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MENOMONIE HIGH SCHOOL

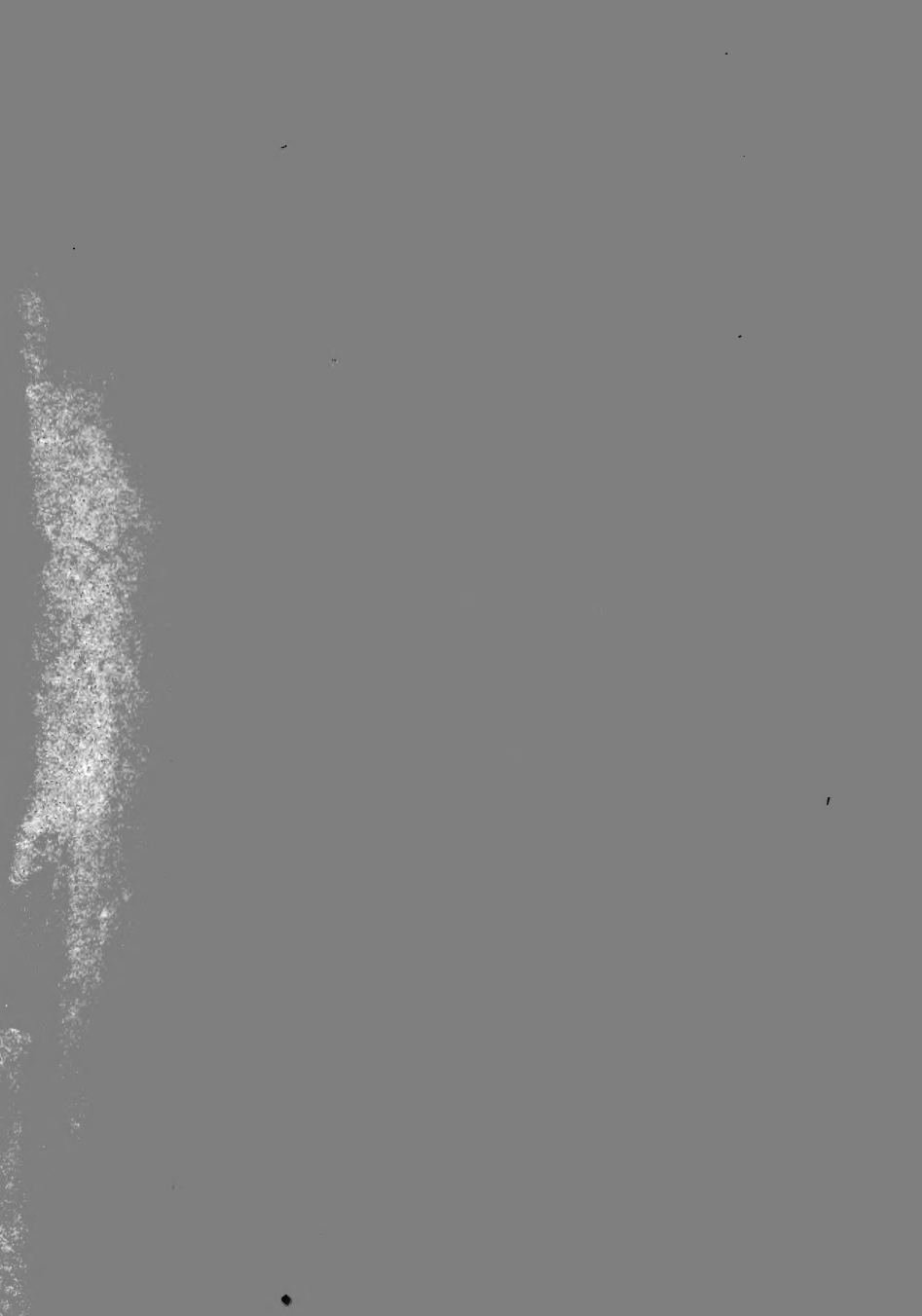


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STOUT MANUAL TRAINING SCHOOL

A HANDBOOK

FOR

PLANNING AND PLANTING SMALL
HOME GROUNDS

BY

WARREN H. ^{emry}MANNING

*WITH A LIST OF NATIVE AND COMMONLY CULTIVATED
PLANTS THAT ARE REPRESENTED IN THE COL-
LECTION UPON THE STOUT MANUAL
TRAINING SCHOOL GROUNDS*

PUBLISHED BY
STOUT MANUAL TRAINING SCHOOL
MENOMONIE, WIS.

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PREFACE.

THE Stout Manual Training School, a complete system of travelling libraries, a travelling art gallery, with the collection of plants referred to and described in this handbook, and the other educational influences grouped about the school and leading out from it, have all grown out of the desire of a citizen of Menomonie to benefit a region wherein he has lived and which has contributed to his successful business career. It is worthy of record, too, that the town wherein this school is located, its leading citizens, and especially its women, have heartily coöperated with their benefactor in the rebuilding of the school since its total destruction by fire in 1897, the women alone agreeing to raise the money required for grading the grounds.

Menomonie, Wisconsin, is a city of about 7,000 inhabitants, on the Chicago & St. Paul line of the Chicago & Northwestern Railway systems. Also on a branch of the Chicago, Milwaukee & St. Paul Railroad. Its principal industries are the manufacture of lumber and brick. There are extensive deposits of clay also found near by, suitable for the manufacture of pottery and porcelain.

A building on the High School grounds was erected and equipped by Mr. J. H. Stout, of The Knapp, Stout & Co.

Company, for a full year's manual training course for twenty boys, and for teaching sewing and cooking to girls. It was opened Nov. 1, 1890. After this experiment had made it clear that it was desirable to incorporate this work into the school courses, a new building, with a larger and much more extensive equipment, was constructed adjoining the High School. After the destruction of these buildings by fire in February, 1897, an additional block of land was secured and plans were made for a much larger brick and iron building, which was completed in 1898, and has been fully equipped by Mr. Stout with the best obtainable appliances, and a very ample provision made for future growth.

The manual training is a complement of the public school work, the High School scholars have one exercise in it per day, the lower schools two per week, while the teaching in the kindergarten begins the manual training.

It is intended that the collection of plants on the grounds and this handbook shall take their place as a part of the educational equipment, and that, in addition to the facilities offered by the plants for nature study, the pupils may gain knowledge of the arrangement, planting, propagating, and care of plants, and of the arrangement of their home grounds, that will help to make them better citizens.

PLANNING AND PLANTING HOME GROUNDS.

NOW and then in a city, usually about the home of a humble workingman, and occasionally in the country, one sees a little front or back yard or a flower-garden patch so brimful and overflowing with a generous abundance of flowers and vines that flaunting weeds shrink modestly into the background. What oases of beauty such places are in the desert of monotonous and well-to-do commonplace grounds about them! Here you recognize a labor of love; that love of beauty born in every child which has not been repressed by a slavish adherence to the custom of the neighborhood. You know that the honest mechanic of the spade and hoe who builds all his work to one pattern has not been consulted but compelled to do the bidding of the presiding genius of the home, who by simply trying has learned that there is no mystery about the making of a garden, only good dirt, good seed, good plants, good attention. When the people learn this simple lesson, and make or direct the making of their own gardens and grounds, home life will not be confined to the four wooden walls of the house, with an occasional dress-up visit to the narrow piazza.

This little handbook is to induce people to study and plan the arrangement of their home grounds, however small these may be, to make them in pleasant weather as livable and attractive, as free from the gaze of the inquisitive stranger or prying neighbor, as convenient and accessible, as are the rooms of the house, and attractive at all times to look upon.

Another object is to show that by taking advantage of the native growth on the grounds, if such there be, by collecting and introducing native plants, by growing plants from seeds or cuttings, or by purchasing direct from the nurseries, per-

sons may with little labor and expense clothe waste places with foliage and flowers, and surround the houses and lawns with luxuriant and varied groups of hardy flowering shrubs, vines, and herbs, arranged to form attractive screens where screens are desired, cover objectionable views, invite outdoor rest and recreation, and give restful and refreshing views from the windows of the house.

Each person should study his grounds independently, considering and executing first the simplest arrangement, and leading from this to a more complicated arrangement from year to year. Ordinarily the principal subdivisions of a small place would be, first, an entrance section or front lawn; second, a living section or back lawn, and third, a service or working section.

The first would be the lawn space between the front of the house and street which is so often made continuous by the removal of front and side fences. If front fences are maintained, a border plantation may be made directly back of them to give the desired seclusion to the home grounds, and both front and back lawns may thus be thrown together. If fences are removed, then this semi-public front lawn should have nearly continuous groups of planting at the base of each house and from house to house, to screen persons on the piazzas and back lawns from the gaze of strangers in the street. Such plantations should not, however, break the continuity of this lawn area next to the street.

The second would be the lawn area at the side and back of the house which will be enclosed by the groups of shrubbery between it and the front lawn and the adjoining properties. This area should be so conveniently arranged and so readily accessible from the living rooms of the house that it will be used as freely during pleasant weather as are the living rooms. It may be a simple open turf, framed in by the screening and border plantations, or it may be subdivided into a flower-garden, terrace, game courts, etc., as space and means will allow.

The third or working section, which should be screened from the other parts by vine-covered fences, hedges, or belts of shrubs, and entered from the street by an independent walk or road, would embrace the kitchen yard, the kitchen garden, the laundry yard, and the stable and its yards, all so arranged as to be readily accessible from each other and from the kitchen and cellar.

Service and laundry yards.

In locating and defining the outlines of plantations, definite purposes should be had in view, such as the screening of objectionable views, giving seclusion, separating parts of the grounds, uniting buildings with grounds by a clothing of vines, and by planting about foundations, etc. Such plantations will usually be irregular belts and groups of large and small shrubs and occasional small trees, all selected

Purposes of shrub plantations.

Character of shrub plantations.

with regard to height, habit, and foliage at maturity, and located to serve the particular purposes referred to. They should be arranged to leave the largest available central lawn space, in which there should be but few single specimens of shrubs and trees and no formal beds of flowers, it being best to confine such beds to a special flower-garden or to use flowers in broadenings on the edges of shrub borders. Usually the edges of borders next to the lawn will have an irregular outline, for the larger plants required in places to make a tall screen would need more room to spread than would the low varieties selected for other positions.

Preparation of shrub beds.

Of course, to secure the best results the whole space to be occupied by plantations should be thoroughly manured and spaded up, for shrubs will not do well in grass.

In the first selection of plants for such plantations, better effects at a less cost can be secured by using a few good kinds in considerable quantities rather than many kinds in smaller quantities. Later more variety can be added from season to season by introducing herbs and other shrubs that will extend the flowering season.

Few kinds required.

In planting, the plants should be placed so close together in beds (about one-half the distance of their ultimate spread)

Distance apart to plant. that the whole surface of the ground will be covered so densely with foliage after one or two years' growth that all weeds and grass will be shaded out, after which little or no care will be required beyond an occasional mulching of manure in winter.

Care of shrub borders. It is not necessary to spade up the ground in such plantations every spring, or to keep a grass verge cut at their edges, neither is it necessary to keep the earth dug up about single trees and shrubs in the lawn after they are well established. The grass

should be lawn mowed to the tips of the overhanging branches of the shrubs, then the grass cut from under these branches with a sickle, the ideal condition being **Care of lawn edges.** to have the foliage of the shrubs meet the grass with no intervening strip of bare ground.

Trimming. Do no trimming except to remove dead and chafing branches. If a shrub is found to be too large for its position do not cut it back, but move it and put a smaller growing one in its place.

Make plantations of shrubs, even if you cannot prepare the ground thoroughly or give them frequent attention, for many of these will grow slowly even if neglected, and enough pleasure will be derived from them to justify the slight cost and trouble of planting.

