start early indoors, and provide a fairly rich, well-drained soil, and a long season in which to grow. New York Improved and Black Pekin are the best varieties. Fruits are ready to eat when one-third grown.

Endive. A substitute for lettuce, and is essentially a summer and fall crop. It will thrive when lettuce will not succeed because of hot weather. Requires the same culture as lettuce. Blanch the interior leaves by gathering all the leaves into a bunch and tying them with string or raffia at the top. This is done two or three weeks before it is wanted for use. The crowns will sometimes rot when tied up for blanching, if the weather is rainy or continues cloudy for some time. It must be used as soon as blanched. Late fall plants can be stored and blanched in the cellar or pits. Make successive sowings every two weeks. For varieties, grow White Curled, Green Curled, or Broad-leaved.

Kale. The culture is similar to that of cabbage, but the plants are hardier and require less attention. It is grown for its leaves, which are used as a pot-herb. It is used only very late in the fall and early spring, when other pot-herbs are not available. It is not injured by frost, so can be left in the field all winter. The older leaves and leafstalks are all improved by freezing. Good varieties are Dwarf Green Curled Scotch, Dwarf Curled Brown. Sow Siberian in September for early spring "greens."

Kohlrabi. Although almost unknown in some sections, it is highly prized in others. It is grown for its tuberous stem,—a turnip-like tuber which is produced just above the surface of the soil. It must be used before the tubers become too large and stringy (three inches in diameter). They must be grown quickly and receive no check, otherwise they will be tough and bitter. For early crops, sow in frames Short-leaved Vienna. For main crop, Early White Vienna. This latter is the kind grown by market-gardeners.

Lettuce. Grown for salad, and it is a cool, short-season crop which is usually grown as a successional or companion crop. Requires a moist, rich, friable loam and quick-acting fertilizers, mostly nitrogen. There are three kinds—loose-headed, of which Grand Rapids is the type; head, or cabbage lettuce, and Romain or Cos. For the earliest lettuce, grow Grand Rapids; for main crop outdoors, grow heat-resisting varieties, such as Deacon, Hanson, Summer Cabbage Curled Simpson, Salamander. In midsummer, protect it during midday from the hot sun. Express Cos, Trianon Cos, are the best of the Romain lettuces. Some of them will form a sufficiently compact head to blanch themselves, but it is better to tie the leaves together to insure blanching. The Cos lettuces are the crispest and, in some respects, the best lettuces.

Melons, Musk, or, as they are sometimes erroneously called, cantaloupes. Cantaloupes have hard, warty rinds, and are seldom grown in this country, al-

though the name is frequently used. Light, moist soil—one in which there is always much soil moisture, but still good drainage—will prove the best for melons. Three to four good fruits per plant is the usual yield. For early, grow **Netted Gem** (Rocky Ford is a selection from this, made famous by being grown at the town of that name in Colorado). For second early, grow **Emerald Gem**, and for main crop, **Long Island Beauty**.

Melons, Water. The cultural requirements are the same as for muskmelons. Early Fordhook is the best early, while Cole's Early is the best second-early and main-crop melon.

Mustard adds a pleasant, pungent flavor to salads. Make successive sowings every ten days or two weeks. Good varieties are Chinese and White London.

Okra. This is the vegetable used in making the famous gumbo soups of the South. It is a warm-weather plant. There are two kinds, tall and dwarf, the latter being the best for home gardens. Grow Dwarf Green Long Pod and Lady Finger or White Louisiana. The pods of the former should be picked when two to four inches long, the latter, when four to five inches long; do not allow the pods to stay on longer. If there are too many for immediate use, gather and dry them. Gather the pods daily, preferably in the evening.

Onion. For the earliest sorts, plant onion sets. For main crop, Danvers or White Globe. Prizetaker onion was the first big onion grown in this country. Since

its introduction, in 1888, there have been others, notably Ailsa Craig. These onions frequently weigh one pound or more. To be had at their best, they should be started early indoors and transplanted. For success, grow onions in a loose, friable loam that is rich and free from stones. It must be finely prepared, all stones and lumps being removed.

Parsley. The most popular herb for garnishing. It is a biennial, the foliage being used the first year; the plant being destroyed at the end of the season and new started for next year. The seeds germinate very slowly unless soaked for twenty-four hours in lukewarm water. It requires three months from sowing to get plants of sufficient size to allow the picking of the leaves. Moss-Curled and Fern-leaved are the best varieties. Hamburg, or Turnip-rooted, has a fleshy root.

Parsnip. To be good, they should stay in the ground over-winter, but they can be harvested and stored in earth in a cool cellar or pit; the roots must not shrivel; if stored inside, the quality will be injured. Hollow Crown and Student are two standard varieties.

Peas are hardy; they may be shown in the spring as soon as the ground can be worked. The ground should be deeply worked. English gardeners frequently work it three feet deep and find that it pays. Make successional plantings every six to ten days. For the earliest crop, sow a smooth variety, such as Daniel O'Rourke; a week later, when the ground has warmed up a little, wrinkled varieties, which are sweeter, can be sown.

For second early, plant Nott's Excelsior; for main crop, Champion of England. An early variety for very late peas can be sown in August. Too much nitrogen will cause the plants to make too much growth and too little fruit.

Peas, Sugar. These are edible-podded peas, which are picked while the pea or seed is still small and the pod tender. They are broken up, cooked and served like string-beans.

Pepper. Needs the same culture as tomato. Do not plant them out until all danger of frost has passed. For the earliest fruits, plant Neapolitan. Bull Nose and Ruby King are two good main crops.

Potatoes. To get the earliest potatoes, sprout the seed, put them in a warm, light place, so that the sprouts can grow; they may be as much as three inches long without harm. Early Rose is a good early variety; for second early, Beauty of Hebron; for main crop, Carman No. 1 and Green Mountain. The variety to be grown will depend somewhat on the character of the soil.

Pumpkin. Two good varieties for pies are Sugar and Dunkard. They must be stored in a warm (45°) dry place, or they will rot. Plant among the corn, to save room.

Radish. Can be had in twenty-one days. Sow as soon as the ground can be worked, and make successive sowings every week all summer. For early, plant Early Scarlet Turnip Forcing; for second early,

French Breakfast and Long Scarlet. For storing for winter, sow seeds in June of Half-long Black Spanish. Store these in damp sand.

Rampion. Roots can be eaten like radish, or the leaves can be used as salads. Store the roots in damp sand in the cellar.

Rhubarb. The quality depends upon its size and succulence, therefore the soil must be rich. A plantation will last twenty years or more. Linnæus, Victoria, St. Martin's, are good kinds. To get the earliest stalks, put a barrel over a root and place manure about it.

Salsify. A hardy vegetable for flavoring soups, and may also be served as parsnips are. Long White and Sandwich Island Mammoth are good varieties. Store over winter in sand in the cellar.

Spinach. Really a spring and fall crop, but can be had all summer by making successional sowings in cool, moist ground. For early-spring crops, sow the seeds in the fall outdoors and cover with mulch. Thick-leaved is the hardiest; for spring-sowing, Long Standing, Long Season and Victoria are the best.

Spinach, New Zealand. Not a true spinach, but a good substitute, as it withstands the heat of summer when the true spinach will not grow well. Use the ends of the branches and the leaves.

Squash. The earliest are the summer squashes, of which White Bush Scarlet and Yellow Crookneck are the best. For winter, plant Boston Marrow or Hubbard. Store as for pumpkins.

Tomato. Start the early kinds in pots or cans, so that they may be easily transplanted when all danger of frost has passed. Grow on stakes or trellises, or put brush about them, to prevent the vines getting on the ground. For early, plant Earliana or Early Jewel; for main crop, Acme and Stone. The ground must not be too rich or fruit will not set.

Turnip. To be good, they must be grown quickly. Slowly-grown turnips will be woody, stringy and bitter. Have rich, moist soil in fine tilth.

Of the flat kinds, Milan Purple Top, Munich and Teltow are good home kinds. White rutabagas are better than the yellow. Grow Budlong's White Swede. Plant Rutabagas in June or July.

Flat turnips for winter use should also be sown in June, in New England; about New York, July 15; while, about Philadelphia, August 15 is plenty early enough. If planted earlier they would get too hard and woody. For spring use, sow as soon as the ground can be worked.

The best books on vegetable gardening are: *The Principles of Vegetable Gardening*, by Prof. L. H. Bailey. \$1.50 net.

Vegetable Gardening, by Prof. S. B. Green. \$1.

How to Grow Vegetables, by Allen French. \$0.50 net.

How to Make a Vegetable Garden, by Edith L. Fullerton. \$2.20.

THE BEST FLOWERS FOR THE HOME GARDEN

In the seed catalogues, the annuals are divided into three classes, hardy, half-hardy and tender, but, for practical purposes, the amateur need consider them in only two classes, hardy and tender. Seeds of the hardy annuals can be planted in the border where they are to go, or in seed-beds before all danger of frost is past, that is, the seeds can be sown as soon as the ground is in fit condition to work. The half-hardy and tender annuals cannot be planted out until the ground has become warm or until danger from frost is past. For this reason, the common practice is to sow them in flats in the greenhouse or window-garden, or in coldframes. If one has a coldframe, it will be much easier to handle all the seeds of annuals this way because much larger plants can be secured by the last of May or early in June when the bulk of the bedding is done.

The seed-bed should be finely pulverized, and the rows made about a quarter of an inch deep. This is best done by having a strip of wood one inch thick and about three or four inches wide, and as long as the seed-bed. On one side, a small strip of wood one inch square and as long as the strip to which it is attached, is

tacked. This is used to make the drills for the seed by pressing into the soft earth. When the seeds have been sown, glass sash should be put over the frame, or a cheap substitute, water-proofed muslin frames.

As soon as the young seedlings have made two or three true leaves, they should be pricked out or transplanted to about two inches apart each way. If pots, either clay or paper, are available, the young plants can be transplanted into these. The great advantage of using pots is that the roots will not be disturbed when they are planted in the beds, but where space is at a premium this method is not essential except in a few instances, such as argemone and mignonette.

The following list of plants supplements the table in the appendix. The letters after the plant name indicate whether the plant is a hardy or tender annual or perennial.

Abronia. H.A. A tender California perennial which in the East is grown as an annual. It is a trailing plant, having yellow, pink, rose or white fragrant flowers that resemble a verbena flower. It grows six to eighteen inches high. An excellent way to grow this is to start the seeds in the fall in pots in a sandy soil and store the young plants in a coldframe over winter. *A. fragrans* is a night bloomer. Remove the husk from the seed before sowing.

Achillea Ptarmica (Sneezewort). H. P. Grows two feet high and has white flowers that are borne in a

loose corymb; they flower all summer. A double variety, The Pearl, is the best type. It is one of the best hardy white-flowered perennials grown.

Adonis Autumnalis (Flos Adonis) and *A. Æstivalis* (Pheasant's Eye) are hardy annuals with crimson or scarlet flowers. The former flowers from May to July; the latter in June. They grow about one foot in height. There are several hardy perennials: Spring Adonis *A. vernalis* has large, bright yellow flowers in early spring. This is the common one in cultivation. *Apennina* is much like *Vernalis* except that the flowers are a little larger. It blooms in April. *Pyrenaica* has a branched stem, but the flowers are smaller than *Vernalis*; blooms in July. *Amurensis* has large, yellow flowers and blooms two weeks ahead of any other hardy perennial. There are several other varieties of lesser importance.

Ageratum (Floss Flower). H. A. Annuals that can be grown from seeds or cuttings. There are several varieties, white and blue. The blue varieties are best, and *Stella Gurney*, a bright blue, is the best variety. Flowers from June to frost.

Agrostemma (Rose of Heaven). H. P. It blooms the first year from seed. Grows from one to one and a half feet high and has bright crimson flowers one inch across, similar to a single pink, and silvery white foliage. Is an excellent cut-flower, very free-flowering. In flower from July to frost.

Alonsoa. H. H. A. A half-hardy annual, having scarlet flowers that are one-half to one inch across.

Excellent as a bedding plant for small beds or for clumps in borders. Grows one foot high.

Amarantus. T. A. There are several species, all showy, tender annuals. The foliage is brilliant and they have brilliant red or crimson spikes of flowers. The foliage of Joseph's Coat, *A. tricolor* is particularly attractive. They grow from three to six feet high.

Aquilegia (Columbine). A hardy perennial having red, pink, blue or white flowers. The height varies according to the species, from almost no stem at all to two and one-half or three feet. They require light, sandy soil, that is moist but well drained, and a sheltered situation that is exposed to the sun. Sow the seeds in the early summer for flowers next year.

Argemone (Mexican, or Prickly Poppy). H. A. Mexicana has yellow flowers; Grandiflora, white; Platyceras white; the foliage is a glaucous green and very spiny. It requires a light sandy soil in a sunny situation. Sow the seeds where the plants are to stand, or in pots to transplant. They cannot be successfully transplanted from seed-beds.

Asperula odorata (Sweet Woodruff). H. P. Has fragrant flowers. Grow in clumps in the border or in a rockery. Grow in moist soil in a shaded place. There is an annual species, *Orientalis*, but which is catalogued as *Setosa-azurea*.

Aster, China. H. H. A. An excellent bedding plant, but if the early kinds are used they must be replaced late in summer with other plants. Put wood-

ashes in the hole where the plants are set, and later water occasionally with tobacco water to kill the blue aphids on the roots.

Aster Novæ-Angliæ. H. P. The best blue fall flower. Plant for mass effects, with dark background or as small clumps in borders. They can be easily propagated from seed or by division of the roots; the latter is the method usually pursued.

Balloon Vine. H. H. A. The flowers of this are small. It is grown for its curious, inflated seed-pods. Grow on fences or trellises for screens.

Balsam. T. A. Prefers a sunny situation and needs a rich, moist soil. The double or camellia-flowered varieties are best. Is best grown as clumps in the border.

Bartonia. H. A. Sow seed where the plants are to stand. The flowers are two to two and one-half inches across. They are fragrant at night. The plants have rather a straggly habit.

Beets. H. A. The ornamental-foliaged varieties are excellent as edgings to beds if they have a further edging of Golden Feather. The variegated foliage—red, yellow and green—make excellent mass effects.

Black Dahlia. H. A. *Bidens atrosanguinea* of the trade. The flowers are showy, like coreopsis. It is better grown in clumps in the border. The tuberous roots can be stored over winter like the common dahlia root.

Brachycome (Swan River Daisy). H. H. A. The flowers are one inch across. It is excellent for growing

in clumps in the border. It can be used as an edging in borders. It is also useful as a pot plant.

Cacalia (Emilia) (Tassel Flower). H. A. An easily grown plant, as it does well in any soil; has daisy-like flowers which are three inches across.

Calandrina. H. A. This is an excellent plant for rockeries, as well as borders, and can be used for edging. It prefers a sunny situation. The perennial species, *Umbellata*, can be treated as an annual. Full exposure to the sun and a light, sandy soil are necessary in order that the best results may be had. The flowers close at night. Can be propagated from seeds or cuttings.

Calendula. H. A. One of the easiest-grown annuals. Can be grown as a bedding plant, or as clumps in a border. It self-sows. The dried flower heads are used to flavor soups.

Callirhoe. H. P. Will flower the first year from seed if started early. Very free-flowering, showy plants, that are best grown as clumps in the border.

Campanula (Canterbury Bell). H. P. Best grown as clumps in the border. Seeds started one year will flower the next. Protect the young plants over the winter with dry leaves or in coldframes, if possible.

Candytuft. H. A. One of the best plants for edging, bedding, rockeries, or cut-flowers. There are several varieties that are fragrant; all are profuse bloomers. Make several sowings, to insure flowers until

cold weather. It prefers a rich, moist soil and a sunny situation.

Cannabis. H. H. A. Sow the seeds where the plants are to stand. Excellent for temporary screens and backs of borders. Quicker effects are obtained if the seeds are started indoors in pots.

Cardinal Flower. H. P. Must be started in February to get flowers the same year. Thrives in any rich, moist, garden loam, or even in wet places where the water is not stagnant. Best grown in masses.

Castor Beans. T. A. The seeds must be started in pots for the plant will not stand injury to its roots. Its chief use is as screens and as the center of tall beds, such as beds of cannas, and for some tropical effects.

Catananche. H. P. It will flower the first year from seed if started early. The blue, daisy-like flowers are two inches across. Variety Alba has white flowers; Bicolor, blue with white edges. Is very free-flowering.

Celosia. T. A. The chief attraction of the coxcomb is its well-formed flower-head. It is good for bedding, but not so much grown as formerly. Needs a rich, moist soil. Syringe it frequently for red spider. Ostrich Feather is another variety that grows rather tall; it has showy curled and curved plumes resembling ostrich feathers.

Carnation, Marguerite. H. P. It is excellent as a bedding plant and needs no edging. Flowers in four months from seed. No use to try to hold plants over from one year to another.

Centaurea. H. A. Grow in masses in the border, or in clumps about the house. Will bloom all summer if the old flowers are picked off. It self-sows. To get the earliest flowers, sow the seed in the fall where they are to grow.

Centranthus. H. P. A much-neglected but very handsome old garden plant that blooms all summer. It makes an excellent cut-flower.

Chrysanthemum. H. A. Not the fall-flowering kind. Very profuse blooming plants that commence blooming in the early summer and continue until fall. Very effective when grown in masses in large beds. Pinch back when the plants are small to make a bushy growth.

Cleome. T. B. An excellent plant for sandy soil in sunny situations. They can be used the same as the castor-oil plant, to fill up large gaps in the borders. The flowers are borne in long spikes.

Cobæa. T. A. The seeds should be planted on edge. It is an excellent climber for trellises, porches, and any unsightly objects. The flowers are large and bell-shaped.

Collinsia. H. A. Very free-flowering. Can be sown in the autumn out-of-doors where they are to grow the following year, provided the soil is well drained. Prefers a rich, moist soil, and it has curious snapdragon-like flowers.

Coreopsis (Tickseed). The annual kinds will flower all summer if the old flowers are picked off. They are

very showy. The perennial form, *Lanceolata*, is one of the best perennials we have. Both kinds are excellent as cut-flowers.

Convolvulus. There are several forms, annual and perennial. Most of them are climbers. *C. tricolor* is a hardy annual growing only a foot high, which makes an excellent border for beds. Flowers open only in the sun.

Cosmos. T. A. One of the most showy of the tall-growing annuals. The seeds must be started indoors to get early effects. It makes a fine pot-plant indoors for early fall flowers, after the frost has killed the plants growing in the open. *Lady Lenox* is the largest-flowered variety; five inches across.

Dahlia. T. P. The dahlia does best during the cool weather. In most localities, if the plant is started early, it commences to flower during the hot summer weather, but the flowers are small. Late-started plants produce larger flowers. Stake the plants to prevent their being blown over by high winds.

Dianthus. H. P. Blooms the first year from seed. *Heddewigi* is the earliest-blooming form. Best grown in clumps in borders or as edgings; are good cut-flowers.

Digitalis. H. B. Plant in clumps or masses at back of border. The seeds will self-sow, which results in practically a permanent plantation. Protect the seedlings over winter with dry leaves.

Eschscholtzia. H. A. The seeds must be sown where the plants are to grow. Excellent for massing

or as edgings to beds, for its glaucous foliage looks well all summer.

