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FOREWORD

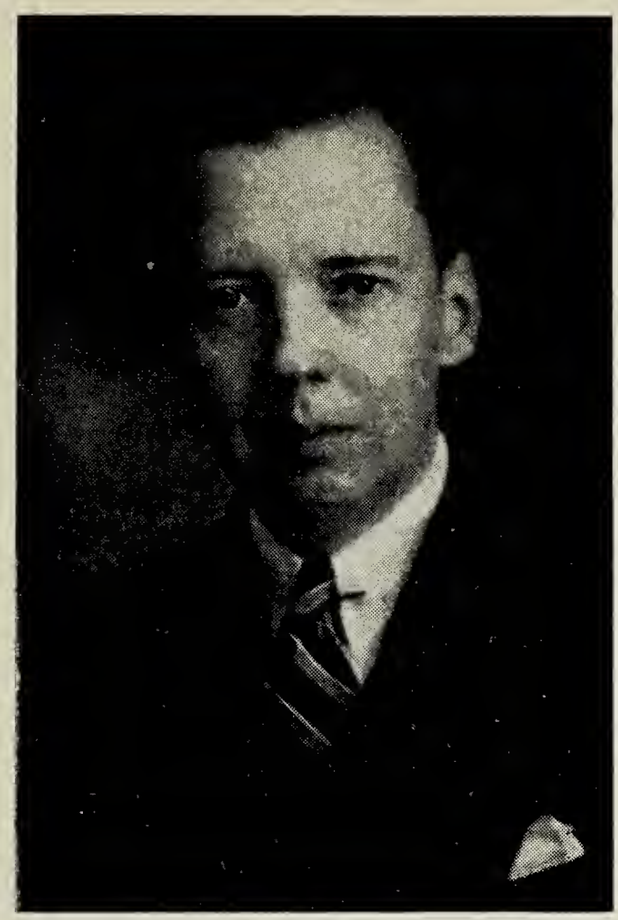
■ The necessity for an up-to-date book covering all the aspects of iris culture has long been apparent. Most of the authoritative works are out of print. Our secretary's office had a supply of "Dykes On Iris" but this supply has been exhausted. Mr. Rockwell's delightful little book on iris, and Rainbow Fragments, by Mr. J. Marion Shull are no longer available.

To meet this need the Board of Directors decided to publish what was first termed a manual on iris culture, but what later has turned out to be a delightful treatise on iris in general. Many note-worthy authors are contributing to the success of this undertaking. John Wister, B. Y. Morrison, Richardson Wright, J. Marion Shull, Sydney Mitchell, R. S. Sturtevant, Miss Caroline Dormon and George C. Reed, each a specialist in his own field, will have a part in the writing of this book. A symposium on iris culture has been conducted by the Bulletin and the results are being tabulated. This information will be made available on a regional or sectional basis. There will be articles on color photography, beardless iris, Spurias and in fact everything that we thought would be of interest.

The material for this book is being assembled at the present time and will be printed in August and September, and we hope will be ready for distribution by November 1st, the paper situation permitting. For the permanent bound volume the price to all will be $2.50 per volume, members or nonmembers. For the paper bound volume the price will be $1.50 per volume, but to those who wish to join the American Iris Society a special price of 50¢ is being made for a limited time. If you are a new member in 1947 and have sent in your $3.00 membership, send us 50¢ additional and we will enter your order immediately for the book. Send your money with name and address clearly printed so no mistake can be made, to Mr. Howard Watkins, 821 Washington Loan & Trust Bldg., Washington, D. C.

The Bulletin wishes to take this opportunity of expressing its appreciation to those dealers and commercial members who have assisted so successfully in the campaign for new members in 1947 and the promotion of the sale of our new book on iris.

GEDDES DOUGLAS—*Editor*



JESSE E. WILLS—MEDAL FOR DISTINGUISHED SERVICE

The city salesmen's club of Nashville has a standing practice that when anyone makes a suggestion he is immediately appointed as chairman of a committee to act upon that suggestion, and in the case of Mr. Jesse E. Wills and the American Iris Society the procedure has been much the same.

Jesse joined the American Iris Society in 1936, and soon after made some suggestions concerning the rating practices. He was immediately made an accredited judge, and later chairman of the Awards Committee in 1940. Comments in regard to the policies of the Society resulted in his being elected a director in 1939. His business acumen and leadership in that body resulted in his elevation to the presidency of the A. I. S. in 1943. He served as president through 1946, and is distinguished by the fact that he is the only president of the A. I. S. who never attended an annual meeting during the tenure of office.

For facts and figures, Jesse Wills was born August 31, 1899, graduated from Vanderbilt University in 1922, and in 1930 married Ellen Buckner of Nashville, Tenn. Currently Mr. Wills is executive vice president of the National Life & Accident Insurance Co. of Nashville, and a director of that organization.

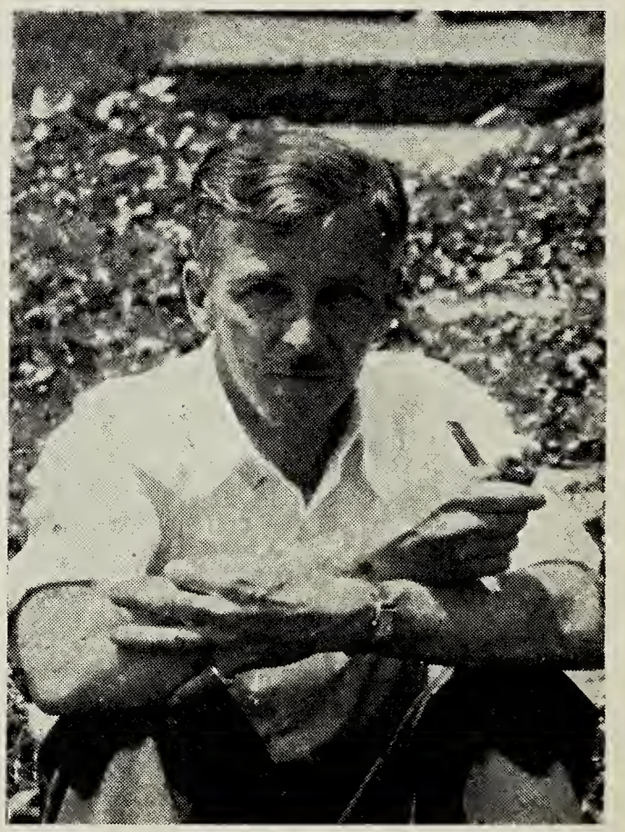
◀ *IRIS GROUP IN COOK GARDEN*

Frances Douglas, Thos. A. Nesmith, Mrs. Nesmith. Walter Welch, Chas. E. F. Gersdorff, Ed. Bretschneider, Mrs. Paul Cook, Mr. Cook, G. Douglas, Mrs. B. D. Kingree, Dr. W. E. Tobie, Guy Rogers, Mrs. Tobie, Mary Williamson.

Over a period of years he has given unstintingly of his time to the affairs of the A. I. S. His was a difficult task, when one considers the fact that his presidency was during the war years when meetings were impossible and everything had to be done by mail. In spite of this the membership of the Society more than doubled during this time, and by the conclusion of his presidency, interest in iris and in the affairs of the Society is at an extremely high level.

In discussing his services to the Society we should not forget that after all Jesse's main interest in iris is in raising them, and that at the present time four of his introductions are outstanding —Snow Crystal, a lovely blue and white plicata; Russet Wings, ruffled and brighter than its name implies; Vigil, a stately, tall white; and that gorgeous ruffled medium blue—Chivalry—a current contender for the Dykes Medal.

KENNETH D. SMITH— MEDAL FOR HYBRIDIZING



Kenneth Dudley Smith, recipient of the American Iris Society medal for hybridizing, was born in Staten Island, N. Y., Sept. 9, 1896. He graduated from Dartmouth College in 1919 and subsequently received his L.L.B. from Columbia in 1923. He was married to Ilse Clason in 1927 and began growing iris soon after 1930. Mr. Smith made his first cross in 1933, Andante x Dauntless, and from one of these seedlings crossed in 1935 with the French iris Nene bloomed his first named variety, Lord Dongan. He made many crosses in that year, 1935, and subsequently raised some 750 seedlings in the garden of Miss Caroline Burr at Blauvelt, N. Y.

Kenneth Smith's career as a hybridizer has been marked by a series of a few crosses which have been veritable landmarks in his

production of fine iris—Violet Crown x Easter Morn produced the famous pair Violet Symphony and Stella Polaris. No-We-Ta x Eros gave him Pink Ruffles. W. R. Dykes x Marschel Ney produced two famous yellows of great merit, Yellow Jewel and Yellow Glory. Doxa x Jean Cayeux produced the dwarf hybrid Honey. (Andante x Dauntless) x Nene gave Lord Dongan and Commando. More recently Orange Glow x Matula produced a series of fine reds and Lake George x Great Lakes gave Blue Valley. This particular cross produced a whole series of excellent blue irises, and in addition to Blue Valley one of them has been named Neighbor in honor of Mrs. Louise Blake.

In addition to his hobby of breeding iris, Kenneth Smith has obtained considerable note as an amateur photographer and has been awarded the honorary degree of Associate, by the Royal Photographic Society of Great Britain. Examples of his character studies and studies in still life are well known in the photographic world.

His service to the A.I.S. has been long and important. He has been regional vice president in the New York district from 1938-1946 and served as director in the society from 1939-1941. In addition to this he conducted his first unofficial symposium in 1940 which has become an annual feature of the Awards program.

PLICATA OR "FEATHERED"

By R. S. Sturtevant

■ In 1789 Lamarck applied the name plicata to a collected or garden form of iris then current and in 1833 mention is made of both Plicata Aurea and Variegata in reference to the listings of E. von Berg in Germany. In 1873 Peter Barr used the word Plicata as a group term and it still holds though in The Genus Iris Mr. Dykes reduces the type to a form of *I.pallida* and/or *I.cengialti* and tentatively suggests its origin as analagous to that of an albino. This implies most clearly that classification as a Plicata is purely arbitrary and wholly dependent on a visual recognition of a color pattern that is familiar and actually undefined. Hence, we offer these notes for general discussion and as a possible basis both for more accurate descriptions and perhaps for a clear cut distinction as to just what a Plicata may be.

Plicata "Fancy" Iris Daffy

Until about 1920 plicatas appeared only in F2 and successive generations though Mr. Bliss at least had been working for years in his attempts at improving on Mme. Chereau. Among the varieties of unknown origin, however, one could find the prototypes of the great majority of the recent introductions. In the 1924 Classification (Bulletin 13) there is only one known "lavender ground" plicata — Azora, three "yellow ground" varieties, Jean Chevreau, Loudon, and Montezuma which might be considered a questionable inclusion. There were, however, a number of varieties on a "Blended ground" and many on a white ground, the "Plicata" group then designated by the Royal Horticultural Society. This classification proves our most concentrated reference of distinctive descriptive terms as well as listing and classifying the known varieties.

That list, included Cygnet, True Delight, and Fairy, in each the color confined almost entirely to the style-branches, the ground white in effect from a distance. True Delight was generally acknowledged as a plicata. Cygnet was first described as a plicata (1922) but Miss Sturtevant dropped the word in later descriptions as she considered it misleading. The inclusion of Aksarben (Sass) and Demi-Deuil (Denis, 1912) as "very heavily sprinkled and veined," blended plicatas seemed more logical as they were merely deeper colored examples of easily classified plicatas from similar sources. There was no question at that time as to including varieties such as Minniehaha and Prestige among the yellow bicolors or variegatas though the markings on the falls were not unsimilar.

Currently we have an intensified problem, varieties of known

plicata parentage. Elsa Sass is unmistakably a yellow self but distinctively of a cool tone. Moonlit Seas, again is almost unique, its varied tints not smoothly blended but shot and washed as with water color pigments on both standards and falls. Golden Fleece and Gilt Edge are yellow, reverse bicolors as we call them but the edges of the falls are definitely deeper in tone. Dr. Mitchell's "Fancies" for example with their "marbling" present a problem.

Such plicata derivatives may well provoke as endless a discussion of classification as color, dwarf or intermediate are now doing.

With this introduction let us see if we can evolve a definition of what we mean by the term "plicata," or at least develop a consensus of opinion that will help us visualize such a variety. After all any classification is only an abbreviated description and useless if it leads to further confusion.

Attempt a definition of your own. Compare varieties and especially seedlings that you recognize as plicatas and then answer (at least in your own mind) the following statements. Are they right—or wrong?

Botanically a plicata has no recognition.

Genetic origin or the number of chromozomes is important to the breeder only.

A plicata is identified by its distinctive markings.

Its style-branches tend to reveal a concentration of the prevailing tints and hence are often conspicuous.

Its standards are marked above the claw (whether sanded, feathered, or edged on a clear, flushed, or clouded ground color).

Its falls have no distinctive markings. (Venation, light or dark centers or borders are frequent in non-plicatas.)

Habits of growth, branching, form, color, even the reticulations on claw and haft are common to all bearded irises in varying degrees.

Yellow in irises is a plastid color. It is known as a ground color, alone or in combination with the anthocyanin blue in many ways. It is a pollen color and few if any bearded irises lack a hint of yellow in the hairs of the beard, the reverse of the petals, the often conspicuous reticulations of the haft, or even the sides of the style-branches.

The markings we associate with the term plicata are never yellow.

If the above statements are generally answered in the affirmative we automatically throw many varieties out of the plicata group and perhaps develop new terms for new, smaller and hence more helpful groups.

In my notes of last year I found it necessary to segregate varieties like White City, like Mary Nichols, like Naranja, or like Arctic, each typical of other varieties and ALL with a deepening of color toward the center of the flower as distinctive in its way as markings of a border line plicata at least.

Beard color is associated with the new pinks. At present the named varieties are all delightfully light in tone but among the seedlings there is brilliance and depth and even plicata markings and the common bond of beard color will cease to be much help to the future purchaser.

Patterns or markings fortunately permit reasonably accurate definition and from continued use bring a clear cut picture to the mind. The following terms are ones in common parlance for the most part but often through use in describing irises have taken on a special meaning.

All-over pattern: Though most evident on the standards it is often present at least in part on the falls. It is thus not necessarily actually all over the surface but may appear as a flush toward the edges of the haft of the falls. It may be due to a *stippling* of dots thinly or closely spaced. When the contrast with the ground color is slight the term *sanded* is prevalent while *peppered* suggests a sharp contrast.

