

The NATIONAL HORTICULTURAL MAGAZINE



JOURNAL OF THE AMERICAN HORTICULTURAL SOCIETY

APRIL, 1948

The American Horticultural Society

PRESENT ROLL OF OFFICERS AND DIRECTORS

April, 1948

OFFICERS

President, Mr. H. E. Allanson, Takoma Park, Md.
First Vice-President, Mr. Frederic P. Lee, Bethesda, Md.
Second Vice-President, Mrs. Robert Woods Bliss, Washington, D. C.
Secretary, Dr. Charlotte Elliott, Lanham, Md.
Treasurer, Mr. Carl O. Erlanson, Silver Spring, Md.
Editor, Mr. B. Y. Morrison, Takoma Park, Md.

DIRECTORS

Terms expiring 1949

Mrs. Robert Fife, New York, N. Y.
Mrs. Mortimer J. Fox, Peekskill, N. Y.
Dr. David V. Lumsden, Silver Spring, Md.
Dr. Vernon T. Stoutemyer, Los Angeles, Calif.
Dr. Donald Wyman, Jamaica Plain, Mass.

Terms expiring 1950

Mrs. Walter Douglas, Chauncey, N. Y.
Mrs. J. Norman Henry, Gladwyne, Pa.
Mrs. Arthur Hoyt Scott, Media, Pa.
Mr. J. Marion Shull, Chevy Chase, Md.
Dr. Freeman Weiss, Washington, D. C.

HONORARY VICE-PRESIDENTS

Mrs. Mary Hazel Drummond, Pres.,
American Begonia Society,
1246 No. Kings Road,
Los Angeles 46, Calif.

Dr. H. Harold Hume, Pres.,
American Camellia Society,
University of Florida,
Gainesville, Fla.

Mr. Carl Grant Wilson, Pres.,
American Delphinium Society,
22150 Euclid Ave.,
Cleveland, Ohio

Dr. Frederick L. Fagley, Pres.,
American Fern Society,
287 Fourth Ave.,
New York 10, N. Y.

Dr. Franklin Cook, Pres.,
American Iris Society,
2747 Hurd Ave.,
Evanston, Ill.

Mr. Marvin C. Karrels, Pres.,
American Peony Society,
3272 S. 46th St.,
Milwaukee 14, Wis.

Mr. Allen W. Davis, Pres.,
American Primrose Society,
3424 S. W. Hume St.,
Portland 1, Ore.

Dr. Ira N. Gabrielson, Pres.,
American Rock Garden Society,
Investment Bldg.,
Washington, D. C.

Mr. John Henny, Jr., Pres.,
American Rhododendron Society,
Brooks, Oregon

Mr. George A. Sweetser, Pres.,
American Rose Society,
36 Forest St.,
Wellesley Hills, Mass.

Mr. Wm. T. Marshall, Pres. Emeritus,
Cactus & Succulent Society of America,
228 Security Bldg., Phoenix, Ariz.

Mrs. Hollis Webster, Pres.,
Herb Society of America,
300 Massachusetts Ave.,
Boston 15, Mass.

Mr. Edwin C. Freed, Pres.,
Midwest Horticultural Society,
R.R. 2, Downer's Grove, Ill.

SOCIETIES AFFILIATED WITH THE AMERICAN HORTICULTURAL SOCIETY

1946

Akron Garden Center,
226 South Main St.,
Akron, Ohio

American Begonia Society,
Mrs. Mary Hazel Drummond, Pres.,
1246 No. Kings Road,
Los Angeles 46, Calif.

American Camellia Society
Box 2398 University Station
Gainesville, Florida

Arlington County Garden Club,
Mr. Lewis H. Weld, Pres.,
6613 N. Washington Blvd.,
East Falls Church, Va.

American Fuchsia Society,
Headquarters: Calif. Acad. of Sciences,
Golden Gate Park,
San Francisco, Calif.

American Primrose Society,
Mr. Carl Maskey, Secy.,
2125 5th Ave.,
Milwaukee, Ore.

American Rose Society,
Dr. R. C. Allen, Secy.,
Box 687, Harrisburg, Pa.

Bel-Air Garden Club,
Mrs. Myron E. Etienne, Pres.,
2324 Mandeville Canyon Rd.,
Los Angeles 24, Calif.

Benson Garden Club
% Mrs. Amelia Doll,
6016 Binney St.,
Omaha, Nebr.

Bonne Terre Garden Club,
Mrs. R. L. Fowler, Pres.,
Bonne Terre, Mo.

Bristow Garden Club,
Mrs. R. L. Jones, Pres.,
Box 660, Bristow, Okla.

Cactus & Succulent Society of America,
Mr. Carl F. Brassfield, Pres.,
8060 Lankershire Blvd.,
No. Hollywood, Calif.

- California Garden Clubs, Inc.,
Mrs. Wm. D. Shearer, Pres.,
533 South Walton Place,
Los Angeles 5, Calif.
- California Horticultural Society,
Miss Cora R. Brandt, Secretary,
300 Montgomery St.,
San Francisco, Calif.
- Chestnut Hill Garden Club,
Mrs. Bryan S. Permar, Treas.,
41 Crafts Rd.,
Chestnut Hill, Mass.
- Chevy Chase (D. C.) Garden Club,
Mrs. Edward J. Mullins, Pres.,
5315 28th St.,
Chevy Chase, D. C.
- Garden Club, Chevy Chase, Md.
Mrs. Randolph Kauffmann, Pres.,
1 W. Melrose St.,
Chevy Chase, Md.
- Chico Horticultural Society,
1144 W. 3rd St.,
Chico, Calif.
- Community Garden Club of Bethesda,
Mrs. L. W. Pogue, Pres.,
116 Chevy Chase Drive
Chevy Chase, Md.
- Fauquier & Loudon Garden Club,
Mrs. Wm. F. Rust, Pres.,
Leesburg, Va.
- Federated G.C. of Cincinnati and Vicinity,
Mrs. W. R. Grace, Sr., Pres.,
7911 Hamilton Ave.,
Mt. Healthy 31, Ohio.
- Forest Hills Garden Club,
Mrs. H. Norair, Pres.,
2936 Albermarle St., N. W.,
Washington, D. C.
- Garden Center of Greater Cincinnati,
Walnut and Central Parkway,
Cincinnati 10, Ohio
- Garden Center of Greater Cleveland,
East Boulevard at Euclid Ave.,
Cleveland 6, Ohio
- Garden Center Institute of Buffalo,
1500 Elmwood Ave.,
Buffalo 7, N. Y.
- Garden Center,
Youngstown Public Library.
Youngstown 3, Ohio
- Garden Club of Alexandria,
Mrs. Malcolm Matheson, Jr.,
Ferry Point,
Alexandria, Va.
- Garden Club of Danville,
Danville, Va.
- Garden Club of Fairfax,
Mrs. Edward Howrey, Pres.,
Burke, Va.
- Garden Club of Virginia,
Mrs. C. James Andrews, Pres.,
929 Graydon Ave.,
Norfolk 7, Va.
- Georgetown Garden Club,
Mrs. R. H. A. Carter,
3231 Reservoir Rd., N. W.,
Washington, D. C.
- Greeley Garden Club,
Mr. J. E. Looney,
Ch. of Horticulture,
Greeley, Colo.
- Hawthorne Flower & Garden Club,
Mr. L. C. Zimmerman,
7912 Cermak Rd. & 48th St.,
Chicago 23, Ill.
- Holly Society of America,
Mr. Clarence R. Wolf, Pres.,
Millville, N. J.
- Home Garden Club of Denver,
Miss Lula Morse, Pres.,
3768 Perry St.,
Denver 12, Colo.
- Howard Park Garden Club,
Mrs. C. F. Morrison, Jr., Secy.,
601 Chapelgate Rd.,
Baltimore 29, Md.
- Iowa Rose Society,
State House,
Des Moines 19, Iowa
- Kendall Garden Club,
Miss Edith M. Edgerton, Secy.-Treas.,
8537 S. E. Gray St.,
Portland 6, Ore.
- Men's Garden Club of Rockford, Ill.,
Mr. R. Hallett Shumway,
115 So. First St.,
Rockford, Ill.
- Michigan Horticultural Society,
Mr. Earl Bailey, Exec. Sec'y,
2201 E. Jefferson Ave.,
Detroit 7, Mich.
- Midwest Horticultural Society,
100 North Central Park Blvd.,
Chicago 24, Illinois
- Mission Garden Club,
Mrs. George Boyle,
1201 Conway,
Mission, Texas
- National Capital Dahlia Society,
Mr. George R. Hitchcock, Pres.,
Washington, D. C.
- Northern Nut Growers Assn.,
Mr. John Davidson, Pres.,
234 E. Second St.,
Xenia, Ohio
- Omaha Botany Club,
4937 Maple St.,
Omaha 4, Nebr.
- Pittsburgh Garden Center,
Schenley Park,
Pittsburgh 13, Pa.
- Plainfield Garden Club,
% Miss Harriett Halloway,
804 Central Ave.,
Plainfield, New Jersey
- Potomac Rose Society,
Mr. R. E. Scammell, Treas.
2810 Bladensburg Rd.,
Washington, D. C.
- Rock Garden Society of Ohio,
Mrs. H. O. Wendal, Treas.,
2811 Shaffer Ave.,
Westwood, Cincinnati, Ohio
- Rush Garden Club,
Rush, N. Y.
- San Francisco Branch,
American Begonia Society,
2390 18th Ave.,
San Francisco 16, Calif.
- Sacramento Garden Center,
3301 H Street,
Sacramento, Calif.

(Continued on inside back cover)

The National Horticultural Magazine

VOL. 27

Copyright, 1948, by THE AMERICAN HORTICULTURAL SOCIETY

No. 2

APRIL, 1948

CONTENTS

| | PAGE |
|--|------|
| Chrysanthemum Notes | 59 |
| The Names of Plants in Cultivation. W. H. CAMP..... | 83 |
| Some Moreas. SARAH V. COOMBS | 87 |
| Rhododendron Notes: | |
| Some Asiatic Rhododendrons at Gladwyne. MARY G. HENRY..... | 98 |
| Southern Azaleas on Their Way North. FREDERIC P. LEE..... | 100 |
| Azaleas in Arizona. A. ELNORA BRYCE..... | 102 |
| Narcissus Notes: | |
| Waiting for the First Flower. ROBERTA C. WATROUS..... | 102 |
| A Book or Two | 104 |
| The Gardener's Pocketbook: | |
| <i>Prunus incisa</i> . PAUL RUSSELL..... | 106 |
| Peony Notes. MARY JUDSON AVERETT..... | 108 |

Published quarterly by The American Horticultural Society. Publication office, 32nd St. and Elm Ave., Baltimore, Md. Editorial office, Room 821, Washington Loan and Trust Building, Washington, D. C. Contributions from all members are cordially invited and should be sent to the Editorial office. A subscription to the magazine is included in the annual dues to all members; to non-members the price is seventy-five cents a copy, three dollars a year.



Claude Hope

Chrysanthemum indicum

Chrysanthemum Notes

Since practically all gardeners in temperate climates know the chrysanthemum in one form or another, only the most brief review of its characteristics is needed. A member of the large and widely distributed family of Composites, it has been cultivated for centuries and like many of its kin has shown a great diversity, not only in flower color but also in shape and form of bloom as well as some range of season, although this latter factor is of no avail to the gardener who grows his plants out-of-doors in regions where summer heat and autumn frosts are the limiting factors.

As is the case for many other plants with horticultural history that extends beyond the time when historical records are available, its exact beginnings are open to certain doubts, but it seems probable that only one species, *Chrysanthemum indicum*, has been the source of most of the garden forms until recent years, when *C. koreanum* was introduced into certain lines and even more recently when some hybrids have been catalogued as having in them blood of *C. arcticum* and *C. zawadskyanum*. It has been suggested that *C. morifolium* may also be involved, but, although this species was certainly reintroduced into cultivation in this country in 1931, no claims have been made since then for hybrids from this species.

The original wild *C. indicum* as known from old Chinese pictures and from some relatively recent introductions is a vigorous perennial that develops tall stalks, up to 4 feet, becoming somewhat woody at their base, well clothed with the typical, odorous, dark green leaves and producing in the autumn branches from the upper

part of the stalk that branch again to bear the flowers. The only plants of the wild type known to the writers produced small single bright yellow flowers in great profusion (see facing illustration). These were raised from seed collected by Dorsett and Morse in Chili Province, China, in 1930. Among the many seedlings raised from this source, there was no variation in color and little variation in either size, habit or time of bloom.

Early references in garden literature show that among the many chrysanthemums brought early from the Orient to Europe, there were various colors of flower. Although it is not definite, it seems probable that these were garden plants, since most of the Oriental plants first brought into European cultivation were from gardens in the port towns open to European trade. Just how or when, the wide range of colors and forms began to appear requires more bibliographic work than is available for this present study.

European gardeners were not slow to discover that the plant responded to good garden cultivation and the garden routine, familiar to all, was established early. Although we do not all follow it, we know that an annual propagation, from the vigorous new shoots produced from about the bases of last year's stalks, and planted singly in a sunny location with richly prepared, good garden soil, will yield the largest returns in flowering. To all practical purposes, the plant, though perennial by nature, behaves best when treated as an annual.

It is true, of course, that a modified form of this procedure is successfully

*Plant grown by C. O. Erlanson; notes by C. O. Erlanson and B. Y. Morrison.

followed in many gardens where a somewhat different effect is desired. Here one cuts off all the many new shoots save one or two, and provides extra food either as mulch or dug in about the roots. Within some limits this can give excellent results.

The next modification comes in those gardens where no shoots are removed and the gardener must regulate the growth only by trimming the tops as they develop and feeding as he may decide.

Failing this, there is no recourse for garden effects except to use varieties developed for the dwarf habit and masses of flowers, often blooms of secondary merit if examined closely, but effective in mass.

Left to natural growth, the chrysanthemum commonly develops tall stalks, which although fairly strong are not always strong enough to bear the weight of foliage and less strong to carry the flowers that develop from shoots in all the upper leaf axils. The gardener, therefore, must either stake his plants or resort to pruning. The former is usually a considerable chore and the latter is easy to accomplish and most rewarding. Unless through poor feeding and excessive dryness the plants have become unduly woody, the chrysanthemum can be cut down to almost any degree desired and still produce new growth that will flower well, provided the dates of first frost are considered. Flowers are most vulnerable when partly open.

For ideal results pruning should begin early. As soon as the young plant shows by its vigorous growth that root activity is great, the entire top of the shoot can be cut off leaving only 2 to 4 inches at the base. In most varieties, new shoots will develop from the axils of all the remaining leaves and sometimes there will also arise shoots from

the crown. These in turn can be pruned ("topped" or "stopped") when they have produced enough growth to leave 2 to 3 leaves after the top is cut off. This process can be continued almost indefinitely. The "rule of thumb" for the time of the last pruning is that this should come at a date that would allow a minimum of two full months before flowering is expected. Under this method, the plants should have a fine strong, inner skeleton of branches, which, in developing the flowering laterals, will give an almost hemispherical appearance to the whole plant. For normally dwarfish varieties, this is easily accomplished, but stronger and taller-growing sorts will show the expected variations, and often will require staking to support the whole in the rainy and windy weather often expected at flowering time.