Unkempt plantations. In plantations that are to be allowed to run wild, it is best to depend chiefly upon native plants or to introduce only the most persistent, vigorous, and common foreign varieties. Not only is it advisable to plant even if the plantations are to run wild, but it is advisable to save existing growths, for it is a fact that plants having attractive habits, foliage, flowers, and fruit will and do grow naturally on all kinds of soil, poor or rich, wet or dry, sunny or shady,

Value of native plants. and that these same plants can be made to grow under similar conditions without incurring a heavy expense in the preparation of ground.

Readers should impress this most strongly on their minds. They must, however, at the same time, bear in mind that

results come more slowly in poor than in good soil, but that if one patiently and persistently follows nature's lead, good results will surely come.

Never destroy a native tangle of plants without watching for a full year the habits, foliage, flowers, and fruit of every plant growing therein, for if this is done it will often be found that many are so attractive at one season or another that they will be retained and developed in beauty by the gradual removal of the less desirable kinds, for which other attractive plants may be substituted that will not interfere with the growth of the permanent plants. A more varied, effective, and interesting group can usually be obtained in this way with less trouble and expense than when the original growth is destroyed, the grounds laboriously prepared, and then planted with expensive young nursery plants. In your enthusiasm over the new beauties of nature that will come to you for the seeking, do not overlook the beauty of a fine garden, a fine lawn, and the best garden and lawn plants, but remember that to be successful with these the grounds must be thoroughly prepared and well cared for. By all means have the lawn and the lawn plants, but do not fail to take full advan-

Preservations of native growth. tage of any native growth, or a ledge, a gravelly knoll, a densely shaded, a moist, or a boggy piece of land, to establish upon them the plants that are adapted to such localities.

In your first, as well as in your later, plantations, do not forget the value of annuals, from which you can get a maximum of foliage and flowers at a minimum cost. They cannot, however, wholly take the place of hardy plants, for they must be renewed yearly, are not effective until midsummer, and are mostly killed by the first frost.

Annuals. The accompanying list is made up of native trees, shrubs, and herbs that grow readily from seed or are easily transplanted and that have sufficiently attractive foliage, flowers, or fruit to justify their use in artificial plantations or their retention if found growing upon public or private grounds. It includes also

Plant list.

exotic plants that are commonly cultivated in the gardens of Minnesota, with the addition of a few less common, but readily obtainable varieties known to be hardy in the State. All of these plants have been or are to be planted upon the grounds of the Stout School, or may be commonly found growing on the streets of Menomonie, in private grounds near the streets, or wild within a short distance of the town.

This list and collection is provided to give the students of the Stout Schools and all citizens or visitors to Menomonie who are at all interested in plants an opportunity to determine the names and habits of varieties that are adapted to the varying conditions of soil or exposure upon their home grounds or upon public grounds.

The descriptive terms used have the following meaning: *Trees* are woody plants forming a single upright trunk; *shrubs* are woody plants branching out from the ground into many trunks; *herbs* are plants that die to the ground every winter — they are either perennials, the roots of which live for years, or annuals, which die outright every winter; *climbers* mount supports by twining about them or by the aid of thorns, tendrils, or clinging rootlets; *creepers* trail along the ground and usually form dense mats of foliage; *evergreens* hold their foliage throughout the winter. All woody plants in the list not referred to as evergreens are *deciduous*, that is, they drop their leaves in winter.

Unless stated otherwise, all the plants in the list will grow in *good soil* in the *open sun* under ordinary conditions.

Where they will *also* grow in poor soil, in wet soil, in leaf mould, or in shade, this has been indicated. Where they will *only* grow successfully under special conditions, this is also indicated.

The average height (the first figure) and width that woody plants growing *to maturity* will probably attain under ordinary conditions at Menomonie are given, but such plants when crowded or growing in shade will grow taller and narrower. The height of herbs is given at time of flowering. The flower stems of nearly all spring and summer flowering herbs die after perfecting seed,

Definition of terms.

Soil and exposure.

Height at maturity.

and are usually cut off so that the plant is of a less height for the greater part of the season than that indicated. Fall-flowering herbs continue to increase in height until the flowering period, and usually hold this height in good foliage until killed back by frost.

The abbreviation fl. is used for flower, and fr. for fruit.

Flowers and fruit.

I have referred to the flowers and fruit, and to their color and fragrance, only when these were of sufficient interest to attract attention.

The periods of flowering and fruiting are indicated by the following abbreviations: e. early; m. middle;

Date of flowering.

l. late; Sp. spring; Su. summer; F. fall; W. winter.

In the list are representatives of nearly all the various types of accidental garden forms having a narrow, upright,

Origin and propagation of peculiar forms.

or fastigate habit of growth, and purple, golden, or variegated leaves. Such forms originate from seedling or from bud "sports," which are abnormal growths that are perpetuated by cuttings or by grafts. Double-flowered forms usually

result from high cultivation, which causes the stamens and pistils to develop into petals. Variations in the color and forms of flowers are usually brought about by selecting from year to year seeds from plants showing a tendency to vary in these directions or by hybridizing one variety with another.

Procuring plants.

The best method of procuring each plant is indicated by the following terms, the readiest method being stated first:

The abbreviation "coll." means that plants can be collected from the fields and woods, or secured from parties who make the collection of native plants their

Collecting native plants.

business. If native herbs are collected with a large sod of earth containing practically all the roots, they can be transplanted successfully at

almost any season. Trees and shrubs can only be moved successfully when they are not in growth, deciduous plants when the leaves are off, evergreens when the growth is fully ripe. In collecting native plants, be sure to obtain, if possible, specimens which are not crowded or much shaded by

other plants, secure all the roots by beginning to dig well outside of the tips of the branches, saving them all and preventing them from drying as the work progresses towards the trunk, and securing, if practicable, a ball of earth about them. Use great care at all times to prevent roots from drying. It is best to take small plants of shrubs and trees, if these are to be collected. Do not attempt to move any large plants except under unusually favorable conditions.

With the exception of rare species, native trees, shrubs, and herbs can be secured from collectors at an average cost of about \$1.25 per doz., \$5.00 per 100, or \$20.00 per 1,000. If many varieties and large quantities are required, they can be secured at a lower price than this.

Many varieties, especially herbs, can be grown quite as successfully and at less cost from the seed than if plants are secured by collecting from nurseries. Seeds of many of the native plants, however, cannot be readily obtained, therefore plants must be collected or purchased if they are desired. The seeds of such as can be secured, and of cultivated annuals and perennial herbs, are offered by seedsmen at from five to fifteen cents per packet.

The abbreviation "ctgs." refers to plants that can be propagated readily from cuttings. The best methods of propagating different plants from seed, cuttings, layers, or by division are concisely stated in "The Nursery Book," by L. H. Bailey, published by the Rural Publishing Company, of New York, for 90 cents. Another book that every owner of a garden should possess is "The Horticulturist's Rule Book," by L. H. Bailey, published by the Macmillan Company, New York, at a cost of \$1.00.

The abbreviation "nsy." is used to indicate that plants can be secured to the best advantage from the nursery, where they are grown in quantities from seeds and cuttings.

If plants are ordered direct from the nurseries, ordinary varieties can be secured for about \$2.00 per doz., and \$12.00 per 100, and the responsibility for errors can be placed. Travelling agents must charge a higher price.

Collected
plants.

Growing
plants from
seed.

Reference
books.

Nursery
plants.

To determine the names of collectors of native plants, nurserymen and seedsmen consult the advertising pages of such publications as "Park and Cemetery," published at 334 Dearborn street, Chicago, Ill.; "Gardening," Monon Building, Chicago, Ill.; and "American Gardening," Rhinelander Building, New York, N.Y., one of which papers should be subscribed to by all persons interested in flowers.

Much valuable information concerning the cultivation of plants can also be secured from the descriptive catalogues of nurserymen and seedsmen, which are usually furnished free upon application, and the name of which can be secured from the advertising columns of the periodicals referred to.

With these few sources of information, and with a liking for the work, every family should be able with but little expenditure of money or labor to make their home surroundings very much more interesting and attractive than they are now.

CLASSIFIED LIST FOR READY REFERENCE.

[Those marked with a star (*) are evergreens.]

Herbs that will grow with and are not readily crowded out by shrubs :

| | | | | | | | | | |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1 | 270 | 342 | 362 | 375 | 431 | 468 | 602 | 614 | 641 |
| 14 | 282 | 349 | 363 | 412 | 434 | 474 | 607 | 632 | 643 |
| 15 | 286 | 353 | 364 | 430 | 459 | 601 | 608 | 638 | 644 |
| 35 | 341 | 354 | 369 | | | | | | |

Herbs that will grow in shade :

| | | | | | | | | | |
|----|----|-----|-----|-----|-----|-----|-----|-----|-----|
| 14 | 32 | 51 | 213 | 273 | 285 | 286 | 342 | 468 | 474 |
| 25 | 45 | 105 | 249 | | | | | | |

Herbs for leaf-mould soil in shade :

| | | | | | | | | | |
|----|----|-----|-----|-----|-----|-----|-----|-----|-----|
| 7 | 45 | 72 | 583 | 610 | 628 | 631 | 633 | 638 | 643 |
| 11 | 51 | 73 | 607 | 611 | 629 | 632 | 634 | 641 | 644 |
| 13 | 57 | 448 | 608 | 617 | 630 | | | | |

Herbs that will grow in poor soil :

| | | | | | | | | | |
|----|----|-----|-----|-----|-----|-----|-----|-----|-----|
| 26 | 70 | 160 | 345 | 431 | 435 | 443 | 460 | 473 | 594 |
| 69 | 88 | 273 | 364 | | | | | | |

Herbs for wet ground :

| | | | | | | | | | |
|----|----|-----|-----|-----|-----|-----|-----|-----|-----|
| 6 | 62 | 92 | 270 | 375 | 448 | 467 | 590 | 613 | 643 |
| 15 | 70 | 97 | 273 | 376 | 457 | 587 | 612 | 621 | 644 |
| 24 | 71 | 174 | 341 | 385 | 460 | 588 | | | |

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Large shrubs, six to twelve feet high, spreading five to ten feet, suitable for the back and centre of screening plantations and shrub beds :

| | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 38 | 116 | 152 | 212 | 256 | 298 | 313 | 326 | 419 | 426 |
| 39 | 119 | 155 | 218 | 266 | 299 | 314 | 328 | 420 | 427 |
| 109 | 145 | 162 | 219 | 283 | 300 | 316 | 395 | 421 | 477 |
| 110 | 149 | 167 | 254 | 292 | 309 | 317 | 402 | 422 | 516 |
| 113 | 150 | 203 | 255 | 297 | 310 | | | | |

Medium and small shrubs, one to five feet high, spreading three to five feet, suitable for the edges of screening plantations and for low shrub beds :

| | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| 42 | 185 | 208 | 225 | 233 | 261 | 321 | 392 | 407 | 518 |
| *43 | 191 | 209 | 228 | 234 | 262 | 322 | 394 | 452 | *578 |
| 89 | 192 | 210 | 229 | 235 | 294 | 332 | 398 | 456 | *579 |
| 125 | 204 | 211 | 230 | 251 | 301 | 333 | 403 | 505 | *582 |
| 154 | 207 | 221 | 231 | 260 | 315 | 334 | | | |

Shrubs that will grow in shade or light shade :

| | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| 109 | 125 | 154 | 225 | 294 | 313 | 321 | 332 | 402 | 427 |
| 113 | 135 | 191 | 260 | 297 | 315 | 322 | 392 | 407 | 518 |
| 116 | 142 | 192 | 261 | 299 | 316 | 328 | 395 | 426 | *582 |
| 119 | 145 | 218 | 266 | 310 | 317 | | | | |

Shrubs that will grow in poor or light soil :

| | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| 38 | 125 | 160 | 185 | 230 | 299 | 328 | 392 | 456 | 518 |
| 89 | 149 | 162 | 203 | 266 | 321 | 332 | 394 | 505 | *578 |
| 123 | 150 | | | | | | | | |

Shrubs for wet ground :

| | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|
| 113 | 192 | 230 | 292 | 297 | 309 | 334 | *398 | 403 | 452 |
| 116 | 228 | 261 | 294 | 301 | 313 | 395 | 402 | 407 | 516 |
| 191 | 229 | | | | | | | | |

Climbing woody plants and herbs :

| | | | | | | | | | |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1 | 37 | 130 | 170 | 174 | 279 | 324 | 450 | 464 | 487 |
| 2 | 107 | 131 | 172 | 175 | 289 | 327 | 451 | 486 | 599 |
| 3 | 118 | 153 | | | | | | | |

CATALOGUE.