Of similar effect from any distance is a finely *netted* or coarsely *laced* pattern. Naturally a flushed or clouded ground irregularly sprinkled or splotched does not give an all-over effect. Whether the recently used term *Marbled* belongs here is quite possible.

Edge Markings are usually found to a greater extent on the standards and vary from a rare wire edge to a heavy *fringe feathered* well into the center of the petals . The terms *etched, penciled,* clear-cut border are self-explanatory though curiously the word border is more frequently applied in describing the falls of amoenas and variegatas.

Central markings. Reticulations occur only at the claw and haft while *venation* may continue out to the perimeter of the fall. Either may be fine or coarse, even so blurred and closely spaced as to show almost continuous color. So many irises with variegata

or plicata blood tend to have light hafts and even light centers to the fall that any venation frequently is clear cut toward the beard and merged into a solid border at the edges of the blade.

In the standards there seems to be no comparable marking—the reticulations at the claw may extend upward into an etched edge but with heavier markings the color seem to feather *inward from* the edge.

A *Median line* is an awkward description. It is far from indicative of a plicata but applies to both the standards and falls of one of the novelties at least and the term *banded* or *striped* is also coming into use. A *flame* of contrasting color flaring from the center outward (the reverse of feathering inward from the edge) is a possible development. It is not quite the word for the color distribution in Moonlit Seas or Bertha Gersdorff but I doubt if they will be called plicatas despite their origin.

From a distance the effect of a much marked plicata is that of any other iris of similar coloring but we all know the different feel from a mixed paint job, one seen through a veil, or built up with a splatter-dash of varied hue. The tracery of intriguing patterns may well give added pleasure to a variety of excellent garden effect.

FLOWER FORM. Whereas other new varieties have shown vast improvements in form, size, carriage, etc. the Plicatas like the Amoenas and Variegatas, still fall into quite recognizable groupings analagous to those of the twenties or earlier. In size of display value few are comparable but in shape the old ruts are clearly seen with few modifications.

The old Mme.Chereau had straight-hanging falls, almost irretreviably pinched, the modern Blue Shimmer depends on much of its garden value on its wide, almost flat, but straight-hanging falls. It is almost over-balanced and the form though with varied ruffling is typical of most Sass plicatas of today.

The first Sass plicatas had smoothly rounded falls, often without the wavy edge we know of in Pink Ruffles. We referred to it as a pallida form. Most of the Benton plicatas I have seen have a similar charm, in their well-balanced, well-rounded blooms.

Ma Mie, or the larger True Charm with a bit of ruffling, has more flaring falls and is paralleled by the form of the big tetraploid Los Angeles, its carriage delightful.

A whole group of the Denis plicatas, Mme.Boullet, Mme.de

Sevigne and others had more horizontal, ovate, and "variegata" carriage AND narrowness of the fall. You can recognize it today in Ilse Louise and a whole host of "fancies," many derived from Mme. Louis Aureau if I am not mistaken. At its present worst you can see it in Wabash or Flora Zenor.

In early days these with a white ground veered toward good pallida flares when the influence of Mme.Chereau pinching was overcome. Both the pale yellow and blended grounds were perhaps evenly divided between the rounded blooms of light tone, and the darks with horizontal falls and often variegata venation.

When the modern plicata presents as fine form as Helen McGregor, or Great Lakes, as Snow Flurry, or Mimosa Gold, then there will be real beauty. Los Angeles and many of its kin are comparable in this respect but none of the more varied approach even the lovely "pink buds" in the beauty of well-balanced detail.

There IS infinite variety from the lightly etched pastelles of Suzette and the Bentons to the harsh contrasts of Minnie Colquitt or Firecracker, real highlights in the garden. There is still a long way to go.

TYPICAL PATTERNS. In the following all too incomplete groupings I have included both old, that I grouped in Bulletin 13 in 1923, and such current varieties as I have actually seen this year in Nashville. An attempt to use word-of-mouth or catalog descriptions was a complete failure as in the case of both Magic Carpet and Ilse Louise I pictured them as dark and saw them as very light to light.

The distinctions between types are not clear cut, e.g. Tiffany shows a faint wide etched border when it first opens in rainy weather but it fades very quickly. Note that I have not tried to distinguish in every case the Check List classification as to color. Plicata markings are rarely distinguishable on a "blue" or "red" ground that is deeper than a flush even if we think to look for them.

TYPE 1. Color confined to the center of the flower, styles, haft, and often the inner third and at the edges of the petals. Examples are:

True Delight and Los Angeles as it ages and perhaps Maid of Astolat.

The blend Pancroft and the yellow Montezuma were 1920; King Karl and Jubilee a bit later; Benton Duff, Diane, Primrose, of re-

cent origin. In these the styles frequently are the same tint as the standards even more so than in White City for example so that one wonders whether they are plicata except in origin.

TYPE 2. Standards more or less fringed at edges; F. with light center, coloring of styles and markings often very similar.

a) Markings light, etched or sanded.

True Charm, Anna Farr, Ma Mie, Edith Rourke, F. B. Meade, Snow Crystal with white ground and Tiffany, Suzette, Balmung on a warm blended ground. A marked variety of forms.

b) Markings dark, S. with definite edge.

Mme. Chereau, Camelot, San Francisco, Theódolinda, Picottee, Claribel—all blue on white. The old Pocahontas, Delight, Beau Ideal, and Hilda were red-purple on white and I find no comparable novelties, nor any on colored grounds—a curious omission.

TYPE 3. S. suffused, often netted or sanded as well as feathered; F. usually light at center though occasionally a dark median line is presented, and at least a partial edging.

a) Very Light. Florentine and Lady Naomi on white; Patrice and Lady of Shalott off white.

b) Medium. Bridesmaid, Dimity, Lona, Blue Shimmer, Benton Daphne on white and Mary Garden, and Peachblow on a blended ground.

c) Dark. Usually red-purple on white; Parisiana, Midwest; Tip Top (Hall).

d) Medium in tone but the falls clearly veined. Mme.Boullet, Ilse Louise.

TYPE 4. Acknowledged and advertised plicatas with little of the familiar looks or markings.

a) S. self colored, practically unmarked; F. often veined or irregularly washed at center in contradistinction to the usual light center. Idaho Witchery, Innovation, Magic Carpet, Royal Coach—all light in tone and charming.

b) S. "flamed light to either side of mid-rib; F. light in center; a most interesting group of marked contrasts—usually from the Sass Bros. Minnie Colquitt, Orloff, Firecracker, and others I have not seen this year. Most are brilliant and effective but of poor shape and none too tall.

In the lighter tones, the center "flame" ceases to be perceptible.

c) Very heavily sprinkled and veined throughout, often almost a self in effect.

In Aksarben the venation was almost velvety at the sides of the falls, in Banded Beauty, (as pictured) it is clear cut only at the sides.

Royal Scot seems to be the only named "fancy" I have seen though Mr. Douglas has a row of such in great variety of tone but little change from the fairly narrow fall tapering to the haft. The venation is not clear cut as in most varieties of variegata origin but is more blurred and closely spaced on a light ground and to me the terms striate, banded, and especially marbled carry a completely different picture. I am waiting to see them.

Moonlit Seas, Bertha Gersdorff, et als, despite their origin have such irregular washings of contrasting tone springing from the center that I do not think of them as plicatas though, intrinsically it may be analagous to the "flame" in Firecracker. The old Seagull (Farr) was also an oddity as were the blotches on the falls of Mariposa (Mohr).

The inclusion of Elsa Sass or better Golden Fleece as plicatas strikes me as far-fetched and far from helpful as the yellow borders with or without a white haft and center are all too familiar among the old variegatas.

These notes are but a first step, if the present interest in "pliks" continues we need reports from keen observers. I am frankly in a state of bewildered confusion. Neither the articles (and I have not seen Mr. Mitchell's) nor the catalog descriptions have helped. The old plicata definitely had darker or more heavily marked standards, it was etched, or sanded, etc. Just why Lady Priscilla or Benton Baggage should be called "plicatas" I am at a loss to explain. Too loose a classification is of no advantage but just where would you draw the line?

PLAYING WITH PLICATAS

By Sydney B. Mitchell

■ The title I have given these casual comments is indicative of my attitude towards iris growing and breeding. These are recreational activities, refuges sometimes from a too tiring or too tough world, and so different from my professional work as to constitute play. They must be kept in their place, not allowed to become too serious or too egotistical, certainly not too commercial. Above all they must provide continuing and varying interest. It happens that I like novelty and variety, so, at the height of my yellow iris breeding which included the introduction of California Gold, Happy Days, Naranja and Fair Elaine, I turned to the plicatas as a group susceptible of considerable improvement, and in the past decade I have bloomed several thousand plicatas, of which a very few have been named and sent out. Remembering the statements of years ago that we had enough "blues" and the still current dislike of many iris growers for all variegatas, I ought to have been prepared for the general condemnation of the plicata pattern from some of our members, but hardly for the rather puerile comments which have lately been published. Constructive criticism is, I believe, always appreciated by breeders—and I shall try to give some here—but wholesale condemnation is hardly sporting and leads one to wonder if there was not perhaps some truth in the designation of some of our writers as belonging to the unfair sex. With maturity should come tolerance, I think, so though I myself consider flower arrangements utterly alien to love of flowers and of gardening, subordinating lovely individuals of beautiful form and color to mere materials for design, I recognize the right of others to participate in this exercise. To me they seem just crazy, but then, aren't we all?

If my predilection of the present needs further justification let me remind our readers that the plicata pattern has interested many of our best breeders, Fernand Denis and Ferdinand Cayeux in France, A. J. Bliss and Cedric Morris in England, Grace Sturtevant, William Mohr and the Sasses in America. I would at once agree that for mass effects in the garden pure clear selfs are most effective, blues and yellow above all, but we also grow there the less effective blends for their subtlety and the bicolors, though

only half an amoena or a variegata is really visible at any distance.

But it has always been evident that the iris grower is also interested in the individual flower and spike and in the variation possible in color patterns. In this connection, because Gwendolyn Anley's Irises, Their Culture and Selection (London, Collingridge, 1946) is still little known in this country, I am taking the liberty of quoting from this wholly desirable new book some lines from its Foreword by Sacheverell Sitwell, the eminent writer and art critic. "It is, of course, because they have a particular appeal to my taste, but I am delighted to think that it is one of our best painters, Cedric Morris, who has produced such striking new varieties of plicatas. As an artist he is well known for his paintings of birds and flowers, and perhaps these results could have been obtained by no hand or eye that had not his training. It is to be noticed that the writer of an article on American irises in the Year Book for 1944 says he has "long been persuaded that the plicata pattern promised more interesting and desirable variation than any other," so the interest in plicatas is not confined to England. . . . There are iris lovers to whom the plicata is less beautiful than the clear yellow or blue self. The plicata in their opinion is not natural but artificial. Its faults are those of the gloxinia, that it is freckled or sanded. But these are tastes that would condemn a speckled bird's egg, and would have it not other than clean blue or brown or white. They could, as well, despise the thrush's dappled throat and chest, and it would be as sensible to prefer the blackbird above all other songbirds because its plumes are uniform and of one color. Or let us alter the metaphor and say that such opinions would prefer the canary to the bullfinch. There must always be the two schools of flower lovers, those who would improve on Nature, and those who prefer her plain and unadorned." It is hardly surprising to me that Tom Craig, the well known California painter, is as devoted a plicata breeder as is Cedric Morris.

The first record I know of the existence of the plicata pattern I found in the Prado in Madrid where, seventeen years ago, I came across a flower picture, a bunch of bearded irises, done by the Flemish Jan Brueghel, (cir. 1570-1625), often called Brueghel de Velours, possibly a corruption of "fleurs," as this son of the more famous Pieter Brueghel was a flower painter. In that picture is unmistakably a blue edged white ground plicata, so the pattern

must have existed in gardens well over three hundred years ago. I can find no record that plicatas have been discovered wild, though W. R. Dykes looked hard for them in Dalmatia among the varied wild forms of I. pallida. The early plicatas, like the pallidas, had glaucous leaves, a comparatively tall stem with very short lateral branches, and papery spathes. In "Dykes on Irises," page 252, we find: "The so-called plicata, with white flowers edged with purple, is obviously some form of I. pallida, but seems to contain some inhibiting factor which prevents the purple from extending all over the segments."

Of the first three irises I bought—this was while I was at college—one was a plicata, Mme. Chereau, tall, close branched, skinny, with white flowers edged pale blue and with the pinched falls so characteristic of early plicatas: it was introduced by Lemon in 1844, in France. Later plicatas showed some improvement and variation. I still remember growing Jeanne d'Arc (Verdier), Ma Mie (Cayeux), Camelot (Bliss), Anna Farr (Farr) and Parisiana (Vilmorin), this last a valuable parent. A decidedly attractive early American plicata was the somewhat pinker edged True Charm, raised by Grace Sturtevant. In France M. Denis was apparently crossing white ground plicatas with variegatas or what were then called squalens, forms of pallida X variegata. These were the first marked color variations I remember, as Mme. Chobaut had a creamy ground and consequently redder markings and Demi-Deuil—the French word means half mourning, and suffered much mauling on American tongues—was an odd purple on white, suffused in a broken pattern, an early example of a type for which I have suggested the name "fancy," following the precedent of the old English carnation raisers.

These early plicatas were all diploids as were also the series of different, colored plicatas raised by the Sass brothers and sent out in the early twenties. From an exchange with Jake Sass I had his Jubilee, Lona and King Karl, and Beau Ideal and Midwest, raised by H. P. Sass. Mrs. Whiting (A. I. S. Bulletin, July, 1946, No. 102, page 34) says "came from chance seed from Mme. Chereau and probably involved variegata as it cropped out later." When Jake Sass saw Jubilee and his other buff ground, peach flushed plicatas flowering on foot-high stems in my garden he was disturbed by their dwarf habit. When I suggested that perhaps they contained variegata in their make-up and that might account

for their poor growth, he told me they came from Her Majesty, an old, heavily lined pink we could barely grow in California. It just happened about that time that M. Denis sent John C. Wister a note in French about the breeding of Her Majesty and it was forwarded to me for translation, though I do not believe it was ever published. M. Denis had selfed Her Majesty and got straight variegatas from the seed, so that is presumably one way the variegata strain came in. In any case it was very important, as it laid the foundation for later yellow ground plicatas. Quite different was Midwest, a taller, more slender thing with red purple edges and a noticeably ruffled form. Crossed with a varigata, it gave King Karl. I bred it with the pollen of a sister of San Francisco and from this diploid seed parent I got Advance Guard, a tetraploid which has proved a very good plicata breeder.