In the garden, the insects that may damage chrysanthemums may vary somewhat according to the locality, but the commonest complaint is to be lodged against the aphids, whether on the roots or the succulent growing shoots. The usual tobacco-soap contact spray, applied as often as needed, will generally control them. For the bugs that in sucking sap from the stems so injure them that they must be cut off, there is no easy control, but the gardener may rely on the plant to reclothe itself with shoots, unless the injury takes place in early autumn. For chewing insects that like to damage foliage and particularly young buds, stomach poisons must be used.

Under normal conditions, the chrysanthemum is a plant that likes full sunshine. To what degree this can be modified must be determined by the gardener for himself. In this climate (District of Columbia and Maryland),

Ceres, Apollo

Autumn Tints, Louise Schling



less than 5 hours of full sun daily produces plants with weak stalks and correspondingly reduced flowering. A few varieties, left to their own devices in shade, have persisted for years but rarely flower. They, however, have not been fed and are almost left to grow as if "wild," so that this remark can be considered merely as indicative of a cultural limitation.

In reporting on the varieties enumerated in this article, certain expressions have been used in relation to the type of flowering. There are varieties like Charles Ney, which tend to produce flowering laterals of varying lengths so that all the flowers appear on one level. This gives a particularly showy effect on the plant, which appears as if covered fully with bloom that hides the foliage. Some like Rose Glow produce their flowers in graduated sprays and as the flowers open successively, the plant effect is less striking, but the cut sprays are often more easily arranged. Others like Yellow Irene produced their flowers on short laterals, so that the cut stalk has the appearance of a long, compounded inflorescence.

The terms used for describing the type of bloom are less easily determined, since the gradations between the typical "button," the typical "pompon," the typical "incurved," the typical "decorative" are so numerous that it is sometimes hard to say where one type leaves off and another begins. The same difficulty arises in considering the modifications away from the disk of yellow disk flowers.

The technicalities of these considerations can best be studied from the specialists' findings and need not concern the gardener unless he means to exhibit in flower shows.

Within the limits of space and work hours available to the writers, both

employed full time, it was not possible to grow an indefinite number of the standard and novelty varieties that are offered in any one year. Those reported were bought from sources convenient to hand, presumably representing the choice of the local nurseries. It is obvious that gardeners elsewhere could and would choose other lists. Perhaps it might be added that they should choose other lists, since some of the sorts that did not do well here are known to do well elsewhere. It is probable, therefore, that in time chrysanthemums may show as localized developments as seems to be the case for other plants now in the hands of plant breeders for development.

The method of growing was intentionally not different from that within the possibilities of any gardener. The site chosen was sloping, to insure air drainage, high enough on the slope to be above the level where cold air might accumulate and facing south. The land was well dug and fertilized in the rows where the plants were set. These were placed two feet apart in the rows, and the rows set out about 30 inches apart. There was no protection from wind which made little difference until the extreme close of the season when some shelter might have preserved the last blossoms a little longer.

As to the "weather" of the season of 1947, there were no conspicuous variations. The mid-summer "dry period," which varies somewhat in occurrence, took place that year during most of August while the plants were in good growth. It may have had some effect upon the loss of the lower leaves in a few varieties. Frost first came around October 20, but frosts of sufficient intensity to damage bloom did not arrive

Sonja, California Red
Early Joan Helen, Ida Brewster



until November 5 and after. Fairly heavy rain between November 3 and November 13 did not improve the garden appearance, but did not spoil all flowers for cutting. Local "garden talk" gave the opinion that it was not a "good season" for chrysanthemums but this planting, with a few exceptions, performed well.

The chart on pages 81, 82 gives in diagrammatic form the time and extent of full bloom. There is also indicated the time given in catalogues for flowering, as this differs conspicuously from what happened under these local conditions for this one season. That there may be some degree of error in this is mentioned since a few of these varieties, previously grown locally in another site, gave a better performance in 1946.

In giving color descriptions, any reporter is faced with certain difficulties. In some varieties, the petal color lightens in tone as the flower matures. This is due in part to an actual change in color but more often because the expanding petal does not allow the intensity of color that is built up in the shadows that lie between the small floret of the center and in the depth of the bloom itself. In some cases the base color is actually "washed" over with another hue; in others the upper pigmentation is seen on close examination to be actually "sanded" or stippled over the basic tone. In certain varieties there is an actual difference on the two faces of each floret and, since the lower surface shows in the center of the developing bloom, this has a marked effect on the appearance. In some few varieties, particularly whites, a pinkish tone develops on the margins and tips of the petals as the flower ages. A careful color reading of the flower will give a more detailed result than a record of the garden effect, seen from a

short distance. Since this latter reading is generally a simplification, no special emphasis is laid on it in the notes that follow. If the adjective brilliant is used, it is always a sign that the color carriers well in "effect." This is also true when the word "pure" is employed since the blended colors are those which commonly lose in carrying power unless each element is quite pure in itself. All Ridgway colors are capitalized, e.g., Lemon Chrome.

Apollo (1934) Single Korean

This single has more points of resemblance to its *Chrysanthemum indicum* ancestor. It is rather stiff and with petals of more substance than many hybrid Korean types. Opens tawny red, fades lighter and pinker, the older flowers a nice foil for the developing secondary flowers. Centers yellow. 2-2½" (Jasper Red of Ridgway)

Buds small but well set by September 26, growth robust, and foliage in good condition. Color developed in buds between October 4 and October 18 when a few flowers were partially open. By October 22 there were many flowers and some foliage failure at base of plant. Excellent in full bloom on November 1 and almost none left one week later.

Apricot Glow

Rather dwarf in growth and habit, forming dense twiggy mounds, that are fairly well covered with apricot-bronze flowers that are rather flat faced and open in few-flowered sprays.

By September 26 one plant showed flowers half open, the other only in bud; the 20" plants somewhat weak at crown. The irregular development continued with full bloom showing between October 18 and 22, remaining so until November 8, with all flowers

September Gold, Ruby Pompon
Yellow Irene, Judith Anderson



gone by November 8. The lower foliage deteriorated after mid-October.

Autumn Tints

Reported as a *Chrysanthemum arcticum* hybrid. Very floriferous, flowers smallish (1-1½") and produced in great masses, almost like a Michaelmas Daisy, 3-4 rows of petals, almost equal in length. Center green before opening. Reverse of ray florets buff; face of ray florets takes on dull pinkish-red cast as flower ages. Nice habit. Flesh Ochre washed Bittersweet Orange.

By September 23, the 24" plants showed dense, robust growth and many small buds. No color appeared in buds till about October 18 by which time some of the lower leaves had deteriorated. Although some flowers were open by October 22, full bloom lasted from October 28 through November 1 and passed by November 8. Leaves failed progressively well into the top of the plant by late October.

Avalanche

Large, 4", full double white flowers, but here not produced in sufficient masses to suggest its name as far as the 1947 season here could show.

Well set with buds by September 3. Some flowers began to open by late September, continuing slow through October with full bloom about October 22. Flower buds badly attacked by spotted cucumber beetle which caused malformed open flowers. Plants in poor condition by October 22 and out of bloom by November 1.

Aviator

Flowers come in nice sprays with good foliage, about 2" in diameter at best. The upper surface is Ridgway Scarlet, the reverse Grenadine Red. The effect in the garden is a rusty red. Very double, but not a spherical bloom.

Plants about 30" tall by September

23 with good growth and foliage and very small buds showing. These showed no color until after October 4 but were opening uniformly and well by October 18, continuing to full flower by October 22 and remaining in good condition until November 1. Although the flowers remained in fair condition till November 8, the color had faded badly in the cold wet weather.

Barbara Small

Very double, almost aster-type flower but not loose or ragged. This is the type of flower that makes its effect because the reverse of the petal is darker than the face. This shows up well in the bud and half open flowers. Pale Rose Purple and Rosolane Pink; reverse Light Rosolane Purple. Garden effect, pink.

By September 23 the 24" high plants showed good growth, good foliage and well set buds beginning to show color. Although these began to show color by October 4, the first fully opened flowers did not develop until October 18 with color in remaining buds and first signs of foliage deterioration. In full bloom from October 22 to November 1 in good condition when flower color began to go off. Finished by November 8.

Betty

Very long, stiff, individual flower stems. General effect is pink with a definite chamois overtone. Reading in Ridgway, the closest color is Thulite Pink with the reverse of the youngest petals Light Ochraceous Salmon which gives the yellow tone to the flower.

The 30", rather lanky plants were well set with small buds by September 23, foliage in good condition. The buds continued to develop but no color

*Fred F. Rockwell, Goblin
Bonfire, Cydonia*



showed until about October 18 when a few flowers were half open. Development continued slowly with more flowers opening and full bloom on November 1. Foliage still good. Finished by November 8.

Bonfire

Stiff, erect sprays of 1-1¼" buttons, the older petals reflexing to give the globular effect. Jasper Red, darkened by shadow at base of petals to effect of Van Dyke Red. On the oldest petals the pigmentation appears to break up as if yellow were to show through.

Growth rather thin, but the 24" plants were well set with flower buds by September 23. Color began to show about October 18 and continued slowly until first open flowers showed on October 29 with not many more in full bloom by November 1. Finished by November 8.

California Red

There is some doubt whether this name is shortened from California Red Daisy. The plant is stiff and vigorous, slender only as compared to bushes like these of F. F. Rockwell.

By September 23, the rather slender plants were well clothed with good foliage but showed no buds, which did not appear till about ten days later. These grew rapidly, showed color by October 22, half open one week later but full bloom not until November 5. These continued in good condition for some days, a few in good condition November 15 in spite of frost and some sleet.

Ceres

Single Korean, 1¾"-2¼"; single and somewhat ragged flowers that are easily bruised in cutting and handling. General effect yellowish apricot; Ridgway, Pinard Yellow washed Buff Yellow. Disk, green at first.

The 30" plants of September 26 were bushy and well set with small buds. Growth continued so that on October 18 the plants were 40", with good foliage, buds showing color and 3 or 4 open flowers. Full bloom from October 22 past November 1 but over by November 8. Very floriferous and excellent.

Charles Ney

Very stiff growth habit, flower heads produced more or less on one level. Very double. Color between Empire Yellow and Lemon Chrome, but appears more brilliant than either, on account of the color, not shadow, inside the tube. As flower ages, outermost florets are stained Aniline Yellow (which is a rusty mustard hue).

The 20" plants showed compact growth, some withered lower leaves and a good bud set by September 23. These conditions continued showing buds in color, 7 to 8 flowers open and half the foliage withered by October 18. Four days later the plant was in full bloom, the blossoms excellent but more foliage dead. This continued past November 1.

Chippewa

Difficult color to describe. Garden effect is pale buff-yellow chrysanthemum warmed with Apricot Pink in center. According to Ridgway, the color falls between Primuline Yellow and Yellow Ochre. The tonalities that show at base of petals (point of insertion) lie between Apricot Buff and Ochraceous Salmon.

Bushy habit. Buds set by September 3. Large and beginning to open by September 23, but the 24" plants showed poor stems and withering foliage. Flower development continued to

Barbara Small, Mandalay
Mrs. C. R. Hastings, Aviator



be irregular, intermittent and poor, but some individual flowers developed well even as late as November 1; however, foliage deterioration was complete. Completely passed by November 8.

Crown of Gold

The 20" plants showed excellent foliage and a good set of very small buds by September 23. The leaves continued excellent throughout season, but the buds developed slowly, all showing color by October 29, but fully opened blooms only by November 5, continuing slow so that all were caught.

Cydonia

A fine button type. Dragon's Blood Red with Madder Brown effect in the undeveloped petals.

Rather thin wiry growth up to 24" by September 23 but with good foliage and very small buds. These latter began to show color by October 18 and about one-third were in flower four days later. By November 1 the plants were in full bloom, which continued in good condition past November 8 except that the brilliant color was fading.

Drifted Snow

White as the name suggests, but in the early stages the developing inner petals are faintly toned with greenish yellow.

The rather thin wiry plants with good foliage showed good buds by September 23. All showed color and a few flowers were open by October 18. Bloom increased to full by November 1 and many were good at end of season, November 8.

Early Joan Helen

Mallow Purple deepening through Rhodamine Purple to Aster Purple at base of petals. Some flowers at certain stages are Dahlia Purple. 2½-3"

flowers, 5-6 rows of petals, disc florets green until opened. Sprays short and compact. Plant habit the same. Color fades badly in garden to magenta, particularly unpleasant near coppers and bronzes.

Good growth, dwarf and compact, good foliage, characterized the 20" plants on September 23, together with a full bud set and some color showing. Some blooms fully open by October 4 with full bloom from October 18 until almost November 1, by which time the flower color which changes from rich garnet to magenta in the sunshine had become quite shabby. The flower color does not alter on cut flowers in the house.

Eugene A. Wander

A very vigorous, early-flowered variety that grows taller here than is claimed by originators. Very double, 4½-5" flowers of bright yellow color. Interesting petal form.

By September 23, the 30" plants showed good foliage and very small buds. These develop slowly with first fully developed flowers about October 29. Development continues to be slow and incomplete, though there were a few full but poor flowers on November 8. Responds well to disbudding.

Fred F. Rockwell

Coral Red brightened by the reverse which is Zinc Orange. Flowers open with inner petals almost quilled and showing, in garden effect, as buff yellow. The petals become concave, but finally reflex and show as convex with the effect of brilliant bronzed red.

The 24" plants with excellent foliage showed small buds as early as September 3. These develop slowly and the color develops slowly as well, only the

*Lavender Lady, Glisten
King Midas, Drifted Snow*



terminal flowers being in bloom by October 18. The opening blooms are quilled so that the effect from October 22 to November 1, when the petals are normally convex, is beautiful and interesting. Some good flowers remained till November 8.

Garnet

A bright garnet-red pompon originated by the University of Illinois.

Plants thin and wiry, some leaves withering at base, 20", and no flower buds showing on September 25. These appeared by October 4, grew slowly, began to show color by October 22, developing into poor flowers by October 29. Probably something wrong with plants so should not be judged on this report.

Glisters

No records could be found for this variety which proved to be one of the more interesting in the collection. Whatever objections can be raised as to its growth habit, see below, its flowers opened early and remained long in good condition.

Small buds were showing as early as September 3. The growth is good but the branches are weak at crown and often split. Foliage good. First flowers September 23. These persist amazingly well and do not detract from the remainder that continuously develop until full bloom from October 18 till past October 22. On November 1 there were many excellent flowers, the oldest tinged and flecked pink with age. Over by November 8.