ABBREVIATIONS: *fr.* fruit; *fl.* flower; *e.* early; *m.* middle; *l.* late; *Sp.* Spring; *Su.* Summer; *F.* Fall; *W.* Winter; *coll.* collected; *nsy.* nursery; *ctg.* cuttings; *in.* inches; *ft.* foot or feet.

CROWFOOT FAMILY.

Ranunculaceæ.

1. VIRGIN'S BOWER (*Clematis virginiana*). — Native; climber 12 ft.; wet soil, light shade; fl. white, l. Su.; fr. white, l. F.; coll., seed, nsy.
2. JAPANESE CLEMATIS (*Clematis paniculata*). — Japan; climber 20 ft.; fl. white, fragrant, e. F.; fr. white, l. F.; nsy., seed.
3. SCARLET CLEMATIS (*Clematis coccinea*). — S.W. U.S.; climber 10 ft.; rich soil; fl. scarlet, e. Su.; nsy.
- 4.
5. WILD PASQUE FLOWER (*Anemone patens nuttalina*). — Native; herb 6 in.; fl. light violet, e. Sp.
6. PENNSYLVANIA ANEMONE (*Anemone pennsylvanica*). — Native; herb 18 in.; wet soil, light shade; fl. white, l. Sp. and Su.; coll.
7. WOOD ANEMONE (*Anemone nemorosa*). — Native; herb 6 in.; leaf-mould soil, shade only; fl. white, e. Sp.; coll.
- 8, 9.
10. SHARP-LOBED LIVER-LEAF (*Hepatica acutiloba*). — Native; herb 6 in.; leaf-mould soil, shade only; fl. blue or white, e. Sp.; coll.
11. LIVER-LEAF (*Hepatica triloba*). — Native; herb 6 in.; leaf-mould soil, shade only; fl. blue, e. Sp.; coll.
- 12.

13. RUE ANEMONE (*Anemonella thalictroides*). — Native; herb 6 in.; leaf-mould soil, shade only; fl. white, e. Sp.; coll.
14. EARLY MEADOW RUE (*Thalictrum dioicum*). — Native; herb 18 in.; shade; fl. cream, e. Sp.; coll.
15. TALL MEADOW RUE (*Thalictrum polygamum*). — Native; herb 3 ft.; wet soil, light shade; fl. white, m. Su.; coll.
- 16, 17.
18. TALL BUTTERCUP (*Ranunculus acris*). — Europe; herb 2 ft.; fl. yellow, m. Sp. and e. Su.; coll.
19. DOUBLE BUTTERCUP (*Ranunculus acris*, fl. pl.). — Garden form; herb 18 in.; fl. yellow, Sp. and e. Su.; nsy.
- 20, 21, 22, 23.
24. MARSH MARIGOLD (*Caltha palustris*). — Native; herb 10 in.; wet soil only, light shade; fl. yellow, e. Sp.; coll.
25. GOLDTHREAD (*Coptis trifolia*). — Native; evergreen creeper 2 in.; leaf-mould soil, in shade only; fl. white, m. Sp.
26. WILD COLUMBINE (*Aquilegia canadensis*). — Native; herb 18 in.; dry rocky soil and ledges, light shade; fl. red, e. Sp.; seed, coll.
- 27.
28. GOLDEN-SPURRED COLUMBINE (*Aquilegia chrysantha*). — W. U.S.; herb 2 ft.; rich soil; fl. yellow, l. Sp.; seed, nsy.
29. GARDEN COLUMBINE (*Aquilegia vulgaris*). — Europe; herb 2 ft.; fl. in variety, single and double, shades of blue, rose, white, Sp. or e. Su.; seed, nsy.
30. LARKSPUR (*Delphinium formosum*). — Europe; herb 4 ft.; fl. in variety, single and double, shades of blue, purple, rose, white, e. Su. and e. F.; seed, nsy.
31. ANNUAL LARKSPUR (*Delphinium ajacis*). — Europe; annual herb 1½ ft.; fl. blue, pink, or white, Su.; seed.

32. MONKSHOOD (*Aconitum uncinatum*). — Europe; herb 3 ft.; light shade; fl. blue, e. Su.; tuberous root, very poisonous to eat; nsy.
- 33, 34.
35. OLD RED PEONY (*Paeonia officinalis*). — Europe; herb 2 ft.; fl. crimson, e. Sp.; nsy.
36. CHINESE PEONY (*Paeonia albiflora*). — Asia; herb 2 ft.; fl. in variety, shades of red, white, pale yellow, Sp.; nsy.

MOONSEED FAMILY.

Menispermaceæ.

37. MOONSEED (*Menispermum canadense*). — Native; woody climber 5 ft.; shade; fr. black, F.; coll.

BARBERRY FAMILY.

Berberidaceæ.

38. COMMON BARBERRY (*Berberis vulgaris*). — Europe; thorny shrub 6×5 ft.; poor soil; fl. yellow, fragrant, e. Sp.; fr. red, edible, l. F. and e. W.; nsy., seed.
39. PURPLE BARBERRY (*Berberis vulgaris purpurea*). — A purple-leaved variety of the last; nsy.
- 40, 41.
42. THUNBERG'S BARBERRY (*Berberis thunbergii*). — Japan, thorny shrub 3×3 ft.; fl. yellow, e. Sp.; fr. scarlet; l. F. and W.; nsy., ctg., seed.
- 43, 44.
45. MANDRAKE (*Podophyllum peltatum*). — Native; herb 18 in.; leaf-mould soil, shade; fl. white, m. Sp.; fr. white, edible, e. Su.; coll.

WATER LILY FAMILY.

Nymphæaceæ.

- 46.
47. WATER LILY (*Nymphæa odorata*). — Native; floating aquatic; fl. white, fragrant, Su.; coll.

48.
 49. NELUMBO (*Nelumbium lutea*). — Native; aquatic 2 ft.,
 or floating; fl. yellow; fr. large; coll.
 50.

POPPY FAMILY.

Papaveraceæ.

51. CELANDINE (*Chelidonium majus*). — Introduced; herb 1
 ft.; shade; fl. yellow, Sp.; seed, coll.
 52. ORIENTAL POPPY (*Papaver orientale*). — Europe; herb
 2 ft.; fl. shades of scarlet, mauve, e. Su.; seed, nsy.
 53. GARDEN POPPY (*Papaver somniferum*). — Asia; annual
 herb 3 ft.; fl. white or purple, Su.; seed (numerous
 varieties of this and other species offered by seeds-
 men).
 54, 55, 56.

FUMITORY FAMILY.

Fumariaceæ.

57. DUTCHMAN'S BREECHES (*Dicentra cucullaria*). — Native;
 herb 8 in.; leaf-mould soil in shade only; fl. white,
 e. Sp.; coll.
 58. BLEEDING HEART (*Dicentra spectabilis*). — Europe;
 herb 2 ft.; fl. pink, m. Sp.; nsy.
 59, 60, 61.

MUSTARD FAMILY.

Cruciferae.

62. SPRING CRESS (*Cardamine rhomboides*). — Native; herb
 8 in.; wet soil; fl. white, Sp. and e. Su.; coll.
 63. SWEET ALYSSUM (*Alyssum maritimum*). — Europe;
 annual herb 8 in.; fl. white, Su.; seed.
 64. HORSE RADISH (*Nasturtium armoracia*). — Europe;
 herb 2 ft.; fl. white, l. Sp.; coll.
 65. ROCKET (*Hesperis matronalis*). — Europe; herb 3 ft.;
 light shade; fl. rose or white, e. Su.; seed.
 66, 67.

MIGNONETTE FAMILY.

Resedaceæ.

68. MIGNONETTE (*Reseda odorata*). — Africa ; annual herb ; 12 in. ; fl. yellowish, fragrant, Su. ; seed.

VIOLET FAMILY.

Violaceæ.

69. BIRD-FOOT VIOLET (*Viola pedata*). — Native ; herb 4 in. ; light soil ; fl. blue, fragrant, e. Sp. ; coll.
70. COMMON BLUE VIOLET (*Viola palmata*). — Native ; herb 6 in. ; moist soil, light shade ; fl. blue, fragrant, e. Sp. ; coll.
71. LANCE-LEAVED VIOLET (*Viola lanceolata*). — Native ; herb 4 in. ; wet soil ; fl. white, Sp. and e. Su.
72. DOWNY YELLOW VIOLET (*Viola pubescens*). — Native ; herb 8 in. ; leaf-mould soil in shade only ; fl. yellow, e. Sp.
73. DOG VIOLET (*Viola canina*). — Europe ; herb 6 in. ; leaf-mould soil in shade ; fl. white, blue ; seed, nsy.
74. PANSY OR HEART'S-EASE (*Viola tricolor*). — Europe ; herb 8 in. ; rich soil ; fl. in variety, shades of white, yellow, blue, reddish, in Sp. and Su. ; seed.
- 75, 76.

PINK FAMILY.

Caryophyllaceæ.

77. GARDEN PINK (*Dianthus plumarius*). — Europe ; ever-green creeper 6 in. ; fl. in variety, pink or white, fragrant, m. Sp. ; seed, nsy.
78. SWEET WILLIAM (*Dianthus barbatus*). — Europe ; herb 1 ft. ; fl. in variety, shades of white, red, l. Sp. and e. Su. ; seed, nsy.
- 79.
80. CHINA PINK (*Dianthus chinensis*). — Europe ; annual or biennial herb, 1 ft. ; fl. shades of red, Su. ; seed.
- 81, 82.

83. LONDON PRIDE (*Lychnis chalcedonica*). — Europe; herb 2 ft.; rich soil; fl. scarlet or white, e. Su.; seed, nsy.
84, 85, 86, 87.

ST. JOHN'S-WORT FAMILY.

Hypericaceæ.

88. GREAT ST. JOHN'S-WORT (*Hypericum ascyron*). — Native; herb 3 ft.; light soil; fl. yellow, m. Su.; coll.
89. SHRUBBY ST. JOHN'S-WORT (*Hypericum prolificum*). — Native; shrub 3 × 3 ft.; fl. yellow, m. Su.
90, 91.
92. MARSH ST. JOHN'S-WORT (*Elodes campanulata*). — Native; herb 1 ft.; wet soil; fl. pink, m. Su.
93, 94.

MALLOW FAMILY.

Malvaceæ.

95. MALLOW (*Malva alcea*). — Europe; herb 2 ft.; fl. rose, Su.; seed, coll.
96.
97. MARSH MALLOW (*Hibiscus moscheutos*). — Native; herb 5 ft.; wet soil; fl. in variety, white, rose, l. Su.; coll., nsy.
98, 99, 100.

LINDEN FAMILY.

Tiliaceæ.

101. BASSWOOD (*Tilia americana*). — Native; tree 60 × 30 ft.; fl. yellow, l. Sp.; nsy., coll., seed.
102, 103, 104.

GERANIUM FAMILY.

Geraniaceæ.

105. WILD CRANESBILL (*Geranium maculatum*). — Native; herb 18 in.; shade; fl. rose, l. Sp.; coll.
 106. BLOOD CRANESBILL (*Geranium sanguineum*). — Europe; herb 8 in.; fl. red, l. Sp. and e. Su.; nsy.
 107. NASTURTIUM (*Tropæolum majus*). — South America; annual herb 1 to 4 ft.; fl. shades of yellow and red, Su., F.; seed.
 108.