With the introduction of San Francisco and Los Angeles some twenty years ago a new type of plicata came to our gardens. These had tall, widely branched stems and large, well shaped flowers. This is how they came about. One morning in the spring of 1922 the late William Mohr showed me a letter he had just received from Grace Sturtevant suggesting that he might have lines of mesopotamica derivatives with plicata parentage and that it would be interesting to cross them and get big plicatas. We went through his records and found seedlings from Conquistador X Parisiana and from Parisiana X mesopotamica, the latter eventually named Esplendido. From this cross, after Mr. Mohr's tragic death, I flowered Los Angeles, San Francisco and several sister seedlings in my garden, getting so excited over the obvious white ground of the bud of the first to flower, Los Angeles, that I couldn't sleep and at daybreak went out and found our dream had come true.

Later on, in part continuing this line, I raised the less distinguished Sacramento, which had a creamier ground, yellow beard and redder markings. It was from [Sherbert X (Juniata X Jacquesiana)] X San Francisco, and Cedric Morris writes me that it was the basis of his plicata breeding. Sherbert came from Miss Sturtevant, and its parents were Caterina & Mrs. Horace Darwin, a little, old white with basal linings which marked it as a plicata though it had no marginal lines. From Sherbert X Fortuna came Carl Salbach's near yellow ground plicata Comstock, now long superseded. Fortuna was from Alcazar X Esplendido, which shows

Banded Plicata—Firedance

the persistence of the plicata factors. In the late twenties and early thirties I attempted to get big yellow ground plicatas by crossing big white ground plicatas, mainly Los Angeles, with the large existing yellows I then had, mainly pale ones, but I got little desirable with plicata markings, though blends like Peacemaker and whites like Bridal Veil were the by-product of such crosses in the second generation. I did not then realize that in tetraploids the recessive pattern could not be expected to appear in the F2s in the regular Mendelian ratio of one to four but only in a proportion of one to thirty-five. This I later learned from Professor Randolph. In addition, this was the heyday of my interest in yellow iris breeding, and, characteristically, I pretty much forgot plicatas for a time—as I may again.

From 1935 to the end of the decade indifferent health and preoccupation with professional work greatly slowed down my own breeding, but what little I did was with plicatas, and this was entirely stimulated by the important introductions in this pattern put out in the early thirties by Cayeux and in the later ones by the Sasses.

When we visited M. Cayeux in 1930 it was evident he was interested in plicata breeding, indeed I saw then an enormous dull plicata seedling which he referred to in a derogative sense as a "monster." But in 1933 he sent out Seduction, the product of crossing two of his own plicata seedlings, a clean, well-bred, white

ground flower without faults of form and with an advance towards pink in its markings. It has been used by American breeders and has been a considerable factor in my own pink plicata breeding. But in 1934 Cayeux sent out Madame Louis Aureau, a dark rather purplish pink, heavily marked plicata, too dwarf in stature here for its large flower, which itself had fine flat flaring falls, suggesting in form and substance the Dominion derivatives. Through the kindness of Robert Schreiner I learned its parentage and was not surprised to find that, like so many Cayeux introductions, it had Bruno in its life line. I believe this variety has and will continue to have great influence on plicata breeding. It is particularly evident in some of Schreiner's introductions and I know that Cedric Morris used it. In my own breeding it has been particularly important for form and size of flower, though it certainly puts a lot of mud into its progeny which later has to be bred out.

From 1936 on the iris world, particularly the plicata addicts, has been stunned by the introduction of a series of plicatas raised by H. P. Sass. Siegfried in 1936, Orloff in 1937, and Tiffany in 1938 were tremendous advances in yellow ground plicatas, and between them they also brought in size, new color and ruffling. An examination of their published parentages hardly suggests that they were deliberately planned for, which is no reflection on their breeder. It shows rather that the years of inbreeding of the Sass plicata and variegata lines resulted in the almost simultaneous flowering of several new plicata and one combined plicata and variegata lines, Siegfried and City of Lincoln being sisters. Like all really important breeders, the Sasses had used their own seedlings intensively, and through such wonderful parents as King Tut the inherent possibilities of the strain have come out. The later Sass plicatas, improvements on these pioneers, were naturally specifically planned for and have been real advances, Ruth Pollock and Coritica in the yellow ground line, Rose Top in the pink and Minnie Colquitt in the white ground red purple pattern being perhaps the most distinct of these up to date. Blue Shimmer (J. Sass, 1942), by its clean blue on white, set a new standard for an old pattern. All future plicata breeders will owe a debt to the Sasses for it was through their work that the variegata strain was combined with the plicata and the opportunity thereby given for the brilliance of the future flowers.

In a hurried resume of plicata breeding time and space are

lacking for more than brief mention of other American contributors. Personally I am most impressed with some very brilliant red and yellow seedlings I have just flowered from Clarence White, real advances here in height, size and color over earlier Orloff derivatives like David Hall's Firecracker, the brightest red I have yet seen in commerce. Mr. White also has some lovely "fancies" and strange things he calls "weirdies." Fred De Forest, using in the main, he tells me, two of my earlier plicata-bearing yellows, Alta California and Naranja, has contributed the fine and distinct Tiffanja, the later Patrice, and this year he offers an inconstant plicata, Daffy, which by its variations of color shows what the pattern can do when it goes on the loose.

Of plicatas from abroad the big news is that one English breeder, Cedric Morris, has been working in this field, among others, in a highly intensive way, imbreeding his own seedlings in the manner which to me seems the essential prelude to a program likely to give new things. I have corresponded with him for a couple of years and know that my Sacramento, the French Madame Louis Aureau and that plicata carrier Mary Geddes are the materials with which he started his plicata breeding. I had hoped when I undertook to write this paper to be able to report on his plicatas, as I have about a complete set of those sent out to date, but the receipt of two importations in 1946 which suffered long delays and dried out badly has given me few and doubtfully characteristic flowers, only Benton Daphne, Benton Aurora and Benton Lett flowering at all. The first mentioned, which flowered prematurely last spring on a rhizome received in February, promises to be very useful as a breeder, carrying the good qualities of Sacramento, which had size, form and good branching stems, into a far pinker and more pleasing color. The other two were nice but not distinguished on their first flowers. This is, I am sure, going to be an important plicata strain, good in itself and probably well worth incorporating into other strains, for its breeder has the background, taste and standards so desirable if we are to get new irises of character and of balance ,not just big blobs of color, crowding each other towards the top of disproportionate stems.

Finally, a little, I hope not too much, about my own playing with plicatas. Every breeder naturally and properly works for flowers which will be better under his own conditions, though this does not preclude their being of value elsewhere. There is now

little or no problem of the ability of California introductions to stand winter cold. Even good eastern breeders use Purissima and mesopotamica derivatives to get size, height and branching. So we, under our semi-arid conditions, use eastern irises of variegata ancestry to get color and brilliance without the short stems which our dry summers seem to impose on them. Lovely as are Orloff and Ruth Pollock, they are both rather low under our conditions.

My objective therefore has been to raise a race of plicatas in all available and perhaps in new colors which would have the stature, branching, size of flowers and form of, let us say, Los Angeles, using in the endeavor several plicata lines of my own. These, combined with the Sass and French plicatas, supplemented by pollen from Carl Salbach's and from other plicatas, have given me in these last few years several thousand seedlings of great variety of color and many with the other qualities sought. I have had no single objective and I have therefore selected for introduction thus far yellow ground plicatas like Contra Costa, distinct pink plicatas like Love Affair, grayish blended things of particularly good individual flowers like Bali Belle, and almost pure white plicatas like Mariposa Mia. From my breeding with pure plicata strains have come many "fancies," that is flowers of all-over stippled pattern on white, of which the apricot and yellow Precious is a good example, creams with very little marking like Occidental, and bicolor blends like Oklahoma, not readily recognizable as of plicata derivation. Among selected seedlings of which I am working up stock are such things as a large ruffled cream and white, tentatively called Whipped Cream, which has met with much favor from visiting iris growers, a bicolor fancy, (9-57), which is close to the variegata pattern without its to some objectionable contrast, a very crisp pink and white with flaring falls (0-126-2), and many others. I am now at the stage where I have reduced plicata crossings to see what I have and will get. Better, cleaner, more brilliant colors, broader, ruffled form, brighter, better beards, with good stems and placement are what we are after. The plicata pattern is certainly unstable, and as my friend Clarence White says, we may eventually get in the hardy race the colors and patterns sought through the temperamental oncocyclus.

The end is certainly not in sight. This spring I saw in Tom Craig's garden in Los Angeles a plicata the use of which may revolutionize plicata breeding, and if its stem proves taller next year may be the advance guard of another day.

PLICATA EXPERIENCE

By Robert Schreiner

The plicata color pattern is a manner of coloring peculiar to the iris flower alone. In no other flower do we have blooms with this curious margining of blue, rose, or lavender "stitched, stippled, or suffused" along the edge of the petal. The effect is quaint and sometimes startling. The novel colorings in plicata iris rival some of the leading self colored iris varieties for exquisiteness. Our older conventional plicatas generally have white backgrounds etched with color. An example is that classic variety, *Los Angeles.* Others have a background of cream or yellow in varying shades. And recently the evolvement of the "marbled" or "striated" varieties have added another highly interesting group.

It is interesting to glance over the early history of this kind of iris. The early iris breeders Mr. A. J. Bliss and Miss Grace Sturtevant published extremely valuable information about the behavior of this character in iris breeding in the early bulletins of the society. These early records seem to indicate this color pattern must have arisen as a mutation during the early period of iris breeding. It is perhaps significant to note that Mr. W. R. Dykes in his many writings never recorded the finding of a single albino flower of the species *I. pallida.* The very earliest plicatas would seem to indicate that plicata iris were derived from the pallida family. From these various writings and the exchange of experiences of Mr. Bliss, Miss Sturtevant and Mr. Wm. Mohr the evidence seems to indicate that the plicata color pattern was a recessive factor.

The nucleus of our plicata iris centered in the main in the varieties developed by Miss Sturtevant who produced such varieties as *True Charm, True Delight* or an example of one of Mr. Bliss's iris would be *Princess Osra.* Another family of plicatas trace their ancestry to the French iris. Interestingly, here we note both the modification and variation in the original blue margining of plicatas—the French iris show the influence of cross breeding with *I. variegata* as well as shades of purple and wine. Such varieties would include *Parisiana* or the plicata bearers *Opera* and *Jacquesiana* both of which figure prominently in the history of plicata development. Another important plant to keep in mind is the Farr variety *Juniata,* a blue which subsequently figures in

the evolution of our modern plicatas. Still another important section is the work of the Sass Brothers. Their iris in particular were exceptional for their many colors and types. The early use of *Midwest*, a plicata, and some of the older variegata varieties gave a whole range of colors which included the buffy *King Karl* and *Jubilee* which were the most widely known and recognized. The primary use of plicatas in some of the very first crosses the Sasses made should be considered in the light of later breeding as here is where this character was extracted as a recessive character. This plicata inheritance carried as a recessive was even in their great breeding bonanza *King Tut.*

All the early plicatas like most of our garden iris of the times were of the diploid family. In 1927 the introduction of the Mohr-Mitchell tetraploid hybrid plicatas brought a new era into our garden plants. We now had large sized flowers with fine, widely branched stems. From the hands of these master breeders we had *Los Angeles* and *San Francisco* with *Sacramento* and others to follow as their invaluable contributions. Following closely the Sasses also raised a race of tetraploid plicatas. Their ancestry traces back through *Conquistador* which in turn was a seedling of *Juniata,* the plicata bearer mentioned earlier. This is the source of the blue plicatas such as *Claribel.* Their other family of plicatas, the yellow background creations, represent an achievement in which these breeders were singularly successful and famous. Their creations in this colorful class yielded such iris as *Tiffany, Ruth Pollock* and *Balmung* to mention a few.

Attention should be drawn to two or possibly three interesting innovations that arose from plicata breeding in the last few years. They are first the new family of plicatas called by various terms such as "marbled," "striates," or as Prof. S. B. Mitchell classes them the "fancies." Here instead of margining or dotting the colors seem to be feathered or frosted over the entire flower. In some lights it does have the visual resemblance to the plicata pattern overlaid on a ground color of blue as in *Gypsy Baron* or *Florentine* or on a creamy tan as in *Orloff* or on a rose base as in *Mme. Louis Aureau* or a heavily flushed yellow as in the case of *Bertha Gersdorff.* The individuality of these flowers is most unusual. A second interesting development out of plicata breeding has been those white iris resulting from inbreeding plicatas. The intrinsic qualities of these white iris distinguish them from the

conventional whites. Two good examples of such resulting whites are the varieties *Matterhorn* and *Snow Velvet.* An interesting corollary to the white derived from the plicatas are the new "lemon ice" series first typed by *Elsa Sass.* Some of the finer new varieties of this general color include *Moonlight Madonna* and *Misty Gold.* These yellows genetically arise from the combination or cross of two yellow ground plicatas. And they show a close kinship to the whites of plicata extraction with the obvious inclusion of yellow coloring inherited from their variegata ancestry.