Evening Primrose. H. B. *Lamarckiana* is the best form. The flowers open in the evening and are fragrant. They are four to five inches across. *Acaulis* is a good white variety.

Flax. H. A. Grow in clumps in a sunny border. The flowers last only a day but they are borne in great profusion. Will succeed in a dry, sunny place.

Four O'clocks. H. A. A good bedding plant for sunny places. Also is a good edging for borders. Flowers open in the morning and late afternoon, but are closed during the middle of the day.

Gaillardia. H. A. One of the showiest and most useful annuals, excellent for beds and needs no edgings in such cases. Plant for mass effects. Keep the old flowers cut off and the plants will stay in bloom all summer.

Gilia. H. A. Very vigorous, free-flowering plants that are excellent for low masses, or as edgings, or to fill pockets in rockeries. The seeds should be sown where they are to grow. They will succeed in any soil. *Tricolor* is the best tall variety.

Globe Amaranth. H. A. This is one of the so-called everlastings. It is excellent as a bedding plant, remaining in flower all summer. The flower-heads are about an inch across. It does best with a well-drained, sandy loam.

Golden Tuft. H. P. Grow in clumps in the border or in the rockery. The flowers are produced in compact heads.

Gourds. T. A. These are very useful for training over trellises, porches, fences and unsightly objects. Has ornamental fruits of many shapes. Sow the seeds where the plants are to grow, or start them inside in pots, but be careful not to injure the roots when transplanting.

Gypsophila (Baby's Breath). H. A. The habit of all these plants is slender and airy, and still they make a rather compact, symmetrical growth. *Elegans* is most often grown for cutting. It is particularly useful for adding to bouquets of sweet peas. They prefer a rather dry soil, and are excellent for filling in rockeries and underneath shrubberies in borders.

Hawkweed. H. A. A showy annual for the garden but a bad weed in the lawn, so that its cultivation can hardly be recommended, although it is listed in some seed catalogues.

Helianthus. H. A. Grow at the back of the borders or in clumps to cover unsightly objects, such as fences. The seeds make excellent poultry food.

Hibiscus. H. A. Very showy plant, the flowers being three and four inches across. Grow the plants as single specimens in the border. *Moscheutos* is a hardy perennial that does well in moist soils.

Hollyhocks. H. P. Most effective when used in the back of the border. There is a disease which causes

the leaves to wither and die but which can be held in check by spraying with Bordeaux mixture from the time the plants first appear above the ground. If planted behind shrubbery, any unsightliness from the Bordeaux or loss of leaves will be hid.

Honesty. H. B. Will bloom the first year from seed if started early. It is a delightful, old-fashioned plant but seldom grown now. Its chief interest is in the large, flat pods which have broad satiny partitions which remain after the outside of the pod has dropped off.

Hop (*Humulus Japonicus*). H. A. A very quick-growing annual, excellent for covering porches, trellises, fences and unsightly places. The variety *Variegatus* has its leaves splashed with white. The seed often self-sows.

Ipomœa. H. A. There are a great many varieties of morning glories; the moonflower and cypress vine are included under this head. They can be used to cover trellises, porches and any unsightly places, and can be trained almost anywhere on strings. They need a rich, moist soil. The Japanese strain has the largest flowers.

Kochia (Summer Cypress). H. H. A. This plant is excellent as a dwarf hedge. In the fall, the light green foliage changes to a carmine or fiery red. It makes an excellent specimen plant.

Larkspur. H. A. The seeds of this germinate very slowly. Although the plants have a rather straggly

habit, they do not look badly when grown in masses. The flowers make excellent cut-flowers.

Lobelia Erinus. T. A. A charming little plant that blooms very quickly from seed and will continue in flower all summer long. It is particularly useful as an edging to beds. There are red and white varieties in addition to the common blue-flowered form.

Lupinus. H. A. Sow the seeds where the plants are to stand. Grow them as specimen plants or as clumps in a border. They are very showy.

Madia. H. P. A very graceful plant with an open habit. It can be had in flower the first year from seed. When grown in the sun the flowers open only in the morning and evening. Grow it in a shaded place.

Marigolds. H. A. These showy annuals must be grown in a sunny place. They can be had in short or tall forms. The African marigold has the larger flower; French marigolds are short and small-flowered. The only objection to these plants is their odor, which some people do not like.

Martynia. H. H. A. A very interesting trailing plant. Its only excuse for being grown in the garden is its curious-shaped seed-pods, which make good pickles when young.

Matthiola bicornis. H. H. A. Very straggly habit, and during the day the plant is unattractive, but at night the flowers open and are fragrant. Plant it near the porch or windows where the evenings are spent, that its fragrance may be enjoyed.

Mignonette. T. A. The seeds must be sown where the plants are to grow as they will not permit of transplanting. The plants are not showy, but the flowers are very fragrant. Make several sowings, to insure a supply in the garden all summer.

Myosotis (Forget-me-not). H. P. This delightful little plant succeeds best in shady situations in rich, moist soil that is well drained. If the environment is congenial the plants will become established, making a permanent plantation. Otherwise, it will be hard to make it succeed. It can also be used as an edging for borders. It blooms during the cool weather; will bloom the first year from seed.

Nasturtium. T. A. This plant will more fully repay one by its lavish profusion of flowers for the outlay of time and labor than any other annual. The tall varieties can be trained on strings or wire over trellises or porches, or they can be grown to cover rocks or unsightly places. The dwarf forms make excellent edgings. The flowers are good for cutting; the seeds can be used to flavor pickles, or used as capers.

Nicotiana. H. H. A. The flowering tobacco can be used as a bedding plant, either alone or in connection with other plants. The flowers are fragrant at night. The plants will need staking to prevent high winds from blowing them over.

Pansy. H. A. February-sown seed will bloom during the summer and fall. The plants flower best during the cool weather and are used chiefly to fill beds that

will later contain tender bedding plants, such as geraniums.

Petunia. T. A. A bedding plant that grows as luxuriously as a weed, furnishing a profusion of flowers all summer. The flowers are large, three inches across, sometimes larger, and are fragrant. It can also be used for edging borders, for vases and window-boxes.

Phlox. H. A. Produces dazzling effects when sown in masses. Can also be used for edging beds. Has a very compact habit, is a profuse bloomer, and will continue in flower all summer if the old flowers are removed. It is one of the best annuals we have.

Poppy. H. A. To get the earliest flowers, sow the seeds in well-drained ground in the fall, or in the early spring, as soon as the ground is bare of snow. Make several successive sowings. The flowers are very large and can be had in single and double forms. Some of the double-flowered varieties are so full as to be a complete ball. They do best in a sandy loam. They are hard to transplant, and are not successful as cut-flowers.

Poppy, Iceland. H. B. Can be had in flower the same year as sown. To carry them over the winter they must be sown in a well-drained location. As the plants are small they must be grown close together.

Pyrethrum. H. P. They can be had in flower the first season if the seed is sown early. Tchiatchewii is an excellent variety for poor soil. The Golden Feather is a yellow-leaved variety which is much used as an edging in formal beds, and in carpet bedding. Its

flowers are unimportant. It must be kept sheared to form. The taller varieties that usually go under this name, but which are really chrysanthemums, *C. coccinimum*, have daisy-like flowers on long stems. They should be grown in clumps in the border. It is a good cut-flower. The flowers are sometimes four inches across. This is the plant which is meant when people talk about the pyrethrum.

Portulaca. T. A. An excellent little succulent for growing in dry, sunny places. The flowers close at night. They open only in the sun. It is easily transplanted and self-sown. There is no use of planting the seeds until the ground becomes warm for they will not germinate in cold ground.

Salpiglossis. H. H. A. A very excellent annual for growing as cut-flowers. It bears beautiful, funnel-shaped flowers, having dark veins on a ground which varies from white to crimson, yellow and orange. It will grow in any soil but does particularly well in a light, sandy loam that is rich. It withstands drought.

Salvia. T. A. The best scarlet flower for late summer and fall. It is excellent as a bedding plant. Edge the beds with coleus or geraniums. It does particularly well in a light, sandy loam that is rich. There are several varieties which vary in height and in the shade of red.

Scabiosa. H. H. A. A very attractive plant. The seeds are sown in May and the plants commence to flower in July and continue until frost. The flowers

are small and are borne in large clusters on long, wiry stems. It can be grown either as clumps in borders or in masses.

Silene. H. A. Bright-colored free-flowering annuals that are excellent for use in the border or in the rockery. It prefers a light, sandy soil, with full exposure to the sun.

Snapdragon. H. P. The peculiar shape of these flowers makes them very attractive. They will bloom the first year from seed. The flowers are borne in dense spikes that are produced all summer long. It is excellent as a bedding plant and as a good cut-flower, lasting well in water.

Stocks. H. H. A. An excellent bedding plant, or it is good for clumps in the border. The flowers are fragrant. It is a good cut-flower, lasting well in water. The double varieties are best. The autumnal- or late-flowering sorts, which can be had in named varieties, are excellent for fall and winter culture in pots or in benches in the window garden or greenhouse. The seed is sown in the spring when all danger of frost is past and the plants transferred to the house on the approach of cold weather.

Sweet Alyssum. H. A. One of the best annuals, good for growing in clumps in the border or as an edging. Seeds sown out-of-doors in well-drained ground in the fall will bloom early the following summer and continue to flower until cold weather.

Sweet Peas. H. A. To attain success with sweet

peas the seed should be sown as early in the spring as the ground can be worked. In localities where the winter is not severe they can be sown in the fall. A deep, rich, moist soil is best suited to sweet peas. Late-planted seeds will not succeed so well, because the plants will not have become established and made much growth before hot weather sets in. Syringe the plants on clear days, striking the under side of the leaves with the water to dislodge the red spider.

Sweet William. H. B. Blooms the first year if seed is sown early. Grows in clumps in the border, or as a bedding plant. To prolong the blooming season, remove the old flowers. This is a splendid, old-fashioned plant which produces an abundance of beautifully colored, sweet-scented flowers.

Venus' Looking Glass. H. H. A. A dainty little plant having bell-shaped flowers one inch across. It is excellent as an edging plant. It does not transplant well.

Verbena. H. H. A. One of the best bedding plants and is also a good cut-flower. Fine varieties are perpetuated by cuttings. It is useful for beds, borders, mounds, vases and window-boxes. Plants raised from seed are stronger and produce more flowers than those raised from cuttings. It delights in a rich soil with full exposure to the sun.

Zinnia. H. A. A very prim, formal-flowered plant that bears an abundance of bloom until freezing weather arrives. It does well in light soil, and is a good drought-

resister, but is best when given rich soil. It can be used as a bedding plant, as clumps in borders, for edgings and low summer hedges. Some of the newer larger-flowering kind are much larger and better than the old-fashioned sort.

HOW AND WHEN TO SPRAY

The day has passed in which fruit trees or other plants bearing edible portions can be raised without attacks from insect enemies or plant diseases. A spraying outfit is a necessity. In the following pages the more important pests are mentioned, with the best means of holding them in check.

FRUIT GARDEN PESTS

Apple

APHIS.—Small, green, soft-bodied insects on the under side of the leaves, appearing in April and May on the expanding buds. When present in large numbers, they cause the leaves to roll inward, making it hard to reach them by sprays. In that condition, the growth, with leaves, should be removed. To hold them in check, spray with kerosene emulsion (V) * or whale-oil soap (VI). They pass the winter in the egg stage, the eggs being laid on the twigs near the buds. The winter spraying with lime-sulphur wash (Xa) will kill the eggs.

CANKER-WORM.—Measuring-worms, dull in color. More troublesome in New England and northward

* The roman numerals refer to the formulas given on pages 77-82.

than South. They appear in April and May, eating the young foliage. Band the trees with a sticky substance in February or March, to prevent the female from crawling up the tree. Spray with arsenate of lead (I) as soon as the insects appear. Repeat in a day or two, if they were not all killed by the first spray. Thoroughly cultivate the ground in June and July, to break up the cells in which they pass the winter.

BORER.—The grub of a beetle. The eggs are laid on the bark in June. The egg hatches and the grub mines the sapwood. Wash the trunk of the tree with carbolic soap (XII). Wrap the trunks in May, allowing the wrapping to stay on until December. Inject carbon bisulphide in the tunnels.

BUD-WORM, OR MOTH.—Small caterpillars mining in the buds. Spray with arsenate of lead (I) as the green leaves begin to show in the buds. Repeat just before the buds open, and again after the petals fall.

CODLING-MOTH.—The grub that makes wormy apples. It enters the calyx, and lives on the core, afterward eating its way out. Spray with arsenate of lead (I) as soon as petals fall; repeat in ten days. Pick up and destroy all fallen apples. Cultivate the acquaintance of, and protect the little woodpeckers, called sap-suckers; they eat them. Repeat the spraying in June for the second brood coming from your neighbors' trees.

CURCULIO.—A snout beetle that punctures the skin, leaving crescent-shaped marks, and causing knotty growth in apples. Spray with arsenate of lead (I) as

soon as the petals fall; repeat in ten days. Give a third spraying two weeks later.

CASE-BEARER.—A small grub living in a cylindrical silk case. Spraying for the bud-worm will also exterminate this pest.

OYSTER-SHELL BARK-LOUSE.—A small sucking insect which protects itself by a brown oyster-shell-shaped case. Spray trees and shrubs, while dormant, with lime-sulphur wash (Xa) or with kerosene emulsion (V), or whale-oil soap (VI), in late May (about the 25th) and early June.

RAILROAD-WORM.—This is the white grub infesting early summer apples. The best preventive is to pick up and destroy all windfalls.

RED-HUMPED APPLE-WORM.—Has a red head and a red hump on its back, body striped yellow and black. It appears in June and July, and strips the foliage from the ends of the limbs. Hand-pick, spray with arsenate of lead (I), kerosene emulsion (V), or whale-oil soap (VIc), when insects appear.

TENT-CATERPILLAR.—The insect that builds large webs in the early spring in apple and cherry trees. Destroy the webs as soon as they appear. Best done in early morning or late evening when dew is on by rubbing on and around the limbs and in the nest, a rag soaked in kerosene; or, spray the webs with kerosene.

WOOLLY APHIS.—Small, soft-bodied insects, covered with a woolly, waxy covering. Present the year round on the roots, causing knots, and also on the trunk or

limbs. Lift soil about trunk, and spread an inch of tobacco (IXa), putting the soil back again. Spray above ground, when present, with kerosene emulsion (V) or whale-oil soap (VIc).

BITTER-ROT.—A faint, light brown discoloration under the skin of the fruit, which later becomes dark brown. Appears in July and August. Winters in “cankers,” which are rounded or oblong sooty—black, sunken spots. Cut off the canker spots. Spray with Bordeaux mixture (XVIII) or lime-sulphur wash (X) once before buds open, and every two weeks in July, and until fruit is almost ripe.

RUST.—Causes bright yellow spots on leaves and fruits. Appears in May and June. Spray with Bordeaux mixture (XVIII) or lime-sulphur wash (Xb). As the “cedar apple,” or knotty balls, on cedar trees, is one of the necessary forms in the life history of this fungus, they must be destroyed if growing near apple trees.

SCAB.—Brown spots upon the leaves, causing them to curl and to become torn; on the fruit, brown or black blotches, one-fourth to one-half inch in diameter. It sometimes kills the blossoms. Turn under, early in the spring, all fallen leaves. The fungus lives over winter on them. Spray with copper sulphate (XIII) or lime-sulphur wash (Xb) before the buds open. Repeat with lime-sulphur wash (Xc) or Bordeaux mixture (XVIII) when petals drop, and repeat twice at intervals of ten to fourteen days.

SAN JOSÉ SCALE.—Grayish or blackish scales as big as a small pinhead, incrusting the branches and causing small reddish spots in the fruit. Will kill the tree. Prune the tree when dormant, cutting out the badly infested branches, and spray with lime-sulphur wash (Xa) or whale-oil soap (VIa), and repeat the lime-sulphur spray as late as possible in the spring before the buds open. When young hatch, spray with kerosene emulsion (V) or whale-oil soap (VIc).

Blackberry, Dewberry, Raspberry

CANE-BORER, CANE-MAGGOT, TREE-CRICKET.—These bore into the cane, causing the tips to die back. They appear any time in the summer. The only remedy is to cut the cane back below the injury and destroy these prunings by fire. The punctures can be seen in winter when the foliage is off.

ROSE SCALE.—A pure white, very conspicuous, nearly oval scale, about an eighth of an inch in diameter. Always present. Remove and burn badly infested canes, and spray with kerosene emulsion (V) in May.

SAW-FLY, OR SLUG.—A little, light green caterpillar, or slug, with black spines, appearing in June, or early July, which eats round holes in the leaves, and finally defoliates the plants. Spray with arsenate of lead (I) when the leaves have expanded or when the insects appear, and repeat in a few days, or as may seem necessary. Dust with hellebore (IV).

ANTHRACNOSE.—First small, and finally long, irregu-

lar brown or purple spots on the young canes. Remove badly infested canes. Spray with copper sulphate (XIII) before the leaves appear, and, when young canes are six inches high, spray with Bordeaux mixture (XVIII), and repeat frequently until fruit is two-thirds grown.

ROOT-KNOT OR CROWN-GALL.—A knotty growth at the crown of the plant, i. e., at the base of the canes, which has hairy outgrowths. The only remedy is to dig out and burn infested plants.

RUST.—A fine orange dust (spores) on the undersides of the leaves in June. There is no remedy. Dig out and destroy infested plants, whether cultivated plants or wild ones, in the vicinity of the fruit garden.

Cherry

APHIS.—See under Peach.

SLUG.—Same as Pear-slug.

CURCULIO.—Same as Plum-curculio.

BLACK-KNOT.—See under Plum.

BROWN-ROT.—See under Peach.

LEAF-BLIGHT.—See under Plum.

Currants

APHIS.—A small yellow plant louse, appearing in May and found on the underside of the leaves, which causes galls on the leaves, and also curling of the leaves. Spray with kerosene emulsion (V) or whale-oil soap (VIc), when they first appear, and repeat in ten days.

CURRENT-WORMS.—A light-green worm an inch long, with black spots, which appears in May or June; first, near the ground, and later further up on the plants, eating the leaves and often stripping a bush in a few days. Spray with arsenate of lead (I) as necessary. When fruit is half-grown, use hellebore (IV).

LEAF-BLIGHT.—Appears in June or July in the form of round spots on leaves. Spray with ammoniacal copper carbonate (XIV) while the plants are in fruit, afterward with Bordeaux mixture (XVIII).

Gooseberry

CURRENT-WORMS.—See Currant.

MILDEW.—Powdery appearance on the leaves of the young growth. Spray with Bordeaux mixture (XVIII) before the buds open. Afterward spray with potassium sulphide (XV) every ten days, or with ammoniacal copper carbonate (XIV).

FOUR-LINED LEAF-BUG.—A small, yellow bug (three-eighths of an inch long) with four black stripes, appear in early summer, eating the leaves. It is hard to kill, needing strong kerosene emulsion (V). Dilute the stock solution only five times, as a weaker solution will fail. Pruning in winter will help, as the insect winters in the egg stage; burn the prunings.

BORER.—Bores and girdles shoots. Cut them out in the spring after growth has started sufficiently to show which canes are dead. At any time during the summer, cut off wilted twigs.