RUE FAMILY.

Rutaceæ.

109. PRICKLY ASH (*Xanthoxylum americanum*). — Native; thorny shrub 6 × 4 ft.; light shade; fl. yellowish, e. Sp.; fr. red, l. Su.; coll., seed.
 110. HOP TREE (*Ptelea trifoliata*). — Native; shrub or tree 10 × 10 ft.; fl. greenish, l. Sp.; fr. greenish, l. Su.; nsy., seed.
 111, 112.

HOLLY FAMILY.

Ilicineæ.

113. WINTERBERRY (*Ilex verticillata*). — Native; shrub 6 × 5 ft.; wet soil, shade; fl. white, m. Su.; fr. scarlet, l. F. and e. W.; coll., nsy., seed.
 114, 115.
 116. MOUNTAIN HOLLY (*Nemopanthes fascicularis*). — Native; shrub 10 × 5 ft.; wet soil, light shade; fr. red, l. F.; coll.
 117.

STAFF TREE FAMILY.

Celastraceæ.

118. CLIMBING BITTERSWEET (*Celastrus scandens*). — Native; woody climber 50 ft.; poor soil, shade; fr. yellow and orange, l. F. and W.; coll., nsy., seed.

119. BURNING BUSH (*Euonymus atropurpurea*). — Native; shrub or tree 10 × 5 ft.; light shade; fr. red, l. F. and e. W.; coll., seed, nsy.
120, 121, 122.

BUCKTHORN FAMILY.

Rhamnaceæ.

123. BUCKTHORN (*Rhamnus cathartica*). — Europe; shrub or tree 15 × 10 ft.; poor soil; fr. black, F.; nsy., seed.
124.
125. NEW JERSEY TEA (*Ceanothus americanus*). — Native; shrub 2 ft.; poor, light soil, light shade; fl. white, m. Su.; coll.
126, 127.

VINE FAMILY.

Vitaceæ.

- 128, 129.
130. VIRGINIA CREEPER (*Ampelopsis quinquefolia*). — Native; woody climber 50 ft.; fr. black, e. F.; coll., nsy., ctg., seeds.
131. WILD GRAPE (*Vitis labrusca*). — Native; woody climber 50 ft.; fr. black or green; coll., nsy., ctg., seed. One of the parents of many of our garden varieties of grape.

SOAPBERRY FAMILY.

Sapindaceæ.

- 132, 133.
134. OHIO BUCKEYE (*Aesculus glabra*). — Native; tree 50 × 30 ft.; fl. yellow, l. Sp.; nsy., seed.
135. DWARF BUCKEYE (*Aesculus parviflora*). — S. U.S.; shrub 6 × 10 ft.; light shade; fl. white, m. Su.; nsy.
136.

137. STRIPED MAPLE (*Acer pennsylvanicum*). — Native; tree 25 × 15 ft.; shade; fl. yellowish, l. Su.; coll., seed.
138. SUGAR MAPLE (*Acer saccharinum*). — Native; tree 60 × 25 ft.; fl. greenish, e. Sp.; nsy., coll., seed.
139. SILVER MAPLE (*Acer dasycarpum*). — Native; tree 60 × 30 ft.; fl. reddish, e. Sp.; fr. greenish, m. Su.; nsy., seed.
140. RED MAPLE (*Acer rubrum*). — Native; tree 60 × 25 ft.; fl. scarlet, e. Sp.; fr. red, m. Su.; nsy., coll., seed.
141. NORWAY MAPLE (*Acer platanoides*). — Europe; tree 60 × 40 ft.; fl. yellow, e. Sp.; fr. greenish, m. Su.; nsy., seed.
142. MOUNTAIN MAPLE (*Acer spicatum*). — Native; shrub 15 × 15 ft.; shade; fl. yellowish, e. Su.; fr. reddish or greenish, l. Su.; coll., nsy., seed.
- 143.
144. BOX ELDER (*Negundo aceroides*). — Native; tree 50 × 30 ft.; fl. yellowish, e. Sp.; fr. greenish, e. Su.; nsy., coll., seed.
145. BLADDER NUT (*Staphylea trifolia*). — Native; shrub 10 × 10 ft.; shade; fl. greenish, e. Sp.; fr. green, Su.; nsy., coll., ctg., seed.
- 146, 147, 148.

CASHEW FAMILY.

Anacardiaceæ.

149. STAGHORN SUMACH (*Rhus typhina*). — Native; shrub or tree 12 × 12 ft.; poor soil; fl. greenish, e. Su.; fr. crimson, l. Su., F. and W.; coll., seed.
150. SMOOTH SUMACH (*Rhus glabra*). — Native; shrub 8 × 8 ft.; poor soil; fl. greenish, m. Su.; fr. crimson, F. and W.; coll., seed.
- 151.
152. POISON SUMACH (*Rhus venenata*). — Native; shrub 6 × 6 ft.; extremely poisonous to many persons. It usually grows in swamps, has light, yellowish bark, dry

- light-gray or yellowish seeds in loose open clusters and broad leaflets; whereas the harmless species grow in dry land, have dark bark, large dense conical bunches of red seed, and narrow leaflets.
153. POISON IVY OR OAK (*Rhus toxicodendron*).— Native; climber 30 ft.; extremely poisonous to many persons. Confounded with the harmless Virginia creeper which has five leaflets and black fleshy fruit, and climbs by twining tendrils, while the *Rhus* has three leaflets, dry gray fruit, and climbs by sticking rootlets.
154. FRAGRANT SUMACH (*Rhus canadensis*).—Native; shrub 3 × 10 ft.; shade; fl. yellow, e. Sp.; fr. red, e. F.; coll., nsy., seed.
155. SMOKE BUSH (*Rhus cotinus*).— Europe; shrub 8 × 5 ft.; fr. and fl. stems showing reddish, Su.; nsy.
- 156.

PULSE FAMILY.

Leguminosæ.

- 157, 158, 159.
160. WILD INDIGO (*Baptisia tinctoria*).— Native; herb 18 in.; dry, poor soil; fl. yellow, e. Su.; coll.
- 161.
162. FALSE INDIGO (*Amorpha fruticosa*).— Native; shrub 6 × 6 ft.; poor soil; fl. purple, m. Su.; nsy., coll.
- 163.
164. LOCUST (*Robinia pseudacacia*).— Native; thorny tree 40 × 15 ft.; poor soil; fl. white, fragrant, m. Su.; nsy., coll., seed.
- 165, 166.
167. SIBERIAN PEA TREE (*Caragana arborescens*). Asia; shrub or tree 12 × 8 ft.; fl. yellow, m. Sp.; nsy.
- 168, 169.
170. AMERICAN WISTARIA (*Wistaria frutescens*). Native; woody twiner 50 ft.; fl. blue, m. Sp.; nsy., seed.
- 171.
172. PERENNIAL PEA (*Lathyrus latifolius*).— Europe; climbing herb, 4 ft.; fl. pink and white, Su.; seed, nsy.

173. SWEET PEA (*Lathyrus odoratus*). — Europe; climbing annual herb 3 ft.; fl. white, rose, or purple, etc., Su. and F.; seed.
174. GROUND NUT (*Apios tuberosa*). — Native; climbing herb 4 ft.; wet soil, light shade; fl. chocolate, fragrant, e. Su.; coll.
- 175, 176, 177, 178, 179, 180, 181, 182.

ROSE FAMILY.

Rosaceæ.

183. WILD PLUM (*Prunus americana*). — Native; thorny tree 12×10 ft.; fl. white, e. Sp.; fr. red, e. F.; coll., seed.
- 184.
185. DWARF CHERRY (*Prunus pumila*). — Native; shrub 3 ft.; poor soil; fl. white, m. Sp.; fr. black, edible, e. F.; coll., seed.
186. WILD BLACK CHERRY (*Prunus serotina*). — Native; tree 60×30 ft.; fl. white, l. Sp.; fr. red, l. Su.; nsy., coll., seed.
- 187, 188, 189, 190.
191. CHOKEBERRY (*Pyrus arbutifolia*). — Native; shrub 4 ft.; wet soil, light shade; fl. white, e. Su.; fr. scarlet, F. and W.; coll., seed.
192. BLACK CHOKEBERRY (*Pyrus arbutifolia melanocarpa*). — Native; shrub 4 ft.; wet soil, light shade; fl. white, e. Su.; fr. black, F. and e. W.; coll., seed.
- 193, 194.
195. MOUNTAIN ASH (*Pyrus americana*). — Native; tree 30×20 ft.; fl. white, e. Su.; fr. red, F. and e. W.; coll., nsy., seed.

196. EUROPEAN MOUNTAIN ASH (*Pyrus aucuparia*). — Europe; tree 30×20 ft.; fl. white, e. Su.; fr. red, F. and e. W.; nsy.
- 197, 198.
199. SCARLET HAW (*Cratægus coccinea*). — Native; thorny tree 20×15 ft.; fl. white, e. Su.; fr. red, l. Su. and e. F.; coll.
200. COCKSPUR (*Cratægus crus-galli*). — Native; thorny tree 20×15 ft.; fl. white, e. Su.; fr. red, l. Su. and e. F.; coll.
- 201, 202.
203. SHADBUSH (*Amelanchier canadensis*). — Native; shrub or small tree 6 to 30 ft. × 5 to 20 ft.; varies much in size; poor soil, shade; fl. white, e. Sp.; fr. red, edible, l. Su.; coll., nsy., seed.
204. DWARF JUNE BERRY (*Amelanchier canadensis oblongifolia*). — Native; shrub 4×4 ft.; fl. white, e. Sp.; fr. black, edible, l. Su.; nsy., seed.
- 205, 206.
207. MEADOWSWEET (*Spiræa salicifolia*). — Native; shrub 4 ft.; fl. white, l. Sp.; coll., nsy., ctg.
208. STEEPLE BUSH (*Spiræa tomentosa*). — Native; shrub 3 ft.; fl. red, e. Su.; coll.
209. SPIRÆA (*Spiræa sorbifolia*). — Europe; shrub 4 ft.; fl. white, e. Su.; nsy., coll.
210. SPIRÆA (*Spiræa cratægifolia*). — Europe; shrub 3 ft.; fl. white, m. Sp.; nsy., ctg.
211. VAN HOUTTE'S SPIRÆA (*Spiræa van houttei*). — Europe; shrub 5 ft.; fl. white, l. Sp.; nsy., ctg.
212. BRIDAL WREATH (*Spiræa prunifolia*). — Asia; shrub 6×5 ft.; fl. white, m. Sp.; nsy., ctg.
213. GOAT'S BEARD (*Spiræa auruncus*). — S. U.S.; herb 3 ft.; shade; fl. white, e. Su.; nsy.
- 214, 215, 216, 217.
218. NINEBARK (*Physocarpus* [or *Spiræa*] *opulifolia*). — Native; shrub 6 ft.; light shade; fl. white, e. Su.; fr. reddish, l. Su.; nsy., coll., ctg.
219. GOLDEN SPIRÆA (*Physocarpus* [or *Spiræa*] *opulifolia aurea*). — A yellow-leaved garden form of last; nsy., ctg.