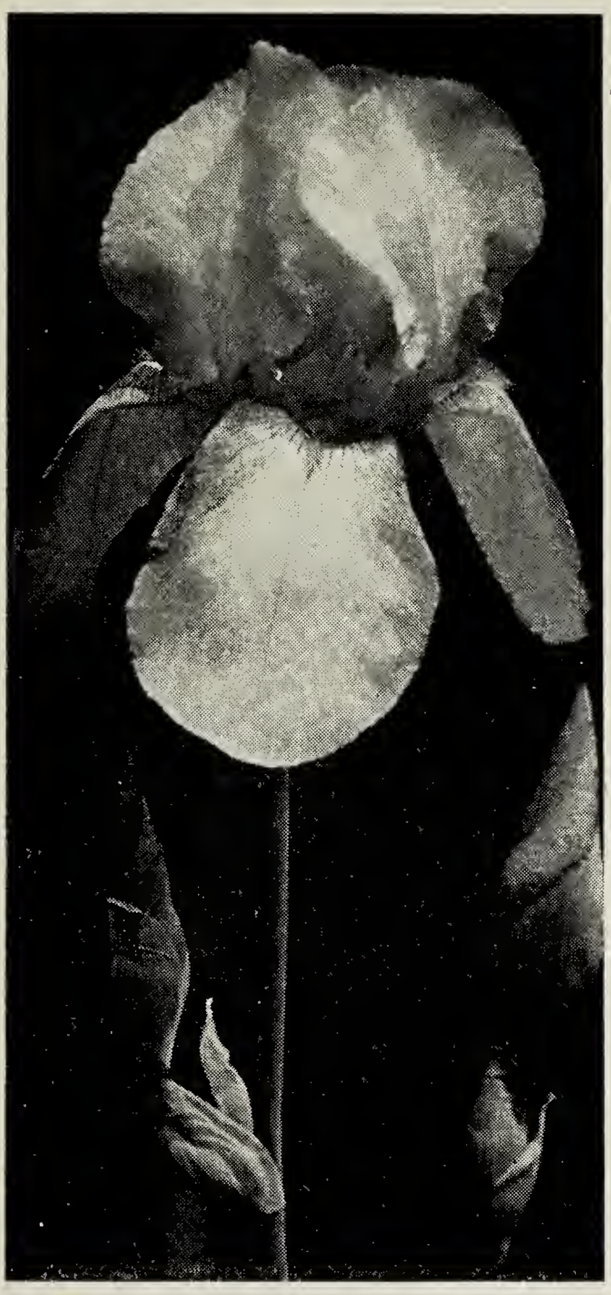
The final group of plicata-derived hybrids is that class of iris best known by the variety *Moonlit Sea.* It is a bearded iris that is colored in a manner that for all the world brings to mind the particular variegation in coloring found in the Japanese iris *I. kaempferi*). So many of the Jap iris are colored in this manner with the radiating creamy veins and variegations. All three of these groups of iris are plicata bearers and when crossed to a plicata parent or intercrossed with each other will yield a definite portion of the conventionally marked plicatas along with an endless and perceptible variation to each of the color types used. The orchid is widely known for its rare charm yet these iris dotted, stippled, margined and flecked have all the rare charm of their more publicized sister flower.

Our most successful breeding experiments with the plicatas were the use of the French line of plicatas of Mons. Cayeux. In particular, the use of *Mme. Louis Aureau,* which seems to be an exceptionally fine parent. Also the use of the family line of *Florentine* and combining these with the bright colored Sass varieties, particularly the yellow ground series. Another cross was the combination of the French strain with the Mohr-Mitchell strain, the selection of the finer seedlings of these primary crosses and the bringing together of these two crosses' products. One of our particularly successful primary crosses was the cross of *Siegfried* x *Mme. Louis Aureau* and its reciprocal. From this cross of over 500 seedlings we selected and named *Magic Carpet* in 1942. It has the best coloring, very exceptional size and is a vigorous garden subject. The variation of this cross to shades of brown, tan, and rose marked examples as well as some of the extremes was most extensive. Some bizarre types arose. Dark purplish markings some almost brutally scratched and brushed on the white or creamy backgrounds came from this cross. *Magic Carpet* is prov-

ing to be a very fine parent as it yields size and good color to its seedlings. One cross with *Tiffany* has given us a more vivid, larger *Firecracker.* Another cross with *Lady of Shalott* surprisingly enough gave a pink plicata of height, size and branching and a clarity of color that is most refreshing. To date I have not seen a pink plicata that approaches it for size, branching and appealing color. An interesting sidelight on *Siegfried's* children is that *Siegfried* mated with Tiffany yielded *Misty Gold,* finely ruffled lemon gold shade, a most delectable color. *Siegfried* crossed with *Electra* produced a whole series of iris in the manner of *Golden Fleece.*

Our original thought was to use the color and sturdiness of the hardy Sass strain to impart color to the other families of plicatas. The happy combination of *Mme. Louis Aureau* with a seedling we obtained from Prof. Mitchell years ago under the garden name *Rosy Asia* gave us *Lady of Shalott,* a lady like, nice pink plicata best visualized as a dainty pink marked iris recalling *Seduction's* charm. The markings are clear and dainty, the flower heavily substanced, crisp and lovely. The cross of *Siegfried* x *Naranja* gave *Bright Lights,* the deepest, rich butter yellow background we have seen in the plicatas; the falls have a center zone of clear white. This gives the flower a reverse bicolor garden effect. The use of the newest Sass yellow plicatas as *Coritica, Ruth Pollock* and *Balmung* is just beginning to show in our seedling beds; due to the neglect during war time this interesting work suffered. A combination of *Bright Lights* x *Ruth Pollock* has given us three seedlings, the best probably 8-44, a completely yellow background, solid, no heart of white, deep yellow shade with a complete overall cast much more so than any other like iris. The markings are precise, a tan brown shade. This solidly colored development interests us very much and combinations of it with other seedlings of ours and crosses with *Tiffanja* are being anticipated with impatience. In 1940 when *Gypsy Baron* (*Mme. L. Aureau*) x *Claribel*) blossomed for the first time we noticed its extraordinary flower pattern. It is a highly novel flower interesting and ideal for the close-up spot where the intricate tracery holds one's fancy for a long time.

What are the hopes for the future in plicata breeding? I believe the field in plicatas is just beginning to be explored and it will be hard to exhaust the possibilities. The variation in pattern is so



Plicata Tiffanja

extensive it is most stimulating. Last June our new seedling bed gave a seedling, a blue violet plicata, 189-40 (*Siegfried* x *Mme. L. Aureau*) x *Athala* with markings a rich intense blue violet with the center of each petal having a pronounced media line of the same rich shade running down both the standards and falls. The contrast to the lustrous white was most effective. It could be seen a mile off but it did not hold up. However, the first few hours the flower was open it gave us an inspiration and an idea of how beautiful such an iris can be. So the quest contiues. Possibly some of the readers of the Bulletin recall the old Millet variety *Heliane*. In color its markings were close to the depth of *Black Wings* and it had a very deep but dull orange beard looking almost like a large caterpillar. The flower was medium small but the striking quality of this iris interested us. We succeeded in making a cross of it with *Tarantella* to improve the branching but size was still wanting. So this seedling was combined with one of the deep violet segregations of *Siegfried* x *Mme. Louis Aureau*. Seedlings are progressively getting closer though we have not as yet equaled *Heliane's* charm. Perhaps it will always elude us. A real pink plicata is something to obtain and a color we stand in great need of. The strange paradox about getting a good iris like this is that because the shade of necessity must be delicate, done in the manner of *Suzette*, the garden effect at a distance seems a bit insipid. Once the register gets a little darker, it may carry as pink but close up the markings soon show up a red cast.

SASS PLICATAS

By Agnes Whiting

The first irises that Hans P. Sass and Jacob Sass named were plicatas. Miss Grace Sturtevant introduced their very first ones in 1923 and 1924. The others came out in their own lists a few years later. As there is considerable interest now in the various types of plicata markings and in the terms used to describe them, here are brief descriptions of them, taken from a 1933 Sass catalog. The color names are from Ridgway.

MIDWEST (H. P. Sass 1923) Large, heavily ruffled flowers with a flushing and dotting of rose on a white ground.

JUBILEE (J. Sass 1923) A large flower of extra heavy substance with the characteristic ruffling of our plicata series. Standards Naples yellow, dotted purple; falls white, striped brown at the haft, with purple dots along the distinct yellow beard.

LONA (J. Sass 1923) Standards pale purplish vinaceous, white at center, ruffled; falls cream, dotted and striped Eupatorium purple with a yellow glow at the haft and center.

AKSARBEN (J. Sass 1923) One of the earliest and still one of the best plicata blends. Standards and falls marked fawn and velvety brown on a cream ground.

KING KARL (J. Sass 1924) Beautifully ruffled, light pinkish cinnamon standards. Falls cream, sanded in an all over pattern of Liseran purple. The bloom takes on beautiful rosy tones as it ages.

MATILDA (J. Sass 1929) The bluest of all the plicatas and a flower of beautiful pattern and coloring. White ground with a stippling of soft bluish violet.

NEHAWKA (J. Sass 1929) The darkest and most heavily patterned plicata; suggestive, in general effect, of WILLIAM MOHR. It is so heavily stippled with purple as to look like a self at a distance. Large, gracefully ruffled flowers.

OLD GOLD (H. P. Sass 1929) The first deep yellow plicata type, although the pattern is light. Standards primuline yellow; falls old gold with a buff overlay; beard vivid yellow, tipped brown. (This was a chance seedling from MIDWEST).

PIXIE (H. P. Sass 1929) A dwarf plicata blend of JUBILEE coloring, which blooms late with the tall bearded iris. Branching stems 8-10 inches high.

CHESTNUT (J. Sass 1930) The brownest of all the plicatas. The ruffled standards are cinnamon drab; the falls cream, dotted petunia violet with brown stripes on the yellow haft.

BEAU IDEAL (J. Sass 1931) A distinct and unusual plicata, notable for the wide, solid border of Chinese violet on a white ground. A large flower of fine substance.

These were not the first seedlings the Sasses had raised. They had been making planned crosses since 1910. But they introduced these because they were different—no one had seen anything like them. They are sometimes called the 'sanded and dotted' group, as contrasted to the feathered plicatas of MME. CHEREAU type. Unfortunately, very little is known of their exact origin. Some of them came from HER MAJESTY by mixed pollen, probably containing variegata and possibly MME. CHEREAU. In 1936, Mr. Hans Sass wrote me, "MIDWEST bloomed first in 1917, from a mixed lot of seed which I gathered after a great hail storm in July 1915. Most of my crossings were destroyed so I gathered what seed I could find and planted it in a mixture."

It is supposed that all of these older plicatas are diploids. MIDWEST, KING KARL and OLD GOLD have been counted and found to have 24 chromosomes. None of them is very tall, but all of them have wide, full, heavily ruffled petals and excellent substance. The colors are clean and fresh and clumps of them are most attractive in any garden. I think that if any like them, especially MIDWEST, KING KARL or MATILDA, were to appear in other hybridizers' gardens today, they would be noticed, admired and saved.

But long before this, things had been done in the Sass gardens that are still of great interest to Iris breeders and the Science Committee of the A. I. S. In 1904 Jacob Sass found a chance seed pod on HONORABILE, containing only one seed. At that time, the only other iris in his garden was FLAVESCENS. The plant from this seed bloomed in 1907. It was a Bradley's violet self of good size and fair height and it was called "Jake's Blue." They still have it in their gardens and last year Dr. Randolph made a count of it and found it to be tetraploid. How this came about, presumably from two diploids, we will leave for the scientists to explain. But it accounts for the fact that many of the seedlings that came in the next few years were large and fine. In 1911,

Hans Sass crossed "Jake's Blue" with MME. CHEREAU. They seemed to cross readily and when they bloomed he described 21 of them in his records. They were all of good height, 10 were plicatas of CHEREAU type but larger, edged with rose, lavender or blue. The rest were blue or purple. When they bloomed in 1915, he numbered the tallest blue No. 1. It too has been counted and found to be tetraploid. He saved only two of the plicatas, edged rosy lavender, but says they were 'floppy' so he did not use them in breeding. He thinks now that they too may have been tetraploids as they were much larger than MME. CHEREAU.

Nearly all of the later named Sass irises stem from No. 1, except the variegata line which came from No. 2, a variegata seedling. Because of the plicata inheritance in No. 1, blue and white plicatas appeared among its descendents. When the two lines were combined in the BALDWIN-KING TUT cross, yellow ground plicatas made their appearance. The blue and white ones of course came first.

In 1928, before the arrival of Mohr's San Francisco in the Sass gardens, Jacob Sass bloomed a hardy blue and white plicata from Conquistador, which he numbered 28-21. (The first two figures of the J. Sass numbers denote the year.) Soon after this, Hans Sass got a good one from his (No. 1 x Amas) x Argentina, which he numbered 27-30. (In H. P. Sass's numbers the last two figures denote the year.) Neither of these were named, but both were used in breeding. Hans used Jacob's 28-21 with a blue seedling from No. 1 x Amas and got a fine, large hardy blue and white plicata which he named NASSAK (H. P. Sass 1932). Later Jacob crossed his 28-21 with San Francisco and got his splendid and equally hardy one, CLARIBEL (J. Sass 1936). BLUE SHIMMER (J. Sass 1942) came from BLUE MONARCH which is from WAMBLISKA X MATILDA. The lovely, delicate over all pattern of BLUE SHIMMER is reminiscent of that of the older and smaller MATILDA. The parentage record of the fine large purple and white plicata, MINNIE COLQUITT (H. P. Sass 1942) is lost.

SIEGFRIED (H. P. Sass 1936) was the first large yellow plicata. Its forebears (see chart) include No. 1 and KING TUT, as well as two of the older small plicatas, MIDWEST and JUBILEE. TIFFANY (H. P. Sass 1938) came from a chance pod on a red seedling from KING TUT X MORNING SPLENDOR, so its plicata marking may have come from its unknown pollen parent.

ORLOFF (H. P. Sass 1938) came from EL TOVAR X AMENTI. Mr. Sass thinks that EL TOVAR may carry plicata because of the yellow in the center of the standards. AMENTI is a soft blend, but it came from No. 1, through RAMESES. By studying the accompanying chart of the newest yellow plicata, BANDED BEAUTY, we can see how all three of these plicata lines have been combined. Included also is No. 128-34, a large yellow blend that carries plicata from MIDWEST as well as from No. 1 through RAMESES. Ten years ago Mr. Hans Sass wrote, "The plicata coloring may be recessive but I am sure that it can be bred up by selection so that we will have a pure strain of plicatas." And this chart shows how it has been done. All of the sister seedlings of BANDED BEAUTY are yellow plicatas, all large, bright, cleanly marked and well branched. The form and coloring of BANDED BEAUTY are especially fine and it has excellent substance and branching. The standards are yellow, lightly patterned and flushed with red brown; the yellow falls are so heavily marked with red brown at the edges that they have a very striking banded or bordered effect. It will be introduced in 1948.