CURRENT SPAN-WORM.—Bright yellow, one inch long, with white lines and numerous black spots, appearing in May or June. Let hens run among the bushes, or hand-pick. Rake up and burn in the fall all fallen leaves near bushes. Spray with arsenate of lead (I) before fruit is half-grown.

Grape

GRAPE BERRY-MOTH.—A small grub mining in the fruits, which wither. They appear from June to August, and can be held in check by using arsenate of lead (I) in the Bordeaux mixture (XVIII) during spring spraying.

CATERPILLARS.—There are several forms of larvæ which feed upon the grape leaves, which can be held in check by spraying with arsenate of lead (I) in Bordeaux mixture as the buds are opening.

GRAPE CURCULIO.—A snout beetle which punctures a hole in the grape and deposits an egg, leaving a brown spot, which, in the case of dark-colored grapes, turns to a purplish area; or the whole grape may color prematurely. They appear in July or August. Spray with arsenate of lead (I) once a week, late in June and in July. Bag the grapes. This latter is absolute insurance against loss.

FLEA-BEETLE.—A small steel-blue insect, which, both as a beetle and as a grub, feeds upon the leaf of the grape. Spray with arsenate of lead (I) as the buds begin to swell.

LEAF-HOPPER.—One-eighth of an inch long, and prettily marked with green, rosy-red, and yellow, appearing in August. Spray with kerosene emulsion (V) and catch on sticky shields.

PHYLLOXERA.—An aphid which lives on the roots of the grape. Does but little damage to American grapes, but the European or *vinifera* varieties succumb. To kill, inject bisulphide of carbon into the soil about the roots.

ROOT-WORM.—A bluish grub, or worm, with four black stripes and four light stripes. Inject carbon bisulphide into the ground about the roots. Spray leaves, when the moth is found, as for flea-beetle.

GRAPE-ROOT BORER.—A worm one and one-half to one and three-fourths inches long, which bores into the roots. Dig them out. As a preventive, bank soil about the cane.

ROSE-CHAFFER.—Spray with arsenate of lead (one pound to five gallons) before they arrive in June.

GRAPE-CANE BORER.—A brown beetle will be found in the grape twig, which suddenly wilts and breaks off in the spring. It is especially bad in the South. Cut off and burn all injured shoots, and also diseased wood and rubbish about the vines.

ANTHRACNOSE.—Deep pits and scars on the canes, and discolored leaves. Spray with copper sulphate, six and one-half ounces to five gallons, before the buds open.

BLACK-ROT.—A fungus which attacks the full-grown

berries, which become shriveled and black. Bag the grapes. Spray with Bordeaux mixture (XVIII), commencing as soon as fruit sets, and giving from three to six more applications. Burn all diseased prunings, rotten fruit, etc.

DOWNY MILDEW.—Brown downy patches on the under side of the leaves, rotting, turning brown or gray. Spray with Bordeaux mixture (XVIII) as for black-rot.

POWDERY MILDEW.—Dull white powdery patches on the leaves. Treat as for black-rot.

Peach

APHIS.—Black aphids which live on the under side of the leaves, causing them to curl. They are worst in May and June. Spray with kerosene emulsion (V), whale-oil soap (VIc), or with tobacco (IXb), before leaves curl. When leaves have curled, the only remedy is to cut all twigs with curled leaves.

BORER.—A soft, white-bodied grub, having a reddish brown head, which hatches from eggs laid upon the bark of the trunk, at or near the surface of the soil, during the summer months. They burrow through the inner bark and sap-wood of the trunk and larger roots.

1. Dig them out in fall and spring, using a sharp knife, and always cutting with the grain of the wood, never across the grain.
2. Make a mound of earth about the trunk of the tree June first, leaving it until September first.
3. Wrap the trunk with paper and other material,

paint trunk with carbolic soap (XII) or with residue of lime-sulphur wash, to prevent egg-laying.

CURCULIO.—See under Plum.

BROWN-ROT.—The fruit turns brown and dries up. These are mummies and hang on all winter. The fungus also attacks the flowers and growing twigs, killing them. Spray with copper sulphate (XIII) just before the buds open, and with lime-sulphur wash (XI_d) every two weeks until fruit is nearly grown.

PEACH-LEAF CURL.—The leaves have yellow or red blotches and curl up. Spraying with lime-sulphur wash (XI_a) before the buds open will prevent it.

PEACH ROSETTE AND YELLOWS.—No known remedy. Dig out and burn at once all infested trees.

Pear

CODLING-MOTH.—See under Apple.

MIDGE.—A very small fly, which appears when the first buds of spring open. It lays its eggs in the flowers as soon as they show white. The larvæ work their way into the ovule, or seed capsule, causing the fruit, when it is the size of a nut, to stop growth. The fruit is irregular in shape, knotty, and the center full of small yellow larvæ. They drop in June. Plant a catch-crop of the Lawrence pear, a variety of which it is especially fond. Sow Kainit one thousand pounds to the acre, between the middle and end of June; or work an abundance of powdered tobacco (IX_a) into the soil at this same time, for then the larvæ are making their way from

the fallen cracked fruit into the ground. If a few Lawrence pear trees are planted as a catch-crop, the other trees will be practically free from this insect.

BORER.—Rarely present in large numbers. Larvæ similar to peach borer. Paint trunks with carbolic soap (XII).

PEAR-LEAF MITE.—Small reddish spots appear on the upper surface of the leaves, or before they have fully expanded in spring, which later become black, the tissues of the leaf drying. It is caused by a small creature similar to the red spider found on house-plants and in greenhouses. Spray in winter or spring, before buds open, with kerosene emulsion (V), diluting the stock solution with only five to seven parts of water.

PEAR-TREE PSYLLA.—A small jumping louse one-tenth of an inch long. There are two forms, dark and light. The dark form spends the winter in the crevices of the bark, coming out in spring, laying eggs which hatch into worms, or larvæ, that suck the sap from the leaves, and exude a honey dew. They are present all summer, but are worst in July and August. Spray with lime-sulphur (Xa); or kerosene emulsion (V), diluted only five to seven times, when the tree is dormant; and with whale-oil soap (VIb) in April.

PEAR-SLUG.—A greenish-black, slimy slug one-half of an inch long, appearing in June and July, eating the skin of the leaves. Spray as soon as they appear with arsenate of lead (I), pyrethrum (VII), or hellebore (IV).

FIRE-BLIGHT, OR TWIG-BLIGHT.—The foliage on the twigs turns brown or black. The dead leaves do not drop. Cut off below injury, burning the prunings.

LEAF-BLIGHT, OR SPOT.—Reddish-brown spots on the leaves, which later run together, and finally the leaves drop. The fruits have small black spots, which may cause it to crack open. Spray with Bordeaux mixture (XVIII) or with lime-sulphur wash (Xb), as for scale.

RUST.—See under Apple.

SCAB.—See under Apple.

Plum

APHIS.—See under Peach.

CURCULIO.—The worst enemy of plums and cherries, and is destructive to peaches. The beetle has a long snout with which it pierces the young fruit just after the petals drop (May, June), leaving crescent-shaped scars in which are deposited eggs. These hatch, the grub eating toward the stone. It causes the fruit to drop, usually when only half-grown. If older, the fruit has a drop of gum over the puncture. Spray with arsenate of lead (I). It is important to destroy this pest, as it helps to disseminate brown-rot.

LEUCANIUM, OR PLUM-SCALE.—A dark brown hemispherical scale, one-eighth of an inch long, which sucks the plant juices. Spray with lime-sulphur wash (Xa) when the trees are dormant. Two sprayings during the winter are necessary.

BROWN-ROT.—See under Peach.

BLACK-KNOT.—Black, knotty swellings on the twigs and smaller limbs, that are caused by a fungus. Can be controlled by spraying with Bordeaux mixture (XVIII), but it is much better handled by cutting out all infested branches, before March first, as the spores ripen during the winter and spread in early spring. Burn at once all prunings.

SHOT-HOLE FUNGUS.—Small, round, purple or brown spots, which later drop out, leaving the leaves full of holes. Often the leaves turn yellow and drop by mid-summer. Easily controlled by spraying with lime-sulphur wash (Xa), copper sulphate (XIII) before the leaves appear, and lime-sulphur wash (Xd) or Bordeaux mixture (XVIII) when the leaves first appear, and repeat every two or three weeks, until the fruit is three-quarters grown.

QUINCE. See under Apple and Pear for insects and diseases.

Strawberry

LEAF-ROLLER.—A small, brownish caterpillar, appearing in late May or early June, that folds the leaflets by bringing the upper surfaces together and fastening them. They eat the leaves, which then turn brown. The best method of destroying the pest is to mow and burn the leaves after the fruit has been gathered.

ROOT-APHIS.—These grow on the roots, and are bluish in color. Clean plants only should be set. Infested plants can be cleaned before setting by fumigat-

ing with tobacco (IXc), dipping them in tobacco juice, (IXb), or stirring into the ground around infested plants tobacco dust (IXa).

SAW-FLY.—Give the same treatment as for raspberry saw-fly.

WEEVIL.—A small black-snout beetle similar to the curculio, which deposits its eggs in the buds, and then partly gnaws off the stems below the buds, causing them to wilt. No remedy. Pick off and burn drooping flower stalks.

LEAF-BLIGHT, LEAF-SPOT, OR RUST.—Reddish or purplish spots on the leaves. Spray with Bordeaux mixture (XVIII). Removing the leaves, as advised for the leaf roller, helps to diminish this pest.

IN THE VEGETABLE GARDEN

All Vegetables

APHIS.—Small black, red or green sucking insects, as big as a pin-head, usually the underside of the leaves. Spray with whale-oil soap (VIc), tobacco water (IXb), or kerosene emulsion (V).

CUTWORMS.—Soft-bodied, hairless grubs, living in the ground during the day and foraging at night. They vary in color from black to white, and are particularly harmful in March, April and May. They cut off the plants at the surface of the ground. 1. Use poisoned bran mash (III), putting around a few days before planting, or protect the plants by placing a ring of the

mash around each plant. 2. Wrap brown or manila paper about each plant before planting, letting the paper extend one and one-half inches above and below the ground. The paper will last long enough for the plants' stems to become tough enough not to be good cutworm food.

WIREWORMS.—Long, slender, cylindrical worms, with hard, shiny, smooth, yellow bodies, having three pairs of legs close to the head. They do much damage in April and May by boring into seeds, eating the surface of root-crops, and cutting the tops of such crops as they appear above ground. Scatter poisoned slices of potatoes about field known to be infested, and cover with boards. Soak corn in solution of strychnine and sow over field two weeks before planting.

FLEA-BEETLES.—Small, black, shiny beetles, as big as a pinhead, that jump about like fleas. Although a fungicide, the best remedy is to coat the plants with Bordeaux mixture (XVIII). These are particularly bad on potatoes and tomatoes.

Asparagus

ASPARAGUS BEETLE.—A slender beetle, one-quarter of an inch long, blue-black, with yellow spots on back. Both the beetle and its grub (young) attack the tender shoots, eating holes in them, and the beetle lays rows of dark eggs upon the stalks. The larvæ can be killed by dusting fresh air-slaked lime on the plants in the early morning while the dew is on.

RUST.—Blister-like spots on the skin of the stem, under which are the brown spores. It causes the plants to have the appearance of maturing early. Cut off and burn all infested stalks in the fall, and in August spray three times, ten days apart, with Bordeaux mixture (XVIII).

Bean

SEED-CORN MAGGOT.—A small grub which scrapes and eats seeds, sprouts, and underground stems. Soak the ground, as soon as injury is apparent, with hellebore, two ounces to one gallon of water.

WEEVIL.—A small brownish gray or olive snout-beetle. Throw bean seed lightly into water; those so badly damaged as to be useless will float. Burn them. Dry the balance, and sow at once.

ANTHRACNOSE, OR PODSPOT.—Affects leaves, stems and pods, causing unsightly sunken spots. Soak bean seeds one to two hours in ammoniacal copper carbonate (XIV) before planting. Spray the young plants, when they are two to three inches high, with Bordeaux mixture (XVIII). Repeat in ten days, and again as soon as the plants have flowered. By selecting your own seed from pods which are not infested, you can largely avoid this disease.

BLIGHT.—Attacks lima, as well as common beans. It appears on all parts of the plants; small yellowish spots, increasing in size, and which later turn brown. The disease can easily be told from anthracnose, as the spots

are not sunken. It is less prevalent on fresh land. Burn, in the fall, all bean vines, as the bacteria live over winter on the vines. Keep the plants free from insects; they help to spread the disease.

DOWNY MILDEW.—Downy patches on the leaves, that are very destructive at times. Spraying with Bordeaux mixture (XVIII), as suggested for anthracnose, will prevent it.

Beets

PLANT-BUGS.—A flattened, sucking bug, one-fourth of an inch long; brown, with yellow and black markings. These hibernate under grass and rubbish. Burn all rubbish about garden. Spray with kerosene emulsion (V).

LEAF-SPOT.—A leaf-spot fungus attacks the leaves, causing them to drop prematurely. Spray with Bordeaux mixture (XVIII) every two weeks.

SCAB.—Same as potato scab. Do not grow beets on land that has grown scabby beets or potatoes.

Cabbage and Cauliflower

CABBAGE-LOOPER.—A green worm, one to one and one-fourth inches long, lined with white, which loops like a span-worm. Give same treatment as for cabbage-worm.

CABBAGE-MAGGOT.—A small white maggot, one-third of an inch long. Sometimes two or three work on the same root. Spread a tablespoonful of tobacco dust

(IXa) about each plant, when planting; renew it once a week for three weeks.

CABBAGE PLUSIA.—A dark gray moth, deposits pale greenish yellow eggs, singly or in clusters, on the upper surface (usually) of cabbage leaves. These hatch, and the resulting pale green grubs are, when mature, an inch long. They bore holes in the cabbage head. Spray with kerosene emulsion (V), adding, if necessary, resin soap (II) to make it stick. Dust with pyrethrum (VII), adding, for convenience of handling, two parts of flour.

CABBAGE-WORM.—Velvety green caterpillar, more than one inch long when mature. Present from planting-time on, and damages plants by eating holes in the leaves. Spray with arsenate of lead (I), to which has been added resin-soap (II). After heading commences, use hellebore (IV).

HARLEQUIN BUG.—One of the “stink” bugs. Shiny black, or dark blue, with red or yellow spots. It sucks the sap. Present in numbers in April and May. Plant a trap-crop of mustard, radish or rape, a few days before planting the crop, and, when the bugs have collected on them, spray with pure kerosene or kerosene emulsion (V), stock solution, diluted with four parts of water.

BROWN- OR BLACK-ROT.—This dwarfs the heads or makes them one-sided, and, in cases of early infection, there may be no head at all. Upon examination of the stumps of affected plants, a brown or black ring will

be observed, corresponding to the woody part of the stem. There is no remedy, preventive measures only can be used. Plant only on clean land and from uninfested seed-beds; avoid a succession of cruciferous crops on the same land. Remove at once, and destroy badly infested plants and leaves.

CLUB-ROOT.—Knotty, twisted root growths which stunt the development of the head. It is caused by a slime mold. Rotate the crops, never growing cruciferous crops twice in succession on the same land. Give land on which these crops are to be grown a dressing of fresh stone lime and sulphur (VIII^d), using two bushels to a piece of land twenty-five by fifty feet (or seventy-five to eighty bushels per acre).

Celery

CELERY CATERPILLAR.—A handsome and conspicuous caterpillar which feeds upon the leaves. They are about two inches long, and bright green with broken black bands. Spray with arsenate of lead (I) when the plants are small. Hand-pick. Poultry and birds will not eat them, probably because of the offensive odor they emit.

LEAF-SPOT OR BLIGHT.—Rusty, brown spots on the leaves of celery, appearing in June and July. It can be held in check by spraying with Bordeaux mixture (XVIII) every ten days until the plants are well advanced, when ammoniacal copper carbonate (XIII) should be used, to prevent spotting.

Corn

CORN-EAR WORM.—Green worms which, when full-grown, are an inch long. They feed upon the kernels. Hand-picking is the best remedy, and it can be greatly helped by fall plowing.

CORN-ROOT APHIS.—Root aphid fostered by ants. They can be largely reduced by plowing corn-fields in late fall. Frequent cultivation with cultivator or disk harrow will also help. Treating the seed-corn with the following is also recommended. One gallon wood alcohol, one pint oil of lemon. Thoroughly mix and sprinkle three ounces or six tablespoonfuls over four quarts of seed, before planting.

SMUT.—Black, sooty growth on the ears. No remedy; pull out all infested plants.

Cucumber, Pumpkin, Squash, Melon

MELON-LOUSE.—A greenish black plant louse with or without wings, that suck the sap. They are present from early spring. Spray with kerosene emulsion (V) made of whale-oil soap instead of hard soap, and dilute twelve to fifteen times. Be sure to get it on the under side of the leaves.

SQUASH-BUG.—A rusty, black, flattened bug, half an inch long, that sucks the plant juices. It has a repulsive, buggy odor. They winter-over under boards, leaves, etc., appearing in late spring or early summer. Hand-pick during the cooler part of the day when they are sluggish, dropping them into a can containing ker-

osene. In the fall, thousands can be slaughtered by laying shingles or small boards about the garden. The bugs will gather on the underside to pass the cool nights, and from these traps early morning collections may be made.

STRIPED CUCUMBER-BEETLE.—A beetle, one-fifth of an inch long, straw yellow in color with three black stripes on the back. They gnaw the skin of the stem and eat holes in the leaves of young plants. Protect by shallow frames covered with mosquito netting. Sprinkle tobacco dust (IXa) on the leaves while the dew is on. Spray with Bordeaux mixture (XVIII) containing arsenate of lead.

ANTHRACNOSE.—Causes circular dead spots in the leaves, one-fourth of an inch in diameter. Use Bordeaux mixture (XVIII). This can be checked after it appears.

DOWNY MILDEW.—Appears late in July or in early August. It causes angular yellow spots on the leaves, later the whole leaf turns yellow and dies. Commence spraying about July 20 with Bordeaux mixture (XVIII), and repeat every seven to nine days.

LEAF-BLIGHT.—More particularly destructive to melons. Large dead areas are noticed on the leaves, which can be told from downy mildew by the tendency to break out, leaving holes. Spraying with Bordeaux mixture (XVIII), as for downy mildew, will hold it in check for a time at least. Repeat every seven to nine days, and be thorough.

Lettuce

LETTUCE-ROT.—Caused by a rot fungus, and is more frequent indoors than out. The plants rot off at the surface, and the central portion of heading varieties becomes attacked. Sterilize the soil with steam. Maintain a temperature of less than 50° Fahr. at night; too high a temperature helps to induce rot. Ventilate the house thoroughly at all times. Burn all infested portions of the plants.

Onions

BLACK ONION-FLY.—A white maggot, a little larger than the onion maggot, that feeds on stored as well as growing onions. Fumigate stored onions with bisulphide of carbon for forty-eight hours, using one pound of liquid to one hundred cubic feet of space to be treated.

ONION-MAGGOT.—The maggot (grub) of a small fly, resembling the house-fly. The egg is laid on the young plants early in the season, and the grub eats into the bulb. The treatment for cabbage maggots helps. Kerosene-soaked sand placed about the plant also helps. Fertilize freely, to stimulate a strong growth.