Goblin

Excellent, erect, stiff sprays of 1¼-1¾" buttons. The petals are somewhat concave. They show rather broken color, as if the new petals were Orange washed over with Orange Chrome.

This fades as the petals age leaving an effect of Cadmium Yellow. Good foliage.

By September 25, the 24" plants were bushy, well clothed with excellent leaves and many small buds. These did not begin to show color till after October 18. Some flowers were open by October 29 and the rest developed slowly with good blooms even on November 8 when storm finished all.

Gold Treasure

Very stiff flowering sprays. The color is the brilliant Ridgway Light Cadmium with the effect of pure Cadmium Yellow from the shadows.

Rather tall but robust growth, excellent foliage to base and numerous buds were shown by the 24" plants on September 25. A few buds showed color by October 4, nearly all by October 18 when a few flowers were open. Flowering continued until prime condition showed by November 1 and continuing until November 8.

Ida Brewster

2¾-3½" single flowers, usually with 3 rows of petals, which incurve sharply so that the Ochraceous Buff reverse shows against the Carmine upper surfaces. These are toned to Garnet Brown in the shadows. Disk flowers are Empire Yellow. There is a little yellow at the base of the colored ray florets. Very stiff upright growth.

By September 25, the plants had reached 30" and showed robust growth, excellent foliage and many buds. No color showed in these until October 18, with flowers opening gradually past October 22 to full bloom between October 27 and November 1. Foliage remains excellent.

Betty, Pink Radiance
Sequoia, Gold Treasure



Indianola

On plant which had been partially disbudded, this produced $2\frac{3}{4}$ - $2\frac{1}{4}$ " stiff, incurved flowers with rather pointed petals. Lemon Chrome, but shadows make it more intense.

Not considered winter hardy. One plant left to grow naturally was poor throughout; one disbudded, excellent.

On September 25, stiff, well clothed with foliage, 24", with good buds. By October 18 buds showed color and foliage on non-disbudded plant going to pieces. This continued and flowering was poor. On disbudded plant, each branch showed good leaves and developed flowers slowly to full bloom about November 1. These were beginning to go off by November 8.

Judith Anderson

Very nice sprays, rather stiff and erect with good foliage well up into the flowering portion. $\frac{3}{4}$ -1" button type. Lemon Chrome, the undeveloped florets in center suggesting Light Cadmium.

September 25 showed 20" plants, compact and with good foliage but no buds. These showed early in October but developed slowly with color showing about October 22, beginning bloom October 29, full bloom November 1 to 8. A few flowers in fair condition November 15, but foliage entirely destroyed.

King Midas

Rather stiff, open sprays of aster-type flowers, $2\frac{1}{2}$ -3". Probably would have been better disbudded. Empire Yellow. The effect of Lemon Chrome in the center comes from the tightly quilled undeveloped florets. With age, the reverse of the oldest petals becomes somewhat whitish.

Plant somewhat weak at crown,

allowing branches to flop on ground. On September 25, 24" high with good foliage and buds showing. These begin to show color by October 18, but growth continues slowly with peak flowering between October 27 and November 1, passing after November 8. Foliage excellent to the end.

Lavender Lady

Said to have *Koreana* blood. Aster type, really nearer white than the Pale Rose-Purple of Ridgway; color strongest on the oldest petals, center petals while undeveloped greenish (Nevis Green). Full double. $2\frac{1}{2}$ -3". There is a bad drying up of leaves and bracts through the open sprays.

Plants weak at crown, 24" high, fair foliage, small buds showing on September 26. Color began to show about October 18, opening about October 22, full about October 29, when the foliage has almost gone to pieces. Flowers remain in fair state as late as November 8.

Louise Schling

Korean. Described in 1946 as Pompeian Red, lighter towards Jasper Red. Reverse of petals would be Ochraceous Buff if the red color did not show through. This has a fine color and is very floriferous, but the color is not brilliant. 2 - $2\frac{1}{2}$ ". About 3 rows of ray florets of unequal length. Center greenish yellow with an occasional stray petal. Good foliage.

Robust, 30" plants well covered with small buds on September 26. These develop normally, show color about October 18, full bloom by October 22 which held well till about November 1 when the flower color goes off somewhat. Foliage good to the last.

*R. Marion Hatton, Rose Glow
Red Velvet, Romany*



Mandalay

Rather loose open sprays. The flowers start to open as a rusty orange, the color not evenly distributed, but the center florets become paler almost to gold. $1\frac{1}{8}$ - $1\frac{1}{2}$ ". Round, full pom-pom type.

Buds were first observed on September 3 and began to show color by September 26 when the robust 18" to 20" plants showed excellent foliage. Flower development is excellent uniform with full bloom soon after October 18 and lasting well past November 1 when plants were damaged by rain.

Mme. Chiang Kai-Shek

Very tight, compact flowers, like old-fashioned button type but $2\frac{1}{4}$ " in diameter, very double and stiff. Opens Capuchine Yellow, the shadows inside the somewhat quilled petals and towards center of flower appear Mars Yellow. Flower stem short and stiff. Very long-lasting blooms.

The vigorous, rather stiff 24" plants with excellent foliage showed buds by September 3. The first 3 or 4 flowers were half open by September 13 and fully open September 25. The flowers develop successively with "full bloom" about October 22, but good flowers were cut up to November 1. Foliage continues excellent.

Mrs. C. R. Hastings

This Old Rose of Ridgway lightens to Light Jasper Red. Petals reflex, full double but a little ragged. The garden effect would be rose, tinted amber. Stems relatively short and stiff making good sprays.

Rather open but robust plants 24" tall by September 25 with many buds, a few showing color. By October 4 a few flowers were open and others followed progressively to full bloom on October 22. By November 1 flowers

were passing but foliage still good.

Mrs. Pierre S. duPont III

$2\frac{1}{2}$ - $3\frac{1}{4}$ " flowers, incurved, but petals tend to be flat. Warm Buff deepened to Salmon color, even to Flesh Ochre in center. The garden effect is excellent, a pinkish apricot with the pink quality strongest in the newly opened flowers. If planted near Ceres, another buff apricot, it makes that variety look greenish!

On September 26, the 30" plants showed robust growth, good foliage and good buds. These showed color by October 18, developed gradually to full bloom by October 28 and maintained full bloom in good condition until November 8, the last reading.

Mrs. Sam P. Rotan

Very stiff erect growth as if it could be a greenhouse plant. Not disbudded, it gave many irregular flowers, $3\frac{1}{2}$ ". As matured, the older petals reflex. Lemon Chromé. The inner faces of the young petals are stained with Capuchine Yellow which fades first at the tips.

On September 30 this variety showed sturdy 30" plants with good foliage and abundant bud set. These developed color by October 18 and first full flowers between October 18 and 27 with full bloom by November 1. Still in good condition November 8. Probably would benefit by disbudding. Somewhat like Indianola.

Olive Longland

Largish, aster-flowered type; probably would be improved by some disbudding of sprays. Petals, when fully open and old, Light Vinaceous Buff (shadows Cameo Pink). The reverse

*Mme. Chiang Kai-Shek, Charles Ney
Olive Longland, Mrs. Pierre S.
duPont III*



of young petals varies from Cream Buff to Mustard Yellow. It is this center of the flower with undeveloped petals that gives the garden effect.

The robust 24" plants with excellent foliage showed buds by September 25. These developed color by October 4 and many were fully open by October 18. Full bloom continued from October 22 past November 1 when flowers were spoiled by heavy rain. Foliage excellent to end of season.

Pink Radiance

Rather loose, open sprays. The general effect is light pink, yellow centers. Ridgway reading, Pale Rosolane Purple to Mallow Pink. There is just a hint of yellow tone in the youngest petals that keeps the color effect lively and not "purplish," a character as much desired in chrysanthemums as in other flowers.

September 26 showed stocky, heavily branched 24" plants with good foliage and well set buds. These developed color by October 18 and a few opening flowers. Full bloom lasted between October 22 and November 1 with flowers passing by November 8. Very floriferous.

R. Marion Hatton

Not all flowers open simultaneously in the spray. Flowers clear lemon, rather flat, full double, the individual florets only slightly reflexed. 2½-3" flowers.

Rather slender growth, 24" by September 26 with some withering of basal leaves and buds set, though small. By October 18, some buds began to show color and no improvement in foliage. Flowers commenced opening by October 22, continuing progressively until full bloom was reached October 29. This held past November 1 but all were finished by November 8.

Red Velvet

2-2½" flowers, full double petals reflexing but convex in section. Practically same color as Ruby Pompon but appears darker because of form that picks up shadows and there is no buff reverse. According to Ridgway, Carmine with Oxblood Red in shadowed parts, with age fading to Acajou Red on tips of petals.

The robust plants well clothed with good foliage were 30" high and showing buds by September 26. All buds showed color and some flowers were half open by October 18, fully open by October 22, foliage still excellent. Full bloom was reached by October 27 and held past November 1. No color fading.

Romany

Very double aster type with petals eventually reflexing. Open but not lax sprays. The reverse color, Apricot Buff, shows on quilled young petals; mature petals Rose Red to Eugenia Red, a purplish red. 2¾-3½" flowers.

Rather thin but robust growth with good foliage characterized the 30" plants with good set of buds. These began to show color by October 18, a few opening by October 22. Full bloom was reached by October 28 and held past November 1. Excellent.

Rose Glow

Loose sprays of 3-3½" flowers, aster type with recurving petals. Mallow Pink to Light Mallow Purple where shadows come at base of petals. Brilliant in sunlight.

On September 24 the robust, 24" plants showed good foliage and abundant buds with color. Flowers half open by October 4, in full bloom from

Sun Gold, Ruth Hatton
Indianola, Mrs. S. Rotan



October 18 to 22 and past prime by November 1. Beetle attack on flowers.

Ruby Pompon

Fine half round pompon, deep India Red with a buff reverse. It looks "ruby" color only under artificial light which greatly improves it. Stiff habit, very floriferous. 1-1½" flowers. (1946 notes)

In 1947 the plants propagated from earlier stock (1946) grew poorly. By September 26, they were 20" tall, rather spare, with buds just showing. The buds developed very slowly through October and came to full flower between October 29 and November 1. This should not constitute a final judgment on this charming pompon.

Ruth Hatton

Full double except for an occasional flower that shows a yellow center. Buds faintly tinted pink; flower opens white with greenish lemon on the immature center petals. 2½-3" flowers.

September 26 found the 20" plants not too vigorous, with lower leaves withered and flower buds large but not showing color. This did not develop until after October 18 and full flowering began after October 22, lasting past November 1.

September Gold

In the season of 1946, this was definitely at its peak October 25-30. It makes a good bush with abundant flowering for effect but not so many flowers per spray; Rusty Orange deepening to Wallflower Red at base of the inner petals.

Only the lowermost leaves were withered by September 26 when the 24" plants showed a good bud set. No color showed in these until October 18 and they developed slowly, opening in series with peak bloom about

November 1. Foliage good to the last.

Sonja

Usually three rows of petals. Hermosa Pink slightly washed with Eosin pink. Vaguely reminiscent of the once popular Mrs. Buckingham.

The healthy but not much branched plants showed no buds on September 26. These began to show October 4 and to show color by October 18. After this development continued slowly, with good foliage, scattered bloom until full bloom about November 8.

Sun Gold

This appears to be an oldish variety not intended for outdoor use. Certainly it was slow in its development. A Japanese reflexed decorative, its flowers of pure golden yellow rarely made the promised 5".

September 26 showed 30" plants with good foliage but no buds. These began to appear by October 4 but showed no color until October 22. Development continued to be slow with good foliage but no open flowers before November 5 and excellent full bloom November 10.

The Chief

Here, a not very satisfactory garden plant with poor leaves and double, maroon-red flowers that fade in color and did not merit the catalogue description of "crimson."

Some doubt as to authenticity of plant. Good growth and foliage on the 24" plants September 26. Buds set before October 4 but no color showing before October 18. Growth now appears less robust, leaves withering from base, and flowers opening irregularly with full bloom about November 1.

White Knight

Another variety that did not live up

| | Sept. | | | | Oct. | | | | | | Nov. | | | | | |
|-------------------------------|-------|----|----|----|------|----|----|----|----|----|------|----|----|----|----|----|
| | 15 | 20 | 25 | 30 | 5 | 10 | 15 | 20 | 25 | 30 | 5 | 10 | 15 | 20 | 25 | 30 |
| Indianola | | | | | | | | | | | | | | | | |
| Judith Anderson | | | | | | | | | | | | | | | | |
| King Midas | | | | X | | | | | | | | | | | | |
| Lavender Lady | | | | X | | | | | | | | | | | | |
| Louise Schling | | | | X | | | | | | | | | | | | |
| Mandalay | | | | X | | | | | | | | | | | | |
| Mme. Chiang Kai-Shek .. | | | | | | | | | | | | | | | | |
| Mrs. C. R. Hastings | | | | | | | | | | | | | | | | |
| Mrs. Pierre S. du Pont III .. | | | | X | | | | | | | | | | | | |
| Mrs. Sam P. Rotan | | | | X | | | | | | | | | | | | |
| Olive Longland | X | | | | | | | | | | | | | | | |
| Pink Radiance | | | | X | | | | | | | | | | | | |
| R. Marion Hatton | | | | | | | | | | | | | | | | |
| Red Velvet | | | | X | | | | | | | | | | | | |
| Romany | | | | X | | | | | | | | | | | | |
| Rose Glow | | | | X | | | | | | | | | | | | |
| Ruby Pompon | | | | X | | | | | | | | | | | | |
| Ruth Hatton | | | | X | | | | | | | | | | | | |
| Sequoia | | | | X | | | | | | | | | | | | |
| Sonja | | | | | | | | | | | | | | | | |
| Sun Gold | | | | | | | | | | | | | | | | |
| The Chief | | | | | | | | | | | | | | | | |
| White Knight | X | | | | | | | | | | | | | | | |
| Yellow Irene | | | | | | | | | | | | | | | | |

Note: X indicates date published in catalogue. All photography by Robert L. Taylor.

The Names of Plants In Cultivation

W. H. CAMP¹

The New York Botanical Garden

The nomenclature of cultivated plants always has been a problem. With the recent advances in our knowledge of genetics and plant breeding great strides have been taken in the development of additional types of horticultural materials. This has imposed a further burden on horticultural nomenclature.

When broadly defined two types of plants are in cultivation: (1) those which have been introduced directly from the wild, any evident modifications being those which result from care and attention to culture; (2) plants of horticultural origin—those which have arisen in cultivation and differ from their wild prototypes by reason of man's selection of forms better suited to his needs from naturally variable groups, the finding and perpetuating of chance, mutant "sports," or, as in the majority of cases, through hybridization.

It is accepted in principle that all plants—wild and cultivated—should be adequately named. A simple binomial—the combination of generic and specific name—is perhaps adequate for a plant growing, let us say, in some distant jungle and of no known importance to man. There is, however, a very large group of agri-horticultural plants of considerable importance to man that need to have much greater attention paid to their exact nomenclature.