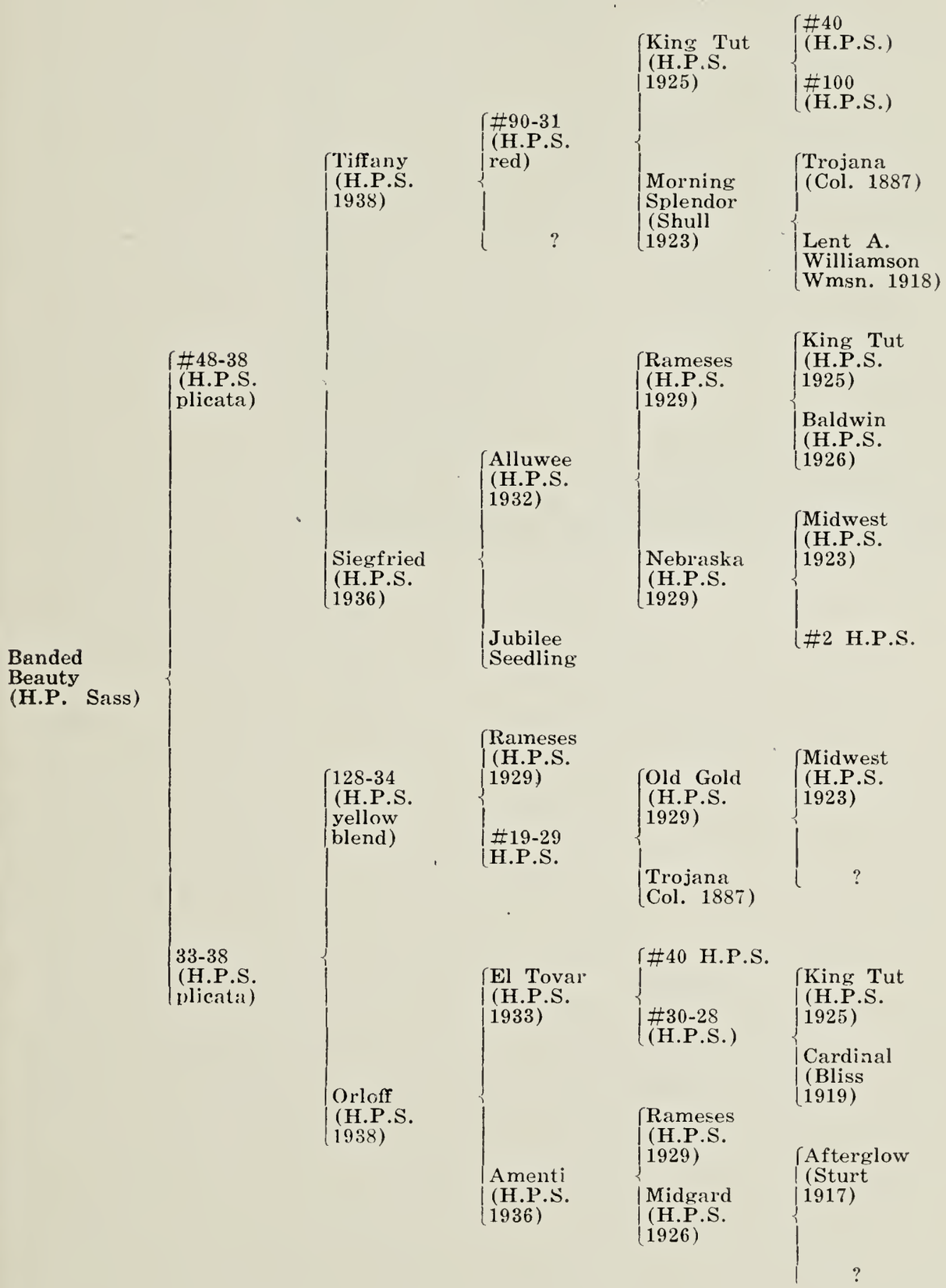
Several other Sass yellow plicatas have been named that do not appear on the BANDED BEAUTY chart. ROYAL COACH (H. P. Sass 1939) came from MARY GEDDES X MISS ARAVILLA. MARY GEDDES is from DEJAZET X SHERBERT. MISS ARAVILLA came from KING TUT X KING MIDAS. It is interesting to note that KING MIDAS is from DEJAZET x LENT A. WILLIAMSON. BONANZA (J. Sass 1939) came from EL TOVAR by a seedling from BUTO X KING TUT. I do not know the parentage of BUTO, but if it is not from No. 1, then EL TOVAR may indeed carry plicata. BALMUNG (H. P. Sass 1939) came from an AKSARBEN seedling x TIFFANY. RUTH POLLOCK (H. P. Sass 1939) came from a Rameses blend - TIFFANY. Its complete parentage record is shown in Bulletin 85. CORITICA (H. P. Sass 1943) is from the same parentage. PEACHBLOW (H. P. Sass 1943) is from ROYAL COACH X ORLOFF. It is a light yellow ground plicata, delicately patterned and flushed with rosy brown. It has a lovely garden effect of warm peach yellow. ALEPPO PLAIN (J. Sass 1943) is one of the reddest of the yellow ground plicatas. The creamy yellow ground is heavily dotted and sanded to form a wide border of rich pansy purple. It came from ORLOFF by a plicata seedling of which I have no

record. ROSE TOP (H. P. Sass 1943) is a large, well proportioned flower of creamy white, heavily patterned with rose pink. The standards have an almost all over stippled and veined effect; the falls a more definitely bordered pattern. It is from a seedling of RAMESES X EL TOVAR, by TIFFANY.

An interesting phase of plicata breeding is the appearance among them of two toned yellows of the ELSA SASS type. When Mr. Hans Sass crossed TIFFANY and ORLOFF, he expected heavily marked yellow ground plicatas, and most of the seedlings were. But among them were several clear lemon yellows, free from any typical plicata markings, but with lighter, nearly white areas in the center of the falls. The best one of these he named ELSA SASS (H. P. Sass 1939). A few years before this Jacob Sass had a seedling from WAMBLISKA X RAMESES which he named DORE (J. Sass 1935). It is a light yellow with a touch of deeper yellow at the edge of the falls. This he crossed with SIEGFRIED and got his GOLDEN FLEECE (J. Sass 1940) which is similar in coloring to ELSA SASS but is larger and has a somewhat deeper and more pronounced yellow border on the falls. In 1940 we found a two tone yellow among our seedlings from HAPPY DAYS X MATULA. It is a light creamy yellow with a very narrow margin of deeper yellow on the falls so we named it GILT EDGE (Whiting 1941). MATULA comes from RAMESES so may inherit this tendency to border effects. Schreiner's MISTY GOLD (Sch. 1943), a clear lemon yellow with a border of darker yellow on the falls, is from TIFFANY X SIEGFRIED. MOONLIGHT MADONNA (J. Sass 1943) came from ELSA SASS. It is of similar pattern but deeper yellow coloring. MATTIE GATES (Sass Brothers 1946) came from GOLDEN FLEECE by a seedling of two yellow plicatas. It is a beauty.

Some breeders think that these two tone or bordered yellows of plicata parentage are a type or form of plicata and should be classed as such. It all depends on the exact definition of 'plicata' or on individual interpretations of it. Certainly there is no 'feathered' marking, no sanding, dotting or stippling, for which some of us may be thankful. The 'plicata factor' is still somewhat of a mystery. But I still hope to see a white or cream iris with a well defined feathered edge of yellow. I think it would be lovely.

FAMILY TREE—IRIS BANDED BEAUTY



Plicata Banded Beauty

PLICATA BREEDING

By Kenneth D. Smith

■ My plicata breeding may be divided into four distinct lines with the original crosses made as follows:

Cross 1. (Andante x Dauntless) x Nene.

Cross 2. Ariane x Mt. Robson

Cross 3. ? x ?

Cross 4. Siegfried x Madame Louis Aureau

It will be noted from the above that out of eight possible parents only three plicatas were used, they being Siegfried (H. P. Sass), Ariane and Madame Louis Aureau (Cayeux). In the second generation Cayeux's Acropole and Florentine, with the Sasses' Balmung, Orloff and Elsa Sass were also brought in.

For those parentage minded it must be remembered that Elsa Sass is Tiffany x Orloff and Ariane is Chaldee x Fakir. Chaldee is a white plicata with blue influence and Fakir is a blue self with pink influence. Madame Louis Aureau is Fakir x Ferdinand Dennis and this latter is a red plicata with yellow influence. Acropole is Fakir x San Francisco and Florentine is Chaldee x

Sigurd. Unfortunately I can find no record of Sigurd. The parentage of Mt. Robson has been lost.

Cross 1. (Andante x Dauntless) x Nene. Its first generation gave Lord Dongan, Commando and seedling B-103, the only iris out of that particular cross that did not have a smooth haft. It had what I called plicata leanings for it was dotted or stitched to a slight degree. For the second generation I crossed B-103 in 1939 with Ariane and in 1941 seedling 1-31 bloomed, and was immediately named Ilse Louise in honor of Mrs. Smith.

In the third generation three seedlings have been retained under number, a brown tan plicata, a deep purple blue plicata and a Madame Maurice Lasailly in red tones, a definite drift away from plicata leanings.

Valentine x Florentine also produced a distinct oddity. The buds before opening are mauve, yet when opened the flower is white. Sometimes the outer edge of the falls shows this mauve coloring. From this same cross came Edith Rorke with white background and the plicata markings blue.

Valentine x Orange Glow gave me Red Witch, a brighter but lighter Christabel. Elsa Sass x Wood Thrush produced Marion Vaughn, the only seedling worth while from some sixty seedlings with Elsa Sass blood in them. 1-46 x Orloff gave a red plicata on a white ground and also a pink plicata. More of the Moonlit Sea type were also secured by crossing 1-14 with Ariane, and from this same cross came many of the Minnie Colquitt type.

Ariane x Valentine produced a heavily marked plicata with the crimped edging of Matula. But it had no garden value and the stalks would not grow out of the foliage.

Mauve-lavender plicatas were secured by 2-16 (Siegfried x Madame Louis Aureau) x Acropole.

To sum up: When Siegfried was first introduced its novelty caused a sensation in the iris world. But in my garden it lacked stamina and the falls twisted in an objectionable way. These twisted falls were also found in other of the Sass plicatas that I used. On the other hand the Cayeux plicatas, while lacking the wide range of colors found in the Sass plicatas, had fine form and extremely good branching. By combining these two strains I was fortunate in retaining the best points of each.

I believe there is quite a future in plicata breeding. But the day of the dull drab plicata is over and will never return. Fanciers

now demand plicatas that will fit into the garden picture and this means that they must be soft in color so as not to clash with their neighbors. People should in the future be able to say, "I like plicatas" instead of "I hate plicatas," for I think hybridizers nowadays with their breeding programs are securing the necessary results.

Cross 2. Ariane x Mt. Robson, a most interesting cross. First generation seedlings were mostly lavender selfs with a distinctive brown haft (similar to Lord Dongan) but a few showed faint plicata markings. One of these crossed by seedling 1-58 (Siegfried x Madam Louis Aureau) (See Cross 4) gave for the second generation a series of seedlings, all of which were large in size, all plicatas, mostly of oriental coloring and very late in flowering. Some even, according to Robert Allen, appeared to be plicata inverts. "The Jacob's coat of many colors" was named Wonderful, and the purple plicata invert, Dongan Hills.

Third generation crosses will bloom in 1947.

Cross 3. ? x ? Why guess at parentages? But I am sure there were no plicata parents! Two seedlings were numbered in the first generation, a brilliant yellow plicata with narrow falls and a white flush below the beard, while the latter was nearly a duplicate, but perhaps a trifle duller by comparison. Both just made the grade as plicatas. Some more technically minded might perhaps classify them in the group with Golden Fleece.

The second generation came through as follows: A brilliant glowing Golden Fleece but lacking in stamina; Lovely Melody (1-29 x Balmung) and Golden Days. The haft extremely wide, the orange beard massive and the falls appear to be washed with gold.

Plicata breeding necessarily does not have to be carried on so so that only plicatas are produced. Plicatas may increase the brilliancy of already existing colors or secure new colors.

Cross 4. Siegfried x Madame Louis Aureau. Two of the first generation seedlings were named Valentine and Wood Thrush. These were mostly conventional plicatas, usually with reddish or brownish markings, and all have now been discarded. All seedlings from this cross were plicatas.

In the second generation Valentine x Florentine gave a Moonlit Sea type done in light blue and yellow. It in turn, selfed, gave Sea Nymph, a clear lemon ice self.

NOTES ON PLICATA BREEDING

By Angus Wilson

I first started breeding irises in quite a small way in 1935 and planted out two short rows of seedlings in the vegetable garden. They were mostly crosses from Californian varieties I had imported from Mr. Salbach. When they bloomed in 1936 a very beautiful flower appeared from a cross between King Tut and Esplendido. It was the first "sanded plicata" I had ever seen—a cream flower sanded with purplish maroon. I named it ODO; it won a silver medal in a plicata group in London in 1938 and, together with another, the second award in the Rome trials. It was, however, sterile, a weak grower and subsequently died out. I am sure it cannot have survived the bombardment of Rome!

At about this time, however, the sanded plicata seems to have emerged simultaneously in England, France and America. Cayeux's new catalogue arrived and I read that a heavily sanded French plicata named Madame Louis Aureau had won the Dykes medal. It was 20 dollars a root—a high price for English gardeners. However I risked the twenty dollars and was amply rewarded for it was from Madame Louis Aureau that all my sanded plicatas of the best quality came. I found that the plicata characteristics of this flower reappeared when it was used as a seed or pollen parent in crosses with other plicatas, and produced plicatas of high quality. I mated it mostly with an obvious parent— Sacramento—and produced a whole set of sturdier and quite hardy variations of this lovely old flower; and, secondly, with another good American, Mary Geddes. Rather surprisingly this cross also produced innumerable plicatas, more varied and interesting in color and markings—DORA MORRIS, a white ground streaked and stippled maroon: CEDRIC MORRIS, rather similar but with a yellow ground color: TARANAKI, a cream flower intricately sanded with Indian red, and many more. My friend Cedric Morris was staying with me when they flowered and urged me to show them at the Iris Show in London in 1938. Rather diffidently I did, and was astonished to receive a silver medal. (It is interesting to note that when discussing these flowers with Professor Mitchell at Berkeley he said he was sure that Mary Geddes had plicata blood.)

Then the war came and I was obliged to turn my garden into a market garden to grow food for local shops and canteens. I regretted it bitterly but as far as the development of the iris in its plicata forms is concerned, it was probably a godsend. Mine was beginners luck, but now Cedric Morris, a brilliant breeder, took up the reins and after a year or two of very scientific work produced flowers far lovelier than mine, and by now, I think, has carried the creation of the plicata iris, in all its engaging forms to what I personally consider the highest degree of perfection.

* * *

■ In the foregoing article on Plicatas by Professor Mitchell, mention is made of the BENTON series, Mr. Morris writes as follows concerning the approach he has used in the problem of producing plicatas; "I am afraid you will find these notes irritatingly unscientific and probably of no use to you. About twelve years ago I crossed Sacramento and Golden Hind and got a series of yellow selfs and bad bronzes. I discarded all of these except one yellow self and this I crossed back to Sacramento. The result was more yellows, bronzes and one variegata. On two of the yellows I put Mary Geddes—the results were more yellows, bronzes and two near yellow plicatas. These near plicatas were crossed together and the result back-crossed to their yellow parents. The resulting seedlings were then crossed together until I got some real yellow plicatas. Eventually I got a line producing 75% yellow plicatas which I was breeding for."