THRIPS.—Small (one-twentieth of an inch long), active, yellowish-winged insects, that jump like fleas, and feed on the skin of the leaves. Clean away all weeds from about the garden, before planting. Spray frequently, when insects are found to be present, with kerosene emulsion (V) or tobacco water (IXb).

SMUT.—A very bad fungus that attacks the plants when they are very young. It appears in the form of a black, dusty powder on various parts of the plant. Onions started in sterile soil, and transplanted outdoors later, will not be attacked. Where seeds must be planted outdoors in infected soil, sow flowers of sulphur in the rows, or put a dripper attachment on the drilling machine and drip a formaldehyde solution in the rows. Use one pound forty per cent formaldehyde to twenty-five to thirty-three gallons of water, and use fifteen gallons of the solution to a lot twenty-five by fifty feet (five hundred to seven hundred gallons to the acre).

Pea

PEA-LOUSE, OR APHIS.—Pea-green in color and one-fourth of an inch long. They usually are found clustered about the young growth, sucking the sap. Spray frequently with kerosene emulsion (V).

POWDERY MILDEW.—A whitish, powdery coating on the leaves and stems; also sometimes dark pin-head spots may be noticed in these white coverings. Spray with Bordeaux mixture (XVIII), to which resin-soap (II) should be added to make it stick. One to two sprayings will be sufficient.

Potato

POTATO-BEETLE.—A hemispherical beetle, three-eighths of an inch long. Light yellow in color with ten black stripes. The slugs are round, red, soft-bodied,

with black dots. They are present all summer and eat the foliage. Spray every ten days or two weeks with arsenate of lead (I). It can be added to the Bordeaux mixture used to spray for blight.

POTATO-BLIGHT, Early and Late.—Leaves become black and die. They usually have a whitish fungous growth on the underside. The late fungus causes the wet rot of stored potatoes. Spray every two weeks with Bordeaux mixture (XVIII). The arsenate of lead for the bugs can be added to this, and the two sprays made at once. Air-slaked lime in the bins among the potatoes will help to check the wet rot of stored potatoes.

SCAB.—Causes the dark, scabby spots on the skins of the potatoes. Plant clean seed, and avoid the use of stable manure on the land. Soak the seed (cut tubers) two hours in formaldehyde (XVI), or one and one-half hours in corrosive sublimate (XVII).

Squash, Pumpkins

SQUASH-VINE BORER.—A white grub, one inch long when full-grown, that bores in the stem down into the root. The borer can usually be found near the level of the soil. Plant as early as possible, between what will be the rows of the main crop, a trap-crop of summer squashes on the ground where the main crop is to be grown, and destroy them later. Cover several places on the stems with soil, so that they can root, so as to be sure that the plants will grow even though the borer does injury to the root.

Sweet Potato

TORTOISE-BEETLE.—Somewhat resembles the lady-beetle in size, and shape; in color they resemble burnished gold. They eat holes in the leaves. Spray with arsenate of lead (I) if injury threatens to become serious.

Tomato

TOMATO-WORM, OR HORN-WORM.—The caterpillar of a sphinx moth. A light-green worm having whitish oblique stripes, which when full-grown is three inches long and as thick as a man's finger. It eats the foliage. Hand-picking is the best remedy in the small garden.

BLOSSOM-DROP.—The flowers drop off before becoming fertilized. The common cause of this is too rich a ground or too much water, either of which causes too luxuriant a growth. Avoid heavy applications of nitrogenous manures and cultivate thoroughly.

LEAF-SPOT, OR LEAF-BLIGHT.—Small whitish round spots on the leaves, which can be prevented by three or four sprayings with Bordeaux mixture (XVIII).

IN THE FLOWER GARDEN

All Plants Indoors

RED-SPIDER.—Very small red mites living on the under sides of the leaves and protecting themselves by a web. They are not troublesome in humid atmosphere but thrive in arid conditions. They are particularly troublesome in greenhouses in very cold weather. The

best remedy is clean water syringed on the plants, striking the under side of the leaves with considerable force, to knock them off.

WHITE-FLY.—A minute white fly which lays its eggs on tomato and other plants. The larvæ suck the plant juices and exude a “honey dew.” On this honey dew there lives a mold. Fumigating with tobacco regularly will usually hold these in check if the houses are free from them in the fall, but, once they get bad, the only remedy is to fumigate with hydrocyanic acid gas, and, as this is an extremely poisonous article, its use is not advised except by those competent to handle it. Its effect on plants is different; some can stand a strong gas, while others are injured by it.

Barberry

RUST.—While not particularly destructive to the barberry itself, the plant acts as a host for one form of the wheat rust. Do not have barberries growing near wheat fields.

Carnation

APHIS.—Pale-green plant-lice or aphid found on the stems and leaves sucking the plant's sap. Fumigate the greenhouse regularly—twice a week, two evenings in succession—with tobacco (IXc) or any of the tobacco compounds now on the market. Syringe the plants the morning after, to knock off dead and stunned aphid.

ANTHRACNOSE.—Grayish brown sunken spots on the leaves. Spray the plants with ammoniacal copper carbonate solution (XIV) frequently. Maintain good growing conditions at all times.

RUST.—An exceedingly serious carnation disease. Little blisters which open, giving off reddish brown spores. The treatment is more preventive than curative. Spray the plants every week or ten days with ammoniacal copper carbonate (XIV). Keep the plants in good condition; avoid checks of any sort. Syringe the plants in the morning only, so that the leaves will be dry by nightfall. Pick off all diseased leaves.

Chrysanthemum

APHIS.—Black plant-lice living on the under side of the leaves, sucking sap. Fumigate with tobacco (IXc) twice a week, as directed for carnation aphid. Do not fumigate after the buds have shown color.

LEAF-SPOT.—Brown or black spots on the leaves, appearing in September. They grow larger, causing the leaf to drop off. Spray with ammoniacal copper carbonate (XIV) every ten days or two weeks; keep the greenhouse well ventilated. On dull days in the early fall, have a little fire heat in the house and ventilate the house.

POWDERY MILDEW.—A powdery white growth on the leaves, which can be held in check by dusting the leaves with flowers of sulphur (VIIIc). It will not occur if

good ventilation is always maintained and there are no checks given the plants.

Dahlia

TARNISHED PLANT-BUGS.—The same as infests the strawberry. The second brood appears in July and August on dahlias, asters, sunflowers, and other fall flowers. Hand-pick; dust plants with pyrethrum powder (VII) or spray with kerosene emulsion (V).

Hollyhock

RUST.—The fungus will be recognized by dense yellowish or brownish dusty spots on the underside of the leaves. It is a serious disease. Spray the plants every ten days or two weeks with Bordeaux mixture (XVIII) from the time the leaves show above ground until they are about to flower. Continue after the plants are through flowering.

House Plants

APHIS.—The same as described for carnations and chrysanthemums. In the house, spray with soapsuds; this is the easiest and cleanest way of fighting the pest.

MEALY-BUGS.—Soft-bodied insects that protect themselves with a sort of woolly wax. They are more partial to coleus, but infest other house-plants. Drop one drop of kerosene oil or alcohol on each insect by using a wooden toothpick.

NEMATODES.—A parasitic worm infesting roses, be-

gonias, and sometimes other plants. They cause small bead-like galls upon the roots. The leaves dry up. There is no remedy. Destroy plants growing in infested soil, and the soil too. Use fresh soil, potting plants next winter.

SCALE INSECTS.—There are several small scale insects infesting house-plants. One is small, round and white; the other is a brown, hemispherical one, like the plum scale. These can be cleaned off by rubbing with a sponge, the more obstinate ones by scratching with the finger-nail.

Morning-Glory

TORTOISE-BEETLE.—The same as on the sweet potato.

LEAF-CUTTER.—A yellowish green caterpillar with black spots, about three inches long. Spray with arsenate of lead (I).

Pelargonium, Geranium

DROPSY.—Dead spots on the leaves which, before they die, will have wet-looking places on the underside of the leaf, which appear translucent when held between the observer and the light. This is caused by too much water in the soil.

Rose

APHIS.—Same as carnation aphid.

LEAF-HOPPER.—A small greenish bug, which jumps

around lively and sucks the foliage. Spray with kerosene emulsion (V).

ROSE-CHAFER.—The brown beetle found eating the rose flowers and buds. Hand-picking is the best, but spraying with arsenate of lead (I), one-half pound to five gallons of water, will help to hold them in check. They appear in June and are worst on sandy soils.

NEMATODES.—See under House-plants.

ROSE-SCALE.—See description under Raspberry.

SLUGS.—A green slug, or worm, which appears late in May, eating holes in the leaves. Spray with arsenate of lead (I), or a simpler plan, where there is water under pressure, is to syringe the bushes with water, knocking them off.

BLACK-SPOT.—This is particularly bad on roses grown indoors. There are black spots a quarter of an inch or more in diameter, which cause the leaves to sicken, turning yellow and later dropping off. Spray with ammoniacal copper carbonate (XIV) once a week.

MILDEW.—Powdery growth on the leaves, the edges also curl up and the leaves become crinkly. It is caused by poor cultural conditions—house too cool, or draughts strike the plant. Dust flowers of sulphur (VIIIc) over the leaves, or moisten with water (VIIIb) and put it on the heating-pipes.

Snapdragon

ANTHRACNOSE.—Brown spots on the leaves. It sometimes kills the plants. Spray with Bordeaux mixture

(XVIII) when the spots are first noticed, and give one or two subsequent sprayings a week or ten days apart.

Sweet-Pea

APHIS.—See under Pea.

Tomato

POINT-ROT.—This is more troublesome on tomatoes growing in greenhouses. A black rot occurs at the point where the flower was attached. This is caused by dryness. It will be particularly bad on benches where the pipes are near the bottom of the benches and the soil thin.

Violet

APHIS.—On the violet they are brown, and infest the crown of the plant as well as the stems and underside of the leaves. Spray with tobacco (IXb) or fumigate with tobacco (IXc), or spray with whale-oil soap (VIc).

CUTWORM.—These cut off and eat the leaves. Poisoned bran mash (III) is effective. Do not use fresh soil in the benches or frames for growing violets. If it must be used, treat it as follows: Add tankage to the soil at the rate of forty pounds to the cubic yard, and pile it up and let it stand. It will generate heat sufficient to kill all the grubs. Let it stand until cool before using.

SAW-FLY.—A dull, olive grub that eats the surface of the leaves. Spray with arsenate of lead (I) or fumigate with tobacco (IXc).

LEAF-TYER.—A small green worm, eating the leaf, that can be held in check in the same way as the slug of the saw-fly.

LEAF-SPOT, LEAF-BLIGHT.—Round white aphid with black outer wings, the whole one-eighth of an inch in diameter. First pick off all infested leaves. Spray with Bordeaux mixture (XVIII) or, if the plants are in flower, with ammoniacal copper carbonate (XIV).

ALL INSECTS DESTROYING TREES AND SHRUBS

THE BROWN-TAILED MOTH is a serious pest in the New England states. This pest winters over in the caterpillar stage in nests made of leaves. Cut off all these and burn them. The full-grown caterpillar is about two inches long, reddish brown in color, with a broken white stripe on each side, and two red dots on the back near the rear. These can be killed by spraying the trees with arsenate of lead (I).

THE BAG-WORM.—You can see this in winter; numerous dark gray conical bags hanging to twigs of the arborvitæ, soft maple, locust or other trees. The damage this insect does, besides feeding on the leaves, is to girdle the twigs. The fastening around the twig is so tough it does not rot easily. Collect the cocoons during the winter, as this is the best method of attacking this pest.

THE GYPSY MOTH.—Eats the foliage of any plant

it comes to. The oval egg masses can be seen in winter at the base of trees and in other places, one and one-half inches long and half as wide. Destroy them. To protect trees from the caterpillars, wrap the trunk with burlap or tanglefoot, to stop their climbing the trees. Spray with arsenate of lead (I) in late spring and early summer.

THE SAN JOSÉ SCALE.—See description under apple. In addition to the fruit trees, this scale infests most seriously the Juneberry, hawthorn, privet, poplar, the various species of prunus, rose, willow, ash, lilac, osage orange, and elm. Spray the trees, when dormant, with lime-sulphur wash (Xa).

WHITE TUSSOCK-MOTH.—This is most commonly found on lindens, horse-chestnuts, elms, and maples, but has damaged many kinds of trees. The young caterpillars appear in May and eat the leaves. This insect does not do sufficient damage yet to pay to spray for it, but effective work can be done against it by collecting during the winter the frothy egg masses found on the bark or on dead leaves, and burning them. The caterpillar is about an inch and a half long, and has four white tussocks on his back and two long, hairy horns on the forward end, and one on the rear end, of his body.

Elm

THE ELM-LEAF BEETLE is doing much damage to elms in the northeastern states. In the spring, the beetles

come out of their winter quarters and eat holes in the leaves. Spray with arsenate of lead (I). Repeat this about June 1, getting it on the underside of the leaves, so that the larvæ or grub will get it. Later in the season, when the larvæ are going to pupate, i. e., go into cocoons, they drop from the tree to the ground, and some may be found on the trunk. The pupæ are yellow. Spray the trunks of the trees and the ground under the trees at this time with kerosene emulsion. During the winter and early spring, search attics, belfries, cupolas, for dormant beetles, collecting and burning them.

Locust

LOCUST-LEAF MINER.—This insect eats the skin of the leaf so badly that in August the trees are as sear and brown as if scorched by fire. Spray with arsenate of lead (I) in the spring, just as soon as the leaves are out, that the adult beetle may be killed before the egg-laying season.

Linden

PUTNAM SCALE.—See under Maple.

Maple

COTTONY MAPLE SCALE.—It is easily recognized by the presence of the white cottony masses which insects exude. These cottony masses protect the eggs. In winter, spray with kerosene emulsion (V), diluting the stock with only six to ten parts of water.

PUTNAM SCALE.—Very similar to San José scale. Usually only trees in cities are infested. Spray, when the trees are dormant, with lime-sulphur wash (Xa).

Maple, Elm

LEOPARD-MOTH.—The larvæ of this insect are particularly destructive about cities. They bore into the twigs and go on down into the larger branches. They ultimately damage the limbs so badly as to kill the branches, or weaken them so that they are broken off by high winds. Hunt the burrows and put carbon bisulphide in them, stopping up the end with putty. Small branches should be pruned off.

Rose Rugosa

THE ROSE-SCALE.—See description under Raspberry. Although it infests all roses, this one is more subject to it than the others. Spray with kerosene emulsion (V) late in May, or with lime-sulphur wash (Xa), when the bushes are dormant.

FERTILIZING THE SMALL GARDEN

To maintain high fertility in the vegetable garden is a very serious problem for some amateur gardeners, for one of two reasons: either good stable manure is not available, or,—and a foolish reason,—they object to using it. Stable manure is the best fertilizer the amateur can use, but in some localities it really is hard to get, for fresh manure, especially fresh horse manure, does not give, under ordinary circumstances, nearly such good results as does well-decayed manure. Stable manure contains a great deal of humus—vegetable matter—in addition to its fertilizing value. This vegetable matter in the soil is absolutely necessary, for without it the soil is unable to perform its proper functions.

The soil is really a great big laboratory that is constantly changing the raw material into forms that are available for use by the plants. Practically all soils contain sufficient phosphoric acid and potash to supply the ordinary demand upon it for plant food. But unless there is a large amount of humus in the soil, the bacteria which help to convert it into an available form cannot exist.

If a good stable manure is used, it will rarely be nec-

essary to resort to any commercial fertilizers to enrich the soil. For those who are unable to secure stable manure, humus must be supplied in another form. It can easily be done by growing such plants as clover or rye, and plowing them under in the spring. The way to do this is to sow these crops in the summer time at the time when cultivation is about over in the garden. For instance, in the cornfield it should be sown at the time of last cultivation, which is usually early in July. It should be sown among potatoes just before the plants actually cover the ground between the rows, so that the last cultivation will cover the seed. With other crops it can be sown as soon as the ground is clear. Where the sowing can be made in July, use crimson clover and hairy vetch or mammoth clover, using one-half of crimson clover and the other half composed of one or the other of the plants just mentioned. Where the sowing must be delayed until late in the season, put in rye. The clovers and vetches are better than the rye because they have the power of fixing the free atmospheric nitrogen, making it available for their own use, and, when turned under, for the use of other plants. In addition to this green manure which is turned under in the spring at plowing-time, some commercial fertilizer must be used. The amount to use will vary according to the plants grown, and to the kind of soil in which the plants are grown. The best way to determine the amount is by experimenting with the piece of ground on which the garden is planted. This, however,

is something which most amateurs have neither the time nor the space to determine. For the ordinary vegetable garden, 150 to 300 pounds of nitrate of soda, 200 to 400 pounds of muriate of potash, and the same quantity of acid phosphate will give good results. This will mean that every square yard should receive from one-half to one ounce of nitrate of soda, and two-thirds to one and two-thirds ounces of muriate of potash and of acid phosphate. These three fertilizers are the raw material, and can be purchased from any seed store, and, in many cases, from other agents. A ready-mixed commercial fertilizer can also be bought from the same sources. If this is done, one which is guaranteed to contain four per cent of nitrogen, eight per cent of phosphoric acid and ten per cent of potash, that is available for plant use, will give good results.

The amount to use of the above fertilizer will vary according to the crop. For instance, asparagus would need, 1,000 to 1,500 pounds per acre; beans and peas, 500 to 600 pounds; beets and turnips, 1,000 to 1,500 pounds, but in the small garden it will not pay for one to attempt to give these exact amounts to the various crops. A general application of 1,000 pounds to the acre, or about three to four ounces to the square yard, will give sufficient fertilizer for most plants. It should be given at the time of preparing the ground for the crop. In addition to this, the various crops should have, from time to time, during the season, a supplementary application of one or more of the raw materials. For

instance, beans and peas should receive 220 to 230 pounds of phosphoric acid to the acre, or a little less than an ounce to the square yard, and 65 to 75 pounds of potash per acre, or about a quarter of an ounce to the square yard; beets and turnips, 50 to 100 pounds of nitrate of soda to an acre, or about a third of an ounce to the square yard, and this can be repeated two or three times while the plants are still young; cabbage, cauliflower, and Brussels sprouts should be given a supplemental top-dressing of 100 pounds of nitrate of soda and 200 pounds of super-phosphate per acre, or one-third of an ounce of nitrate of soda and two-thirds of an ounce of super-phosphate to the square yard. Cucumbers, watermelons, muskmelons, pumpkins and squashes should be given further dressings, in addition, of course, to the commercial fertilizer given at the time of planting, of 200 to 300 pounds per acre of cottonseed meal, 100 to 200 pounds of dried blood, or 300 to 400 pounds of tankage, or, an ounce of cottonseed meal, two-thirds of an ounce of dried blood, and one and one-third ounces of tankage to the square yard.

To reinforce the original fertilization when growing celery, frequent applications of nitrate of soda at the rate of 100 pounds to the acre, or one-third of an ounce to the square yard, will help to induce a strong leaf growth. This can be given several times during the season. The same quantities would apply very well, also, to eggplant, spinach, lettuce, and rhubarb. The best time to use these commercial fertilizers is in the

spring when the ground is being prepared. They are usually harrowed into the soil, having been spread after the ground was plowed, although some people seem to prefer to put their commercial fertilizers in the hill under such crops as corn and potatoes.