Often when the gardener plants seed of a named "variety" he has little foreknowledge of exactly what will come out of the ground; with another "variety" the result is highly predictable. Usually this is no fault of the person supplying the seed but can be laid to the type of material involved. Or,

again, the variability of a "variety" propagated from seed may be quite different from one propagated entirely by vegetative means. The term "variety" as used in horticulture today is by no means standardized. It is not a term of precision and anyone consulting a plant catalog, list, etc., intending to purchase seed or stock has no means of knowing what type of material will be received. This is particularly true of woody and other perennial materials sold as seed, in bulk while yet in the seedling stage, and as large specimens.

An example of the foregoing is to be found in the offerings of azaleas and rhododendrons. When seed is offered under a particular name it actually means little unless it was produced under controlled conditions, with hand pollination and bagging; the name it carries tells one only the name of the seed-bearing parent. Usually the seed is gathered from open-pollinated plants; and when it is realized that, too often, a rhododendron or azalea plant yields a better crop of seed to the pollen of other plants than it does to its own, the lack of any precision in this system is immediately evident. The same applies to the seedlings offered in large lots, often no two being alike when they flower, even if they all had the same mother plant. In addition, vegetatively propagated and completely predictable materials (clones) also are used. Yet in spite of this, these items whose ultimate appearance may be quite different are regularly offered for sale side by side in the same catalog, or occur in the technical literature of the group, either as "species" or "varieties," with no hint given of their potential differences. It

¹Chairman, Committee on Nomenclature of the American Society of Plant Taxonomists.

is a clear case of *caveat emptor* where the unsuspecting or uninformed gardener is concerned. However, it is not my purpose to discuss the ethics of the relations between the seller and buyer of such materials; I am concerned only with matters of precision in the nomenclature of agri-horticultural plants.

In an attempt to systematize the naming of plants and so avoid the chaos which was then developing in the nomenclature of naturally-occurring species and varieties, a code—now known as the International Rules of Botanical Nomenclature—was set up about 80 years ago. Over a period of years this has been amplified as the need became evident for additional clarification. In general these rules seem to be reasonably adequate for plants growing under more or less natural conditions. Therefore, by extension, the system should suffice for those species and varieties brought into cultivation directly from the wild. However, throughout the entire body of the Rules there is only one short paragraph dealing especially with the nomenclature of that multitudinous group of plants with which man is mostly concerned—the highly specialized agri-horticultural forms—and which, because of their great importance, are in need of the most precise nomenclature. As a point of departure for our discussion, this paragraph is here quoted as it appears in the code adopted at the 1930 (Cambridge) International Botanical Congress, with an added line proposed at the 1935 (Amsterdam) Congress:

"Art. 35. Forms and half-breeds among cultivated plants receive fancy epithets preferably in common language, as different as possible from the Latin epithets of species or varieties. When they can be attached to a species, a subspecies, or a botanical variety, this is indicated by a succession of names.

"The fancy epithet will be preceded by the letter 'c.'

"Examples: *Pelargonium zonale* c. Mrs. Pollock."

It will be obvious after a little reflection that the foregoing is not entirely satisfactory. In the first place it carries a real (but veiled) admission that the botanical "variety" and the horticultural "variety" are different things. This certainly should be clearly understood by all those who deal with them.

Apparently in an attempt to bring some order into this chaos, and possibly also to distinguish between the so-called "horticultural variety" and the "botanical variety," at the 1935 (Amsterdam) Congress the following line was added to Article 35 with no further explanation: "The fancy epithet will be preceded by the letter 'c.'" If precision was being sought, one can but wonder whether "culta," "cultigen," "cultivar," or "clone" was meant. Or is one to suppose by the example given—"*Pelargonium zonale* c. Mrs. Pollock"—that it was intended to apply only to those plants propagated by "cuttings"?

Because of the admittedly unsatisfactory nature of the paragraph in the International Rules of Botanical Nomenclature having to do with the names of plants in cultivation—especially those which have arisen by the direct influence of man and are of greatest use to him—it is proposed that the need for added precision in the use of the names of agri-horticultural plants be recognized by the next International Congress by striking out the title of Topic 7 and the present Article 35 from the Rules and inserting the following:

§7. *Names of plants of agri-horticultural origin.*

Art. 35. Plants in cultivation arising from hybridization, through selection, or as mutant "sports," receive fancy epithets preferably in common language, as different as possible from the

Latin epithets of species or varieties. When they can be attached to the name of a species, a subspecies, or a botanical variety, this may be indicated by a succession of names. Because of the often complicated or obscure ancestry of many garden or crop plants, in actual practice in horticultural literature, catalogs, lists, etc., the fancy epithet may and often should be attached directly to the generic name.

As applied in horticultural writings the category of "variety" seldom is equal with the botanical "variety"; it often is highly ambiguous, and biologically quite different kinds of "varieties" appear within the same group. Therefore, as an aid to greater precision in agri-horticultural nomenclature the following categories may be recognized:

(1) A group of hybrids originating from the same parents or series of parents, but whose individuals vary in appearance; the group would be delimited by the potential variations inherent in the parental stocks. The epithet would be prefixed by the word "grex" (pl. greges; literally a "flock, herd, or drove"—a group), abbreviated as "gr."

Examples: *Rhododendron* gr. Ghent (the "Ghent hybrid azaleas," sometimes listed as *R. gandavense* and recorded as the highly variable backcrosses and segregates of *R. luteum* × (*calendulaceum* × *nudiflorum*) × *viscosum* × *arborescens*; *Rosa* gr. Hybrid Tea; *Dahlia* gr. Double Decorative.

Note: The category of "class" should not be encouraged in semi-popular horticultural literature as it is sometimes used at present (e.g., the "Double Decorative class of dahlias," etc.). As defined in Art. 10 [of the Intern'l Rules of Bot. Nomencl.] "class" is a category intermediate between "order" and "division."

(2) Essentially uniform material derived from a single individual and propagated entirely by vegetative means,

as by cuttings, divisions, grafts, etc. The epithet should be prefixed by the word "clone" (occasionally spelled "clon"), abbreviated as "cl."

Examples: *Pelargonium zonale* cl. Mrs. Pollock; *Syringa vulgaris* cl. Decaisne— or, for brevity, *Syringa* cl. Decaisne; *Rhododendron* cl. Flamboyant— or, where greater precision is desired, as *Rhododendron* gr. Ghent cl. Flamboyant; *Lilium longiflorum* cl. Easter Erabu (not as *L. longiflorum* var. *erabu*).

(3) A sexually reproductive and uniform-appearing group propagated entirely by means of seed, its stability maintained by selection (this known as "roguing the line" by practical plantsmen). The epithet should be prefixed by the word "line" (Latin, *linea*), abbreviated as "ln."

Examples: *Dianthus deltoides* ln. Brilliant; *Petunia* ln. Rosy Morn.

Note: It seems that little would be gained by inserting a "specific" epithet between the genus and the name of this selected line of garden petunias in the foregoing example, especially since it has never been positively proved what the exact ancestors were, *P. axillaris* and *violacea* being suspect. However, for those desiring a complete hierarchy the following might be used: *Petunia* gr. Hybrida ln. Rosy Morn. Here the admittedly spurious specific epithet, *P. hybrida* (which would imply the presence of a natural species), would be transferred to the category of "grex," i.e., a group of garden hybrids with a presumed common set ancestors.

(4) A predictably uniform group derived by repetitive hybridization from a series of two or more constantly maintained breeding stocks, these parental "lines" being maintained either by continued in-breeding or as clones. The epithet should be prefixed by the hyphenated words "line-hybrid" (Latin, *lineo-hybrida*), abbreviated without

the hyphen as "lh."

Examples: This is the standard practice in the "hybrid seed corn" industry—e.g., United States Department of Agriculture, hybrid seed corn No. 13 (usually abbreviated as "hybrid corn, US-13")—which, for brevity and precision in formal international literature (where the word "corn" has various applications), might be listed as *Zea mays lh.* US-13; it also is an increasingly common practice in the production of ornamentals—e.g., the so-called named "races" and "varieties" of *Lilium* offered for sale in large lots while yet seedlings (which, biologically, are neither races nor varieties but artificially produced hybrids derived from particular combinations between clonally maintained parental lines), the lots presumably virus-free and predictably uniform in color of flower and plant habit, including season of bloom.

Among the foregoing four categories proposed for recognition among cultivated plants where a special precision in nomenclature is desirable, the term "clone" already is frequently used by horticulturists; likewise the concept of the "line" is well understood. The "line-hybrid" is a new term, although the basic principle and its practice is well understood by modern plant breeders. However, the term "grex" has sometimes been employed by a few taxonomists dealing with complex groups, although its use never was general. After searching for a term suitable to express just the right shade of meaning—that of a variable group with an implied common ancestry, a "flock, herd, or drove"—I could find none other which would serve quite so well. Therefore, it might be resurrected for our purposes, provided the use to which we put it did not conflict too greatly with previous usages. Even so, it would be well to examine the previous employment of the term to ascertain if, by

the weight of tradition, it might be better to choose another.

In looking through the literature there seemed to be no unanimity; apparently the "grex" always has been a poorly defined category. For example: Koehne (in Sargent, Pl. Wilson. 1: 226, 227. 1912) interposed it between the subgenus and section; Williams (Jour. Linn. Soc. 33: 414, 415. 1898) used it as a subspecific category, noting that it probably was what some would prefer to call subspecies. Other and variant usages could be cited. In brief, then, "grex" has enjoyed no standard or common employment and since it found no place in Articles 10-12 of the International Rules of Botanical Nomenclature where the categories of plant classification were officially listed, it is held to be available for our purposes, has been defined and given a function.

As may be noted in the definition and examples, the "grex" is intended to be a category covering a narrowly or widely delimited group of variable hybrids, the group being circumscribed by the number and type of inherent variabilities possessed by the ancestral forms which contributed to its complexity. Although the word "grex" may be unfamiliar to many horticulturists, possibly leading to a disinclination to make use of it, especially in lists and catalogs, it has a point in its favor. The abbreviation of "grex" is "gr." and "gr." also is the abbreviation of the word "group"—a term already in use by many horticulturists and gardeners in essentially the same sense. Therefore there would seem to be little objection to the use of this category, at least in abbreviation, for it could do double duty with complete comprehension in the most technical monographic studies as well as in general and popular agri-horticultural writings.

New York—12 Apr. 1948

Some Moreas

SARAH V. COOMBS

Moreas are the Irises of the Southern Hemisphere, very like the Irises, the great difference being that the perianth tube is always absent in Morea and usually present in Iris. In Morea, the claw of the flower "petals" is generally much shorter and wider than in Iris. Other parts are much the same. There are no true Irises south of the equator and the Moreas take their place. Both belong to the great Iridaceae Family. Hortus II says that they are "Herbs, mostly African, having corms or short rootstocks, narrow basal leaves, and Iris-like flowers, in clusters, the perianth without tube. Tender in the North, otherwise cult. as for Iris, which these plants much resemble."

A writer in this magazine, Mr. Claude Hope, speaking of *Morea polystachya*, tells of the fascination which Moreas exert over those familiar with them. "It seems hopeless," he says, "to attempt to convey in words the beauty and loveliness, the fragile charm, the cheery colors of the flower; only an artist's brush could do it justice. Like floating butterflies of bright lilac-blue, decorated with yellow, the flowers rest lightly above the long slender spathe valves, five or even more on each slender inflorescence. Reminiscent of some of the beardless irises but more graceful and more generous of flowers than most, a group of these plants is an exciting vision."

First, let us take up the spelling of the name, which is usually given as *Moraea*. Mr. N. E. Brown, for many years a great expert at Kew on the subject of the South African flora, wrote of this as follows, in the Transactions of the Royal Society of South Africa, vol. xvii, page 343, 1929: "As the spell-

ing of this generic name as here adopted, is different from that which has hitherto been used, it is necessary to explain that the genus was founded and well described and figured by Miller in his Figures of Plants, ii, 159, t. 238, pub. in the part of that work issued of 27 June, 1758, and the name Morea was there given 'in Honour of Robert More Esq. of Shropshire.' In 1768, Linné accepted Miller's genus as valid, but (doubtless by some mistake) altered the spelling to *Moraea*, an erroneous form which has ever since been followed, but for which there is not the slightest justification. In all probability, when he made this error, Linné had his wife's maiden name, *Moræus*, in his mind, the pronunciation being somewhat similar, this causing him to misspell Miller's generic name; as he accepted that name as being Miller's genus (see Linn. Gen. Pl. ed. vi. p. 27), there is no justification for any alteration in the spelling of it." Miller's reference to Mr. More of Shropshire I find rather quaint. "I have taken the liberty," he says, "of constituting this Genus of Plants and applying this Title to it, in Honour of Robert More, Esquire, of Shropshire who is a very learned Gentleman and well acquainted with more Branches of Natural History, particularly with Botany." So worthy a person should not be deprived of this credit! Bailey, in earlier works confirms the naming and this spelling is used by the authorities of Kirstenbosch, the great National Botanic Garden in South Africa, near Cape Town.

The idea of this article is to take up a few of the Moreas, to give a suggestion of the beauty and charm of this genus. Most of those described may

be obtained in either seeds or roots in this country. They are usually to be found in the catalogues of dealers in California, where they grow freely out of doors though our eastern growers are becoming year by year more convinced of their usefulness.

The Moreas have been divided and new generic names given. As the custom seems to be still to disregard this division and call them all Moreas, that name is given them all here, pointing out that the group known as Dietes, which includes *M. Robinsoniana*, *M. iridioides* and its varieties, including *catenulata*, *Johnsonii* and the others and *M. bicolor*, has been set apart under that name because they do not grow from a corm but from a rootstock, are evergreen or nearly so in foliage and do not need to be dried off, though all must rest. We shall call them all Moreas, till custom has separated them.

In the north, they are treated as house or greenhouse plants, requiring a cool temperature. They grow as freesias do, much sun but cool conditions. They will often start in a cold frame and can be brought into the house later. They are not too particular about richness of soil but most of them like dry, gritty soil and some a moister but still gritty kind. Lt. Col. Grey, in his valuable 3-volume work, "Hardy Bulbs," suggests the conditions he has found best in England and I give his advice. The Moreas have, I believe, a prosperous future in the United States for the flowers are beautiful and the cultivation not difficult. They are known as Uiltje (Little Owl), Schoenlapper (Butterfly) and a few of them have the doubtful name of Tulp, which includes also their near relatives, the Homerias, in the unpleasant quality of being poisonous and killing off many cattle.

Persistent stems should not be cut

after flowering as other flowers will grow from the same stem. The colors are somewhat uncertain, perhaps because the flowers hybridize freely and some of the descriptions sound like two different species. Still, criticism cannot be too harsh, for the colors vary often. Flower blooming times are also uncertain, the general rule being that most of them when blooming indoors, start about February and outdoors, in warmer sections where they are hardy, from May on. There are about 80 species, over 50 of them from South Africa, the rest being found in tropical Africa, Madagascar and Australia.