That Mary Geddes carried the factor for plicata has long been apparent. Plicatas were constantly appearing in Mr. Washington's seedling patch, presumably from the Mary Geddes influence. In 1939 this writer bloomed a cross of Soldano X China Clipper. Soldano is a red blend derived from the Mary Geddes line and China Clipper a yellow, reverse bicolor with faint plicata markings at the haft. It also stems from Mary Geddes. The cross produced better than 50% cream ground plicatas with red-purple markings and the reverse bi-colors with plicata markings, in about equal proportions. One of the latter, subsequently named Starbright, was crossed with Athala, (Cayeux) and this union produced around 90% plicatas. The bluest of these seedlings was crossed with Blue Shimmer giving 100% pure white ground plicatas.

One of the more popular plicatas of current vintage is Snow Crystal (Wills) which came from the cross (Sensation X Paulette) X Narain, a cross which produced approximately 3 plicatas and 27 blues. When crossed with Blue Shimmer only plicatas result—with a certain percentage of pure white iris. These whites are white even to the beard and, I understand, are called recessive whites, differing in genetic behavior from the more widely known "dominant" whites derived from Kashmiriana.

G. Douglas.

■ No resume of plicata breeding is complete without mention of the three fine introductions from Mr. Dave Hall, Firecracker, Royal Scott and Tip Top, and, the very different variety from Orville Fay, Fire Dance. The two red and yellow combinations Fire Cracker and Royal Scott stem from Sass breeding, in fact the latter is from Orloff x Elsa Sass. Remembering that Elsa Sass is from Tiffany x Orloff, this gives an insight into the intensive line breeding that has produced these brilliant colored plicatas. Tip-Top is almost a reverse bi-color. The stands are deep blue and the falls almost white. It comes from two Hall seedlings.

Mr. Fay tells us that Fire Dance was out of two Hall un-numbered seedlings, both of which came from the cross that produced Firecracker. It is a most unusual plicata. The stands are rather heavily marked and the falls are dotted around the margin. The dots are so closely spaced that a solid band has been formed of some half inch in width giving a sharp contrast to the cream colored fall. . . . That the profound influence of the Sass iris Tiffany upon the breeding of yellow plicatas extends far and wide is further evidenced by other outstanding introductions. Suzette (Knowlton) comes from Tiffany x Seduction and Tiffanja (De-Forest) stems from Tiffany and Naranja.—ED.

ANNUAL MEETING 1947

By Sam Y. Caldwell

As June started "busting out all over," a horde of rabid iris bugs began their seasonal migration. Destination—Evanston, Illinois, and the Annual Meeting of the American Iris Society.

Many of the 250 enthusiasts who swarmed toward Chicago's north shore suburb took advantage of their opportunity to visit notable iris collections while en route. At Bluffton, Indiana, growers were moaning over excessive rains and cold weather that had delayed bloom far beyond the normal period. Mary Williamson, however, and her mother, Mrs. E. B. Williamson, displayed both delightful hospitality and fine irises among the early things that were flowering. Daybreak's well branched stalks rose proudly above the green lawn at the rear of the Williamson home. Mary's own Master Charles took the spotlight when he unfolded rich purplish blossoms. But none eclipsed Sunny Ruffles, flowering perfectly in the center bed. Plicata fans were pleased by Tiffanja's heart warming performance.

Just outside Bluffton, Paul Cook's remarkable plantings offered a good show of early season color. Among the named varieties and selected seedlings growing in his garden beds, a deep purple-black iris, tentatively called Sable Night, drew most attention.

Throngs roved the field of splendidly grown seedlings. When two visiting firemen discovered a common interest in hybridizing they would squirt intellectual iris talk all over innocent bystanders who were just there because they like irises. Thick, juicy polysyllables, like "homozygosity, epistatic," and "heterozygous" were bandied about without breaking a single jaw. Chromosomes went down for the count. Characteristics ebbed and flowed, now recessive, now dominant. Awed listeners went home to muse over tetraploids with tangerine beards and dream of genes with light brown hair. It was altogether fascinating.

Among the Cook seedlings were pinks and blends and numerous blues of superior quality. Paul himself moved slowly with critical eye through the long rows and rarely—very rarely—stopped to attach a label and a number to a stalk that appeared to "have something." "Tag it today and take it off tomorrow," was his resigned comment.

Most unusual were three rows containing hundreds of deep purple to near black blossoms, and visitors vied with each other in trying to select "the blackest." Acknowledged champion at the time I saw the planting was a brown bearded specimen with the rest of the flower seemingly constructed of black velvet. It should have value as an outstanding novelty. I predict that when a dark iris comes into your future it will be from the amazing iris factory of Bluffton's Paul Cook.

The E. G. Lapham garden at Elkhart, Indiana, was small but full of bloom. A fine, full-flowered clump of L. Merton Gage proclaimed it as a truly top notch variety. Cristabel, too, gave a good account of itself, and a brilliant Red Gleam was in the eye of every visitor. The Lapham field planting, at nearby Wakarusa, likewise carried a generous blanket of color. Of particular interest were numerous flowering plants marked as having also bloomed last fall.

Not far away, at Middlebury, Indiana, the hillside garden of Walter Welch exhibited superbly grown named varieties and a sizable patch of seedlings. Mr. Welch is interested in producing orange colored irises. In addition to hybridizing tall bearded sorts he works with the dwarfs, of which he has hundreds of seedlings coming along.

Out in Iowa there was not merely rain and cold but actually two inches of snow just a week before Mrs. Charles G. Whiting began to welcome guests into her garden at Mapleton. But Old Man Winter's hopes of spoiling the iris show went up in smoke when Mr. Whiting burned 120 gallons of oil in improvised smudge pots. The named varieties were saved, though many seedlings perished.

Young M. E. Long, son of the well known "J. D.," of Boulder, Colorado, told me of seeing wonderful bloom on the Whiting irises on June 5. He was most impressed by Rocket, Blue Rhythm and a smooth red seedling. "Some of the cold-damaged seedlings," he added, "were carrying late buds and might still give a fair display of bloom this season."

Meanwhile, in Evanston there was much apprehension lest the convention days arrive with everything ready except irises. Nature had turned a cold, damp shoulder on this community, much as she had treated other sections. Plants looked wonderful and were

loaded with buds. It appeared, however, that none would open in time.

But just as the swallows always arrive in Capistrano on schedule, so did the flamingos show up in Dave Hall's garden on June 7 to herald the opening of the Annual Meeting. Everyone was happy.

Iris fans breezed about the North Shore and Orrington hotels, renewed old acquaintances, made new ones and discussed everything from Amigo to Zwanenburg. After Saturday morning registration at the North Shore, the busy two-day program got under way. From bus and private car guests poured into David Hall's garden in Wilmette, overflowed into his "Back 40" and then into the "Back 80." While bloom was not abundant, the open flowers were of high quality and pleased the visitors. Chief interest centered on two of Mr. Hall's famous pinks, still under number (46-14 and 46-16), and on Guy Rogers, affable ambassador from the great Southwest, complete in Texas boots. After all, it did rain for a few minutes that morning—about equal to the annual precipitation at Wichita Falls—and Texans are allergic to wet feet.

Among the seedlings showing color were several in attractive yellow- or buff-pink hues. "Peach colored," is what some observers called them. So, perhaps to the family of "Flamingo Pinks" and "Shrimp Pinks" will be added new relatives known as "Peachy Pinks."

Next port of call was the Evanston home of A. I. S. President, Dr. Franklin Cook. Youthful, enthusiastic Dr. Cook has planned his garden very carefully, using flowering trees, trees with decorative foliage, French hybrid lilacs and other deciduous shrubs along with evergreens as background for beds and borders in which irises are featured. Color grouping of the iris varieties has been worked out for pleasing effect.

Though bloom was not sufficient to paint the finished picture, there was enough color to make the garden very lovely. Gloriole and Winter Carnival were splendid in a border beside the house. A stunning three-blossom "picture stalk" of White Wedgewood grew in a bed on the east lawn, and a fine clump of Mary Vernon stood against the neutral green of a large red cedar. Above the clump on either side of the cedar, foliage of Purple-leaved Plum repeated some of the bronzy-red coloring of the iris flowers.

Across the street from Dr. Cook's, Orville Fay and his irises were ready. Sunny and somewhat better protected from winds than the other plantings, this garden offered rather plentiful bloom. Great splashes of yellow adorned the clumps of Orville's new Xantha (which later paid off handsomely). Good branching and finely formed sugar-and-cream flowers distinguished his Desert Song, and Fire Dance made a striking plicata. The bloom on plants of Snow Flurry was just about perfect.

After feasting on iris beauty and lore all morning, some 240 guests did ample justice to the noontime luncheon served at the Michigan Shores Club. Then, since it had not been possible for everyone to cover all three gardens during the morning, the Hall, Cook and Fay displays were visited and re-visited throughout the afternoon.

The Society's Annual Meeting and Dinner took place at 6:30 in the evening at the North Shore Hotel. After an excellent dinner menu, Junius Fishburn, of Roanoke, Virginia—chiefly distinguished, he claimed, by being an ex-vice president of the Society—directed the program ably and pleasantly through the evening.

President Franklin Cook told the audience of the Society's progress, problems and plans. A dealers' association, he feels, will help surmount some of the difficulties now confronting commercial interests in the iris fancy. Breeders must stress hardiness in varieties, so that gardeners generally will use irises along with other hardy perennials in planting their home grounds. A simple, workable system of classification is needed. The Scientific Committee is working on this problem. Regional performance ratings are invaluable to people who want to know what varieties are most likely to succeed in their own gardens. Such ratings will be offered Society members through the Bulletin. The system of numerical rating of irises has been suspended for the time being because of careless judging.

Dr. Cook spoke of the Society's "growing pains"—of how it has reached approximately 2,500 members. He expressed appreciation to Bulletin Editor Geddes Douglas, to Secretary Howard R. Watkins and the staff of the Washington office, and to committee members and officers who give many hours of their time to the Society.

Messrs. Douglas and Watkins made informal reports, as did the Regional Vice Presidents in attendance, who were introduced by Mr. Fishburn.

Special guest and speaker of the evening was Mr. Geoffrey L. Pilkington, President of The Iris Society (England). After conveying greetings from our fellow iris growers in England, Mr. Pilkington reviewed the advancement that he has noted in iris breeding since his last visit to this country in 1939. Immense progress, he believes, has been made. Yellows and whites are now excellent, and breeders might well move on to something else. The pinks are a most remarkable development. But we need more good blues, he feels, and more work can be done on reds. Also there is room for a better purple—one without the striation of present day varieties.

"Plicatas," he said, "are becoming a disease." He is not altogether happy about them. People are calling things "plicatas" that he is not accustomed to recognize under that name. The plicated or stitched edges that distinguished older varieties are not evident on some of the new introductions. "Something must be done," he concluded.

Mr. Pilkington brought news to the audience of the award by The Iris Society of its Foster Memorial Placque to America's great Mid-West hybridizers, the late Jacob Sass and his brother, Hans. Most touching scene of the meeting occurred when Mr. Fishburn introduced Hans Sass and the entire audience stood in tribute to this talented, pioneer plantsman whose work has contributed so much to the beauty of gardens here and abroad.

On behalf of the American Iris Society, Mr. Fishburn then presented the Medal for Distinguished Service to Jesse Wills, Nashville, for his faithful service as President of the Society during the difficult war years.

The Medal for Hybridizing was given to Kenneth Smith in appreciation of outstanding iris varieties that he has produced at his Staten Island gardens.

"Dirt Gardener" Harry R. O'Brien spoke entertainingly on the need of irises for Josephus Dokes, the average backyard gardener. And Better Homes and Gardens' Fleeta Brownell Woodroffe brought good news concerning a control for the bugaboo iris borer.

Dr. L. F. Randolph, Chairman of the A. I. S. Scientific Committee, reported briefly on the work of the committee toward a solution of the classification problem.

Election returns always bring an air of excitement, so the final

event of the evening—presentation of the President's Cup—was eagerly awaited. In accordance with rules of competition for the new award, ballots had already been cast by attendants at the meeting.

"This cup," explained the donor, Dr. Cook, "goes to the originator of the most outstanding named variety of any duly introduced iris (not necessarily a new one) seen at the time of the Annual Meeting growing in any garden on the program, and judged by members of the A. I. S. attending to be the most meritorious iris seen at the meeting. Unintroduced seedlings are not eligible.

"The original cup shall be held by each annual winner for one year only, until some hybridizer shall receive the award three times, when it will pass into his permanent possession.

"A small replica of the original cup will be donated to each annual winner, suitably engraved."

Tabulation of votes revealed the people's choice to be Xantha, showy yellow iris in Orville Fay's garden. Dr. Cook passed the handsome cup to his proud neighbor. Dave Hall's marvelous pink Cherie, handicapped by having only a few flowers open at the far end of the "Back 80" and missed by many visitors, nevertheless took second place. Fay scored again when his Desert Song ranked third.

Sunday morning brought a treat to those who like gardens in which irises are harmoniously associated with other perennials. Mrs. Fred Clutton's interesting and beautiful gardens at Highland Park displayed irises in plantings with various perennials and shrubs on a hillside slope where outcropping stones contributed to the naturalistic effect.

The home of Elmer Claar in a woodland setting at Northfield had a relatively new garden but one containing a wide variety of plant materials. While admiring the irises, the tulips, the azaleas and gorgeous tree peonies, you'd decide that it would be nice to get over to Elmer's earlier in the season for a glimpse of the spring wildings and also later in the summer to marvel over one of the finest daylily collections in the country.

Sunday afternoon the official program of the A. I. S. Annual Meeting came to a close as guests called for tea and a final inspection of the garden at the hospitable Hall home.

But a goodly number hesitated to say goodbye. Bashful iris

buds that had refused to open with crowds around now began to flaunt their standards. Monday morning the "holdover" guests were well rewarded. Orville Fay's place was what garden writers like to call a riot of color. Countless "Oh's" and Ah's" were breathed and yards of Kodachrome film were shot at the color pageant of Dr. Franklin Cook. And the Hall irises were "in the pink." Perhaps Cherie was best, but Radiation, a soft lavender-pink self with glowing tangerine beard, was distinctly different and desirable.

Centrally located Evanston, community of fine homes, beautiful trees, green lawns and well kept gardens, proved to be an ideal spot for the Annual Meeting. All our thanks are due the local officers of the Society whose careful planning and generous hospitality made the event a success.