- 220.
221. WILD RED RASPBERRY (*Rubus strigosus*). — Native; shrub 4 ft.; fl. white, m. Sp.; fr. red, edible, e. Su. (This and the next two species are parents of the cultivated varieties. Cultivated wild plants will produce improved fruits); nsy., coll.
- 222, 223.
224. DEWBERRY (*Rubus hispidus*). — Native; evergreen trailing shrub; shade; fl. white, l. Sp.; coll.
225. FLOWERING RASPBERRY (*Rubus odoratus*). — Native; shrub 4 × 2 ft.; shade; fl. rose, e. Su.; fr. red, l. Su.; coll., nsy.
- 226, 227.
228. SHRUBBY CINQUEFOIL (*Potentilla fruticosa*). — Native; shrub 2 ft.; wet soil; fl. yellow, l. Sp. and Su.; coll., nsy.
229. SWAMP ROSE (*Rosa carolina*). — Native; shrub 2 ft.; wet soil; fl. red, fragrant, e. Su.; fr. red, F. and e. W.; coll., ctg., nsy., seed.
230. DWARF WILD ROSE (*Rosa lucida*). — Native; shrub 3 ft.; wet and poor soil; fl. red, fragrant, e. Su.; fr. red, F. and e. W.; coll., ctg., nsy., seed.
231. SWEETBRIER (*Rosa rubiginosa*). — Europe; shrub 5 ft.; fl. pink, fragrant, leaves fragrant; fr. red, F. and e. W.; nsy.
- 232.
233. JAPANESE ROSE (*Rosa rugosa*). — Asia; shrub 5 × 5 ft.; fl. in variety, shades of red and white, Su.; fr. red, F. and e. W.; nsy.
234. HARRISON'S YELLOW ROSE (*Rosa eglanteria lutea*). — Europe; shrub 3 ft.; fl. yellow, fragrant, e. Su.; nsy.
235. MANETTA ROSE (*Rosa manetta*). — Europe; shrub 5 × 5 ft.; fl. pink, fragrant. (Hybrid perpetual roses are usually grafted upon this species as a stock. It often sends up sprouts which will unless destroyed kill off the grafted variety. This stock plant can be distinguished from the grafted varieties by the seven or nine leaflets, whereas the grafted hybrids always have a less number.)

236, 237, 238, 239.

240. STRAWBERRY (*Fragaria vesca*). — Native; herb 6 in.; fl. white, m. Sp.; fr. red, edible, m. Su. (the parent of many garden varieties); nsy., coll.

241, 242, 243, 244, 245, 246.

CALYCANTHUS FAMILY.

Calycanthaceæ.

247. SWEET-SCENTED SHRUB (*Calycanthus floridus*). — S. U.S.; shrub 6 × 6 ft.; light shade; fl. red, fragrant, l. Sp.; fr. brown, e. F.; nsy., ctg., seed.

248.

SAXIFRAGE FAMILY.

Saxifragaceæ.

249. ALUM ROOT (*Heuchera americana*). — Native; herb 18 in.; shade; fl. greenish, l. Sp.; coll.

250. CRIMSON ALUM ROOT (*Heuchera sanguinea*). — W. U.S.; herb 1 ft.; fl. scarlet, Su.; nsy.

251. HARDY HYDRANGEA (*Hydrangea paniculata*). — Japan; shrub 5 × 5 ft.; fl. white, F.; nsy.

252. HARDY HYDRANGEA (*Hydrangea paniculata grandiflora*). — Sterile-flowered garden form of the above. Shrub 6 × 5 ft.; fl. white turning pink; nsy.

253.

254. MOCK ORANGE SYRINGA (*Philadelphus grandiflorus*). — S. U.S.; shrub 10 × 10 ft.; fl. white, l. Sp.; nsy., ctg.

255. SWEET-SCENTED SYRINGA (*Philadelphus coronarius*). — S. U.S.; shrub 6 × 5 ft.; fl. white, fragrant, m. Sp.; nsy., ctg.

256. SYRINGA (*Philadelphus gordonianus*). — S. U.S.; shrub 10 × 5 ft.; fl. white, fragrant, l. Sp.; nsy., ctg.

257, 258, 259.

260. GOOSEBERRY (*Ribes oxycanthoides*). — Native; prickly shrub 3 × 3 ft.; light shade; fr. green, edible,

- m. Su. (the parent of our cultivated gooseberries); nsy., ctg., coll.
261. WILD BLACK CURRANT (*Ribes floridum*). — Native; shrub 4 × 3 ft.; wet soil, shade; fl. greenish, e. Sp; fr. black, m. Su.; nsy., ctg.
262. MISSOURI CURRANT (*Ribes aureum*). — W. U.S.; shrub 5 × 4 ft.; fl. yellow, fragrant, e. Sp.; fr. black, edible, m. Su. (the parent of improved varieties); nsy., ctg.

ORPINE FAMILY.

Crassulaceæ.

- 263.
264. MOSSY STONECROP (*Sedum acre*). — Introduced; creeper; thin soil on rock; fl. yellow, e. Su.; coll.
- 265.

WITCH HAZEL FAMILY.

Hamamelideæ.

266. WITCH HAZEL (*Hamamelis virginiana*). — Native; shrub 12 × 8 ft.; gravelly soil, shade; fl. yellow, e. F.; coll., nsy.
- 267, 268, 269.

LOOSE-STRIPE FAMILY.

Lythraceæ.

270. SPIKED LOOSE-STRIPE (*Lythrum salicaria*). — Native; herb 3 ft.; wet soil; fl. red, m. Su.; nsy.
- 271, 272.

EVENING PRIMROSE FAMILY.

Omagraceæ.

273. GREAT WILLOW HERB (*Epilobium angustifolium*). — Native; herb 4 ft.; light shade, wet or dry ground; m. Su.; coll.
- 274, 275, 276, 277, 278.

GOURD FAMILY.

Cucurbitaceæ.

279. WILD CUCUMBER (*Echinocystis lobata*). — W. U.S.; climbing annual 15 ft.; fl. white, e. Su.; fr. green, F.; seed.
280, 281.

PARSLEY FAMILY.

Umbelliferæ.

282. COW PARSNIP (*Heraclium lanatum*). — Native; herb 6 ft.; rich soil, shade; fl. white, m. Su.; fr. brown, coll.

GINSENG FAMILY.

Araliaceæ.

283. HERCULES' CLUB (*Aralia spinosa*). — S. U.S.; prickly shrub 6 ft.; fl. white, m. Su.; fr. purple, e. F.
284.
285. WILD SASSAPARILLA (*Aralia nudicaulis*). — Native; herb 1 ft.; shade; fl. greenish, 1. Sp.; fr. black, m. Su.; coll.
286. GINSENG (*Aralia quinquefolia*). — Native; herb 4 ft.; shade; fl. greenish white, m. Su.; coll.
287, 288.

BIRTHWORT FAMILY.

Aristolochiaceæ.

289. PIPE VINE (*Aristolochia siphon*). — Native; woody twiner 50 ft.; fl. purple; nsy.
290.

LAUREL FAMILY.

Lauraceæ.

291. SASSAFRAS (*Sassafras officinale*). — Native; tree 25 × 15 ft.; poor soil, light shade; fl. yellow, m. Sp.; fr. black, 1. Su.; coll., nsy.

292. SPICEBUSH (*Lindera benzoin*). — Native; shrub 10 × 8 ft.; wet soil, shade; fl. yellow, e. Sp.; fr. scarlet, l. Su.; coll., nsy.
- 293.

MEZEREUM FAMILY.

Thymelæaceæ.

294. LEATHERWOOD (*Dirca palustris*). — Native; shrub 4 × 4 ft.; wet soil, in shade; fl. yellow, e. Sp.; fr. red, l. Su.
- 295, 296.

DOGWOOD FAMILY.

Cornaceæ.

297. SILKY DOGWOOD (*Cornus sericea*). — Native; shrub 6 × 10 ft.; wet soil, light shade; fl. white, l. Sp.; fr. blue, l. Su.; coll., nsy., ctg., seed.
298. PANICLED DOGWOOD (*Cornus paniculata*). — Native; shrub 6 × 3 ft.; dry soil; fl. white, l. Sp.; fr. white, l. Su.; coll., nsy., ctg., seed.
299. ROUND-LEAVED DOGWOOD (*Cornus circinata*). — Native; shrub 6 × 4 ft.; dry soil, in shade; fl. white, l. Sp.; fr. white, l. Su.; coll., nsy., seed.
300. EUROPEAN RED OSIER DOGWOOD (*Cornus sanguinea alba*). — Europe; shrub 6 × 6 ft.; fl. white, l. Sp.; fr. white, m. Su.; bark crimson in winter; nsy., ctg.
301. RED OSIER DOGWOOD (*Cornus stolonifera*). — Native; shrub 5 × 5 ft.; wet soil; fl. white, l. Sp.; fr. white, m. Su.; bark crimson in winter; coll., ctg., seed.
- 302, 303, 304, 305, 306, 307, 308.

HONEYSUCKLE FAMILY.

Caprifoliaceæ.

309. ELDER (*Sambucus canadensis*). — Native; shrub 10 × 10 ft.; wet soil; fl. white, m. Su.; fr. black, e. F.; coll., ctg., seed.

310. RED-BERRIED ELDER (*Sambucus racemosa*). — Native; shrub 10×10 ft.; shade; fl. white, e. Sp.; fr. scarlet, e. Su.; coll., etg., seed.
- 311, 312.
313. HIGH BUSH CRANBERRY [OF CRANBERRY TREE] (*Viburnum opulus*). — Native; shrub 12×6 ft.; wet soil, shade; fl. white, e. Su.; fr. red, e. F.; coll., nsy., seed.
314. SNOWBALL (*Viburnum opulus sterilis*). — Garden form; shrub 12×6 ft.; fl. white, e. Su.; nsy.
315. DOCKMACKIE (*Viburnum acerifolium*). — Native; shrub 3×3 ft.; shade; fl. white, e. Su.; fr. black, e. F.; coll., nsy., seed.
316. ARROWWOOD (*Viburnum dentatum*). — Native; shrub 10×6 ft.; shade; fl. white, e. Su.; fr. black, e. F.; coll., nsy.
317. SHEEPBERRY (*Viburnum lentago*). — Native; shrub 10×6 ft.; light shade; fl. white, l. Sp.; fr. black, edible, F.; coll.
- 318, 319, 320,
321. CORAL BERRY (*Symphoricarpos vulgaris*). — Native; shrub 3×3 ft.; poor soil, shade; fr. red, F. and e. W.; nsy., coll., etg.
322. SNOWBERRY (*Symphoricarpos racemosus*). — Native; shrub 3×3 ft.; fl. white, e. Su.; fr. white, F. and e. W.; coll., nsy.
- 323.
324. TRUMPET HONEYSUCKLE (*Lonicera sempervirens*). — Europe; woody climber 10 ft.; fl. red or yellow, m. Sp.; fr. red, l. Su.; nsy.
- 325.
326. TARTARIAN HONEYSUCKLE (*Lonicera tatarica*). — Asia; shrub 10×8 ft.; fl. shades of white and red, m. Sp.; fr. red, m. and l. Su.; nsy., etg.
327. MINNESOTA HONEYSUCKLE (*Lonicera sullivanii*). — Native; woody twiner 10 ft.; fl. yellow, e. Su.; fr. red, m. Su.; coll., etg.
328. FLY HONEYSUCKLE (*Lonicera xylosteum*). — Europe; shrub 10×8 ft.; poor soil, light shade; fl. yellow, e. Su.; fr. red, m. Su. and e. F.; nsy., etg.

329, 330, 331.

332. BUSH HONEYSUCKLE (*Diervilla trifida*). — Native; shrub 2×1½ ft.; poor soil, shade; fl. yellow, m. Su.; coll.
333. WEIGELIA (*Diervilla rosea*). — Asia; shrub 4×4 ft.; fl. shades of white and red; nsy., ctg.

MADDER FAMILY.

Rubiaceæ.

334. BUTTON-BUSH (*Cephalanthus occidentalis*). — Native; shrub 5×5 ft.; wet soil; fl. white, m. Su.; fr. brown, F.; coll., ctg.
335. INFANT'S BREATH (*Galium boreale*). — Native; herb 3 ft.; dry soil; fl. white, Su.; coll., nsy.
- 336, 337, 338, 339, 340.

COMPOSITE FAMILY.

Compositæ.