Seeds or plants (corms or rootstocks) of all the species mentioned except *M. gigandra* and *M. gigantea* may be obtained in the United States and, of the varieties, *M. iridioides* var. *catenulata*, *Johnsonii*, *Macleai* and the Oakhurst hybrids, Contrast, Lemon and Orange Drops. Seeds of the fine *M. villosa* hybrids are easily obtainable from well known growers in South Africa.

Species and Varieties

Flowers many, very large, outer segments broadly ovate, obtuse, with a very pale yellow central ray and a reddish-gold basal patch; inner segments narrower, subacute, pure white; fragrant.

Dietes.

1. *Morea Robinsoniana* Hook. Leaves densely tufted, sword-shaped, acuminate, erect or drooping, 6 feet long by 2 inches in breadth, a candelabra-like stem 6 feet high; spathe valves obtuse or sub-acute, green, over 2 inches long; flowers 4 inches or more in diameter; anthers linear, longer than the filaments; style crests fimbriate, erect, short, broad. A magnificent plant, native of Lord Howe's Island, a small island between Australia and New Zealand, sometimes found in



J. Horace McFarland Co.

Moraea iridioides

southern Queensland and northern New South Wales. It is known as the "Wedding Iris." An account in the *Botanical Magazine*, t. 1712, tells of a plant of this species flowering in 1891, after a long wait and producing 457

flowers during the season. It is considered difficult but splendid when it consents to bloom.

Flowers spreading, white with gold blotch, with a beard down the claw and a yellow keel at base of outer segments;

inner segments pure white. Dietes.

2. *Morea iridioides* Linn. Root-stock is a stout, creeping rhizome; leaves in crowded, fan-shaped basal rosettes, equitant, dark green, rigid in texture, 1-2 feet long, $\frac{1}{2}$ - $\frac{3}{4}$ inch broad; stems up to 36 inches, with many short, sheathing, lance-shaped, rudimentary leaves, sometimes procumbent, elongated and viviparous; spathes cylinder-shaped, 3-5 flowered, valves firm in texture, not pointed outer small clusters few, loosely arranged (corymbose) flower segments about $1\frac{1}{2}$ inch long; outer obovate, clawed style and filaments joined in a tube at base. Style crests lanceolate, blue or lilac, bifid. Bears many offsets on stems. Almost everblooming. Will do well by pools. Easily grown in well-drained gritty loam. Stem should not be cut after flowering as fresh growth and flowers are produced on the old stems. Very free-flowering.

In an article in the January, 1943, number of this magazine, the author, Knight Dunlap, believes that he has found a periodicity in the blooming of this species, twice a month, governed by the phases of the moon, one period beginning on the date of the first quarter to the day before the full moon. The other period runs from the date of the last quarter up to the new moon. In the other phases, there are normally no blossoms. In an article by W. C. Blasdale, in the April, 1944 number, Mr. Blasdale feels that this suggestion should have much more experimenting before a decision. In experiments, he says: "Variations in the intervals separating both major and minor flowering periods are notable and I am not able to discover a satisfactory correlation between them and the phases of the moon." He feels that other facts, such as the formation of seed capsules and others, have their bearing. "*Morea*

iridioides," he says, "may represent a species which is on its way to become a continuous flowering species of this class" (ones with long and continuous flowering periods) "in which periodicity is only an incidental feature."

Flowers pure white with segments an inch long.

Morea iridioides var. *prolongata* Hort. Leichtlin.

Flowers waxy white on tall stems. Flowers tinged with blue, outer segments with large yellow spot and two rows of small yellow warts. Stigma blue.

Morea iridioides var. *catenulata* Lindley.

Prostrate habit; evergreen. Closely resembling *M. iridioides*, considered as a variety. Smaller flowers than the type. Flowers sporadically through the year; broad foliage; stems will grow to 4-6 feet if staked. Fan-shaped tufts of leaves.

Morea iridioides var. *Macleai* Hort.

A nice flower. Smaller flowers than the type but of similar habit.

Large flowers, pure white shading to light golden yellow in the center and with touches of purple.

Morea iridioides var. *Johnsonii* Hort.

Has longer leaves and larger flowers; vigorous and free-blooming, soon forming large clumps in the warmer sections where it is hardy. The flowers are 4 inches across. A writer in "The Gardeners' Chronicle" (English) in 1920 says it is the loveliest of all the *Moreas*. It was figured more than a century ago in Miller's Dictionary of Plants. This belongs, as all this group does, to the rhizomatous class. The flowers of *M. iridioides* var. *Johnsonii* have a longer life than most of the

others in the group. Its blossoms are not only twice the size of the others (except *Robinsoniana*) and far more brilliantly colored than those of the type but they last for about four days in a shady spot, a little less in sun. They have thicker petals than the others. The writer describes the flowers as "beautiful creamy white blooms blotched with yellow, with the three central standards of a rich shade of violet and feathered at the base with crimson-brown markings." Many blossoms are borne on the same branching stem, about 36 inches in height with strong upright foliage. Improves under cultivation and hybridizes. Easily raised from seed. Soil should be loam without animal manure, leafmould and small lumps of charcoal and a little soot after first time of potting. Nearly hardy (in England). Will survive in a cool greenhouse if kept just free from frost and rather dry in winter. More water as spring approaches. In open air in summer. Seedlings form the best specimens. Believed to have been taken to Ceylon from South Africa many years ago.

There are fine hybrids in the rhizomatous class. Some are known as the Oakhurst Hybrids (Giridlian 1937). Flowers $2\frac{1}{2}$ inches across, rounded in shape like a miniature Japanese Iris; "The color is a pleasing shade of ivory with waxy substance and smooth egg-shell texture. There is a bright orange or yellow mark in the haft of the falls and the top of the style branches are colored violet." Contrast (Giridlian 1940) and Lemon Drops (Giridlian 1940) and Orange Drops (Giridlian 1942) are in rich, lovely colors.

Flowers deep cream to citron yellow with small brown spots almost black shading to yellow at base of 3 outer segments. Spots outlined orange shading to orange dots;³ smaller segments

white, sometimes sprinkled with brown-purple dots.

3. *Morea bicolor* Steud. Dietes. Rootstock a short creeping rhizome; leaves in 2-ranked basal rosette, $1\frac{1}{2}$ -2 feet long; stems somewhat sinuous with many short, closely sheathing leaves, 1-2 feet long and branching; spathes cylinder-shaped, 2-3 flowered, $1\frac{1}{4}$ - $1\frac{1}{2}$ inches long; valves rigid in texture, outer short; clusters few, loosely arranged (corymbose); expanded flowers 2 inches in diameter; outer segments obovate, clawed, with no beard down the claw; inner segments oblong, clawed; style crests small and yellow, triangular, bifid.

Lt. Col. Grey calls this a beautiful plant, requiring a fairly moist situation in sandy, gritty soil. Stems not to be cut off after flowering. Attractive ever-green foliage. It does not require rich soil. Is not fussy about sun, shade, moisture or drought. Long period of bloom.

Flowers bright orange-red with a large, crescent-shaped, peacock-blue-black or greenish-black spot on the base.

4. *Morea pavonia* Ker. Local name. Uiltje (pronounced rather like Erlekey) "Little Owl." This name is applied also to *M. edulis*.

Corm small, globose, tunics thick, netted veined; basal leaf linear, long, slender, solitary, hairy, 18 inches long; stem long, slender, rounded with several sheaths, simple or with 1-3 short erect branches; spathes cylinder-shaped, lanceolate, outer much shorter than the inner point, dry, membranous only at tip, green, 1-3-flowered, over 2 inches long; flowers large; outer segments round, wedge-shaped, without any distinct claw, spreading; inner segments narrowly linear, ascending-spreading, $\frac{1}{3}$ inch long; with a narrow

central stiff point and 2 small side ones; crests of stigmas lance-shaped; style column cylinder-shaped.

Unspotted yellow flowers.

Morea pavonia var. *lutea*. Baker. Leaves smooth.

Flowers lilac-purple with a vivid iridescent, blue-black, orange margined basal spot, haft well defined, villose, orange-red.

5. *Morea villosa* Baker.

Usually considered a variety of *M. pavonia* but sometimes given as a separate species. Lt. Col. Grey considers it worthy of specific rank. 15 inches high; leaf hairy; style crests pinkish-lilac, deeply bifid.

Morea villosa hybrids. A South African expert says of these; "An enchanting spring flower. Flowers in varying shades of mauve, bronze, yellow and white. All with definite peacock eye." They will grow many years in the same pot without division. Need plenty of water. Will bloom early in window or sunroom. We find some of the most beautiful of the Moreas in this group, many of them natural hybrids. Seeds of these flowers will produce wonderful variety of color. Here are a few, taken at random from a bed of the hybrids in the National Botanic Garden at Kirstenbosch, near Cape Town, South Africa. The colors were checked with Ridgway's Color Standards; larger petals pale salmon, dull darker stripes below, spot black surrounded with line of zinc orange, base same; outside of petals ochraceous-buff shading below to apricot-orange, Dresden brown to Roman green at base, stamens white, pale salmon tips and lines on back. Another one; 3 petals white, spot Delft blue, black line surrounding, yellow outside the black one, base Capucine buff or orange, outside

white, dark below, shading to Dresden brown at base, stamens white, orange line on back. A third; 3 petals deep chrome shading to cadmium orange at base, spots grass green, line of black surrounding, base cadmium orange with green dots, stamens yellow cadmium orange tips and line in middle outside, of petals same as inner, shading to drab, Roman green spots.

Large flowers, pale mauve, overlaid with darker streaks, blotch at base of outer segments of black or dark blue, outlined with white, white line above, 3 other segments small, black blotch at base, spotted white above, narrowing to a long point, white, tipped mauve.

6. *Morea gigandra* L. Bolus.

Linear leaves; plant 12-18 inches high; spathe valves green with indistinct purple stripe; flowers $3\frac{1}{2}$ inches across, $3\frac{1}{2}$ petals large, 2 inches broad, very large anthers, far overlapping the minute crests. Similar to *M. pavonia*.

Flowers pure white with a metallic blue-black circular spot at the base of the blade of rounded outer segments, like a peacock's eye; inner segments small, pointed; obscure Prussian blue venation.

7. *Morea glaucopis* Drap. The Peacock Iris.

Corm globose, small, tunic reticulate; basal leaf solitary, narrowly linear, long, smooth; the stem 15-18 inches high, rounded, with 2-3 sheathing leaves, simple or with 1-3 erect branches; valves rigid, cylinder-shaped, pointed, green, dry and membranous only at very tip, 2-3-flowered, 2 inches long, outer much shorter than inner; flowers $\frac{3}{4}$ to $1\frac{1}{2}$ inches long, outer segments with a short claw, inner with a thread-like claw, a large central stiff point and 2 small side ones; crests large, cream white.

This is one of the best known and



Claude Hope

Morea glaucopis

the most charming of the Moreas. Lt. Col. Grey says that it "should be grown in sheltered situation in well-drained gritty soil." There is confusion in names and it is sometimes called Morea or Iris Pavonia but the flowers of pavonia are red or blue. The flowers last when cut for several days. It succeeds well as a house plant.

Flowers rather large, white or lilac, 3 larger segments with a brown-striped or peacock blue basal blotch; smaller

segments with a long claw and 3 thread-like stiff points.

8. *Morea tricuspis* Ker.

Corm small, globose; the tunics densely fibrous; the basal leaf long, linear, firm smooth; the stem slender, 1½-2 feet long, rounded, simple, occasionally with 2-4 short, erect, branches up to 2 feet in length; spathes cylinder shaped nearly 3 inches long, 2-3 flowered; valves pointed, dry and

membranous only at the very tip; flower $\frac{3}{4}$ -1 inch long; outer segments with a spreading blade; crests of stigmas linear, bifid.

Flowers fairly large, bright red or lilac (Mr. Mathews, Curator of Kirstenbosch for many years, says that the flowers are pale blue or white); outer segments broadly oblong with yellow basal blotch; inner much narrower with yellow basal streak. Fragrant.

9. *Morea papilionacea* Ker.

Corm small, globose, tunics brown, imbricate; a low species, 2-4 leaves 3-6 inches long, strongly ribbed, densely hairy; stem very short, sometimes branched; spathes cylinder shaped, up to 2 inches long, 2-3-flowered; crests of stigmas linear. A late bloomer. "Should be grown on a hot, sheltered bank" (Lt. Col. Grey).

Flowers yellow.

10. *Morea gigantea* Klatt.

Corm not seen. Produced leaves about 3, linear, smooth, firm in texture, strongly ribbed, lower one $1\frac{1}{2}$ -2 feet, $\frac{1}{2}$ - $\frac{3}{4}$ inch broad at base; stem 2 feet or more long, rounded, stout, erect; spathes cylinder shaped, $1\frac{1}{2}$ -inches long, 2-3-flowered; valves with a very long, dry and membranous point; dense corymb of 20-30 flower clusters, with short, crowded, erect stalks; flowers over an inch long.

Flowers lilac about 2 inches across; outer segments with a bright yellow eye. Pure yellow and white forms are known. Fragrant.

11. *Morea edulis* Ker.

Corm globose, usually deep in the ground, with a tunic of fine, wiry strands. Marloth says that this is the typical Uiltje (Little Owl) of the colonists in the southwest. The name is applied also to *Morea pavonia*. Stems wiry, rounded, 18 inches long with a

solitary very long leaf below the inflorescence, wiry, rigid, linear, convolute, 1-2 feet long; spathes cylinder shaped, 2-4-flowered, rigid, strongly nerved, dry and membranous at the top, nearly 2 inches long, clusters 2-20 on a short or elongated axis; flower stalks short, stiff, ascending; flower about 2 inches across; outer segments ovate; inner shorter, oblanceolate, reflexed; crests of style bright lilac, lanceolate; filaments joined in a cylinder shaped tube.

Rather late-blooming. Flowers short-lived, only 6 hours. Commonly collected for food, flavored like a Spanish chestnut. Dwarf plants with thin foliage but bearing numerous large and showy flowers of varied colors and markings. The colors range from white through cream, yellow, orange and pink, lavender, violet and purple.

Several named varieties;

Morea edulis var. *odora* (Salisb.)

Flowers white, very fragrant.

Morea edulis var. *longifolia* (Sweet).

Flowers yellow. Leaf as much as 48 inches in length.

Morea edulis var. *umbellata* (Thumb.)

Main axis of inflorescence short; clusters numerous, erect; flowers in many erect clusters, are produced in sequence.

Morea edulis var. *gracilis* (Baker)

More slender than in the type with acute spathes scarcely over an inch long, smaller flowers.

Flowers deep lilac, rarely turquoise blue or reddish, outer segment sometimes marked with a triangular yellow patch at base occasionally with a yellow basal spot.

12. *Morea tripetala* Ker.