While many attendants were from the Chicago area and neighboring Indiana points, it was heartening to see that fine irises still have a magnetic appeal that packs 'em in from all over. Mrs. Harry Bickle came down from Toronto. Dr. and Mrs. Robert J. Graves were in from Concord, N. H., and Dr. and Mrs. Walter E. Tobie arrived from away down East in Portland, Me. Boston and vicinity were represented by Mr. and Mrs. Thomas Nesmith. Mrs. L. J. (Louise) Blake came up from her well known "Hall of Fame" garden at Three Oaks, Spartanburg, S. C., and Mrs. Revel and Mrs. Avent attended from Grenada, Miss. Texas was well represented by Mr. and Mrs. Guy B. Rogers. Another Southwesterner, Eleanor Hill, complete with Exacta, exposure meters and filters, arrived, not from her Tulsa home but all the way from Porto Rico. From the Golden State came Mrs. George Pollock, of Sacramento, and the long trip from the Pacific Northwest was made by Bob Cooley, Fred DeForest, Mrs. Edna C. Weed, Wilbur W. Weed and part-time Northwesterner Bob Schreiner.

POSTMAN'S HOLIDAY (TEXAS AND LOUISIANA)

By Geddes Douglas

■ Mr. L. H. Beck of Griffin, Ga., has collected a series of delightful myths concerning Iris as the messenger of the Gods. One of these deals with a visit by Iris to the cavern of Somnus, in which Iris, having been given a rainbow as a scarf, flung it across the sky and ran down the rainbow to the cave of utter darkness. As Iris stepped inside, her brilliant robes lit the gloom and so startled Somnus that he sent Morpheus to carry a vision to Halcyon at Iris' bidding.

I thought of this lovely myth as the flagship "City of Memphis" carried me along a path of billowy clouds brilliantly colored by the rainbow hues of the setting sun. I was unable to emulate Iris any further however, for as we descended into Dallas darkness followed close behind and Bolie Cochran had to turn on his flood lights for my first look at iris in 1947. An expanding airport swallowed the Cochran home during the war years, and the current planting in the new home is smaller than the old but contains many fine varieties as well as some outstanding seedlings. Tiffanja and Elmohr made gorgeous clumps as did Remembrance and Nightfall. Snow Flurry and Cloud Castle were in full bloom and the show clump of the garden was an old timer—you have guessed it, none other than Los Angeles!

The following morning (April 23rd). I saw my first case of "pine-appling," a new—at least to this writer—disease affecting iris. It is described elsewhere in this issue, but it is sufficient to say that it is not to be taken lightly. It is becoming serious in the Southwest, and the answer to it is not yet at hand. We visited the garden of Dr. Sydney Baird where we saw good bloom on Pink Ruffles, Spindrift, Golden Eagle and Lady Mohr. Our visit was a week early to see the doctor's seedlings. Our next stop was at the

◀■ *A.I.S. JUDGES AT WICHITA FALLS, TEXAS*

Front Row: Mrs. Guy Y. Williams, Mrs. A. M. Tallmon, Mrs. W. R. Jordan, Mrs. W. K. Rose, Mrs. S. W. Ray, Mrs. R. W. Wallace, Mrs. Hally B. Hampton, W. L. Cochran.

Back Row: Guy Rogers, Geddes Douglas, Miss Eleanor Hill, Mrs. H. M. Muse, Joe C. Benson, Mrs. Preston A. Childers.

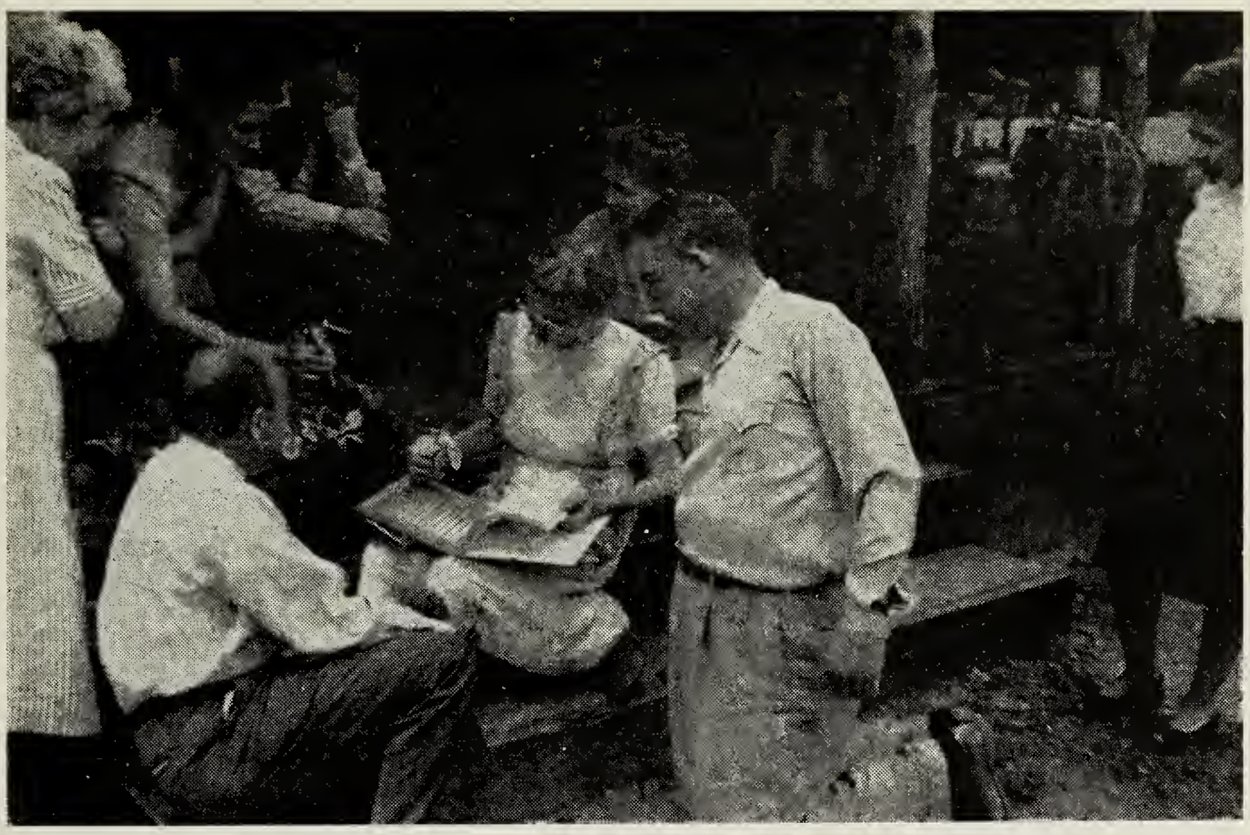
beautiful hillside garden of Dr. Ben Berger. Dr. Berger's iris were just beginning to open for being rather shady his garden appeared to be a day or two behind the others which we saw.

We found Mrs. William Benners and Mrs. G. R. Scruggs in the lovely Benners' garden and passed a delightful half-hour before setting out for Fort Worth and the garden of Mrs. W. K. Rose. The Rose Garden boasts a wonderful collection of new varieties but easily the most outstanding clump in the garden was a magnificant display of Lady Mohr. Some people like this iris and some do not. Personally I find its form delightful and its color slightly uninteresting, but the fact remains that over the South and the Southwest where this writer has seen it, this iris has given a uniformly satisfactory performance.

A delightful garden party was in progress when we arrived at Mrs. Rose's. Delicious refreshments were served which your correspondent thoroughly enjoyed, for not even iris has ever interfered with my appetite, and thus fortified we set out for Wichita Falls. This is a trip of some one hundred thirty-five miles across the treeless plains of north Texas. Only the feathery first growth of the mesquite and scattered dwellings break the monotony of the gently rolling landscape.

The beautiful clouds of the day before took on a different hue when they clung lower and lower and finally began to drip on us as we arrived at the garden of Mr. and Mrs. Guy Rogers. The rain held off, fortunately, until some fifty guests had had a chance to try some of Mrs. Roger's delicious Mexican food served at an out-door buffet supper. Cold weather had delayed the opening of many iris in Judge Rogers' magnificent collection, but many were blooming and at their very best. This writer has seen most of the prominent iris gardens in the eastern half of the United States but has never seen iris better grown than those in Judge Roger's garden, and this in a section of the country not too richly endowed as to soil nor favored with a propitious climate. Growth was magnificent; bloomstalks were tall and sturdy. Elsewhere in this issue Judge Rogers gives his formula for fertilization especially adapted to Texas conditions.

The rain which missed the garden party completely ruined any possibility of looking at iris on the 24th, the day of the first Regional Meeting of the newly created Region Eighteen, a meeting which we believe, will offer a challenge to other regions for some



MATCHING A COLOR AT "BRIARWOOD"

Lillian Trichel, Minnie Colquitt, Ike Nelson, Mrs. Skoog, Caroline Dormon, Catherine Cornay, Ray Cornay, Marie Caillet.

time to come. There were four hundred and three rabid iris fans at the banquet which we believe is something of a record. Congratulations are certainly in order to Judge and Mrs. Rogers and to Mrs. Chester Searls and Mrs. Frank Cullum for a most successful meeting which directly resulted in one hundred and seven new members for the A.I.S.

From Wichita Falls we motored back to Dallas and there I caught the plane again and in the short space of an hour or so I was in Shreveport, La. I say space advisedly, for now you do not measure space in miles but rather in minutes. If you share with me a memory, however vague, of the horse and buggy, it is slightly bewildering to be looking at iris in Bolie Cochran's garden just before twelve o'clock and at one thirty be looking at Mr. Ed Dickinson's gorgeous combination of iris and roses in Shreveport! Bloom was well advanced there, China Lady was putting on a fine display and Yellow Jewel had an excellent stalk with three flowers out. I almost burst with pride when I saw Chicory Blue and Titian Lady and did burst when I saw Extravaganza. But for a different reason. There it sat, and had been sitting for two years,

sulking like a century plant. All iris do not do well in Shreveport for it is almost at the southern limit of the Tall Bearded iris zone. Derivatives of Mesopotamica etc., grow fine but the variegata sorts tend to be shy blooming.

Shreveportians can well be choosey about their Tall Bearded iris, for in the gardens of that city is the most representative collection of beardless Louisiana varieties in the world. No one garden has them all. All have many. There is a wealth of new seedlings and several deserve mention. Mrs. W. R. Mathews has two called Delta Treasure and Delta Magic. The first is of that lovely shade of soft tanned gold peculiar to the Abbeville type. Delta Magic is a red of fine form and good carrying power. Mrs. Alex Smith has named a new one Cajan Surprise. This is another one in apricot and gold with bright yellow style arms. Mrs. C. C. Clark has a noteworthy bicolor from Contrast X Mary DeBaillon which has light wine-pink petals (standards) and deeper wine red sepals (falls). A new creation of the late Mrs. Ruth Dormon is Coral Gleam which is done in gold and salmon.

From Mrs. Milton Trichel come three in beautiful rose-pink shades; Lillian Bouldin, a bright pink bi-tone with a bright signal patch; Emma Sample, medium rose self with prominent gold patch and Sibyl Sample. I have grown Sibyl for two seasons in Nashville and it makes a lovely clump. It opens deep, bright rose and immediately fades lighter but retains its brightness. The two shades of pink make the clump odd but attractive.

Native white iris are a specialty with Miss Caroline Dormon, artist, botanist and naturalist of Saline, Louisiana. They are planted along a spring branch in little swampy places. No effort is made at a "garden," they are planted as nature would have planted them. Most beautiful of all is lovely, etherial June Clouds, with its delicately serrated standards. Many types were in evidence—I. virginica, var. Caroliniana, giant blue gigantea caeruleas, Abbeville Reds, a beautiful clump of New Orleans, a large rose pink with pointed falls. Her farm, Briarwood, abounds with every known tree and shrub native to Louisiana—rare things and little known. One half of the famous Mary DeBaillon collection of beardless iris is found in her garden, the other half at the Louisiana State University.

We were too early to see Minnie Colquitt's (of plicata fame) collection of collected Foliosas. These iris bloom after the fulvas

Miss Marie Caillet, Mrs. Walter Colquitt, Mrs. Ira Nelson.

and the hybrids. Many have the idea that a species is always the same color. This is not true. I have seen great fields of I. foliosa in bloom and nature has reached into the sky and brought down every shade of blue to color these beautiful flowers. Unfortunately most Louisiana hybridizers neglect the Foliosas as sources of garden hybrids. They give branching to their offspring, extend the season appreciably and most important of all they give clear, scintillating blues, the most usable of all colors in the garden.

A quick look at Mrs. Trichel's clump of snow white Virginica was a fitting climax to my stay in Louisiana and three hours later I was in my garden in Nashville looking at some brand new pink bud seedlings just opening their first blossoms. And then I stopped to think. Here I have been writing about iris all winter, planting seedlings and working in them all spring and then at the first opportunity I tear off to look at them all over Texas. But a postman never has so much fun as when he takes a "postman's holiday"!

SOUTHERN CALIFORNIA IRIS TREK

By Carl C. Taylor

I shall mention, but not dwell upon, the weather, for we had perhaps the most disappointing season in years. The vagaries of the weather veered from frost on April 3rd to temperatures of 105° in the shade soon after, then an unusually late "Santa Ana" which is a north wind of hurricane proportions which lasted four days, followed by a rain and hail storm. Notwithstanding all this, in my garden there was continuous bloom on the tall bearded Iris for three months. This certainly refutes the often heard remark that the Iris season is too short.

The first visit in 1947 was to the interesting garden of Clarence White in Redlands where the oncos and the oncobreds provide a joy never to be forgotten. He also had a Tobacco Road seedling of beautiful rich red brown color which is fine on all counts. I think it is to be called "Your Majesty." Two of my favorites among the oncobreds are "Nelson of Hilly" and "Some Love." The former is taller but the latter is just as beautiful. What excellent material for arrangements is found among the oncobreds!

In Redlands there are also the gardens of Mrs. Barry Diffle and the Rev. E. H. Brenan, the latter having some very good seedlings from only a few crosses.

The next trip was to the commercial gardens of Carl Milliken at Arcadia, Miss Elma Miess at San Fernando, and Mrs. Mildred Lyon at Van Nuys. The Milliken display garden is always lovely, consisting of several acres with the Iris beds planted among live oaks and fine flowering trees and shrubs. The Syllmar gardens of Miss Miess consist of a display garden nicely laid out, but being new and having to contend with unfavorable weather, was not at its best. Next year we hope to see it in all its glory. Mrs. Lyon's garden is similar to the Syllmar gardens, having moved to its new location this past year.