341. JOE-PYE WEED (*Eupatorium purpureum*). — Native; herb 6 ft.; wet soil, light shade; fl. purple, e. F.; coll.
342. THOROUGHWORT [OR WHITE SNAKE-ROOT] (*Eupatorium ageratoides*). — Native; herb 4 ft.; shade; fl. white, e. F.; coll.
- 343, 344.
345. BLAZING STAR (*Liatris scariosa*). — Native; herb 3 ft.; poor soil; fl. purple, e. F.; coll.
346. KANSAS GAY FEATHER (*Liatris pycnostachya*). — Native; herb 4 ft.; wet soil; fl. purple, e. F.; coll.
- 347, 348.
349. GOLDEN ROD (*Solidago canadensis*). — Native; herb 3 ft.; poor soil; fl. yellow, e. F.; coll.
- 350, 351.
352. GARDEN [OR CHINA] ASTER (*Caltephus hortensis*). — China and Japan; annual herb 12-18 in.; fl. white, pink, purple, etc., Su.; seed.

353. BOLTONIA (*Boltonia latisquama*). — Native; herb 4 ft.; fl. lavender, l. Su. and F.; nsy.
354. NEW ENGLAND ASTER (*Aster nova-anglica*). — Native; herb 4 ft.; fl. blue, F.; coll., nsy.
- 355, 356, 357.
358. ZINNIA (*Zinnia elegans*). — Mexico; annual herb 3 ft.; fl. rose, purple, violet, red, or white, Su., F.; seed.
359. ROBIN'S PLANTAIN (*Erigeron bellidifolius*). — Native; herb 1 ft.; fl. blue, m. Sp.; coll.
360. COMMON FLEABANE (*Erigeron philadelphicus*). — Native; herb 1 ft.; fl. blue, e. Su.; coll.
- 361.
362. COMMON ELECCAMPANE (*Inula helenium*). — Europe; herb 5 ft.; fl. yellow, e. F.; coll.
363. CUP PLANT (*Silphium perfoliatum*). — Native; herb 6 ft.; fl. yellow, l. Su.; coll.
364. ONEYE (*Heliopsis laevis*). — Native; herb 4 ft.; poor soil; fl. yellow, Su. and F.; coll.
365. CONEFLOWER (*Rudbeckia laciniata*). — Native; herb 5 ft.; fl. yellow, l. Su. and F. (a double form "Golden Glow" is cultivated); coll., nsy.
- 366.
367. GRACEFUL SUNFLOWER (*Helianthus orgyalis*). — S.W. U.S.; herb 8 ft.; fl. yellow and brown, F.; nsy.
368. PRAIRIE SUNFLOWER (*Helianthus rigidus*). — Native; herb 5 ft.; fl. yellow, F.; coll., nsy.
369. MAXIMILIAN'S SUNFLOWER (*Helianthus maximilianus*). — Native; herb 6 ft.; fl. yellow, l. F.; nsy.
- 370, 371.
372. COREOPSIS (*Coreopsis palmata*). — Native; herb 3 ft.; fl. yellow, l. Su.; coll.
373. TICKSEED (*Coreopsis lanceolata*). — Native; herb 2 ft.; fl. yellow, Su. and F.; nsy., coll.
374. CALLIOPSIS (*Coreopsis tinctoria*). — Native; annual herb 3 ft.; fl. yellow and brown, Su.; seed.
375. SNEEZEWEED (*Helenium autumnale*). — Native; herb 3 ft.; wet soil; fl. yellow, l. Su. and e. F.; coll., nsy.

376. INDIAN PLANTAIN (*Cacalia reniformis*). — Native; herb 3 ft.; wet soil; fl. white, e. F.; coll.
377. MARIGOLD (*Calendula officinalis*). — Europe; annual herb; 1 ft.; fl. yellow, Su.; seed.
378. CORNFLOWER [or BACHELOR'S BUTTON] (*Centaurea cyanus*). — Europe; annual herb 2 ft.; fl. blue, white, or rose, Su.; seed.
379. COSMOS (*Cosmos bipinnatus*). — Mexico; annual herb 5 ft.; fl. white or rose, F.; seed.
- 380, 381, 382, 383, 384.

LOBELIA FAMILY.

Lobeliaceæ.

385. LOBELIA (*Lobelia syphilitica*). — Native; herb 18 in.; wet soil; fl. blue, e. Su.; coll.
- 386, 387, 388.

CAMPANULA FAMILY.

Campanulaceæ.

389. COMMON HAREBELL (*Campanula rotundifolia*). — Native; herb 1 ft.; crevices of rocks and dry soil; fl. blue, e. Su.; seed, coll.
- 390, 391.

HEATH FAMILY.

Ericaceæ.

The members of this family seldom do well in clay soil, they prefer sandy or gravelly loam.

392. BLACK HUCKLEBERRY (*Gaylussacia resinosa*). — Native; shrub 3×3 ft.; dry gravelly soil, light shade; fl. pinkish, m. Sp.; fr. black, edible, m. Su.; coll.
- 393.

394. DWARF BLUEBERRY (*Vaccinium pennsylvanicum*). — Native; shrub 1×1 ft.; dry soil, light shade; fl. white, m. Sp.; fr. blue, edible, m. Su.; coll.
395. SWAMP BLUEBERRY (*Vaccinium corymbosum*). — Native; shrub 6×4 ft.; wet soil, light shade; fl. white, m. Sp.; fr. blue or black, m. Su.; coll.
- 396, 397.
398. LEATHERLEAF (*Cassandra calyculata*). — Native; evergreen shrub 18 in.; wet soil; fl. white, e. Sp.; coll.
- 399, 400, 401.
402. WHITE SWAMP HONEYSUCKLE (*Rhododendron viscosum*). — Native; shrub 6×4 ft.; wet soil, light shade; fl. white, fragrant, e. Su.; coll., nsy.
403. RHODORA (*Rhododendron rhodora*). — Native; shrub 3×2 ft.; wet soil; fl. rose, e. Sp.; coll., nsy.
- 404, 405, 406.
407. SWEET PEPPER BUSH (*Clethra alnifolia*). — Native; shrub 4×4 ft.; wet soil, shade; fl. white, fragrant, l. Su.; nsy., coll.
- 408, 409, 410, 411.

PRIMROSE FAMILY.

Primulaceæ.

412. MONEYWORT (*Lysimachia nummularia*). — Europe; creeper, shade; fl. yellow, e. Su.; coll., nsy.
- 413, 414, 415.

OLIVE FAMILY.

Oleacea.

416. WHITE ASH (*Fraxinus americana*). — Native; tree 30×40 ft.; fr. green, e. Su.; nsy., coll.
- 417, 418.
419. FRINGE TREE (*Chionanthus virginica*). — Native; S.

- U.S.; shrub 10 × 6 ft.; fl. white, e. Sp.; fr. purple, m. Su.; nsy.
420. COMMON LILAC (*Syringa vulgaris*). — Europe; shrub 10 × 10 ft.; fl. in variety, shades of violet and white, e. Sp.; nsy.
421. PERSIAN LILAC (*Syringa persica*). — Asia; shrub 10 × 10 ft.; fl. in variety, violet and white, e. Sp.; nsy.
422. JOSIKA LILAC (*Syringa josikœa*). — Asia; shrub 10 × 5 ft.; fl. violet, e. Su.; nsy.
423. TREE LILAC (*Syringa japonica*). — Asia; tree 20 × 10 ft.; fl. white, m. Su.
- 424, 425.
426. PRIVET (*Ligustrum vulgare*). — Europe; shrub 6 × 8 ft.; shade; fl. white, m. Su.; fr. black, F. and e. W.; nsy., ctg.
427. CHINESE PRIVET (*Ligustrum ibota*). — Europe; shrub 6 × 8 ft.; shade; fl. white, m. Su.; fr. black, nsy., ctg.
- 428.

DOGBANE FAMILY.

Apocynaceæ.

- 429.
430. COMMON PERIWINKLE (*Vinca minor*). — Europe; evergreen creeper; shade; fl. blue, m. Sp.; nsy., ctg.
431. DOGBANE (*Apocynum androsœmifolium*). — Native; herb 2 ft.; poor soil; fl. white, e. Su.; coll.
- 432, 433.

MILKWEED FAMILY.

Asclepiadaceæ.

434. POKE MILKWEED (*Asclepias phytolaccoides*). — Native; herb 3 ft.; fl. white, e. Su.; fr. green, l. Su.; coll.

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435. ASCLEPIAS (*Asclepias incarnata*).—Native; herb 3 ft.; fl. light rose, Su.; fr. green, l. Su.; coll.
436, 437, 438.

GENTIAN FAMILY.

Gentianaceæ.

439. CLOSED GENTIAN (*Gentiana andrewsii*).—Native; herb 1 ft.; fl. blue, m. Su.; coll.
440, 441.

POLEMONIUM OR PHLOX FAMILY.

Polemoniaceæ.

442. PHLOX (*Phlox paniculata*).—Native; S. U.S.; herb 3 ft.; fl. in variety, shades of white, rose, and red, Su.; nsy.
443. MOSS PINK (*Phlox subulata*).—Native; S. U.S.; evergreen creeper; light soil; fl. in variety, Sp.; nsy.
444. ANNUAL PHLOX (*Phlox drummondii*).—Native; annual herb 10 in.; fl. purple, rose color, crimson, or white, Su.; seed.
445. GREEK VALERIAN (*Polemonium reptans*).—Native; herb 8 in.; fl. blue, e. Sp.; coll.
446, 447.

WATERLEAF FAMILY.

Hydrophyllaceæ.

448. WATERLEAF (*Hydrophyllum virginicum*).—Native; herb 1 ft.; leaf mould and wet soil in shade; fl. blue, e. Sp.; coll.

BORAGE FAMILY.

Borraginaceæ.

449. FORGET-ME-NOT (*Myosotis palustris*).—Europe, Asia, N. America; herb 10 in.; fl. blue, Sp., Su.; seed.

CONVOLVULUS FAMILY.

Convolvulaceæ.

450. MORNING GLORY (*Ipomea purpurea*). — Tropical America; climbing annual herb 10 ft.; fl. white, blue, purple, and red, Su.; seed.
451. MOON FLOWER (*Ipomea bona-nox*). — Tropical America; climbing annual herb 10 ft.; fl. white, Su.; seed.

NIGHTSHADE FAMILY.

Solanaceæ.

452. BITTERSWEET (*Solanum dulcamara*). — Native; shrub 4 x 3 ft.; wet soil; fl. purple, e. Su.; fr. crimson (poisonous to eat), F. and e. W.; coll.
453. PETUNIA (*Petunia nyctaginiiflora*). — South America; annual herb 2 ft.; fl. white, rose, red, purple, etc.; seed.
- 454, 455.
456. MATRIMONY VINE (*Lycium vulgare*). — Europe; shrub 5 ft.; poor soil; fl. white and purple, Su.; fr. scarlet, e. F.; nsy.

FIGWORT FAMILY.

Scrophulariaceæ.

457. TURTLEHEAD (*Chelone glabra*). — Native; herb 2 ft.; wet soil, light shade; fl. white, m. Su.; coll.
458. PENTSTEMON (*Pentstemon pubescens*). — Native; herb 2 ft.; fl. white; e. Su.; coll.
459. CULVER'S ROOT (*Veronica virginica*). — Native; herb 6 ft.; fl. white, m. Su.; coll.
460. WOOD BETONY (*Pedicularis canadensis*). — Native; herb 10 in.; wet or dry light soil; fl. yellow and reddish, e. Su.; coll.
- 461, 462, 463.

BIGNONIA FAMILY.

Bignoniaceæ.

464. TRUMPET FLOWER (*Tecoma radicans*). — Native; S. U.S.; woody climber; fl. orange-scarlet, m. Su.; fr. green, F.; nsy.

VERVAIN FAMILY.

Verbenaceæ.

465. VERBENA (*Verbena chamædrifolia*). — Brazil; annual (or perennial) herb 1 ft.; fl. red, scarlet, etc., Su., F.; seed; ctg.

MINT FAMILY.

Labiatae.