A small but charming species. Corm medium sized, globose, tunics thick, fibrous cancellate. Produced leaf one, near the base, long, narrow, linear,



Claude Hope

Moraea papilionacea

firm, smooth; stem very slender, 1-2 feet long, simple or with 1-3 short, erect branches; spathes cylinder shaped, 2 inches long, 1-3-flowered, valves pointed, dry and membranous at the very tip; flower 1-1½ inches long, outer segments with a claw nearly as long as the spreading oblong blade, sub-tubular; inner, linear, thread-like; style crests linear. The flower is often a charming, pale blue, looking like an iris, 3-6-flowered. Well drained, gritty soil. There is a variety, *Morea tripetala* var. *mutila*, with a hairy leaf.

Flowers bright yellow, violet or brown spots. Very fragrant.

13. *Morea spathacea* Ker. Nokha.

Large corm with a dense coat of brown-black wiry fibers. A single leaf, produced from the base, thick, rigid, linear, pointed, flat, strongly ribbed, 1½-2 feet or more long; stem 2-4 feet, simple or rarely branched; several rudimentary stem leaves; spathes 3-5 inches long, 3-5-flowered; valves with a long stiff point, outer much shorter than the inner; flower 1½-2 inches long, segments spreading, clawed, outer segments oblong-lanceolate, inner rather narrower; filaments joined in lower half; crests medium-sized, bifid.

The flowers strongly resemble a Spanish Iris. The spots on the base of the segments variously described as brown, bright purple and violet. Often grows along streams. Fine for cutting and ornamental purposes. In warmer climates, soon form large clumps. Long flowering season.

Morea spathacea var. *Natalensis* (Baker). Flowers large; segments more distinctly clawed; style crests larger.

Morea spathacea var. *Galpini* Baker. Leaves long, very narrow, convolute; flowering stem not above

½ foot long. Flowers several months later than type.

Flowers dull lilac or dull pink, outer segments wavy margined, spreading, with a small yellow, violet-edged basal blotch; inner segments oblanceolate.

14. *Morea tristis* Ker.

Corm small, globose, tunics fibrous matted in parallel fibers. Leaves mostly basal, 2 or 3 in number, linear, grass-like from near the base, smooth, 1-2 feet long; stem shorter, simple, slender; spathes cylinder shaped, 1-1¼ inches long; valves ribbed, green, firm, dry at the tip; flowers in a loose corymb of 4-6 clusters on 2-3 inch peduncles, medium sized, lower subtended by short leaves; outer segments oblong-clawed; style crests small, lanceolate, bifid.

Grows easily in light, well drained soil. A graceful dwarf species. In a warmer climate, would be good for rockery or massing. From a dealer's catalogue: "The color of the flower is a striking combination of olive-gray and gray with a small yellow, violet-edged blotch at the base of the outer segments, 10 inches." A South African grower describes the color as "buff or greyish brown."

Flowers bright lilac-blue or mauve with markings of Parma violet. Outer segments with a large bright yellow spot at base.

15. *Morea polystachya* Ker. Blue Tulp.

These flowers are described as like "Mauve butterflies." Corm is globose or ovoid, black, less than an inch in diameter; tunics coarsely fibrous, with parallel gray wiry strands, connected by short cross-bristles; leaves 3-6, sword-shaped, ribbed, smooth, up to 2 feet long; stem stout, erect, 1½-3 feet in length with short wiry branches;

spathes, green, cylinder shaped with very long membranous stiff points, 3-6-flowered, about 2 inches long; the flowers in a loose corymb of 5-20 clusters, produced in succession, 1-1½ inch long; large outer segments broadly oblong, furnished with a claw; inner segments oblanceolate; style crests large, lance-shaped, lighter in color than the segments; filaments joined toward the base. There can be a continuous succession of flowers for four months. In a cool place, each flower lasts 3-4 days and is promptly followed by others.

Unless kept dormant by cold storage, should be planted indoors in September. If grown out of doors in a warm climate should be grown on a very hot, dry bank, very well drained. The typical Tulp of the veld, very poisonous, sharing this quality with the *Homerias* and being responsible for fatalities to many cattle, though some cattle, either acquire an immunity or learn to avoid these flowers. Indoors or out, bulbs may be planted successively about every 2 months, to ensure a long season of bloom. The bulbs lie dormant for a time, then grow quickly. After pot flowering and drying, may be stored in sand in a cool place.

Flowers large bright amber yellow with a yellow oval, surrounded by dark blue at the base of the outer segment; inner segment rather narrower, unblotched. Dark spots in the claw.

16. *Morea ramosa* Ker.

Corm small, globose, surrounded by dense, short, spreading, branched, spine-like fibers bearing, as do the lower nodes of the stem, a copious supply of small ovoid bulbillae; leaves about 6 basal, linear, firm, smooth, keeled, grooved, 12-18 inches long; stem stout, erect, with many bulbils at the nodes, much branched (*ramosa*, branching), 1½-3 feet in length; spathes cylinder shaped, small, 1 inch

long, 2-3-flowered, outer valve very small; flowers large, 2½ inches in a lax corymb of often 20-30 clusters, produced in succession, the lower branches copiously compound; outer segments obovate, descending, spreading, inner segments unblotched, narrower, both kinds clawed; filaments nearly free or quite down to the base; style crests large, lanceolate, often bifid.

Good for ponds and water courses and does not require the long rest demanded by so many of the South African bulbs. Easily increased by seeds or bulbils. A succession of flowers produced for a month or more. Should be grown in light sandy soil and cannot have too much sun. Lt. Col. Grey says of it; "This is a most desirable plant." It has an interesting root system, according to W. M. James in this magazine, January, 1940. Two distinct kinds of roots on each plant, one of soft, fibrous roots, growing downward and one of hard spinous roots growing outward and upwards in such a way that it forms a sort of prickly basket-work around the base of the stem. There is no true basal corm. Nearly every node on the entire flower stem has a group of cormlets, some of which, when planted, will bloom the first year. Mr. James confirms the idea that this plant does not need a long rest, as *M. polystachya* and *M. glaucopis* do. The flowers are excellent for cutting and though their life is brief, many on the stem will follow.

Flowers bright yellow.

17. *Morea ramosissima* Druce.

To 30 inches; leaves basal, linear, about 6, to 18 inches long, canaliculate, ribbed; flowers in corymbs, blossoming over several weeks, stems branched with axillary bulbils. South Africa—Corms of this species are sometimes labelled *M. ramosa*. (Hortus II).

Rhododendron Notes

CLEMENT GRAY BOWERS, *Editor*

Some Asiatic Rhododendrons at Gladwyne

It was about 1930 that I read about and became interested in Asiatic Rhododendrons. My enthusiasm led me to try quite a few species, many of which fell by the wayside years ago. Some have stayed with me, choice and cherished treasures.

Rhododendron auriculatum came to me from Mr. Gable in 1932, two plants, and both have grown into fair sized shrubs. One is growing in nearly full sun, and it is 4 feet 10 inches tall and 6 feet broad with leaves, including petioles, 10 inches long and $2\frac{3}{4}$ inches wide. It is in a rather dry loam but its roots are shaded by a rock. Although apparently healthy and happy it has never produced a flower bud.

The second *Rhododendron auriculatum* was planted beside a tiny stream, in almost full shade, and where the soil scarcely ever dries out. It is 5 feet 6 inches tall and 5 feet 4 inches broad. The leaves of this one are larger than those of the other plant, 11 inches long and $3\frac{1}{2}$ inches wide, and are a far deeper green. In the autumn of 1945 this rhododendron produced 2 large plump flower buds. My hopes were high, but alas they never opened, owing, probably, to heavy freezing spells late the following spring. Its behavior, however, encourages me to hope to see the flowers before very long. The leaf buds never winter-kill, so perhaps next time the flower buds form the weather will be kinder.

When *Rhododendron auriculatum* was introduced it was spoken of as the "big noise" in the Rhododendron world. In E. H. M. Cox's "Rhododen-

drons for Amateurs" he states it is "one of the finest introductions from China."

Of all the rhododendrons I have ever seen *Rhododendron decorum*, if this is the correct name for my plant, is the finest, and I can give it a perfect behavior report. Like *Rhododendron auriculatum*, it came to me as a small seedling. It was sent to me from the United States Department of Agriculture in 1934. It started to bloom in about 8 years time, and since then has never failed to make its gorgeous display. The immense flowers, widely campanulate, of heavy wax-like texture and crinkly along the margins, are unbelievably beautiful and marvelously fragrant. They are white with subtle pink shading but without any tinge of magenta, and come in June. The bright green leaves are obtuse $6\frac{3}{4}$ inches long and $2\frac{3}{8}$ inches wide and are gray green beneath. *Rhododendron decorum*, at 12 years of age, is 4 feet tall and 6 feet 10 inches broad.

Rhododendron decorum from Mr. Gable is so different from the plant already described as *Rhododendron decorum*, that I am inclined to think one of them is another species. This second one is decidedly the lesser beauty. Although large the slightly smaller flowers are not nearly so attractive. They do not open so widely and they lack the ornamental crinkliness of the other one. The leaves are larger, $7\frac{3}{4}$ inches long and $2\frac{5}{8}$ inches wide and are light green below instead of gray green and the shape, too, is different. They are lanceolate to oblanceolate, sometimes obtuse. This one blooms a trifle later. It is 5 feet 3 inches tall and 5 feet 10 inches broad. Like

the other one it is perfectly hardy and blooms freely and regularly and is fragrant. Had I not seen the first *Rhododendron decorum* I would have thought this a very splendid shrub.

Rhododendron arboreum has been living at Gladwyne for about 12 years. So far it has not bloomed and quite frequently the leaf buds are winter-killed, but often, too, they survive. It is 2 feet 9 inches tall and 3 feet 2 inches wide. The leaves are 4½ inches long and 1½ inches wide. Maybe some day I shall see the flowers, how I hope so!

Rhododendron lutescens, I think is the correct name for this utterly delightful shrub with pale lemon yellow flowers. It is growing on a slope facing southeast and sun falls on it most of the day. The pretty flowers, large enough in proportion to the size of the leaves, the generously produced and it is a shapely little bush 2 feet 4 inches tall and 3 feet 6 inches, at 12 years of age, broad with leaves 2¼ inches long and ⅞ inch wide. It flowers fairly early, in May, and each year it opens its delicately lovely pale yellow flowers that show so well against the green grassy hillside, and each year I admire it anew. It is one of the nicest Rhododendrons at Gladwyne.

Rhododendron Metternichii was imported from England in 1937. It bloomed last spring for the first time, and I am more than delighted with it. The flowers expanding as they did with some of the early azaleas came as a very pleasant surprise, because they were so entirely unexpected at this season. They were quite large and of a lovely pale pink. The leaves are 6¾ inches long and only 1½ inches wide, comparatively narrow and quite distinctive. The copper colored felt-like surface beneath is attractive. The bunch is 2 feet 6 inches tall and 3 feet 10 inches broad.

Rhododendron micranthum is a dwarf small leaved rhododendron with little white flowers about the size of those of a daphne. Unfortunately, it lacks fragrance. The small deep green leaves are only 1⅜ inches long and ⅜ inches wide. The plant is hardy here where it has been growing for about 18 years. There are several bushes, the largest one is 4 feet 6 inches tall and 4 feet 2 inches broad. It is a decidedly nice small evergreen shrub of rather unusual appearance and I am glad it is here.

Rhododendron suchuenense was sent to me by the United States Department of Agriculture in 1934. It is conspicuously slow growing here and although it seems healthy it has taken it 12 years to reach a height of 2½ feet and a breadth of 2 feet. It is to be hoped it does not die of old age before it blooms! In the "Species of Rhododendrons" published by the Rhododendron Society 1930, its height is given as 3-10 feet and "in the wild much more." According to its description it should be an attractive and unusual looking shrub with its flower cluster "a dense corymbose raceme." Its leaves measure 5¼ inches long and 1½ inches wide.

In 1934 Sir William Wright Smith sent me seed of *Rhododendron Wardii*. A number of seedlings were raised and these were wintered in a cold frame for about 5 years. Only a few lived to be planted in the trial garden. Our cold winters took heavy toll until but 2 remained. At the age of 6 years they were planted in well protected places in my Southern Garden. Only 1 bush remains now and each year, when winter comes I fear for its safety. About 5 years ago it produced 2 flowers. The long wait for the bloom was forgotten when I saw the entrancingly lovely blossoms. They were com-

paratively large and of thick waxy texture and colored a wonderful pale creamy yellow with just a touch of deep maroon in the heart of the flower. The little bush, 2 feet 1 inch tall and 3 feet 1 inch broad looks healthy and the leaves $4\frac{1}{2}$ inches long and 2 inches broad are a very dark green. It is growing where it gets sun part of the day. The deaths of the other plants I had of *Rhododendron Wardii* seemed to be caused by bark-splitting in winter. After all, we have a difficult climate in Pennsylvania and plants of borderline hardiness find it very trying. Hard freezing weather turning suddenly to a quick thaw and then, after a few days, a sudden drop in temperature again, is very hard to bear.* This remaining plant of *Rhododendron Wardii* makes short, firm growths each season, and they have practically never winter-killed.

My hopes are high for its ultimate welfare, and even if *Rhododendron Wardii* is so chary in producing its flowers, when they do come they are so perfectly beautiful the long wait is entirely forgotten.

There are several small Asiatic rhododendron species that are doing well here. They are planted on a grassy slope above a small creek with considerable sunshine and where it dries hard for the longest part of the summer. Their little flowers are in pallid shades of pink and they contribute so little in the way of beauty that it matters not to me whether they live or die. Their green and bronzy foliage is rather nice in winter time.

It must be admitted that many Asiatic rhododendrons have failed here and, probably had I made greater preparations for their welfare and been able to water them regularly during hot and dry spells, some undoubtedly would have succeeded. But I have no

skilled help to do this sort of thing, so when I am away on a plant collecting trip many plants suffer and there are always some casualties. Some of these little rhododendrons thrived for years in my trial garden and perished when they were planted out and left to fend for themselves. A few of them I am anxious to replace because they are such choice and lovely little shrubs.

Especially attractive are some of the dwarf "blues." Their flowers are not really blue but do come in wholly delightful shades of lavender and bluish lavender.

There are other rhododendrons I am anxious to try again because I realize that it is worthwhile to make a big effort, in the hopes that they will succeed. The ones that have bloomed here have shown me that their beauty has not been one bit exaggerated.

I am anxious to obtain again a few specimens of *Rhododendron hippophaeoides* and *Rhododendron augustini*, both are lovely and should succeed if given a suitable soil and a favorite position, both in shades of lavender blue. *Rhododendron calophytum*, *Rhododendron campylocarpum*, *Rhododendron myrtilloides*, *Rhododendron Williamsianum* and *Rhododendron yunnanense* are all so fine they too must be tried again. Some of the species that bear flowers of "blackish crimson" and some whose flowers are "violet blue" and "deep purple" sound so wonderful that they, too, must be obtained. But there seems to be no limit to beauty and variety in the flowers of the Asiatic evergreen rhododendrons!