In recommending the use of commercial fertilizers in the vegetable garden, I do so only because some people cannot get manure, but barnyard manure will give the best results. Commercial fertilizers, without humus in the soil, act only as a stimulant and they do not give the results,—that is, one does not get one's money's worth from them unless there is a good supply of humus.

The fertilizing of the garden composes one-half of what must be done to raise the crop; the other half is tillage. The ground must be thoroughly worked before planting,—that is, it should be worked deep and carefully pulverized, and after the crops are growing, the surface of the soil should be cultivated once a week. These cultivations should not be deep; an inch or an inch and one-half is sufficient, the object being to maintain a dust mulch upon the surface to prevent the evaporation of soil moisture. This can also be avoided by mulching the soil with such material as salt hay or straw. But the mulch can be maintained by cultivation much more easily and cheaply, in most instances, than by the use of mulches. With the proper tools it will be an easy matter to maintain this dust mulch.

APPENDIX

- I. TABLE OF GENERAL RULES
- II. PLANTING TABLE FOR FLOWERS
- III. PLANTING TABLE FOR VEGETABLES
- IV. PLANTING TABLE FOR BULBS
- V. A PLANTING CALENDAR
- VI. SPRAYING TABLE
- VII. PRUNING TABLE

I. TABLE OF GENERAL RULES

SPRAYING FORMULAS

FORMULAS FOR INSECTICIDES

The following formulas will help to keep your plants free from insects and plant diseases.

INSECTICIDES

The insects infesting cultivated plants are divided into two general classes,—chewing insects and sucking insects,—and the remedies and exterminators are made to suit the kind of insect to be attacked.

FOR CHEWING INSECTS

- I. ARSENIC in the form of Paris green or arsenate of

lead. The latter, arsenate of lead, is so much preferable to Paris green that formulas for it only are given. Paris green, if used in too large a quantity, will burn the plants; arsenate of lead will not, even though used in large quantities, and it remains in suspension much longer than Paris green. It is also sold under such trade names as Disparene. Arsenate of lead is white and comes in paste form. It is usually used at the rate of six ounces to five gallons of water, but can be used at the rate of one pound to five gallons.

II. RESIN SOAP, used to make arsenical poisons stick to smooth surfaces, like cabbage. Five pounds pulverized resin, one pound concentrated lye, one pint fish or any animal oil, five gallons water.

To make, put the resin and oil and a gallon of water in an iron kettle and heat; when the resin has dissolved, add the lye, stirring the solution; add the balance of the water and boil the whole for two hours, or until the solution, when put in cold water, will make a clear, amber-colored liquid. The solution, when boiling, should be kept up to five gallons by adding water to make up for loss by evaporation. To use, dilute one pint of the soap with sixteen pints of water, and add three pints of milk of lime or whitewash, and one-fourth pound of Paris green, or it can be diluted with Bordeaux mixture.

III. POISONED BRAN MASH.—One ounce white arsenic, one to two ounces brown sugar, six to ten ounces bran.

Mix these together, and add enough water to make a wet but not sloppy mash. This is used as a poison bait.

IV. HELLEBORE, an internal poison for insects, but not to man. It is used in place of Paris green or arsenate of lead where there is danger of the poison remaining on the parts of plants to be eaten. Dust dry on the leaves, especially the underside, when the dew is on, or sprinkle the leaves to insure its sticking. As a solution it can be sprayed on, using one ounce to one to three gallons of water.

FOR SUCKING INSECTS

V. KEROSENE EMULSION.—One-half pound hard soap, two gallons kerosene, one gallon water.

Shave up the soap and dissolve it in the water, which should boil. Remove from the stove and, while still boiling, add the kerosene and thoroughly churn it. The best way to do this is by means of a bucket spray pump. Churn until it becomes a soft, butter-like mass. This is a stock solution; to use, dilute with ten to twelve parts of water. For scale insects in winter, stock solution can be used without dilution.

VI. WHALE-OIL SOAP—(a) As a winter spray against scale insects, use two pounds to one gallon of water. Trunk and branches can be painted by hand in summer, but this strength will injure the leaves. Only one application of this strength should be used in a season.

(b) One pound to one gallon of water.

(c) One pound to eight to ten gallons of water.

VII. PYRETHRUM, OR INSECT POWDER.—Burn in the house to kill fleas, flies, mosquitoes and cockroaches. As it deteriorates rapidly, it must be kept in a tight can. To spray, use one-fifth of an ounce (100 grains) in two gallons of hot water.

VIII. SULPHUR.—(a) One ounce to one gallon of water.

(b) Place the flowers of sulphur on steam or hot-water pipe.

(c) Dust on leaves.

(d) Flowers of sulphur, one part; lime twenty to forty parts.

IX. TOBACCO (a) Dust. Sprinkle over cucurbits to drive away the striped beetle. Work it in the ground about plants infested with root-lice. In case of a tree, use one and one-half to two pounds.

(b) Stems. Make a decoction, using one pound to two gallons of hot water. Let it stand for several hours in a tight vessel. It can be greatly improved by adding one ounce of pyrethrum. Dilute to use with three to five parts of water.

(c) Fumigate with stems or with one of the tobacco extracts now on the market. If stems are used, care must be taken not to burn the foliage by too strong a smoke.

X. LIME-SULPHUR WASH.—This is being recommended and used by horticulturists in place of Bordeaux mixture for the treatment of plant diseases, such as

apple scab, as well as for the San José scale, for which it was first used. Commercial lime-sulphur wash ready to use, except to dilute with water, according to the directions, can be bought, and is much handier to use than home-boiled. A home-boiled concentrated solution can be made as follows: One pound lime, two and one-fourth pounds sulphur, one gallon water.

Use an iron kettle, slake the lime in a little water, and add the sulphur when the lime begins to slake. Sift the sulphur in, and be sure there are no lumps. Boil hard for over an hour, or until the sulphur is dissolved, but it must boil for forty-five minutes, at least. Add water as necessary, and, when about finished, dilute with water, preferably hot water, to make one gallon. This should have a specific gravity of 1.30.

(a) For winter, spray for San José scale. Dilute with nine parts of water (or to 1.03 specific gravity).

(b) For spring, spray for apple, pear and quince, to prevent scab. Dilute with twenty to thirty parts of water (or, to 1.01 to 1.015 specific gravity).

(c) For summer, spray for apple, pear and quince. Dilute one part of the stock solution with thirty to forty parts of water.

(d) For peaches, plums and cherries, for the brown rot, dilute with fifty to sixty parts of water (or 1.006 specific gravity).

XII. CARBOLIC SOAP.—Two pounds of soft soap; dilute this with rain-water to consistency of paint, and add one ounce of crude carbolic acid.

FUNGICIDES

XIII. COPPER SULPHATE.—For use on dormant trees, dissolve three ounces in five gallons of water.

XIV. AMMONIACAL COPPER CARBONATE.—Dissolve five ounces of copper carbonate in three pints of ammonia (26° Beaumé); dilute for use with forty-five gallons of water. The stock solution will keep indefinitely if kept in a tightly corked bottle. This will not stain the plants, as will Bordeaux mixture.

XV. POTASSIUM SULPHIDE, OR LIVER OF SULPHUR.—Dissolve one-half ounce in one gallon of water. This loses strength with age; mix it fresh.

XVI. FORMALIN.—For potato scab, one pint to fifteen gallons of water.

XVII. CORROSIVE SUBLIMATE.—Potato scab, two ounces to two gallons of water.

XVIII. BORDEAUX MIXTURE.—In five gallons of water, dissolve five ounces of copper sulphate by hanging in a bag in the top of the tub, and five and one-half ounces of good stone lime, and stir thoroughly. Strain into sprayer and add, when an insecticide is wanted, as well, three to six ounces of arsenate of lead.

XIX. IRON-SULPHATE.—For use on dormant plants only. Dissolve in three quarts of hot water as much iron-sulphate as the water will hold, then add one ounce sulphuric acid.

DIRECTIONS FOR DETERMINING ACID SOILS

Add enough water to a half-cup of soil to make the consistency of thick cake batter, and insert blue litmus paper which may be obtained from a druggist, into it, without touching the part inserted, with the hands. If, when you rinse the inserted end, after an hour or so, it is very much reddened, the soil very likely needs liming. A pinkish color indicates a great deal of acid vegetable matter; brick-red, an absence of acid vegetable matter.

Ammonia water is also used to determine the acidity of soil. Add a teaspoonful of ammonia water to a half-glass of water containing a tablespoonful of soil. If the mixture becomes brown or black after standing for some hours, acid vegetable matter is probably present.

For most plants, lime is not required if the test shows only slight acidity.

DIRECTIONS FOR APPLYING LIME

Lime may be applied after plowing, and mixed in with the harrow, or in the fall, to be followed by the spring plowing. Soils with a great deal of acid vegetable matter may require from 5,000 to 6,000 pounds, but, on sandy soils, 500 pounds to the acre may be all that is needed.

FORMULA FOR GRAFTING WAX

Place one part (by weight) of tallow, two parts of beeswax, and four parts of resin in a kettle. After it

has become completely melted, pour into a tub of cold water, and work it with the hands until it becomes the color of molasses-candy; make into balls before putting away in a cool place. This preparation may be kept for years, and is excellent for both indoor or outdoor use. The hands should be greased before working the wax.

TABLE OF TIME REQUIRED FOR SEEDS TO GERMINATE

	Days		Days
Beans	5-10	Lettuce	6- 8
Beets	7-10	Onions	7-10
Cabbage	5-10	Peas	6-10
Carrots	12-18	Parsnips	10-20
Cauliflower	5-10	Peppers	9-14
Celery	10-20	Radishes	3- 6
Corn	5- 8	Salsify	7-12
Cucumber	6-10	Tomatoes	6-12
Endive	5-10	Turnips	4- 8

TABLE OF TIME REQUIRED FOR MATURITY OF GARDEN CROPS

	Days from seed		Days from seed
String beans	45-65	Muskmelons	120-140
Lima beans	65-70	Onions	135-150
Beets	65	Peppers	140-150
Early cabbage	105	Pumpkins	100-125
Late cabbage	150	Radishes	30- 45
Cauliflower	110	Summer squash	60- 65
Corn	75	Winter squash	125
Eggplant	150-160	Tomatoes	150
Lettuce	65	Turnips	60- 70
Watermelons	120-140		

LONGEVITY OF SEEDS

	Avg. years		Avg. years
Beans	3	Parsnips	1
Beets.	6	Parsley	3
Cabbage.	4	Peas.	3
Carrots.	5	Peppers.	4
Cauliflower.	3	Radishes.	5
Celery.	7	Rhubarb.	3
Cucumbers.	10	Salsify.	2
Eggplant.	6	Spinach.	5
Endive	8	Tomatoes.	4
Muskmelons.	10	Turnips.	8
Nasturtiums.	5	Watermelons	6
Onions.	2		

TABLE OF DISTANCES FOR PLANTING FRUITS

	Ft. each way		Ft. each way
Apples.	30-40	Pears, dwarf.	10-15
Apples, dwarf (Paradise stocks).	8-10	Plums	16-20
Apples, dwarf (Doucain stocks).	12-25	Peaches.	16-20
Pears.	20-30	Cherries	16-25
	Feet apart	Quinces.	8-14
Currants	4 x 5	Grapes	8-12
Gooseberries	4 x 5		Feet apart
Raspberries, black	3 x 6	Raspberries, red.	3 x 5
		Blackberries	6 x 8
		Strawberries	1 x 3

II. PLANTING TABLE

We believe that this is the simplest, the most workable, and devised. It tells the best kinds of plants for special locations and needed for their successful cultivation. It is a wise plan to grow so that any gaps in the bed may be filled as the occasion requires.

VARIETY	WHEN TO SOW SEED		Thin or Trans-plant to (inches)	Height (feet)
	INDOORS	OUTDOORS		
1 Abronia	March	May	12	½ to 1½
2 Achillea (Sneeze-wort) .....	.....	June-Sept. 1	12	1 to 1½
3 Adonis	March	April	.....	1
4 Ageratum	March	May	6	½ to ¾
5 Agrostemma (Rose-of-Heaven)	April	May	6	1 to 1½
6 Alonsoa	April	May	6 to 12	1 to 3
7 Amarantus	April	.....	18	5 to 6
8 Aquilegia (Columbine).....	.....	July-Sept. 1	8	2½
9 Argemone (Mexican Poppy).....	April in pots	May	12	1½ to 2

FOR FLOWERS

consequently the most satisfactory planting table for flowers ever purposes, and gives the most important information which is enough extra plants in a reserve bed or in pots during the summer, This table includes some perennials and biennials, as well as an-

SEASON OF BLOOM	COLOR OF FLOWERS	MISCELLANEOUS INFORMATION
1 July to frost	Yellow, pink, rose	California perennials, treat as hardy annuals. For continuous bloom sow seeds in pots in fall, winter in coldframes.
2 July-October	White	Perennial. The best one is the Pearl, a double variety which is very popular. A good cut-flower.
3 June-August	Crimson	Seed slow to germinate. Prefers light, moist soil; and either full sun or partial shade.
4 June to frost	Blue, white	An excellent bedding plant. The best blue is the var. Stella Gurney. Edge beds with variegated-leaved geraniums.
5 July to frost	Rose, white	Plant in sunny situation in rich soil. Flowers one inch across. Very free flowering.
6 July to frost	Scarlet, white,	Showy annual for border. Flowers one-half to one inch across.
7 August	Red, purple, yellow, white	A good bedding plant where tall plants are wanted. <i>A. tricolor</i> has variegated foliage. <i>A. caudatus</i> has drooping spikes.
8 June-Sept.	Yellow, white, red, blue	Start and winter in coldframe. Transplant in April. Protect over winter with dry leaves.
9 July, August	Yellow, white	Grow in clumps in border; glaucous green foliage very effective with dark background. Leaves spiny.

PLANTING TABLE

VARIETY	WHEN TO SOW SEED		Thin or Transplant to (inches)	Height (feet)
	INDOORS	OUTDOORS		
10 Asperula	April	May	6	1
11 Aster (China) ..	March, April	May	9	1 to 3
12 Aster (Perennial)		July-Sept. 1	12	1 to 3
13 Balloon Vine	April	May	6	10
14 Balsam	April	May	24	2 to 2 ½
15 Bartonina		May		1 to 3
16 Beets	April		6	1 to 2
17 Black Dahlia	March	May	12	1 to 1 ⅓
18 Brachycome (Swan River Daisy)	April	May	6	½ to 1
19 Cacalia (Emilia)		May	6	1 to 2
20 Calandrina		May	6	¼ to 1

FOR FLOWERS—*Continued*

SEASON OF BLOOM	COLOR OF FLOWERS	MISCELLANEOUS INFORMATION
10 Aug., Sept.	Blue	Flowers fragrant. Grow in clumps in border or in rockery. Grow in moist soil in shaded places.
11 July-October	Yellow, white, red, blue	Dwarf kinds may be used as a bedding plant, but beds must be refilled in late summer.
12 Sept., Oct.	White, pink, blue	<i>A. Novæ-Angliæ</i> is the best fall blue flower. Plant for mass effect with dark background or small clumps in border.
13 Aug., Sept.	White	Flowers small, grown for its curious, inflated seed-pods. Grow on fence or trellis for screens.
14 July to frost	Yellow, white, pink, red	The double or Camellia-flowered varieties are best. Grow in clumps in border in sunny situation.
15 July-Sept.	Yellow	Sow seeds where plants are to stand. Flowers two and one-half inches across; fragrant at night. Straggly habit.
16.....	Ornamental foliage	The variegated foliage—red, yellow, green—makes a good mass effect. Plant in beds, edge with Golden Feather.
17 July, August	Dark red	<i>Bidens atrosanguinea</i> of the trade. Has tuberous roots which may be kept over winter. Best for the border.
18.....	Blue, white	Flowers one inch across. Best to grow in border. Very useful as an edging plant.
19 July to frost	Scarlet, yellow	Tassel flower. Has a daisy-like flower three inches across. Does well in any soil.
20.....	Rose, purple	An extremely useful plant in rockeries or as an edging.

PLANTING TABLE

VARIETY	WHEN TO SOW SEED		Thin or Trans-plant to (inches)	Height (feet)
	INDOORS	OUTDOORS		
21 <i>Calendula</i> (Pot Marigold)	March	Late April	6	$\frac{2}{3}$
22 <i>Calliopsis</i> (<i>Coreopsis</i>).	March	April	10	$1\frac{1}{2}$
23 <i>Callirhoë</i> (Poppy Mallow).	April	May	9	1 to 3
24 <i>Campanula</i> (Canterbury Bell)		July-Sept. 1	12	2 to 3
25 <i>Candytuft</i>	April	May	4 to 12	$\frac{1}{2}$ to $1\frac{1}{2}$
26 <i>Cannabis</i> (Giant Hemp).				10
27 <i>Cardinal Flower</i>	March		9	1 to $2\frac{1}{2}$
28 <i>Castor-bean</i> (<i>Ricinus</i>).	April	May	3	4 to 8
29 <i>Catananche</i>	March		6	2 to 3

FOR FLOWERS—*Continued*

SEASON OF BLOOM	COLOR OF FLOWERS	MISCELLANEOUS INFORMATION
21 June-Oct.	Orange, yellow	Must be planted in sunny situation. Flowers open only in sun. One of the easiest grown annuals, Grow in clumps in the border. Self sows. Flower heads used to flavor soups.
22 June to frost	Yellow	A good plant for beds. Flowers all summer if old flowers are picked off. Edge bed with alternanthera.
23 July to frost	Purple, lilac, red, cherry	Very free-flowering. Very showy. Grow in clumps in border. Better to start early in frames and transplant.
24 June-August	Blue, white, pink	Grow in clumps in border. Protect young plants over winter with dry leaves, and coldframe, if possible.
25 June-Oct.	White	The dwarf forms are best for edgings. The taller varieties may be used as bedding plants edged with alternanthera.
26.....	Inconspicuous	Sow seeds where plants are to stand. Excellent for temporary screens, and backs of borders.
27 Aug., Sept.	Scarlet	<i>Lobelia cardinalis</i> must be started early to get flowers same year. Thrives in any good garden loam. Grow in masses.
28.....	Grown for foliage	Use as background to border, temporary screens. Start seeds one in a pot. Killed by the first frost.
29 June-August	Blue, white	Blue daisy-like flowers two inches across. Var. <i>alba</i> white; bi-

PLANTING TABLE

VARIETY	WHEN TO SOW SEED		Thin or Transplant to (inches)	Height (feet)
	INDOORS	OUTDOORS		
30 Celosia (Cockscomb)	March, April	May	6	$\frac{1}{2}$ to $\frac{3}{4}$
31 Carnation (Marguerite)	March	.....	6	1 to $1\frac{1}{4}$
32 Centaurea (Blue Bottle) . . . . .	.....	April	6	2 to 3
33 Centranthus	April	May	9	1 to 2
34 Chrysanthemum, Annual	March, April	May	8	1 to $1\frac{1}{2}$
35 Cleome (Spider Plant)	April	May	8	2
36 Cobæa	March, April	.....	8	10 to 20
37 Collinsia	April	May	8	1 to $1\frac{1}{2}$
38 Convolvulus . . . . .	.....	April	2	$\frac{1}{2}$ to 1
39 Cosmos, Early	April	May	12	4