466. BROWN BUGLE (*Ajuga reptans*). — Europe; creeper; fl. white and red, e. Su.
467. SPEARMINT (*Mentha viridis*). — Introduced; herb 18 in.; wet soil; fl. purple, foliage fragrant; coll.
468. WILD BERGAMOT (*Monarda fistulosa*). — Native; light shade; fl. lavender, Su.; nsy., coll.
469. BEE BALM (*Monarda didyma*). — Native herb 18 in.; fl. scarlet, Su., e. F.; coll., nsy.
470. SCARLET SAGE (*Salvia splendens*). — Brazil; annual herb 4 ft.; fl. scarlet or white, Su. and F.; seed.
471, 472.

FOUR O'CLOCK FAMILY.

Nyctaginæceæ.

473. OXYBAPHUS (*Oxybaphus nyctagineus*). — Native; herb 2 ft.; poor soil; fl. rose purple, Su.; coll.

POKEWEED FAMILY.

Phytolaccaceæ.

474. **POKEWEED** (*Phytolacca decandra*). — Native; herb 5 ft.; shade; fl. white, e. Su.; fr. black, l. Su.; coll.
475.

OLEASTER FAMILY.

Elæagnaceæ.

476. **OLEASTER** (*Elæagnus hortensis*). — Asia; shrub or tree 25 × 10 ft.; fl. yellowish, e. Su.; fr. reddish, m. Su.; nsy., ctg.
477. **GOUMI** (*Elæagnus longpipes*). — Asia; shrub 6 × 6 ft.; fl. yellowish; nsy., ctg.
478.

SPURGE FAMILY.

Euphorbiaceæ.

479. **CASTOR-OIL BEAN** (*Ricinus communis*). — Tropical Africa; annual herb 5 ft.; ornamental foliage; seed.

NETTLE FAMILY.

Urticaceæ.

480. **SLIPPERY ELM** (*Ulmus fulva*). — Native; tree 30 × 20 ft.; coll., nsy., seed.
481. **WHITE ELM** (*Ulmus americana*). — Native; tree 60 × 40 ft.; nsy., coll., seed.
482, 483, 484.
485. **HACKBERRY** (*Celtis occidentalis*). — Native; tree 40 × 30 ft.; fr. black, l. Su. and F.; nsy., seed.
486. **COMMON HOP** (*Humulus lupulus*). — Native; twining herb 30 ft.; fr. brown, F.
487. **JAPANESE HOP** (*Humulus Japonicus*). — Japan; climbing annual herb 15 ft.; seed.
488, 489, 490, 491, 492.

PLANE TREE FAMILY.

Platanaceæ.

493. SYCAMORE (*Platanus occidentalis*). — Native; tree 60
 × 40 ft.; fl. whitish, e. Su.; fr. brown, F.; coll.,
 seed, nsy.
- 494.

WALNUT FAMILY.

Juglandaceæ.

495. BUTTERNUT (*Juglans cinerea*). — Native; tree 30 × 25
 ft.; fl. yellow, e. Sp.; fr. black, edible, F.; coll.,
 nsy., seed.
496. BLACK WALNUT (*Juglans nigra*). — Native; tree 60
 × 40 ft.; fl. yellow, e. Sp.; fr. black, edible, F.;
 coll., nsy., seed.
497. SHELLBARK OR SHAGBARK HICKORY (*Carya alba*). —
 Native; tree 50 × 30 ft.; fl. yellow, e. Sp.; fr.
 brown, edible, F.; nsy., seed.
498. PIGNUT (*Carya porcina*). — Native; tree 50 × 30 ft.;
 fl. yellow, e. Sp.; fr. brown, F.; seed, nsy.
- 499, 500, 501, 502, 503.

SWEET GALE FAMILY.

Myricaceæ.

- 504.
505. SWEET FERN (*Myrica asplenifolia*). — Native; shrub
 18 in.; poor soil; foliage fragrant; coll.
- 506, 507.

OAK FAMILY.

Cupuliferæ.

508. SWEET BIRCH (*Betula lenta*). — Native; tree 50 × 40
 ft.; fl. yellow, e. Sp.; coll., nsy., seed.
509. YELLOW BIRCH (*Betula lutea*). — Native; tree 50 × 40
 ft.; fl. yellow, e. Sp.; coll., nsy., seed.

510. WHITE BIRCH (*Betula populifolia*). — Native; tree 30 × 10 ft.; fl. yellow, e. Sp.; coll., nsy., seed.
511. CANOE OR PAPER BIRCH (*Betula papyrifera*). — Native; tree 50 × 40 ft.; fl. yellow, e. Sp.; coll., nsy., seed.
- 512.
513. CUT-LEAVED BIRCH (*Betula alba laciniata*). — Europe; tree 40 × 30 ft. (a common cut-leaf form of the European birch); nsy., seed.
- 514, 515.
516. SPECKLED ALDER (*Alnus incana*). — Native; shrub 12 × 8 ft.; wet ground; fl. yellow, e. Sp.; coll., seed.
- 517.
518. AMERICAN HAZELNUT (*Corylus americana*). — Native; shrub 4 × 4 ft.; poor dry soil, light shade; fl. yellow, e. Sp.; fr. brown, edible; coll., seed.
- 519.
520. AMERICAN HORNBEAM, IRONWOOD, OR LEVERWOOD (*Ostrya virginica*). — Native; tree 30 × 20 ft.; fl. yellow, e. Sp.; fr. brown, F.; coll., nsy., seed.
- 521, 522.
523. WHITE OAK (*Quercus alba*). Native; tree 60 × 40 ft.; fr. brown, F.; nsy., coll., seed.
524. BUR OAK (*Quercus macrocarpa*). — Native; tree 60 × 40 ft.; fr. brown; nsy., coll., seed.
- 525.
526. RED OAK (*Quercus rubra*). — Native; tree 60 × 40 ft.; fr. brown, F.; nsy., coll., seed.
527. SCARLET OAK (*Quercus coccinea*). — Native; tree 60 × 40 ft.; fr. brown, F.; nsy., seed, coll.
- 528, 529, 530, 531.
532. COMMON CHESTNUT (*Castanea sativa americana*). — Native; tree 60 × 50 ft.; fr. brown, edible, F.; nsy., seed, coll.
533. BEECH (*Fagus ferruginea*). — Native; tree 60 × 50 ft.; fr. brown, edible, F.; nsy., seed, coll.
534. PURPLE BEECH (*Fagus sylvatica purpurea*). — Europe; tree 50 × 40 ft. (a purple-leaved garden form of the European beech); nsy.
- 535.

WILLOW FAMILY.

Salicaceæ.

536. BLACK WILLOW (*Salix nigra*). — Native; tree 40 × 30 ft.; wet ground; ctg., nsy.
537.
538. WHITE WILLOW (*Salix alba*). — Europe; tree 50 × 40 ft.; wet ground; nsy., ctg., coll.
539.
540. LAUREL-LEAVED OR BAY WILLOW (*Salix pentandra*). — Asia; tree 25 × 15 ft.; nsy., ctg.
541, 542, 543, 544, 545, 546.
547. SILVER-LEAVED POPLAR (*Populus alba*). — Europe; tree 60 × 40 ft.; nsy., ctg., coll.
548. ASPEN (*Populus tremuloides*). — Native; tree 30 × 15 ft.; coll., ctg.
549. LARGER AMERICAN ASPEN (*Populus grandidentata*). — Native; tree 40 × 20 ft.; coll., ctg.
550. BALSAM POPLAR (*Populus balsamifera*). — Native; tree 40 × 20 ft.; nsy., ctg., coll.
551. COTTONWOOD (*Populus monilifera*). — Native; tree 60 × 40 ft.; nsy., ctg., coll.
552. LOMBARDY POPLAR (*Populus dilatata*). — Europe; tree 60 × 6 ft.; nsy., ctg.
553, 554, 555, 556, 557, 558.

PINE FAMILY.

Coniferæ.

559. WHITE PINE (*Pinus strobus*). — Native; evergreen tree 70 × 40 ft.; nsy., coll., seed.
560. PITCH PINE, NORTHERN (*Pinus rigida*). — Native; evergreen tree 60 × 30 ft.; coll., seed.
561. JACK PINE (*Pinus banksiana*). — Native; evergreen tree 25 × 15 ft.; coll., seed.

562. RED PINE (*Pinus resinosa*). — Native; evergreen tree 70 × 40 ft.; nsy., coll., seed.
- 563, 564.
565. BLACK SPRUCE (*Picea nigra*). — W. U.S.; evergreen tree 70 × 30 ft.; nsy., coll., seed.
566. WHITE SPRUCE (*Picea alba*). — Native; evergreen tree 60 × 30 ft.; nsy., coll., seed.
567. NORWAY SPRUCE (*Picea excelsa*). — Europe; evergreen tree 60 × 30 ft.; nsy., seed.
- 568, 569.
570. HEMLOCK (*Tsuga canadensis*). — Native; evergreen tree 60 × 30 ft.; shade; nsy., coll., seed.
571. BALSAM FIR (*Abies balsamea*). — Native; evergreen tree 70 × 30 ft.; nsy., coll., seed.
572. TAMARACK (*Larix americana*). — Native; tree 60 × 40 ft.; fl. reddish, e. Sp.; coll., nsy., seed.
573. EUROPEAN LARCH (*Larix europæa*). — Europe; tree 60 × 40 ft.; fl. reddish, e. Sp.; nsy., seed.
- 574.
575. ARBOR VITÆ (*Thuja occidentalis*). — Native; evergreen tree 30 × 10 ft.; nsy., coll., seed.
- 576, 577.
578. COMMON JUNIPER (*Juniperus communis*). — Native; evergreen shrub; poor soil; 2 × 10 ft.; coll., nsy., seed.
579. JUNIPER (*Juniperus sabina*). — Native; evergreen shrub 3 × 10 ft.; nsy., coll., seed.
580. RED CEDAR (*Juniperus virginiana*). — Native; evergreen tree 30 × 10 ft.; nsy., coll., seed.
- 581.
582. GROUND HEMLOCK (*Taxus canadensis*). — Native; evergreen shrub 2 × 10 ft.; leaf-mould soil in shade; coll., nsy., seed.

ORCHIS FAMILY.

Orchidaceæ.

583. SHOWY LADY'S SLIPPER (*Cypripedium spectabile*). — Native; herb 2 ft.; leaf-mould soil in shade only; fl. pink, e. Su.; coll.
- 584, 585, 586.

IRIS FAMILY.

Iridaceæ.

587. LARGER BLUE FLAG (*Iris versicolor*). — Native; herb 2 ft.; wet soil; fl. blue, e. Su.; coll.
588. SLENDER BLUE FLAG (*Iris prismatica*). — Native; herb 18 in.; wet soil; fl. blue, m. Su.; coll.
589. COMMON FLOWER-DE-LUCE (*Iris germanica*). — Europe; herb 18 in.; in variety, shades of white, blue, yellow, e. Su.; nsy.
590. JAPANESE IRIS (*Iris lævigata*). — Japan; herb 2 ft.; wet soil; in variety, shades of blue, white, and red, m. Su.; nsy.
591. DWARF GARDEN IRIS (*Iris pumila*). — Europe; herb 6 in.; blue, e. Sp.; nsy.
- 592, 593.
594. BLACKBERRY LILY (*Belamcanda chinensis*). — Chinese; herb 18 in.; light soil; fl. orange, e. Su.; fr. black, l. Su.; nsy., seed.
- 595, 596, 597.

LILY FAMILY.

Liliaceæ.

- 598.
599. GREEN BRIER (*Smilax rotundifolia*). — Native; thorny climber; bark bright green in winter; fr. black, F. and e. W.; coll., nsy.
- 600.
601. YELLOW DAY LILY (*Hemerocallis flava*). — Europe; herb 2 ft.; fl. yellow, l. Sp.; nsy.
602. COMMON DAY LILY (*Hemerocallis fulva*). — Europe; herb 3 ft.; fl. orange-red, e. Su.; nsy., coll.
603. WHITE DAY LILY (*Funkia subcordata*). — Asia; herb 18 in.; fl. white, fragrant, Sp. and e. Su.; nsy.
604. BLUE DAY LILY (*Funkia lanceolata*). — Asia; herb 18 in.; fl. blue, l. Sp.; nsy.
- 605.