Gladwyne, Pa. MARY G. HENRY

Southern Azaleas On Their Way North

The azaleas which form the main

*In winter our thermometers register below zero F.

display in the old gardens of the South, commonly known as the Southern or Indian azaleas, are rather generally reputed to be a group of hybrids mainly of Belgian origin having as their parents the rhododendron species *simsi*, *phoeniceum*, and *indicum* Sweet (*A. macrantha*). One of the oldest plantings of these Indian azaleas is at the famous Magnolia Gardens near Charleston, S. C. According to a family legend of the owners, their original plants were saved from a lot imported and tried out unsuccessfully in Philadelphia, Pa., and then brought to Magnolia Gardens in the early seventies.

Today the Indian azaleas are readily grown not only from Charleston south but at Wilmington, N. C., and Norfolk, Virginia. Recently some of them have been tried out in Maryland suburbs north of Washington, D. C. The results indicate the possibility that many of the Indian azaleas can successfully be grown outdoors in that area, thus extending the northern limits of the group another 125 miles or so north along the Eastern seaboard back towards Philadelphia.

The winter of 1946-1947 was comparatively severe. Twice the Weather Bureau thermometers reached a low of 5 degrees above zero and 9 days ranged 5 to 15 degrees. A dry fall helped mature wood but on the other hand was accompanied by some extraordinary sudden overnight changes from mild warm weather to low freezing weather. Of course, as usual, freezing and thawing were constant throughout the winter. The spring flowering season was about three weeks late and two heavy frosts occurred after flower buds for Kurumes and early midseason azaleas were well out. On the whole the season was a real test for plants on the borderline of winter hardiness.

In one garden the following Indian azaleas purchased from Southern nurseries mostly two and three years ago, a few older, and all small plants one to two and a half feet high, bloomed well this past spring (figures are size of flowers, colors according to the Royal Horticultural Society Colour Chart):

Cavendishi, 2¼", rose madder with darker blotch, white edges and rhodomite red stripes; Charles Encke, 2", claret rose with darker blotch¹; Criterion, 2¼", flushed rose bengal with white edges, darker blotch, and occasional stripes; Fielder's White, 2¾", white with some chartreuse in throat; George Lindley Taber, 3½", flushed magenta with white edges and conspicuous magenta blotch (a new variety with spectacular flowers, excellent in this area); Iveryana, 3", white with rose madder flecks; Miltoni, 1¼", rose opal¹; Supreme, 2½", white with occasional flecks or stripes of fuchsia purple; Perfection de Rentz, 2½", white; Praestantissima, 1¾", spiraea red with deeper blotch; President Claeys (Clay, Clays, Clays), 1¼", rose opal¹; Supreme, 2½", white with chartreuse throat; Vittata Fortunei, 1¾", white striped or flecked magenta, with some all white and some all magenta flowers on same plant; Vittata Fortunei Purpurea, same as all magenta flowers of Vittata Fortunei; William Bull, 1¾", delft rose.¹

All the flowers are single except William Bull which is double with 5 sepals, 10 petals, and numerous petaloid and partially petaloid stamens, no pistil. Vittata Fortunei and Vittata Purpurea are early and Criterion, Fielder's White, George Lindley Taber, and President Claeys, are mid-season. All the others bloomed late just before *macrantha* (*indicum* Sweet).

¹Does not conform to description of plant of this name as found in *Tuinbouw Encyclopedie*, Vol. I, *De Azalea Indica* L. by Scheerlinck and others, Antwerp 1938.

In other gardens Omurasaki has been grown and is hardy; also Flag of Truce and Formosa. The two latter and Phoenicea, and Lawsall, did not, however, happen to be hardy with me.

The foregoing and many others of the Indian azaleas should be hardy along the whole of the Pacific Coast as well as along the southeastern Atlantic seaboard.

Whether growing the Indian azaleas is worthwhile in the Washington, D. C., area, is questionable since the Glenn Dale hybrids² already distributed by the Office of Plant Exploration and Introduction, U.S.D.A., are clearly hardy and have as large flowers and color range in general as the best of the Indian azaleas. These Glenn Dale hybrids do not bloom as late here as the Indians listed as "late" above and there are no color patterns like George Lindley Taber, Criterion, and Cavendishi nor as large whites as Fielder's White, Supreme, and Perfection de Rentz. However, the gaps as to lateness and whites will be filled by additional Glenn Dale hybrids already selected but yet to be distributed while the species *mucronatum* (indica alba, ledifolia alba) is the equal here of any

white among the Indians. The Kurumes Hatsushima and Ho-oden, though earlier, have color patterns similar to George Lindley Taber, Criterion, and Cavendishi, and relatively large flowers for Kurumes, 2" and 2½", respectively.

FREDERIC P. LEE

Bethesda, Md.

Azaleas in Arizona

"Now about azaleas in Safford, Arizona. They do very nicely planted on the north side of the house. Our first experience was a present to my mother—a potted plant. After awhile in the house it did not look very well so she planted it in the yard on the north side of the house, with no special soil or care. It has grown and bloomed five years. This spring my brother replanted it in oak leaf mold, peat moss and soil, so now it is really growing. We planted some new ones that are very beautiful and growing like weeds. They are Dorothy Gish, L. J. Bobbink and Lambertus C. Bobbink, Rutherfordianas and a Hexe, Kurume.

MISS A. ELNORA BRYCE

Safford, Ariz.

Narcissus Notes

B. Y. MORRISON, *Editor*

Waiting For The First Flower

I wonder how many we are—beginners in narcissus breeding, still waiting for that thrilling moment when we shall see the first flower of one of our seedlings? I wonder how the others happened to start, what their plans are, and how they reconcile themselves to

that four-, five-, or six-year wait. As those who think only in terms of results accomplished cannot be expected to take an interest in the first halting steps of beginners, this story is addressed to my fellow-novices.

My first urge to try narcissus breeding came from reading, during the winter of 1943-44, the 1942 Daffodil Year Book. Nearly every article touched on progress in breeding in

²See, Glenn Dale Azaleas, by B. Y. Morrison, Arboretum Bulletin, University of Washington Arboretum Foundation, Vol. IX, No. 4, Dec. 1946.

some part of the world or another; but it was the illustrations of Mr. S. Stillman Berry's "Dancing Fairy" (*triandrus albus* × Bernardino) and of a group of his *jonquilla-cyclamineus* hybrids that inspired me to attempt similar crosses. Previously I had thought of breeding as an occupation for people who have plenty of time and space and quantities of the newest and most expensive bulbs. But here were perfectly delightful little flowers, quite different from anything I had ever seen, from crosses that might have been made in my own garden!

I began to read all I could find on breeding daffodils, especially on the use of the smaller species. "Breeding and Raising the Small Daffodils," by Mr. Edwin C. Powell, in the American Daffodil Year Book for 1937, and "Hybrids of the Smaller Daffodils," by Dr. W. M. Thomson, in the Journal of the Royal New Zealand Institute of Horticulture for January 1942, were particularly stimulating. I learned, of course, that crossing species is more easily said than done, but the uncertainties only increased my interest. In fact, there would be a certain advantage in a low percentage of success, since both my time and my space were so limited I could not care for large numbers of seedlings. So I made up my mind to keep the project a small side line, making comparatively few carefully selected crosses, and getting a large share of pleasure and satisfaction from what I should learn along the way, rather than from results only. One of these collateral rewards has been a slowly-increasing acquaintance with the laws of heredity, which I had long admired from a distance. Another has been a keener appreciation of species (as opposed to varieties) not only of Narcissus but of other genera. This

has led me into many interesting by-paths.

As to breeding, my greatest wish is to produce hybrids of the smaller species, especially *cyclamineus*, *jonquilla*, and *triandrus*. So far I have had no success in this. Another plan was to use one of these species as pollen parent, and a variety related to one of the other species as seed parent, as, *cyclamineus* and White Wedgwood, *jonquilla* and Niveth, *triandrus* and Beryl. In this way I hoped to combine the greatest possible number of dissimilar characteristics in each cross, but with the chances weighted in favor of the species parent. This still seems to me a good idea, even though I have not been able to carry it out. Instead, I have temporarily retreated to a third line of attack, aimed at producing *jonquilla* and (or) *cyclamineus* hybrids outside the usual all-yellow color range. With *jonquilla* or *cyclamineus* I have used *Incomparabilis*, *Barrii*, *Leedsii*, or *Poeticus* varieties chosen for perianths of good form and substance and for color (other than all-yellow). At one time or another I have tried to make use of stray flowers of *N. canaliculatus* and *N. tenuior*, and I hope before long to add *N. juncifolius* and one of the *triandrus* forms to my list of potential parents.

Although my understanding of the laws of heredity is still very limited, I hope to be able to fit any results I may achieve into their framework. This is one reason for limiting my efforts to crosses between widely differing forms or colors. It is also the reason for my decision to repeat any successful crosses, and to make reciprocal crosses whenever possible. Of course it involves the keeping of records.

My records are very simple, however. I use small sales tags, writing

the name of the seed parent in pencil and attaching the tag at the time I remove the anthers from the flower to be used as seed parent, and adding the name of the pollen parent and the date at the time of pollinating. As the seedpods wither (alas!) and are discarded I gather the tags, my only record of unsuccessful attempts. Tags for the successful crosses are collected with the seedpods and more permanent labels are made when planting the seed. In such small-scale operations as mine, it is no problem to provide a separate pot for each lot of seeds, and they are sunk level with the ground in the open, *cyclamineus* crosses in a moist place, *jonquilla* in a drier position.

My only successful crosses to date have been: Autocrat \times *cyclamineus*, *cyclamineus* \times Fortune, Tunis \times *jonquilla*, Nelly \times *jonquilla*, and Red Rim \times *jonquilla*. The first year I harvested only two seeds and neither germinated. The next year, three seeds, of which one germinated the following spring and a second a year later. In 1946 Tunis \times *jonquilla* yielded 26 seeds, of which 17 germinated. This year three seedpods (one a repeat of *cyclamineus* \times Fortune) gave a total of 11 seeds. Although I have so little to show for my first four years of effort I am far from discouraged as I feel I have made a little progress in one way or another each year.

Even so, I realize that my percentage of success is too low, and I am concerned about raising it. I have recognized some of my technical errors, such as pollinating before the stigma was receptive, but I have not found an explanation of the very misleading habit daffodil seedpods have of swelling for weeks as if they were full of seeds, only to wither and shrivel to nothing at the last minute. This year I have opened some of the withered pods and in most cases found six rows of tiny dry ovules. In several cases, though, I had misjudged the extent of withering and one or two developing seeds lay within like little pearls. Next year I must make more systematic observations.

Next year! The narcissus season is so short, and free time so scarce! It would take a stronger will than mine to make every minute count in accomplishment, even in a project so full of interest. Let those who can make their crosses by the hundreds or thousands, and reap their rewards likewise in large measure; I am content to have one or two new batches of seedlings to watch each year, a few small tickets in the lottery that sometimes brings great prizes. Meanwhile, I collect liberal and sure dividends in the form of increased enjoyment and understanding of this favorite flower.

ROBERTA C. WATROUS
Washington, D. C.

A Book or Two

Gardening. A Complete Guide to Garden Making. Montague Free. Harcourt, Brace and Company, New York, 1947. 550 pages, illustrated. \$4.00.

This is the second edition of a book first issued in 1937 when Mr. Free was

horticulturist at the Brooklyn Botanic Garden.

It is a particularly sound and temperate volume, compact as needs must be when it covers so wide a field. To the excellent basis of his superior training and years of experience, the author

has added and freely acknowledged the help he has gathered from widely assorted sources, reducing to the essential, various treatments that if sought in the originals would require years of reading.

If you are a beginner you will find here all the "first things" you should know.

The only persons who will not find all they need are those who garden in some of the unique garden areas of our vast country, but even they will find the basic principles that must guide them if they are to garden well.

Arm Chair Gardening. Thomas H. McHatton, The University of Georgia Press, Athens, Ga., 1947. 130 pages. \$2.50.

In the flood of "how-to-do-it" gardening books this is a welcome change. It is a most stimulating and provocative book for in it are gathered up, not the first fruits of a gardener's life and activity, but that rich reward that may come and indeed should come to all good gardeners who evolve beyond the first rather athletic stages of gardening.

It is written from the South and carries, therefore, a considerable wealth of detail that is peculiar to that region.

It is not, however, a book that can be read with profit only by other southerners. It can be read by any one, anywhere, and will provide one, should he care for it, a pattern of consideration and a basis for interpretation that will make his own gardening newly and richly significant.

The African Violet. Helen Van Pelt Wilson. M. Barrows and Company, Inc., New York, 1948. 191 pages. illustrated. \$2.50.

This is a very useful small volume, much larger than need be because of the large type-face used, but none-the-

less a most pleasant and desirable offering. With the assistance of the illustrator, Léonie Hagerty, whose pen drawings are not only delightfully accurate but charming, the author has brought together practically all the pertinent data as of the Year of Grace, 1947. It is therefore, not only horticulture but history. If you have not surrendered to this insidious house plant, beware; if you are already lost, come on and gloat!

Flowers of Prairie and Woodland. Edith S. Clements. H. W. Wilson Company, New York, 1947. 83 pages, illustrated in color. \$2.25.

"The present book is the fourth in a series of similar books that have been planned with the idea of enabling the nature-lover to learn the names of familiar or beautiful wild flowers, as well as interesting facts about them, without recourse to technical keys or dry descriptions." So begins the preface and the book that follows bears out the success of the planning.

The color plates are reprinted from the originals in *The National Geographic Magazine*. The texts are brief and succinct. The horticultural comment, usually no more than a line or two, is equally brief and generally inadequate.

Quick Freezing and Family Food Gardening. Gordon Morrison, Stephen Daye Press, New York, 1948. 220 pages, illustrated. \$2.75.

For the gardener who is concerned with quick freezing as an extension of his summer work, the last paragraph of the Introduction (page 17) gives the basic plan of the author's book. "It is an established fact that four principal factors in producing the best possible frozen-food pack are (1) the growing of suitable varieties, (2) scientific

cultivation, (3) careful selection of the raw produce, and (4) correct preparation and freezing methods. This book has been published to help the home gardeners coordinate these four factors in the interest of better living, better health, and a more bountiful table."

The illustrations are clear and excellent. The text is forthright, adequate and not without humor. By all means add this to your garden library and keep it on the shelf where it will be used.

The Cultivated Species of Primula.

Walter C. Blasdale, University of California Press, Berkeley and Los Angeles, Calif., 1948. 284 pages, illustrated. \$7.50.

This is an excellent book. In his preface the author tells what he means to do and how he does it. The excellence of his work is already known to readers of this magazine to which he has generously contributed.

If you are already a lover of the primula in any or all of its many forms you will read this with delight; if you have yet to know this rich and varied family you should be immediately stimulated to discover what you have missed.