FOR FLOWERS—*Continued*

SEASON OF BLOOM	COLOR OF FLOWERS	MISCELLANEOUS INFORMATION
30 June to frost	Red	color, blue with white margin. Free-flowering. Used as a bedding plant. Not so much grown as formerly. Needs a rich, moist soil. Syringe for red spider.
31 June to frost	White, pink, red	Excellent for beds and needs no edging. Flowers four months from seed. Constant and profuse bloomer.
32 June to frost	Blue, white, pink	Grow in masses in border or corner about house. Self sows. Fall-sown seed flowers first.
33 July to frost	Red, white	Grow in clumps in border, rockery or in garden vases. There is a dwarf form.
34 June-Oct.	White, red, yellow	Excellent bedding plant. Remove old flowers. Is a good cut-flower, lasting well in water.
35 July, August	Purple	Coarse grower. Best in clumps near back of border. Flowers borne in long spikes.
36 Aug., Sept.	Violet, greenish purple	Vine excellent for trellises, porches and covering unsightly objects. Flowers one to one and a half inches across.
37 July, August	White, lilac, violet	Curious snapdragon-like flowers. Very free-flowering. Prefers a moist soil. Grow in clumps in border.
38 July to frost	Blue	Tricolor, a dwarf form, best. One of the best annuals for border. Flowers open only in the sun.
39 July, August	White, pink	Start under glass for flowers in July. Grow in clumps in bor-

PLANTING TABLE

VARIETY	WHEN TO SOW SEED		Thin or Transplant to (inches)	Height (feet)
	INDOORS	OUTDOORS		
40 Cosmos, Late...	April, May	May	24	6 to 8
41 Dahlia	March, April		3	4
42 Dianthus (China Pink)	March, April	May 5	6	1 to 1¼
43 Digitalis (Foxglove)		July-Sept. 1	9	3 to 4
44 Eschscholzia (California Poppy)		May	4	¾
45 Evening Primrose			20	1 to 1½
46 Flax		May	8	2 to 2½
47 Four O'clock	April	May	8	1½ to 2
48 Gaillardia	April	May	6	¾ to 1

FOR FLOWERS—*Continued*

SEASON OF BLOOM	COLOR OF FLOWERS	MISCELLANEOUS INFORMATION
40 Sept. to frost	White, pink, red	der. Cut back when half grown to induce flowering. Plant in back of border in clumps and stake plants. Protect plants from the early frosts. Good cut-flower.
41 Aug. to frost	White, red, yellow	Plant separately in border or in rows in garden. Stake the plants to prevent their being blown over by high winds.
42 July to frost	White, pink, red	Heddewigi blooms earliest. Best grown in clumps in border. Good cut-flower; but little odor.
43 July, August	Pink, white	Biennial; self sows. Plant clumps near back of border. Protect seedlings over winter with dry leaves.
44 July-Sept.	Orange, yellow, white	Plant in masses; good edging, for its glaucous foliage looks well all summer. Keep seed-pods picked off.
45 July-Sept.	Yellow	Lamarckiana best. Flowers open in evening, fragrant, four to five inches across. Acaulis has white flowers.
46 July-Sept.	Red, blue	Grow in clumps in sunny situations in border. Flowers short lived but many new ones open each day.
47 July to frost	White, yellow, red	A good bedding plant for sunny places; edge bed with something dwarf like Madame Saleroi geranium.
48 July to frost	Yellow, red	Excellent for beds, needs no edging in such cases. Plant for mass effect. Flowers abundantly produced.

PLANTING TABLE

VARIETY	WHEN TO SOW SEED		Thin or Transplant to (inches)	Height (feet)
	INDOORS	OUTDOORS		
49 Gilia		May	3 to 12	$\frac{1}{4}$ to $2\frac{1}{2}$
50 Globe Amaranth (Gomphrena) .	April	May	6	1
51 Golden-tuft (Alyssum)		July-Sept. 1	6	$\frac{1}{2}$
52 Gourds	Mar., April	May	12	15
53 Gypsophila	April	May	8 to 12	1 to 2
54 Hawkweed		April, May	6	$\frac{1}{2}$ to 1
55 Helianthus (Sunflower)	April, May	May	12-36	3 to 6
56 Hibiscus	Mar., April	July-Sept. 1	15-24	5 to 7
57 Hollyhock	Mar., April	July-Sept. 1	15	5 to 7
58 Honesty (Lunaria)	Mar., April	May	12	$1\frac{1}{2}$ - $2\frac{1}{2}$

FOR FLOWERS—*Continued*

SEASON OF BLOOM	COLOR OF FLOWERS	MISCELLANEOUS INFORMATION
49 July-Sept.	Blue, red, white	Sow seeds where plants are to grow. Tricolor best tall one. Dwarf kinds good for edgings and clumps in rockery.
50 July to frost	Red, white, blue	Excellent for beds. Flower heads round, one inch across. Flowers used for winter bouquets. Prefers sandy soil.
51 July-October	Yellow	Grow in clumps in border or in rockery. Flowers produced in compact heads.
52 September	White	Useful for training over trellis, porches, fences and covering unsightly objects. Has ornamental fruit of many shapes.
53 July-Sept.	Rosy	Muralis makes dense mound; elegans much used in bouquets. Paniculata, a perennial, best kind to grow.
54 Aug., Sept.	Yellow, red	Showy annual for garden but bad weed in lawns. Looks like dandelion. Grow in masses.
55 July to frost	Yellow	Grow as back to border or to screen unsightly objects. May be massed or grown in clumps with dark background.
56 August	White to red	Grow as individual specimens. Has large flowers. Get named varieties like Crimson Eye, Golden Bowl.
57 August	White to red	Use for back of border most effective. Spray constantly with Bordeaux mixture for "Hollyhock disease."
58 June, July	Pink, purple	Grown chiefly for its large flat pods which have broad, satiny partitions which remain after outside has dropped off.

PLANTING TABLE

VARIETY	WHEN TO SOW SEED		Thin or Trans-plant to (inches)	Height (feet)
	INDOORS	OUTDOORS		
59 Hop.....	.....	April, May	12	20 to 30
60 Ipomœa (Morning-Glory).....	March	April	6	10 to 15
61 Kochia.....	.....	April	9 to 12	2 to 2½
62 Larkspur (Annual).....	Mar., April	May 5	6	1 to 1¼
63 Lobelia.....	Feb.-April	May	4	½
64 Lupinus.....	.....	May	6	2
65 Madia (Tarweed).....	.....	May	12	1 to 2
66 Marigold.....	April	May	6	½ to 3
67 Martynia (Unicorn plant).....	April	May	24	1
68 Matthiola bicornis.....	.....	April	6	½ to 1

FOR FLOWERS—*Continued*

SEASON OF BLOOM	COLOR OF FLOWERS	MISCELLANEOUS INFORMATION
59.....	Ornamental foliage	The variegated Japanese hop; best. Used to cover trellises, etc. Self sows. Train on chicken-wire.
60 June to frost	Blue, red white	Train over porches and trellises on strings. Needs rich soil and abundant moisture. Japanese strains very beautiful.
61.....	Grown for foliage	Makes an excellent temporary hedge for gardens. Flowers very small. Beautiful light green foliage all summer.
62 June-Sept.	Blue, white, red, pink	Seed sprouts slowly. Remove old flowers. Excellent cut-flower, grown in clumps in border, or in rows in garden.
63 June to frost	Blue, white	Erinus excellent for edging borders and flower-beds. Plants may be potted up in fall for winter flowers.
64 July, August	Pink, blue, white	Sow seeds where plants are to stand. Showy. Better grown as specimen plants or in clumps in border.
65 July-Oct.	Yellow	Best for shaded places; in full sun opens only in morning and evening. Very open, graceful habit.
66 July to frost	Yellow	Good for beds; grow tall ones in center, edge with dwarfs. Use as a filler in border. Very showy.
67 July	Yellow, purple, white	A trailer more interesting than useful. Has curious-shaped seed-pods which make good pickles when young.
68 Aug. to frost	White	Flowers uninteresting but very fragrant at night. Plant

PLANTING TABLE

VARIETY	WHEN TO SOW SEED		Thin or Trans-plant to (inches)	Height (feet)
	INDOORS	OUTDOORS		
69 Mignonette	Mar., April	May 10	6	1
70 Myosotis (Forget-me-not) . . .	April	May	6	$\frac{1}{2}$
71 Nasturtium	April	May 1	6	1 to 10
72 Nicotiana (Tobacco)	April	May 10	9	3
73 Pansy	March	April, July, August	4	$\frac{1}{3}$
74 Petunia	Feb., March	May	6	1
75 Phlox (Annual)	Mar., April	May	12	1
76 Poppy (Annual) . . . . .	.....	April, Sept., October	6	1 to 2
77 Poppy, Iceland . . . . .	.....	April-Sept.	6	1
78 Pyrethrum . . . . .	.....	July-Sept.	12	2

FOR FLOWERS—*Continued*

SEASON OF BLOOM	COLOR OF FLOWERS	MISCELLANEOUS INFORMATION
69 July to frost	Greenish yellow	about house in inconspicuous places. Plant seed where plants are to grow. If started under glass put one seed in a two-inch pot.
70 June-August	Blue, pink, white	Plant in moist, partially shaded places. Blooms during cool weather. May be used as an edging for borders.
71 June to frost	Yellow, red, orange	Dwarf, good for edging beds. Tall kinds are used on trellis, fences, etc. Seeds good for flavoring pickles.
72 July to frost	White, pink red, yellow	Flowers sweet-scented at night. Plants must be staked. Plant in clumps in border or near house.
73 April to frost	Various	Good bedding plant. Earliest flowers secured from August-sown seed. Spring-sown bloom in fall.
74 June to frost	Red, white, pink	Flowers fragrant. Excellent bedding plant and needs no edging; also edging borders, vases, window-boxes.
75 July to frost	Red, white, pink, yellow	Good for edging or beds; use contrasting colors. Remove old flowers to lengthen blooming period.
76 June-August	Pink, red, yellow, white	Plant for mass effect or in clumps in border. Sow seeds where plants are to grow and make successive sowings.
77 June-August	Red, yellow, white	Grow in clumps in border. Fall-sown bloom first. Sow in spring for succession. Perennial winter-kills second winter.
78 July, August	White, pink, red	Daisy-like flowers which have long stems; good cut-flower.

PLANTING TABLE

VARIETY	WHEN TO SOW SEED		Thin or Trans-plant to (inches)	Height (feet)
	INDOORS	OUTDOORS		
79 <i>Portulaca</i>		May	6	1
80 <i>Salpiglossis</i>	April	May	6	2 to 2½
81 <i>Salvia</i>	Feb., March	May	18	2 to 3
82 <i>Scabiosa</i> (<i>Mourning Bride</i>).....	April	May	9	2
83 <i>Silene</i> (<i>Catchfly</i>)	March	April	6	1 to 1½
84 <i>Snapdragon</i>	March	.....	6 to 12	½ to 3
85 <i>Stocks</i> (<i>Ten Weeks</i>).....	Mar., April	May	12	1 to 1½
86 <i>Sweet Alyssum</i>		April, May	4	¼ to ½
87 <i>Sweet Pea</i>		Mar., April	3	6

FOR FLOWERS—*Continued*

SEASON OF BLOOM	COLOR OF FLOWERS	MISCELLANEOUS INFORMATION
79 July to frost	Red, white	Grow in clumps. Flowers sometimes four inches across. Excellent for beds in dry, sunny places. Easily transplanted. Flowers open only on bright days. Self sows.
80 Aug. to frost	Yellow, white, red, brown	Grow in clumps in border. Foliage viscid. Funnel-shaped flowers, prettily marbled, two inches across.
81 Aug. to frost	Scarlet	The best scarlet flower for late summer and fall. Good bedding plant. Edge bed with coleus or geraniums.
82 July to frost	White, purple, yellow	Dwarf plants producing long flower-spikes crowned with flower-heads two inches across. Grow in border.
83 July-Sept.	Red, white	Prefer a light sandy soil with full exposure to sun. Good as clumps in border or rockery.
84 July to frost	Yellow, white, pink, red	Good bedding plant; must be started early indoors. Good cut-flower lasting well in water.
85 July-Sept.	Pink, scarlet, white, yellow	Good as a bedding plant or clumps in borders. Flowers fragrant, last well in water. The double varieties best.
86 June-Oct.	White	One of the best annuals. Good in clumps in borders or as an edging. Fall-sown seed bloom in early summer.
87 July-Sept.	All colors	Must be planted early that growth may be made before hot weather. Syringe with water to prevent red spider.

PLANTING TABLE

VARIETY	WHEN TO SOW SEED		Thin or Trans-plant to (inches)	Height (feet)
	INDOORS	OUTDOORS		
88 Sweet William . .	March	July-Sept. 1	6	2
89 Venus' Looking-glass (Speccularia) . . . . .	.....	April	6	$\frac{3}{4}$
90 Verbena	Feb.-April	May	6	1
91 Zinnia	Mar., April	May	6	$1\frac{1}{2}$ to 2

FOR FLOWERS—*Continued*

SEASON OF BLOOM	COLOR OF FLOWERS	MISCELLANEOUS INFORMATION
88 June, July	Red, white, pink	Bloom first year if seed is sown early. Grow in clump in border. Remove old flowers to prolong blooming season.
89 Aug., Sept.	White, blue	Good edging plants, also for clumps in border. Has bell-shaped flowers one inch across. Does not transplant well.
90 June to frost	White, pink, red, blue	One of the best bedding plants, and is a good cut-flower. Choice varieties may be perpetuated by cuttings.
91 June-Oct.	Red, yellow, pink, white	May be used as a bedding plant, better as clumps in border. Plant for mass effects. Flowers will last after frost.

III. PLANTING TABLE

After studying planting tables of many kinds, we are convinced for planting vegetables which has ever been published. In using south of the latitude of New York City. If this table is carefully amateur to have a constant succession of vegetables until late in seedsmen.

VARIETY	WHEN TO SOW		HILL OR DRILL	SEED NECESSARY
	INDOORS	OUTDOORS		
1 Artichoke, Globe	February	.....	H.	1 oz. for 500 plants
2 Asparagus . . . . .	.....	April	H.	1 oz. for 50 feet
3 Beans, Broad . . . . .	.....	Mar., April	D.	1 qt. for 100 feet
4 Beans, Bush Lima . . . . .	.....	May	D.	1 qt. for 100 feet

FOR VEGETABLES

that the amateur will find this the most helpful and practical table the table, allow ten days for every one hundred miles north or followed throughout the summer, it will make it possible for the the fall. When selecting varieties, it is best to consult the local

HOW DEEP TO PLANT (INCHES) R.=roots S.=seeds	THIN OR TRANSPLANT TO (INCHES)	SEASON OF CROP	CULTURAL INFORMATION
1 $\frac{1}{2}$	24 x 36	September	French Globe is the standard sort. Grow in rich soil. Is grown for the flower-heads which are gathered before they open. Bears for two or three years if given slight protection.
2 S. 1 R. 6	24 x 36	April-June	Barr's Mammoth, Colossal and Palmetto, best green varieties. Mammoth White has white stalks. Needs rich soil. Cut bed lightly first season. Cut off and burn stalks in fall.
3 2	12 x 24	June, July	As hardy as peas. For early crop plant Early Mazagan; main crop, Broad Windsor. When pods have formed break off top of plant to force strength into pods.
4 2	6 x 12	Aug. to frost	For early crop plant Henderson's; second early, Dreer's; main crop, Large Bush.

PLANTING TABLE

VARIETY	WHEN TO SOW		HILL OR DRILL	SEED NECESSARY
	INDOORS	OUTDOORS		
5 Beans, Pole Lima.		May	H.	1 qt. for 100 hills
6 Beans, Wax		May-Aug.	D.	1 qt. for 100 feet
7 Beans, Pole.		May	H.	1 qt. for 100 hills
8 Beets.		April-Aug.	D.	1 oz. for 50 feet
9 Broccoli.		April	H.	1 oz. for 2,000 plants

FOR VEGETABLES—*Continued*

HOW DEEP TO PLANT (INCHES) R.=roots S.=seeds		THIN OR TRANSPLANT TO (INCHES)	SEASON OF CROP	CULTURAL INFORMATION
5	2	36 x 36	Aug. to frost	Plant the "eye" down. Use commercial fertilizer in row. Needs warm land. For early crop plant Early Sieva; second early, Early Jersey; main crop, Large White; late crop, Dreer's Pole. Use ten-foot poles and plant them before putting in the beans.
6	2	12 x 24	July on	For early crop plant Early Valentine; second early, Refugee Wax; main crop, Golden Wax; late crop, Early Valentine. Sow every two weeks for succession.
7	2	36 x 36	Aug. to frost	For early crop plant Kentucky Wonder. Dutch Caseknife, and Lazy Wife are good, but later. All will bear until frost.
8	1½	9 x 18	July on	For early crop, Egyptian; second early, Eclipse; main crop, Edmund's; late crop, Egyptian. Sow early varieties every two weeks, using beets when small and tender.
9	½	24 x 36	July-October	Similar to cauliflower, but better adapted

PLANTING TABLE

VARIETY	WHEN TO SOW		HILL OR DRILL	SEED NECESSARY
	INDOORS	OUTDOORS		
10 Brussels Sprouts		April, May	H.	1 oz. for 2,000 plants
11 Cabbage	Feb., Mar.	May, June	H.	1 oz. for 2,000 plants
12 Cardoon		May, June	H.	1 oz. for 300 plants
13 Carrot		April-July	D.	1 oz. to 100 feet

FOR VEGETABLES—*Continued*

HOW DEEP TO PLANT (INCHES) R.= roots S.= seeds	THIN OR TRANSPLANT TO (INCHES)	SEASON OF CROP	CULTURAL INFORMATION
10 ½	18 x 36	October on	<p>than it for the cool North. For early crop grow Early White; main crop, Mammoth White or Purple Cape.</p> <p>Good varieties are Long Island, Salkeith, Half Dwarf. Not good until touched by frost. Are hardy, so may be left outdoors during winter if protected with straw or corn-stalks.</p>
11 ½	24 x 36	July on	<p>For early, plant Early Jersey Wakefield; second early, All Head; main crop, Late Flat Dutch. Late crop can be planted on land on which early peas were grown.</p>
12 I	24 x 36	August on	<p>Good varieties are Large Spanish, Large Solid. Grow on rich ground. When three feet high tie tops together, protect with straw and draw earth about stems to blanch.</p>
13 ½	6 x 18	July on	<p>For early crop plant Early Forcing; second early, main crop, Danvers; late crop, Early Forcing. For continuous crop of small ten-</p>

PLANTING TABLE

VARIETY	WHEN TO SOW		HILL OR DRILL	SEED NECESSARY
	INDOORS	OUTDOORS		
14 Cauliflower			H.	1 oz. for 2,000 plants
15 Celery	February	April, May	D.	1 oz. for 2,000 plants
16 Chard, Swiss		April	D.	1 oz. for 50 feet
17 Corn	April	May, June	H.	1 quart for 100 hills
18 Corn Salad		April, Aug.	D.	1 oz. for 100 feet