606. LILY OF THE VALLEY (*Convallaria majalis*). — S. U.S. ; herb 6 in. ; shade ; fl. white, fragrant, e. Sp. ; nsy.
607. SMALLER SOLOMON'S SEAL (*Polygonatum biflorum*). — Native ; herb 18 in. ; leaf mould in shade ; fl. white, m. Sp. ; fr. blue, e. F. ; coll.
608. FALSE SPIKENARD (*Smilacina racemosa*). — Native ; herb 18 in. ; leaf mould in shade ; fl. white, e. Su. ; fr. red, F. ; coll.
609. OAKESIA (*Oakesia sessifolia*). — Native ; herb 12 in. ; light shade ; fl. pale yellow, Sp. ; coll.
610. GREAT BELLWORT (*Uvularia grandiflora*). — Native ; herb 10 in. ; leaf mould in shade ; fl. yellow, e. Sp. ; coll.
611. DOGTOOTH VIOLET (*Erythronium americanum*). — Native ; herb 6 in. ; leaf mould in shade ; fl. yellow, e. Sp. ; coll.
612. AMERICAN TURK'S CAP LILY (*Lilium superbum*). — Native ; herb 5 ft. ; wet soil ; fl. orange, m. Su. ; coll., nsy.
613. CANADA LILY (*Lilium canadense*). — Native ; herb 3 ft. ; wet soil ; fl. yellow or red, m. Su. ; coll., nsy.
614. TIGER LILY (*Lilium tigrinum*). — Asia ; herb 4 ft. ; fl. orange-red, m. Su. ; nsy.
- 615, 616.
617. INDIAN CUCUMBER (*Medeola virginica*). — Native ; herb 18 in. ; leaf mould in shade ; fr. greenish, e. Su. ; coll.
618. PURPLE BIRTHROOT, TRILLIUM (*Trillium erectum*). — Native ; herb 18 in. ; leaf mould in shade ; fl. red, l. Sp., fr. red, Su. ; coll.
619. TRILLIUM, WAKE ROBIN, OR WOOD LILY (*Trillium grandiflorum*). — Native ; herb 18 in. ; leaf mould in shade ; fl. white, l. Sp. ; fr. red., Su. ; coll.
- 620.
621. WHITE HELLEBORE (*Veratrum viride*). — Native ; wet soil in shade ; fl. green ; coll.
- 622, 623, 624, 625, 626, 627.

FERN FAMILY.

Filices.

628. MAIDEN HAIR (*Adiantum pedatum*). — Native; herb 1 ft.; leaf mould in shade only; coll.
629. BEECH FERN (*Phegopteris dryopteris*). — Native; herb 8 in.; leaf mould in shade only; coll.
630. BEECH FERN (*Phegopteris hexagonoptera*). — Native; herb 1 ft.; leaf mould in shade only; coll.
631. BEECH FERN (*Phegopteris polypodioides*). — Native; herb; leaf mould in shade only; coll.
632. SHIELD FERN (*Aspidium spinulosum*). — Native; evergreen herb 18 in.; shade; coll.
633. WOOD FERN (*Aspidium acrostichoides*). — Native; herb 18 in.; leaf mould in shade; coll.
634. EVERGREEN SHIELD FERN (*Aspidium marginale*). — Native; evergreen herb 2 ft.; leaf mould in shade; coll.
- 635, 636, 637.
638. OSTRICH FERN (*Onoclea struthiopteris*). — Native; herb 3 ft.; leaf mould in shade; coll.
- 639, 640.
641. DICKSON'S FERN (*Dicksonia punctilobula*). — Native; herb 2 ft.; leaf mould in shade; coll.
- 642.
643. CINNAMON FERN (*Osmunda cinnamomea*). — Native; herb 3 ft.; wet soil and leaf mould in shade; coll.
644. FLOWERING FERN (*Osmunda claytoniana*). — Native; herb 3 ft.; wet soil and leaf mould in shade; coll.

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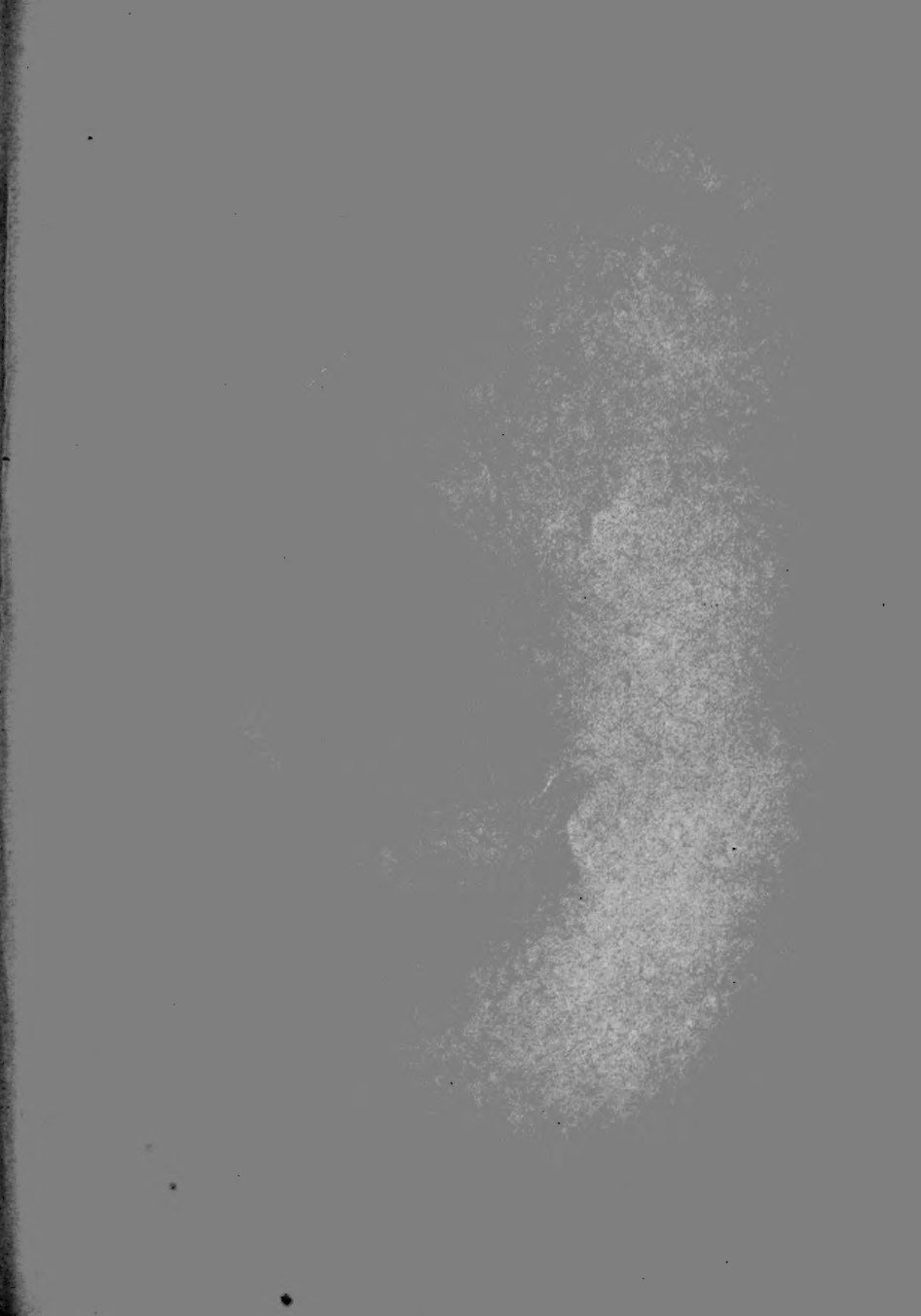
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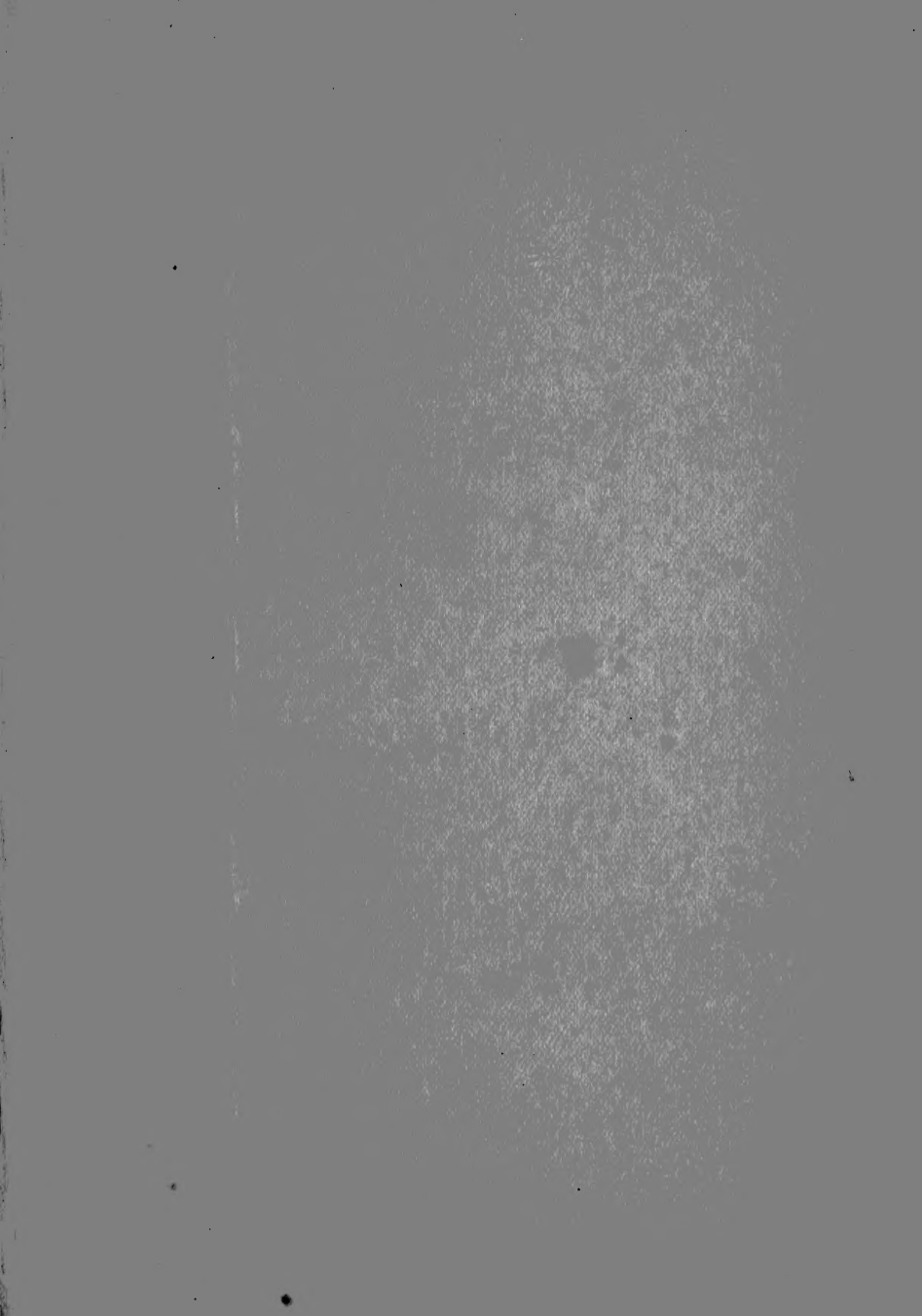
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