It is true that you, in your own particular garden may or may not be able to follow successfully all the field that the author has covered but that would

be true for any plant family. The reviewer knows this from personal experience and knows also that while he still regrets his failures, he does not repent of having tried.

Botany. Principles and Problems. Edmund W. Sinnott. McGraw-Hill Book Company, Inc., New York, 1946. Fourth Edition. 726 pages, illustrated.

This is a very tardy notice of an excellent book, addressed to be sure to students, who presumably are in institutions of learning rather than to those many students who have escaped from curricular activities but who learn none the less, and perhaps more vividly than others. One should read the book, in the library of any handy institution before he decides that he will have it for his working shelf, but the reviewer suspects that although the gardeners' hackles will rise at the faintly facetious beginnings of the section 'To the Student' and that some of the rest of us who know about the institutions mentioned in the ultimate chapter may feel a little sad, no one can read through the book without being quickened to a new point of departure and effort. That is the ultimate test of a book. The style is easy, the presentation not at all hazardous for the non-student and the illustrations adequate but rather on the dull side, in fact they are the poorest part of the whole.

The Gardener's Pocketbook

Prunus incisa Thunb. Fuji cherry.

(See page 107)

The oriental flowering cherries are no exception to the general rule that in any large group of ornamentals the more spectacular forms are likely to make us overlook, at least for a time,

certain less conspicuous but nonetheless very worthy members. Among the latter is the subject of this note.

More than a century and a half ago, in 1776, the eminent Swedish traveler-naturalist, Carl Peter Thunberg, during his travels in Japan, discovered this



R. E. Horsey *Prunus incisa*, Highland Park, Rochester, N. Y.

handsome bush cherry at Hakone on the Tokaido highway to Tokyo. The time was mid-spring, the cherry was in full bloom, and Thunberg called it, in his *Flora Japonica*, the Higan Sakura or Spring Cherry. Today, however, in the vicinity and in other parts of Japan, the name Higan-zakura is applied commonly to another Japanese cherry, *Prunus subhirtella*.

In Japan, *Prunus incisa* is of rather local distribution, but is very abundant on the eastern slopes of Fujiyama and on the neighboring mountains, where, from the latter part of April to early in May it makes a wonderful display.

In 1910, according to Prof. Alfred Rehder, of the Arnold Arboretum, this cherry was growing in the Proctor Arboretum, Topsfield, Mass., and Mr. Rehder believes, Mr. Proctor probably received his plant from the nursery of A. Hesse, Weener, Hannover, Germany, shortly before that date. *Prunus incisa*, however, does not appear in the regular catalogs issued by Hesse from 1909 to 1915. The Arnold Arboretum received plants from Hesse in 1912, and in 1915 E. H. Wilson sent plants direct to the Arboretum from Japan.

The year 1910, therefore, marks the earliest definite date of cultivation of

this cherry outside of Japan. It does not appear to have been grown in England until 1916, when plants were sent to the Royal Botanic Gardens from the Arnold Arboretum. In the United States it is still rare, although it is perfectly hardy as far north as Boston, Mass., is easily propagated, and presents no difficult cultural problems.

Usually a rounded bush 5 to 8 feet high, the Fuji cherry is reported occasionally in Japan as a small tree, under favorable circumstances reaching a height of 30 feet. In late March and early April, at about the same time that the Yoshino (*Prunus yedoensis*) and the Sargent cherry (*Prunus sargentii*) bloom, the bare twigs become a dense mass of white with a slight pinkish cast. The pink color is due almost entirely to the vinous-red calyx and red stamens. The petals, half an inch long, soon fall, but the persistent calyxes and stamens, followed shortly by the purplish red young foliage, make the plant a thing of beauty long after the petals have fallen. One appealing characteristic of the Fuji cherry reported from English gardens is that there it gives the same profusion of flowers each year, regardless of weather fluctuations in contrast to some of the other flowering cherries that are not always so dependable.

The leaves, ovate or obovate and 1 to 2 inches long, are characteristically doubly or even triply incised, whence the specific name "incisa." Early in the summer appear the purplish black, ovoid cherries, about a third of an inch long and consisting mostly of skin and stone.

As mentioned above, the Fuji cherry usually develops into a large bush or even a small tree. However, it is reported that it will tolerate severe pruning soon after flowering, so that it can be kept small enough to be entirely

suitable for a small garden, where it will produce its mass of flowers each year.

Japanese gardeners are said to use this cherry commonly for fashioning into the so-called dwarfed trees, and are able to make it flower freely in small pots. One vernacular name sometimes applied to it (name-zakura) signifies "dwarf" or "pigmy" cherry.

The Fuji cherry is established in the East in Massachusetts, not only at the Arnold Arboretum, Jamaica Plain, but also in the gardens of a few amateurs. There are also excellent specimens in Durand-Eastman Park, Rochester, New York, and further south it is included in the oriental cherry collection of the United States Plant Introduction Garden at Glenn Dale, Md. It should also find a congenial home in the northern Pacific Coast states, where it appears to be unknown.

Two or three nurseries in the East have offered plants for several years, but this cherry is still relatively uncommon.

It is best propagated by budding or grafting on its own seedlings, since the seedlings themselves are likely to show considerable variation.

PAUL RUSSELL,

Washington, D. C.

Peony Notes. A few of Prof. Saunders' Hybrids.

My attention was first called to these flowers by a copy of Prof. Saunders' list for 1939 sent me by a friend who had seen an exhibit of them; it was summer in 1944 before I could find a place for any more peonies in the garden and then for only five. The situation, at the top of a bank, was dry and conspicuous, the soil heavy clay, the exposure a little east of south. I sent Prof. Saunders a tentative list of singles in white and pale pink, asking him

to make any changes he thought best as, above all, the plants must be good garden plants. Then I prepared holes as was suggested in the circular: 18 inches in diameter, 24 inches deep, six inches of well rotted cow manure in the bottom dug and mixed with the soil there; and then the hole filled with a mixture of equal parts of topsoil and compost. This had time to settle before the plants arrived on November fifth. Planting was done the same day. Bloom the first season was negligible, last year it was fair, this spring should be reckoned as typical, I suppose. They are described in the order of their blooming.

Shell Pink—*Albiflora* × *macrophylla* (tomentosa). A sturdy plant with bright green foliage of heavy texture, broad rounded leaflets, each of its four strong stiff stems surmounted by a fat promising bud; no side buds. The first of these buds opened May 17th showing crapy petals pale pink at the edges melting into greenish white towards the base. The eight cupped petals surround a circle of fringe-like stamens with yellow anthers and rose colored filaments deepening at the base and in the center is the group of pale apple-green carpels topped by small bright rose stigmas, a flower of delicate coloring the details of which need to be seen at close range to be appreciated. By the 19th all four blooms were open and increasing in size, the pink becoming slightly deeper instead of fading. Rain on the night of the twenty-first shattered all the flowers. A lovely flower but is four days' bloom sufficient rent for a handsome plant to pay for a year's use of space in the garden?

Elizabeth Cahn. *Albiflora* × *Wittmanniana*. This also opened on May 17th. It was one of the first of all the peonies to break through the earth, its

new growth a dark bronzy red like the young shoots of the Killarney rose. At one stage in the transition from red to green the leaves become dark green and the stems remain red making the plant very striking and handsome. By the time the bloom is over the whole plant has become a medium light green with the only traces of red left at the axils of the leaves and a few random streaks along the stems. Prof. Saunders' own description of the flower is "Very large white goblet; petals somewhat twisted, with underlay of faint green. Delicate, erect, beautiful." The description is accurate except that I do not find the twisting of the petals marked; the faint green gives a cool, fresh look, as enchanting here as that coloring is in *Narcissus* like *Silver Salver*. Last year this peony produced six blossoms; this year there were eleven; but in both the time from the opening of the first bud to the dropping of the last petal was only five days.

Silver Swan—*Albiflora* × *decora alba*. In his 1939 list Prof. Saunders offers this cross as a strain, saying of it: "This beautiful new strain is characterized by the fact that the flowers on opening have a flush of peach pink toward the base of the petals, which have a silky lustre. The flowers are large, always single and borne on tall stems. Sold under number only." In 1944 two of them are offered under name, *Silver Swan* and *Camellia*. *Silver Swan* is called "A handsome tall plant. Flowers of great substance." My plant has bright green stems with dark green leaves, heavy, lustrous; its flowers are held well above the foliage and on a warm day the large buds droop on their slender stems in the heat of the mid-day sun. The pink flush on the petals is fleeting and with this as with *Shell Pink* and *Elizabeth Cahn*, the flowering period which began on

May 23rd, lasts only five or six days.

Sylvia Saunders. Rather ambiguously, I think, Mr. Saunders says of a group of "Chinese Peony Seedlings" to which this belongs. "These are not hybrids, but seedlings of my own." Whatever its ancestry this is a most beautiful garden plant. It makes good growth, has thick lustrous leaves and sets numerous buds and side buds. The flowers are moderate in size, borne on sturdy stems which are adequate to their weight, tall enough to overtop the foliage and yet not leggy. Disbudding does not seem to result in increased size of bloom and the plant is much more decorative when allowed to produce all the flowers in its system. There are three rows of ruffled petals with a circle of fringed stamens surrounding the pale green and pink pistils. Mr. Saunders, who is probably exact, describes the color as "wild rose pink" but here they seem just the color of a freshly opened Mrs. Charles Bell rose. For my taste this plant seems just the right height, just the right size, definite and pleasing in form, with only one fault—it has no fragrance. Perhaps a plant as handsome as this in full bloom has done its full duty, but with a peony and with a rose if fragrance is missing, there always comes to mind another one of the same species, maybe a homely bloom, but with a heavenly perfume. Even so, but for the financial side of the gardening, I would gladly dig up some four or five peonies if I could replace them with Sylvia Saunders. The plant remains in bloom about two weeks.

Late Windflower. *Beresowski* × *Emodi*. These are sold only as strains.

It would seem, therefore, that no two plants are exactly alike. The one I have is a gem, particularly ornamental at the top of the bank. It has large, pointed, deeply cut leaves rather thin in texture and light green in color. Most of the stems, as is common in the average peony, rise close together within a circle of nine to twelve inches in diameter, but this spring eight other stems came up about this central group and from eight to twelve inches individually from the circumference of that circle, for all the world as if the main root sent out stolons. Moreover all the bloom was on the central group of stems. I can hardly wait for next spring to come so that I may know if these outlying points of growth will produce flowers then. Doubtless a geneticist would know beforehand; but such unexpected revelations compensate the out-and-out amateur for her profound ignorance. The flowers, writes Mr. Saunders "resemble white anemones. They are slight nodding and are borne on tall stems." Each stem bears four or five buds, set precisely at spaces sufficient to avoid crowding, the blossoming portion being ornamented with small green leaflets. This peony has no fragrance either but it is so un-peony like in appearance that somehow you do not expect it. Seen from the terrace below it is particularly lovely, and it remains in flower for nearly three weeks. An especially discriminating plant lover who had been invited in to see these peonies afterwards referred to this one in a letter as "the big shy children, those windflower peonies."

MARY JUDSON AVERETT.
New Jersey.

SOCIETIES AFFILIATED WITH THE AMERICAN HORTICULTURAL SOCIETY

(Continued from page i)

State Agricultural Society,
P. O. Box 2036,
Sacramento 9, Calif.

Takoma Horticultural Club,
A. C. Barret, Pres.,
4719 Brandywine St., N. W.,
Washington, D. C.

The San Francisco Garden Club,
465 Post St.,
San Francisco 6, Calif.

Trinity County Garden Club,
Mrs. Rose N. Grigsby, Treas.,
Weaverville, Calif.

The Trowel Club,
Mrs. J. Douglas Rollow,
4524 Cathedral St., N. W.
Washington, D. C.

Tulsa Garden Club,
Mrs. Allen Henry, Pres.,
1301 South Yale,
Tulsa 4, Okla.

Victoria Horticultural Society,
Mr. Jack G. Beastall, Sec'y.,
255 Battleford Ave.,
Victoria, B. C., Canada

Vivian Garden Club
Vivian, La.

West Hills Horticulture Society,
5420 S. W. Alfred St.,
Portland 19, Oregon

Welcome Garden Club
Mrs. J. A. Reid, Pres.,
400 Speed Drive,
Monroe, La.

Winnsboro Garden Club,
Winnsboro, La.

Woodridge Garden Club,
Mrs. Alma E. Marshall
1326 Allison St., N. E.,
Washington, D. C.

Worcester County Horticultural Society,
30 Elm Street,
Worcester, Mass.

The American Horticultural Society

INVITES to membership all persons who are interested in the development of a great national society that shall serve as an ever growing center for the dissemination of the common knowledge of the members. There is no requirement for membership other than this and no reward beyond a share in the development of the organization.

For its members the society publishes THE NATIONAL HORTICULTURAL MAGAZINE, at the present time a quarterly of increasing importance among the horticultural publications of the day and destined to fill an even larger role as the society grows. It is published during the months of January, April, July and October and is written by and for members. Under the present organization of the society with special committees appointed for the furthering of special plant projects the members will receive advance material on narcissus, tulips, lilies, rock garden plants, conifers, nuts, and rhododendrons. Membership in the society, therefore, brings one the advantages of membership in many societies. In addition to these special projects, the usual garden subjects are covered and particular attention is paid to new or little known plants that are not commonly described elsewhere.

The American Horticultural Society invites not only personal memberships but affiliations with horticultural societies and clubs. To such it offers some special inducements in memberships. Memberships are by the calendar year.

The Annual Meeting of the Society is held in Washington, D. C., and members are invited to attend the special lectures that are given at that time. These are announced to the membership at the time of balloting.

The annual dues are three dollars the year, payable in advance; life membership is one hundred dollars; inquiry as to affiliation should be addressed to the Secretary, 821 Washington Loan and Trust Building.

THE AMERICAN HORTICULTURAL SOCIETY

THE
AMERICAN
LILY
YEAR BOOK
1946

CONTAINING discussions on lily breeding and hybridizing, growing seedlings in vermiculite, selecting and introducing garden clones, articles on diseases and methods of treatment and international features in the articles on native habitats, and lilies in Europe and Asia Minor.

GEORGE L. SLATE, *Editor*

Price \$1.10

1942

CONTINUING an interesting series on *Lilium columbianum*, its range and the varied conditions under which it grows, reports on diseases and insect pests from work done at Boyce Thompson Institute and the U. S. Department of Agriculture with illustrations, and methods of control, a series on lily hybrids and lily species, suggestions for beginners, and articles on explorers for whom lilies were named.

GEORGE L. SLATE, *Editor*

Price \$1.25

OBTAINABLE FROM

THE AMERICAN HORTICULTURAL SOCIETY
821 WASHINGTON LOAN AND TRUST BUILDING
WASHINGTON 4, D. C.

LILY YEAR BOOKS FOR 1939 AND 1940 ARE OUT OF PRINT