FOR VEGETABLES—*Continued*

HOW DEEP TO PLANT (INCHES) R.=roots S.=seeds	THIN OR TRANSPLANT TO (INCHES)	SEASON OF CROP	CULTURAL INFORMATION
14 ½	24 x 18	July-October	der roots sow bi-weekly. For earliest crop sow Earliest Dwarf Erfurt; second early, Early Snowball; main crop, Algiers; late crop, Earliest Dwarf Erfurt. Needs cool weather and rich, moist soil.
15 ¼	6 x 48	August on	For earliest crop grow White Plume; second early, Golden Self-blanching; main crop, Giant Pascal. Give an abundance of a nitrogenous manure like nitrate of soda.
16 1½	9 x 24	June to frost	No choice as to varieties. Commence cutting when leaves are six inches high. New leaves will be formed. Cook and serve like beet greens.
17 1½	36 x 36	Aug. to frost	For early plant Peep O'Day; second early, Golden Bantam; mid-season, Crosby's Twelve-rowed; main crop, plant every two weeks, Stowell's Evergreen.
18 ¼	6 x 6	June on	Grown mostly for fall salad. Good substitute for lettuce. Will live outdoors all win-

PLANTING TABLE

VARIETY	WHEN TO SOW		HILL OR DRILL	SEED NECESSARY
	INDOORS	OUTDOORS		
19 Cress . . . . .	.....	April-July	D.	1 oz. to 50 feet
20 Cucumber	March	May-July	H.	1 oz. to 50 hills
21 Dandelion . . . . .	.....	April	D.	1 oz. for 1,000 plants
22 Eggplant	Feb., Mar. . . . .	.....	H.	1 oz. for 1,000 plants
23 Endive . . . . .	.....	April-Sept.	D.	1 oz. for 150 feet

FOR VEGETABLES—*Continued*

HOW DEEP TO PLANT (INCHES) R.=roots S.=seeds	THIN OR TRANSPLANT TO (INCHES)	SEASON OF CROP	CULTURAL INFORMATION
19 ¼	3 x 6	June on	ter if given a protection of straw or leaves. Of the garden cress sow Curled or Upland every two weeks; when cut it will grow again. Water cress can be grown in damp soil as well as in water.
20 ½	36 x 36	July to frost	For early crop grow Early White Spine; second early, Cool and Crisp; main crop, Long Green. Start a few plants indoors on inverted sods.
21 ¼	12 x 18	Following spring	Grown for pot herb. They are greatly improved by blanching which is done by covering with an A-shaped trough. Good varieties are French Garden, Thick-leaved, Large-leaved.
22 ½	36 x 36	Aug. to frost	New York Spineless is the best variety. Do not set plants in garden until ground is thoroughly warm and there is no danger of frost.
23 ¼	12 x 12	Sept. through winter	For early, sow White Curled; main crop, Green Curled or Broad-leaved. Make successive sowing

PLANTING TABLE

VARIETY	WHEN TO SOW		HILL OR DRILL	SEED NECESSARY
	INDOORS	OUTDOORS		
24 Kale .....	.....	May	D.	1 oz. for 150 feet
25 Kohlrabi.....	.....	May, June	D.	1 oz. for 200 feet
26 Lettuce.....	Feb., Mar.	Apr.-Aug. 1	D.	1 oz. for 120 feet
27 Lettuce, Romain .....	.....	April-July	D.	1 oz. for 100 feet

FOR VEGETABLES—*Continued*

HOW DEEP TO PLANT (INCHES) R.=roots S.=seeds	THIN OR TRANSPLANT TO (INCHES)	SEASON OF CROP	CULTURAL INFORMATION
24 ½	12 x 18	September	every two or three weeks. For winter use store plants in the cellar. Grow and give the same attention as for cabbage. Good varieties are Dwarf Green, Curled Scotch, Dwarf Curled Brown. Sow Siberian in September for early "greens."
25 ½	12 x 24	Aug., Sept.	For early crop grow Short-leaved Early White Vienna or Early Purple Vienna in frames; main crop, Early White Vienna. Gather when bulbs are three inches in diameter.
26 ¼	8 x 24	June to frost	For early grow Grand Rapids, a loose head; second early, Curled Simpson; main crop, Salamander. During hot weather protect lettuce from hot mid-day sun.
27 ¼	8 x 24	July to frost	Express Cos, Trianon Cos good varieties. Blanch by tying leaves together with raffia. Seem to resist heat well. Need deep rich soil and plenty of nitrogenous manure.

PLANTING TABLE

VARIETY	WHEN TO SOW		HILL OR DRILL	SEED NECESSARY
	INDOORS	OUTDOORS		
28 Melon, Musk.	April	May, June	H.	1 oz. for 60 hills
29 Melon, Water		May	H.	1 oz. for 30 hills
30 Mustard . . . . .	.....	April, May	D.	1 oz. for 80 feet
31 Okra.	March	May	D.	1 oz. for 40 feet
32 Onion.	February	April	D.	S., 1 oz. for 100 feet R., 1 qt. for 50 feet

FOR VEGETABLES—*Continued*

HOW DEEP TO PLANT (INCHES) R.=roots S.=seeds	THIN OR TRANSPLANT TO (INCHES)	SEASON OF CROP	CULTURAL INFORMATION
28 I	60 x 60	Aug. to frost	For early, Netted Gem; second early, Emerald Gem; main crop, Long Island Beauty. Prefer a moist sandy soil. Spray with Bordeaux mixture to prevent blight and mildew.
29 I	60 x 60	Aug. to frost	For early crop Early Fordhook; second early, Cole's Early, main crop, Cuban Queen. Watermelons prefer a light, sandy, but moist soil. Spray with Bordeaux mixture.
30 ¼	1 x 6	Ready in four weeks	Good varieties are Chinese or White London. Make successive sowing every ten days or two weeks. Mustard adds a pleasant pungent flavor to salads.
31 I½	18 x 24	July to frost	Good varieties Dwarf Prolific, White Velvet, Long Green. Used for flavoring gumbo soup. Pick pods when one to two inches long. Surplus can be dried or canned.
32 S. ½ R. 2	12 x 24 6 x 24	May on	For earliest crop plant onion sets; for main crop, White Globe or Prizetaker. Latter

PLANTING TABLE

VARIETY	WHEN TO SOW		HILL OR DRILL	SEED NECESSARY
	INDOORS	OUTDOORS		
33 Parsley.....		April	D.	1 oz. for 150 feet
34 Parsnip.		April	D.	1 oz. for 200 feet
35 Peas.....		Mar.-June	D.	1 qt. for 100 feet
36 Peas, Sugar.....		April	D.	1 qt. to 100 feet

FOR VEGETABLES—*Continued*

HOW DEEP TO PLANT (INCHES) R.=roots S.=seeds	THIN OR TRANSPLANT TO (INCHES)	SEASON OF CROP	CULTURAL INFORMATION
33 ½	6 x 12	May on	variety started early under glass and transplanted to open in May. Good varieties Moss Curled, Fern-leaved. Used for garnishers. Soak seed for several hours in lukewarm water to hasten germination. Hamburg or Turnip-rooted has fleshy root.
34 ½	6 x 24	Sept. through winter	For early plant Early Round; main crop, Hollow Crown. Much improved by keeping over winter in ground. To be available at any time give mulch.
35 3	4 x 36	June to frost	For early crop, Daniel O'Rourke; second early, Nott's Excelsior; main crop, Champion of England; late, Daniel O'Rourke. Late crop subject to mildew.
36 3	4 x 36	July	These are edible-podded peas which are picked while the pea or seed is still small and the pod tender. They are broken up, cooked and served like string beans.

PLANTING TABLE

VARIETY	WHEN TO SOW		HILL OR DRILL	SEED NECESSARY
	INDOORS	OUTDOORS		
37 Pepper.	March	.....	D.	1 oz. for 2,000 plants
38 Potato. . . . .	.....	April, May	H.	1 peck for 100 hills
39 Pumpkin. . . . .	.....	May, June	H.	1 oz. for 30 hills
40 Radish.	Feb., Mar.	Apr.-Sept.	D.	1 oz. for 100 feet
41 Rampion. . . . .	.....	May	D.	1 oz. for 200 plants

FOR VEGETABLES—*Continued*

HOW DEEP TO PLANT (INCHES) R.= roots S.= seeds	THIN OR TRANSPLANT TO (INCHES)	SEASON OF CROP	CULTURAL INFORMATION
37 ½	18 x 36	July to frost	For early plant Neapolitan; second early, Bull Nose; main crop, Ruby King. Neapolitan has a very sweet flesh and is the best for cooking.
38 2, early 5, late	12 x 24 18 x 36	July on	For early crop, Early Rose; second early, Beauty of Hebron; main crop, Carman No. 1, or Green Mountain. Spray with Bordeaux mixture and Paris green every two weeks.
39 1½	108 x 108	September	Two good varieties for pies are Sugar and Dunkard. Must be stored in a warm (45°) dry place or they will rot. Plant among corn to save room.
40 ½	3 x 8	Mature in 25 days	For early plant Early Scarlet Turnip Forcing; second, French Breakfast and Long Scarlet. For winter, Half-long Black Spanish. Make successive sowing once a week.
41 ⅛	3 x 8	Oct.-Feb.	Roots can be eaten like radishes or they and the leaves can be served in salads. Store roots in damp sand in cellar. It has

PLANTING TABLE

VARIETY	WHEN TO SOW		HILL OR DRILL	SEED NECESSARY
	INDOORS	OUTDOORS		
42 Rhubarb		Sept., Oct.	H.	1 root a plant
43 Salsify.		April	D.	1 oz. for 75 feet
44 Spinach.		Mar.-May October	D.	1 oz. for 100 feet
45 Spinach, New Zealand.		May	D.	1 oz. for 100 feet
46 Squash.	March	May-June	H.	1 oz. for 50 hills

FOR VEGETABLES—*Continued*

HOW DEEP TO PLANT (INCHES) R.= roots S.= seeds	THIN OR TRANSPLANT TO (INCHES)	SEASON OF CROP	CULTURAL INFORMATION
42 R. 4	48 x 48	May-July	the smallest seed of any vegetable. Linnæus, Victoria, St. Martins are all good varieties. To get the earliest rhubarb put barrel over plant and surround it with fresh horse manure.
43 I ½	6 x 8	Sept. through winter	Long White and Sandwich Island Mammoth are good varieties. Hardy. Store over winter in cellar packed in damp sand. Used to flavor soups, stews, etc.
44 I	6 x 18	May-August	Sow Winter Thick-leaved in fall for early spring use. Protect with mulch of leaves or straw. Long Standing, Long Season, Victoria good for spring sowing.
45 I	12 x 24	July-Sept.	Not a true spinach but a good substitute as it withstands the heat of midsummer when spinach will not grow. Use the ends of the branches and leaves.
46 I	Bush, 36 x 48 Late, 72 x 96	Aug. through winter	For early crop, White Bush Scallop, Yellow Crookneck. These are summer squashes. For winter use grow Boston Marrow or

PLANTING TABLE

VARIETY	WHEN TO SOW		HILL OR DRILL	SEED NECESSARY
	INDOORS	OUTDOORS		
47 Tomato.	Feb.-April	.....	H.	1 oz. for 1,000 plants
48 Turnip . . . . .	.....	Apr.-Aug.	D.	1 oz. for 150 feet
49 Vegetable Marrow. . . . .	.....	May, June	H.	1 oz. to 50 hills

FOR VEGETABLES—*Continued*

HOW DEEP TO PLANT (INCHES) R.=roots S.=seeds	THIN OR TRANSPLANT TO (INCHES)	SEASON OF CROP	CULTURAL INFORMATION
47 ½	36 x 48	Aug. to frost	Hubbard. Dust with lime or ashes. For early crop grow Earliana; second early, Early Jewell; main crop, Acme and Stone. Wrap stem of plant before planting in open with brown paper to protect from cutworms.
48 ½	4 x 18 8 x 30	Aug. through winter	For early grow Early Milan; second early, Purple-top White Globe; late crop, Rutabaga. The latter need not be sown until July or August.
49 I	36 x 48	August	Very delicious squash vegetable. Must be picked before fully mature as with summer squashes. English grows nine inches long. Italian twenty inches long.

IV. PLANTING TABLE FOR BULBS

VARIETY	Tender or Hardy	Color	Depth to Plant (inches)	Dis- tance Apart (inches)	Time to Force (weeks)
Belladonna Lily .	T.	Red to white	3	50	6
Poppy Anemone.	H.	Red, blue, white	2	3	8-10
Spirea	H.	White, pink	2	18	12-14
Mariposa Tulip. .	H.	Yellow	8	8	10
Glory-of-the- Snow	H.	Blue	2	2	2
Meadow Saffron.	H.	Purple, pink, white	2-3	6	.....
Lily-of-the-Valley	H.	White	3	2	21
Powell's Crinum.	H.	Pink	8	12	.....
Spring Crocus. . .	H.	Yellow, pur- ple, white	2-3	3-4	2
Fall Crocus	H.	Lilac	2-3	3-4	.....
Bleeding-Heart..	H.	Red	2	36	12
Winter Aconite..	H.	Yellow	3	6	.....
Eremurus	H.	Rosy	2	48	.....
Dog's-tooth Violet	H.	Rosy purple, lilac	3	3	.....
Freesia.	T.	White	1	2	16
Crown Imperial. .	H.	Red, orange, yellow	3-6	6-8	.....
Snake's-Head. . .	H.	Purple and green	2-3	4	.....
Snowdrop	H.	White	2	3	3
Early-flowering Gladiolus.	T.	Red, white	2	6	12
Christmas Rose.	H.	White	4	12	2-3
Amaryllis.	T.	Red	2	6	8
Summer Hyacinth	H.	White	4	6	.....
Dutch Hyacinth.	H.	All colors	3-5	5-6	3-4
Italian Hyacinth.	T.	White	1	3	4
Roman Hyacinth	H.	All colors	4	6	4
Hardy Gloxinia. .	H.	Purplish rose	4	18	.....
German Iris.	H.	All colors	3	18	.....

PLANTING TABLE FOR BULBS—*Continued*

VARIETY	Tender or Hardy	Color	Depth to Plant (inches)	Distance Apart (inches)	Time to Force (weeks)
English Iris.	H.	Blue, white	3	5	6
Spanish Iris.	H.	Blue, yellow	3	4	8
African Corn Lily	H.	All colors	3	2	8
Red-Hot Poker. . .	H.	Red	4	24	.....
Leopard Lily. . . .	T.	Yellow, tipped green	1	3	8
Snowflake.	H.	White	4	4	.....
Gold-banded Lily	H.	White	6	12	.....
Canadian Lily. . .	H.	Yellow, orange, red	6	12	.....
Ascension Lily. . .	H.	White	6	12	16
Thunberg's Lily.	H.	Yellow, orange, red	7	12	.....
Easter Lily.	T.	White	1	3	12-14
Spotted Lily.	H.	Pink, red, white	8	12	.....
Turk's-cap Lily. . .	H.	Orange, red	6	12	.....
Tiger Lily.	H.	Red, spotted purple	8	12	.....
Grape Hyacinth.	H.	Blue, white	1-3	2-3	4
Narcissus bulbocodium.	H.	Yellow	5	3	4
Narcissus incomparabilis.	H.	Yellow, white	4	6	3-4
Jonquils.	H.	Yellow	5	3	3
Narcissus poeticus.	H.	White	6	4	3-4
Narcissus Pseudo-Narcissus.	H.	Yellow, white	6	5	3-4
Paper-White Narcissus.	T.	White, yellow	1	3	3-4
Arabian Star of Bethlehem.	T.	White	1	3	16
Bermuda Buttercup	T.	Yellow	1	3	8

PLANTING TABLE FOR BULBS—*Continued*

VARIETY	Tender or Hardy	Color	Depth to Plant (inches)	Dis- tance Apart (inches)	Time to Force (weeks)
Persian Ranuncu- lus	T.	Yellow, red	1	3	8
Calla.	T.	White	1	12	.....
Squills	H.	Blue	3	4	2
Wood Hyacinth . .	H.	Blue, white, pink	3	4	2
Windflower.	T.	Red, yellow	1	3	8
Autumn Daffodil.	H.	Yellow	6	6	.....
Wake-robin.	H.	White	4	6	.....
Montbretia	H.	Orange, crimson	4	6	.....
Cottage Tulip . . .	H.	All but blue	3	5	.....
Early Tulip	H.	All but blue	3	5	3-4
Scarborough Lily	T.	Blood-red	1	6	.....

V. A PLANTING CALENDAR

The cultural directions and other information about each will be found in the tables on the preceding pages.

FLOWERS

MARCH

PLANT INDOORS	SET OUT
Ageratum	May 15
Antirrhinum (Snap- dragon)	May 30
Asters	May 15
Begonias (Seed)	June 1
Begonias (Fibrous)	June 1
Carnation, Margue- rite	June 1
Celosia, Cockscomb	May 15
Cobæa scandens	May 15
Heliotrope	June 1
Hollyhock, Annual	May 15
Lobelia	May 15
Nemesia	May 15
Pansy	May 15
Pentstemon	May 15
Petunia	May 15
Salvia	May 15
Stocks (Gilliflower)	May 30
Verbena	May 15
Wallflower	May 15

APRIL

All those listed for March may also be planted in April, and, in addition, the following:

SOW INDOORS	SET OUT
Alyssum	May 15
Arctotis grandis	May 15
Browallia	June 1

SOW INDOORS

SET OUT

Calendula	May 15
Coleus	June 1
Cosmos, Late	May 15
Dahlias	May 15
Delphinium Chinense	June 1
Gerardia	June 1
Globe Amaranth.	May 15
Gourds, Ornamental	May 15
Helianthus cucumeri- folius	May 15
Marigold	May 15
Maurandia	June 1
Mignonette	May 15
Nicotiana	May 15
Phlox Drummondii	May 15
Poppy, Iceland	June 1
Ricinus (Castor-Oil Plant)	May 15
Salpiglossis	May 15
Scabiosa	May 15
Schizanthus	June 1
Vinca rosea	May 15
Zinnia	May 15

SOW OUTDOORS

Sweet Peas	
Nasturtium	

MAY

This is the month of outdoor sowing and planting. Even in New England all flowers may either be sown or planted after the fifteenth of May. The fol-

A PLANTING CALENDAR—Continued

lowing list of flowers comprises those which may be sown in the open, and which will mature into perfection before frosty weather sets in.

SOW OUTDOORS

(Do not require transplanting)

Sweet Alyssum
 Bartonia aurea
 Calendula
 Calliopsis
 Candytuft
 Centaurea (Bachelor's Button)
 Chrysanthemum, Annual
 Clarkia elegans
 Convolvulus minor
 Cosmos, Early
 Delphinium Chinense
 Dianthus (Chinese Pinks)
 Eschscholtzia (California Poppy)
 Gaillardia (Blanket Flower)
 Globe Amaranth
 Godetia
 Ornamental Gourds
 Helianthus cucumerifolius (Miniature Sunflower)
 Hunnemannia fumariæfolia
 Larkspur, Annual
 Lavatera
 Lupins, Annual
 Malope
 Marigold
 Mignonette
 Nasturtiums
 Petunia
 Phlox Drummondii

Poppy
 Portulaca
 Salpiglossis
 Scabiosa
 Verbena
 Zinnia

(Should be transplanted)

Asters
 Balsam
 Celosia (Cockscomb)
 Cosmos, Late
 Dahlias
 Marigold
 Mignonette
 Nicotiana
 Ricinus

JUNE

This is the month to sow perennials. The varieties listed below can easily be grown from seed. All of them may be sown from June till September.

TO REMAIN WHERE SOWN

Achillea Ptarmica
 Agrostemma
 Alyssum saxatile compactum
 Anthemis Kelwayi
 Aquilegia (Columbine)
 Asclepias tuberosa
 Asters, New England
 Bocconia
 Coreopsis
 Campanula (Bluebells)
 Candytuft, Sempervirens
 Hibiscus
 Lupins

A PLANTING CALENDAR—*Continued*

Lychnis
 Lythrum
 Poppies, Iceland
 Poppies, Oriental
 Sweet William
 Valerian (Garden Heliotrope)

TO BE TRANSPLANTED

Aconitum
 Canterbury Bells
 Delphinium (Larkspur)
 Digitalis (Foxglove)
 Gaillardia grandiflora
 Hollyhocks
 Pyrethrum

JULY

This is the most important month for sowing some flower seeds. The following biennials, if sown in July and transplanted in August or September, will flower the following spring.

VARIETY

Bellis (English Daisies)
 Pansies
 Myosotis (Forget-me-not)
 Silene

BULBS AND TUBEROUS ROOTS

MAY

PLANT OUTDOORS

Anemones
 Begonias
 Caladiums
 Calla Lilies

Summer Hyacinths

Montbretias
 Dahlias
 Gladioli
 Tigridias
 Tuberoses

VEGETABLES

MARCH

The only vegetable to be planted out-of-doors in March is early peas. There are a number of vegetables, however, which may be started indoors or in hotbeds.

PLANT INDOORS SET OUT

Artichoke, Globe June 1
 Cabbage, Early May 1

PLANT INDOORS SET OUT

Cauliflower, Early... May 15
 Celery..... June 1
 Eggplant..... June 15
 Kohlrabi..... May 1
 Lettuce..... Apr. 15
 Parsley..... May 1
 Pepper..... June 1
 Tomato..... May 15

OUTDOORS

Peas, Early Smooth

A PLANTING CALENDAR—*Continued*

APRIL

All the seeds mentioned in the March table can be started in April, and also the following:

PLANT INDOORS	SET OUT
Asparagus, Seeds	June
Beets	May
Brussels Sprouts	June
Cabbage, Late	June
Cauliflower, Late.	June

PLANT OUTDOORS

Asparagus, Roots
 Beets
 Carrots
 Cress
 Kohlrabi
 Lettuce
 Mustard
 Onion Seed
 Onion Sets
 Parsley
 Parsnip
 Peas, Early Wrinkled
 Potatoes
 Radish
 Rhubarb, Roots
 Swiss Chard
 Squash
 Turnip

Set out Lettuce started indoors in March.

MAY

PLANT OUTDOORS

Beans, Bush
 Beans, Pole
 Corn, Sugar
 Cucumber
 Muskmelon
 Watermelon
 Okra
 Peas, Late
 Pumpkin
 Squash

All the seeds mentioned in the April table may also be sown in May.

Set out early cabbage, early cauliflower and tomato plants started indoors in March and April.

JUNE

PLANT OUTDOORS

Beans, Late Bush
 Beans, Late Pole

Set out Globe artichokes, Brussels sprouts, late cabbage, cauliflower, celery, eggplants, and peppers which have been started indoors.

Plant Swiss chard, sugar corn, lettuce, late peas, radishes and turnips for late crops.

VI. SPRAYING

The formulas for insecticides and fungicides referred to here will

WHAT TO SPRAY AND WHAT TO SPRAY FOR	SPRAY WITH	TIME OF FIRST SPRAYING
APPLES—		
1 Bitter Rot	Bordeaux mixture.	First appearance of rot.
2 Canker Worm	Arsenate of lead, Paris green.	On first appearance of worms.
3 San Jose Scale	Commercial lime-sulphur.	When the leaf buds begin to swell.
4 Scab	Self-boiled lime-sulphur or Bordeaux mixture.	As the buds are swelling.
4a Codling Moth	Arsenate of lead.	After the petals drop.
ASPARAGUS—		
5 Beetle	Arsenate of lead.	Early spring.
6 Rust	Bordeaux mixture.	After cutting crop.
7 BLACKBERRY . .	Arsenate of lead, Paris green.	
8 CABBAGE AND CAULIFLOWER .	Pyrethrum.	On first appearance of worms.
9 CELERY	Bordeaux mixture.	On young seedlings.
CHERRY—		
10 Aphis	Kerosene emulsion	At first appearance.
11 San Jose Scale	Commercial lime-sulphur.	Before buds open.
12 Leaf-spot . . .	Lime-sulphur	Just before blossoms open.
CUCUMBERS—		
13 Anthracnose .	Bordeaux mixture.	When plants begin to run.
14 Downy Mildew	Bordeaux mixture.	When plants begin to run.
CURRENT—		
15 Leaf-spot	Bordeaux mixture.	As leaves are unfolding.
16 Worm	White hellebore.	When they first appear.

TABLE

be found in general table of rules, page 155.

TIME OF SECOND SPRAYING	TIME OF THIRD SPRAYING	TIME OF FOURTH SPRAYING
1 One to two weeks later.	Two weeks later.	
2 Two or three days later if worms remain.	Same as second.	
3 If a bad case, repeat.		
4 Just before the blossoms open. One month later.	As the blossoms fall.	Ten to fourteen days after fall if necessary.
6 Ten days later.	Ten days later.	Ten days later.
8 Whenever worms are noticed.		
9 Repeat on seedlings.	Before or after transplanting.	Two weeks later.
10 Repeat as necessary.		
12 When fruit is free from calyx.	Two weeks later.	Two weeks later.
13 Two weeks later.	Two weeks later.	Two weeks later.
14 Ten days later.	Nine days later.	Eight days later.
15 Two weeks later.	Two weeks later.	Three weeks later.
16 In three or four days	Repeat three or four days later.	

SPRAYING

WHAT TO SPRAY AND WHAT TO SPRAY FOR	SPRAY WITH	TIME OF FIRST SPRAYING
GOOSEBERRY— 17 Leaf-spot. . . . 18 Worm. 19 Mildew.	Bordeaux mixture. Same as for Currants. Potassium sulphide.	Before leaves start. When buds are break- ing.
GRAPE— 20 Anthracnose. 21 Berry Moth. . . 22 Downy or Powdery Mil- dew 23 Rot	Bordeaux mixture. Arsenate of lead. Bordeaux mixture. Bordeaux mixture.	Just before buds open. Before blossoms are ready to open. Just before blossoming. Just before blossoming.
MUSKMELON— 24 Anthracnose. 25 Downy Mil- dew 26 Leaf-blight. . .	Bordeaux mixture. Bordeaux mixture. Bordeaux mixture.	When plants begin to vine. July 25 to Aug. 1. When plants begin to vine.
PEACH— 27 Leaf-curl 28 Brown Rot. . . . 29 Scab. 30 San Jose Scale	Commercial lime-sul- phur or Bordeaux mixture. Self-boiled lime-sulphur and arsenate of lead. Bordeaux mixture. Commercial lime-sul- phur.	In March or April, or both, to make dou- bly sure. About time shucks are shedding from young fruit or on first ap- pearance. Just as buds begin to swell. In late fall or early spring, or both, if bad.

TABLE—*Continued*

TIME OF SECOND SPRAYING	TIME OF THIRD SPRAYING	TIME OF FOURTH SPRAYING
17 Two weeks later.	Two weeks later.	Three weeks later.
19 Repeat every ten days until fruit is gathered.		
20 Just before blossoming.	After fruit has set.	Ten days later
21 After blossoms have fallen.	Ten days later.	
22 After fruit has set.	Ten days later.	
23 Just after fruit has set.	Eight days later.	Eight days later.
24 Two weeks later.	Two weeks later.	Two weeks later.
25 Ten days later.	Nine days later.	Eight days later.
26 Three weeks later.	Three weeks later.	Two weeks later.
28 Two or three weeks later.	About one month before fruit ripens. Omit arsenate of lead.	
29 After fruit has set.	Repeat later when fruit is about half grown.	

SPRAYING

WHAT TO SPRAY AND WHAT TO SPRAY FOR	SPRAY WITH	TIME OF FIRST SPRAYING
PEAR—		
31 Leaf-blight . . .	Bordeaux mixture.	Cut out the branches on first appearance on twigs.
32 Psylla.	Kerosene emulsion or whale-oil soap.	In winter, use commercial lime-sulphur for eggs.
PLUM—		
33 Curculio	Arsenate of lead.	With starting of buds.
34 Aphis.	Whale-oil soap.	On appearance of aphid.
35 Shot-hole Fungus.	Self-boiled lime-sulphur Bordeaux mixture.	When leaves are half grown.
36 Rot.	Bordeaux mixture.	As buds are swelling or on appearance.
POTATO—		
37 Early Blight. . .	Bordeaux mixture.	When plants are 6 inches high.
38 Late Blight. . .	Bordeaux mixture.	As for early blight to July.
39 Potato Beetle	Paris green.	When pest appears.
RASPBERRY—		
40 Anthracnose.	Bordeaux mixture.	Before leaves open.
41 Saw-fly.	Paris green and arsenate of lead or hellebore.	When pest first appears.
42 Leaf-spot	Bordeaux mixture.	When leaves are half grown.
ROSE—		
43 Leaf-spot. . . .	Bordeaux mixture.	On first appearance of fungus.
44 Slug.	Hellebore.	On appearance of slugs.

TABLE—Continued

TIME OF SECOND SPRAYING	TIME OF THIRD SPRAYING	TIME OF FOURTH SPRAYING
32 After blossoms fall.	Repeat at intervals of three to seven days.	
33 Just after blossoms drop.	Five days later.	
35 Three weeks later.	Three weeks later if necessary.	
36 Just after calyx drops.	Three or four weeks later.	As fruit begins to color.
37 Seven to ten days later.	Two weeks later.	Two weeks later if necessary.
38 July 15 to 20.	Two weeks later.	Ten days later.
39 Repeat if necessary.		
40 When new canes are 6 to 8 inches high.	Ten days later.	Ten days later.
41 Repeat in three or four days.		
42 Two weeks later.	Two weeks later.	
43 Two or three weeks later.	Repeat if necessary.	
44 Repeat if necessary.		

SPRAYING

WHAT TO SPRAY AND WHAT TO SPRAY FOR	SPRAY WITH	TIME OF FIRST SPRAYING
STRAWBERRY— 45 Leaf-spot. . . .	Sulphate of iron, Bor- deaux mixture.	Soon after growth be- gins.
SQUASH— 46 Aphis	Kerosene emulsion.	Spray underside of leaves.
47 Lady Beetle. .	Arsenate of lead.	As soon as pest ap- pears.
TOMATO— 48 Anthracnose .	Bordeaux mixture.	Soon after fruit begins to set.
49 Leaf-blight . .	Bordeaux mixture.	Three weeks after transplanting.
50 White Fly . . .	Soap and water.	Spray underside of leaves thoroughly.

TABLE—*Continued*

TIME OF SECOND SPRAYING	TIME OF THIRD SPRAYING	TIME OF FOURTH SPRAYING
45 Make three or four sprayings during sea- son.	The following spring spray just before blossoming and again 10 days later.	
46 Three weeks later.		
48 Three weeks later.	Three weeks later.	
49 Three weeks later.	Three weeks later.	Three weeks later.

VII. PRUNING

The following compilation contains brief directions for pruning accepted rulings of the best authorities.

FRUITS	HOW TO PRUNE
1 Apple	Trim for low-headed and open trees.
2 Blackberry	Cut to the ground the canes that fruited last year.
3 Cherry	Cut back young shoots.
4 Currant	Cut out old canes freely.
5 Gooseberry	Cut out old canes freely.
6 Grape	Prune heavily to get new fruit-bearing wood.
7 Peach	Cut back freely. Half of previous season's shoots may be removed. Thin out well.
8 Pear	Thin out dead wood and trim for compact trees.
9 Plum	Needs little pruning except in case of Japanese varieties.
10 Quince	Young trees should be cut well back.
11 Raspberry	Cut away all bearing canes as soon as they drop their leaves.
SHRUBS, ETC.	
12 Azalea	Cut out only enough to leave plant shapely.
13 Barberry	Only do away with what is weak and straggly.
14 Bridal Wreath	Should be pruned thoroughly to make solid growth.
15 Clematis	Cut out all branches that are not strong.
16 Crape Myrtle	Cut back to secure strong new shoots.
17 Deutzia	Very sparingly cut out dead and straggly wood.

TABLE

fruits and the better-known shrubs. It is based on the generally

WHEN TO PRUNE	REMARKS
1 February, March.	Pruning should be moderately done.
2 January-March.	Should also be summer pruned. New shoots over 3½ feet high should be pinched off.
3 February, March.	The cherry is sensitive to pruning and it should be done moderately.
4 February, March.	A succession of strong young shoots should be maintained.
5 February, March.	Destroy all canes that have borne three crops.
6 February, March.	Throws out new vines with vigor.
7 February, March.	No fruit tree requires so much pruning as the peach.
8 February, March.	Pruning should be moderately done.
9 February, March.	The pruning, when the trees are young, should be only enough to properly form the tree. Afterward simply cut out dead wood and straggly branches.
10 February, March.	After the second year the tree should be trained to form a round and rather spready head.
11 August, Sept.	If the bearing canes of the previous season were not cut in the fall, it may be done in late winter or early spring.
12 May, June.	Pruning should follow after the blossoms have gone.
13 March, April.	Pruning on common variety can be done in early summer.
14 May.	After the flowers fade is the best time to prune.
15 March.	Be sure to retain as much old wood as possible.
16 January-March.	The flowers are borne on the new shoots, so that it is necessary that they be sturdy.
17 June, July.	

PRUNING

SHRUBS, ETC.	HOW TO PRUNE
18 Dogwood . . .	Thin out dead wood and straggly branches.
19 Elderberry . .	Cut back one-half of season's growth.
20 Honeysuckle.	Cut back last season's growth severely.
21 Hydrangea . .	Destroy the dead wood and straggling branches.
22 Ivy, Boston .	Very little, only to trim vine.
23 Ivy, English. .	Only as necessary to thin out.
24 Laurel, Mountain . . .	As little as possible.
25 Lilac.	Cut back severely every year.
26 Mock Orange	Cut out dead wood.
27 Rhododen- dron	As little as possible.
28 Rose, Climbing. . . .	Cut back about one-third.
29 Rose, Hybrid Perpetual . . .	Cut out all dead wood and back to four eyes on last year's growth.
30 Rose, Hybrid Tea	Cut out all dead wood and back to five eyes on last year's growth.
31 Rose, Japanese	Take out dead wood and weak shoots.
32 Rose of Sharon	Cut back thoroughly annually.
33 Rose, Yel- low	Cut back one-third of last year's growth.
34 Spiræa, Pink	Cut back one-half of last season's growth.
35 Spiræa, Thunbergii . .	Thin out straggling and weak branches.
36 Trumpet Vine	Cut back old wood severely.
37 Weigela. . . .	Prune lightly.
38 Wistaria	Cut freely the tendrils to the spurs at the axis of the leaves.
39 Virginia Creeper	Prune young plants freely. It strengthens them.

TABLE—Continued

WHEN TO PRUNE	REMARKS
18 May, June.	Pruning should follow flowering.
19 August, Sept.	Pruning should follow fruiting, and should be rather severe to induce a strong new growth.
20 March, April.	To thin out in fall is also a wise plan.
21 March.	Cut weak shoots during summer to develop large flowers.
22 March, April.	
23 March, April.	
24 July- August.	Pruning helps sickly plants. Do it after they have flowered.
25 June, July.	Pruning should be done after flowers fade.
26 July.	Should be thinned after flowering.
27 June, July.	Pruning should follow flowers. It sometimes invigorates sickly plants.
28 June, July	Pruning should follow flowers.
29 February, March.	
30 April.	Prune when swelling of leaf-buds starts.
31 February, March.	
32 February, March.	This should be attended to early in the spring.
33 April.	
34 March.	
35 May.	Pruning should follow flowering.
36 February, March.	If the shoots are cut well back to main stem, the plant will benefit.
37 June, July.	Cut only enough to remove dead wood and straggly branches.
38 March.	Many successful growers repeat the pruning in midsummer.
39 March, April.	

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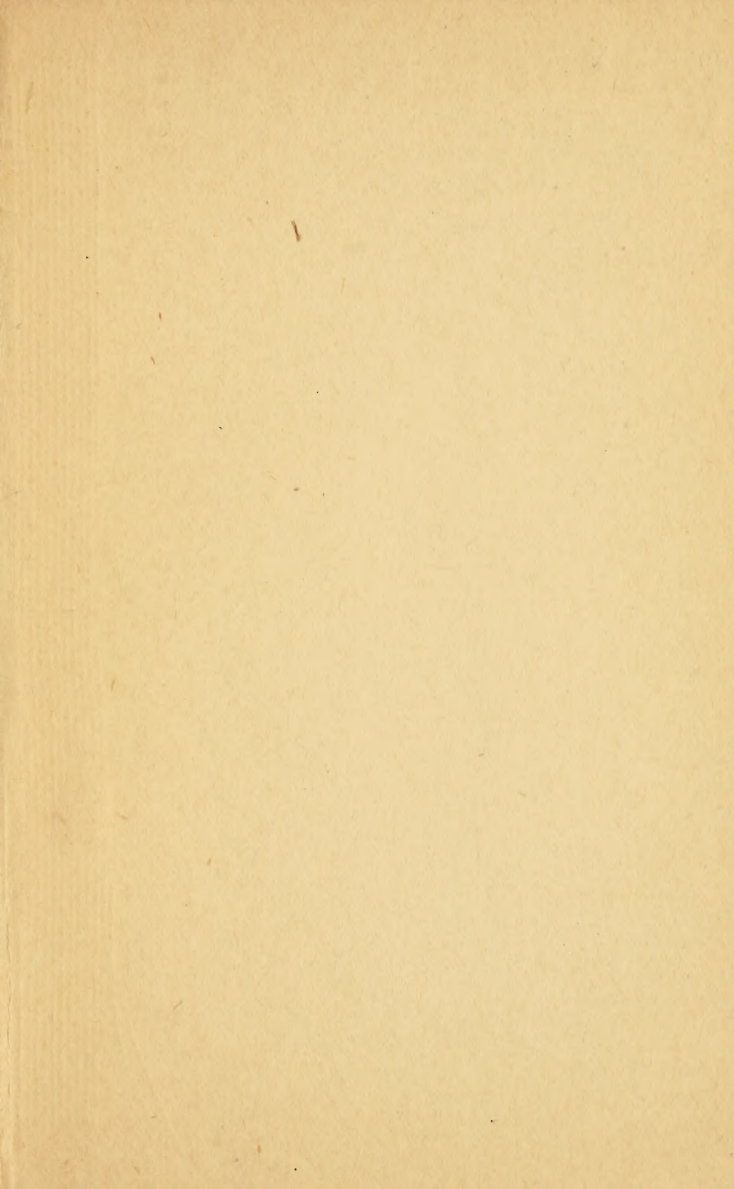
Since the original publication of this book, in 1897, it has gone through many editions. The progress of fruit growing in the meantime has been very marked and it has been necessary to completely rewrite the work. The present issue of it brings the accounts of the new practices and discoveries as they relate to fruit growing up to date. All of the text and practically all of the illustrations are new.

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