Next at Sherman Oaks we visited the gardens of Mrs. Pattison and Mrs. Heimer. Mrs. Pattison had wonderful growth this year but very little bloom. I predict a grand season for her next year. Mrs. Heimer's was the outstanding garden of the year. With most of the newer better varieties all wonderfully grown, we had the pleasure of seeing them at their best.

I am trying to keep away from varietal comments but can't refrain from mentioning Chivalry, a fine blue with well formed flower and excellent stem. Mrs. Heimer said she considered Golden Ruffles outstanding and she had a magnificent clump. Mandalay, a splendid light copper color, and the somewhat similar Bryce Canyon were fine. Black Banner is a very dark red-purple with large flower on short stem. Amity appears to be one of the best lavender plicatas with nice color and pattern and good form.

Quite a group of judges assembled at Mrs. Heimer's, Mrs. Stuetzel, Mrs. Pattison, Robert Cooley, Mrs. Newcomb, and next day we were joined by Mrs. Burbridge, Mrs. Diffle, Mrs. Shank, Miss Council and Mrs. Cruise. This group then visited the garden of Mrs. Steutzel at Canoga Park, and then on another fifty miles through the beautiful Santa Susana pass to Marion Walker's at Ventura. Mrs. Steutzel has a fine garden with many of the best new varieties. At Marion Walker's we were most interested in his seedlings of which there were several of great promise. Among them is a green Dutch Iris which will surprise the Iris world when there is stock enough to divide. Another is a splendid Spuria S-1-47. Some of his tall bearded seedlings for this year look good but will have to be observed another season. Among his named ones is Sky Maid, a most useful medium blue. There was also a splendid clump of Esquire (Loth.) which is a fine dark blue. At noon we had a picnic lunch under a spreading Winter Nellis pear tree in his interesting patio. I think Marion's progress in the Iris world will bear watching. He is a young man in his early thirties, is a Stanford graduate and is a successful lemon orchardist and has the enthusiasm to devote his spare time to his avocation of breeding Iris.

We ended our trek in the extensive garden of the noted artist, Tom Craig on top of Mt. Washington in Los Angeles. Here in company with Prof. Sydney Mitchell and Prof. Stafford Jory we examined countless numbers of seedlings, many of which were excellent. We shall doubtless hear much more about Tom's seedlings within a few years.

SOUTHERN UNITED STATES IRISES—SPECIES AND HYBRIDS

By George M. Reed

Before 1920 only six species of Iris were listed for the Southern Atlantic and Gulf States, all of which had been known for more than a century.

Iris versicolor L. and *I. virginica* L. were recorded by Linnaeus in 1753, the latter species being described again by Radius in 1822 under the name of *I. carolina.* These two species have been commonly confused. At the present time *I. versicolor* is common in the North East extending south to Virginia. *I. virginica* has been considered the more southern of the two and is listed generally over the Southern states. Small (1927) described *I. shrevei* as a new species from Farmington, Arkansas. Anderson (1936) recently has considered this iris as a variety of *I. virginica* extending well northward into Ontario, Can., Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, Kentucky, and Tennessee.

The third species listed for the region was *Iris hexagona* Walter, who recorded it in 1788. It is commonly considered as confined to South Carolina and Georgia, although it may extend into some of the Gulf States.

The fourth species is *Iris tripetala* Walter, described in 1788. This species is very different from the others found in the southern region. A conspicuous feature is the greatly reduced petals or standards, in this respect resembling *I. setosa.* The rhizome is slender and widely creeping through the soil. The leaves are quite narrow, about one foot long. The flower stalk is slender, nearly erect, about one and one-half feet tall. Usually there is one terminal flower and sometimes another borne below. The color is a bluish purple, varying in brightness, deeper colored veins are evident and there is a conspicuous yellow zone at the base of the falls. The plant grows in the low pine lands of the Coastal Plains from North Carolina to Florida and has been reported from Tennessee.

The fifth species described was *Iris fulva* by Ker-Gawler, in 1812, and was recorded as limited locally to the vicinity of New Orleans. In the same area Pursh, in 1814, described this iris under the name of *I. cuprea.* Rafinesque (1817) listed *I. rubescens,* his

description being based on an earlier account of Robin (1807), who described in some detail three species, all of which were named by Rafinesque. This iris is now known to have a wide range being found in southeastern Missouri, western Tennessee, southern Illinois and Ohio (Waller, 1931). In some of the more northern areas, however, it may be an escape from a garden collection.

The sixth species recorded was *Iris brevicaulis* by Rafinesque, in 1817, a fuller description being given in 1837. In 1902 it was recorded by Mackenzie and Bush under the name of *I. foliosa,* from Jackson County, near Independence, Missouri. It is widely distributed along the larger river valleys in Arkansas, Missouri, Tennessee, Kentucky, Illinois, Indiana, Ohio, as well as Louisiana and other Gulf States. Small (1927) described *I. flexicaulis* from the western Gulf Region. This species, however, may be merely a variant of *I. brevicaulis.*

There are three other species known from the upland areas of Tennessee, Alabama and Georgia: *Iris cristata* Aiton (1789), *I. prismatica* Pursh (1814), and *I. verna* L. (1753).

In the present account of the southern iris the species of chief interest belong to the Hexagona group—*Iris brevicaulis* (I. foliosa), *I. fulva,* and *I. hexagona.*

In 1924, Dr. John K. Small described two new species of iris from Florida—*Iris kimballiae* and *I. savannarum.* These were followed in 1927 by *I. flexicaulis* (mentioned above), *I. rivularis, I. vinicolor* from Louisiana, and *I. shrevei* from Arkansas. Further, in 1929, *I. albispiritus* was reported from Florida and six new species from Louisiana—*I. atrocynea, I. chrysaeola, I. chrysophoenicia, I. giganticaerulea, I. miraculosa,* and *I. violipurpurea.* Then, in 1933, Small and Alexander recorded ninety species of the Hexagona-fulva group, which included those mentioned above and seventy-eight new ones. In addition, *I. prismatica, I. tripetala, I. versicolor, I. virginica,* and the new species *I. shrevei* from Arkansas, as well as the yellow flag of Europe, *I. pseudacorus,* are listed as growing in the general region.

This amazing increase in the number of so-called species, with one exception *Iris shrevei,* belonging to the Hexagonae, aroused wide spread interest in the iris of the South. Apparently few people knew much about the great variation of the southern iris. The question then arises, Why were they so little known and why had not the botanical and horticultural explorers heralded them far and wide?

The description of so many new species, most of them narrowly limited in their distribution, raised questions in the minds of many students and observers. The problem of these irises has been attacked from two standpoints—hybridization and ecological requirements—and the information secured throws much light on the situation.

Hybridization in the Southern Iris

Extensive studies in the hybridization of *Iris fulva* with other related species have been carried out. In this connection two points may be specifically considered—the flower color and the condition for favorable growth of the iris.

Southern Iris Flower Color. An examination of the falls of the iris flower reveals that the cells of the epidermal or surface layer extend outward in minute projections, or papillae, which give the surface a velvety appearance. In the base of these epidermal cells leucoplasts may be present. These are yellow in color and, if no other pigments are present, are responsible for the yellow color of the floral parts. The small crests at the base of the falls have similar epidermal cells which contain leucoplasts and account for their yellow color. The same is true of the yellow lines or veins at the base of the falls. In addition to the leucoplasts, other pigments, anthocyanins, occur in solution in the cell sap, which may be red or blue in color, depending upon whether the cell sap is acid or alkaline in reaction.

If no leucoplasts are present, the flower color is blue or red, the various hues and tones being due to the constitution of the anthocyanins, as well as to the thickness of the sepals, petals or other parts of the flower. The presence of the anthocyanins and leucoplasts give rise to the various tones of orange and yellow. In *Iris fulva* the leucoplasts and red anthocyanins are present and are responsible for the characteristic flower color of this species. On the other hand, in most of the cells of *I. foliosa* there are no leucoplasts and the anthocyanins are blue.

Conditions of Growth. In the south, conditions are favorable for the vigorous growth of these irises in contrast to the situation in Brooklyn, N. Y. and other northern areas which are not nearly so favorable. The plants are likely to be injured more or less during the severe winters and, even when they do survive, they do not grow as vigorously as in their native habitat. However, the stems of *Iris fulva* usually extend to a height of about three feet

and *I. giganticaerulea,* three feet or more. *I. foliosa,* however, never becomes more than about a foot tall. Under greenhouse conditions the plants are much larger and more vigorous in their growth. First generation hybrids between *I. fulva* and *I. giganticaerulea* grew to be five or more feet tall.

Early Work in Hybridization. In 1925, before the species-making in the southern iris had reached the flood stage, I undertook some studies of hybridization of *Iris fulva* and *I. foliosa* following the earlier work of Dykes and Williamson. Dykes (1913) pollinized *I. fulva* with pollen from *I. foliosa,* which was known at that time as *I. hexagona* variety *lamancei* Gerard (1895). The seed was planted and the seedlings flowered in 1910. One of the seedlings was named Fulvala and a color illustration appeared in his "The Genus Iris," Plate 21. The hybrid is a compromise in growth characteristics between the two parents, the foliage neither dying away entirely in autumn, like that of *I. foliosa,* nor remaining green and of considerable length like that of *I. fulva.* In *I. foliosa* the young leaves, in the fall, are only about an inch long while those of *I. fulva* are at least a foot in length, the leaves of the hybrid being four to six inches long. The stem was more like that of *I. fulva.* The flowers had the shape of *I. foliosa* with somewhat more rounded segments. The color was distinctly a compromise between the terra cotta or orange-red of *I. fulva* and the blue-violet of *I. foliosa.* In another seedling the shade of color was more distinctly a blue-purple.

E. B. Williamson, in 1918, introduced the variety *Dorothea K. Williamson,* obtained from pollinating *Iris fulva* with pollen from *I. foliosa.* The variety is a vigorous growing plant with flowers approaching the shape of *I. foliosa,* but rich violet-purple in color. The leaves are longer than those of *I. foliosa* and the stems are taller, up to two and one-half feet, and bear several flowers, which may open at the same time. The stems, however, do not exceed the leaves in height. The falls remain nearly horizontal. The standards spread out in about the same plane as the falls. The flower differs from Fulvala in that the falls are more pointed and a bluer tone of color. The color matches very closely the Hyacinth Violet of Ridgway.

Both Fulvala and Dorothea K. Williamson are correctly spoken of as first generation hybrids. Apparently neither Dykes nor Williamson self-pollinated their hybrids in order to grow the

second generation, which is the one in which segregation occurs and thus would be expected to show individuals varying greatly in plant characteristics, including flower shape and color.

In 1931 I published an account of my first experiments. In 1925 Dorothea K. Williamson was pollinated with its own pollen and good viable seed was obtained. Four seedlings flowered in 1928 and two others in 1929. These plants belong to the second hybrid generation. They varied in their growth habits but the most striking differences were in the flower shape and color. Perhaps the most interesting one of the group was a yellow flowered type. Five of these were described and illustrated in color along with *Iris fulva, I. foliosa* and Dorothea K. Williamson, the first generation plant.

Miss Grace Sturtevant (1933) gave an account of the work of Mr. T. A. Washington. For many years, beginning before 1920, he was much interested in the iris of the southern Mississippi River region, collected them from various localities and grew them in central Tennessee. By 1920, he had several forms of *Iris foliosa* and *I. fulva,* some of which were secured as far north as Tenn., as well as northern Miss., and La. He crossed some of these and obtained forms varying greatly in flower color, growing them in his garden where they attracted a great deal of attention. Around 1930 several of his varieties were introduced by Mrs. Thomas Nesmith, Fairmount Gardens.

Iris fulva

Color Plates: Ker-Gawler (1812), plate No. 1496, Dykes (1921), plate 21, Small (1927), plate 388, Reed (1931.)

The iris was first described by Ker-Gawler (1812) as "An unrecorded and singular species, differing from any known to us in the color and inflection of the corolla. Found spontaneous on the Banks of Mississippi, in low grounds not far from the town of New Orleans. Introduced into this country in 1811, by Mr. Lyon, a very intelligent and industrious collector of North-American plants. Hardy. Blossoms in June. Seeds freely, and is easily propagated by dividing the rootstock."

Two years later Pursh (1814) described the same plant as *Iris cuprea,* again referring to the peculiar color of the flower, stating that it was found "on the banks of the Mississippi near New Orleans; discovered by Mr. Enslen, collector to the Prince Lichtenstein of Austria. Flowers of a beautiful copper color, veined with

purple.''

Dykes (1913) gives the distribution of the species as the immediate vicinity of New Orleans. Small (1927) describes it as forming numerous large and small colonies in the general vicinity of New Orleans, sometimes occurring in practically pure stands.

As a matter of fact *Iris fulva* is rather widely distributed in the Mississippi valley occurring in the swamps of southern Illinois and Missouri to Louisiana.

There is no definite agreement on the part of the different observers regarding the color of the flower of *Iris fulva.* Some record it as a tone of Corinthian red, which is fairly close to Pompeian red but somewhat duller due to the greater dilution with gray, or as terra cotta, but this is a duller tone than in the usual flowers.

Iris fulva in Ridgway's (1912) color classification belongs in the general range of orange-red. It is not the pure mixture of these two colors but somewhat diluted with white or gray. The color of the flowers in some plants corresponded to the Pompeian red, which is a mixture of orange and red diluted with gray. The flowers of other seedlings fitted fairly well with vinaceous pink, Rhodonite pink or pale ochraceous buff, due to the gray. In general, the color of the standards is nearly the same as that of the falls; partly due to the fact that they are thinner in texture they are somewhat lighter in tone.

The leaves are two to three feet long, greenish yellow in color, and tend to droop over at the upper end. The flower stems are tall and slender, up to three feet or more, and bear a terminal cluster of flowers well above the recurving leaves. The height of the stalk and length of the leaves vary greatly with the conditions under which the plant is grown. There are usually two terminal flowers enclosed in unequal bracts. One or more lateral flowers are generally produced in the axils of leafy bracts lower down on the flower stem.

Soon after the blooming period the plant tends to pass into a more or less resting condition; then later in the summer or early fall growth is renewed. Accordingly the leaves are considerably developed during the late fall and, in northern climates, this frequently results in considerable damage due to the severe winters.

When the flower first opens the segments droop down, later becoming elevated and assuming a horizontal or slightly arching

position. The sepals, or falls, and the petals, or standards, are very similar in color, the former being slightly darker and richer in effect. The veins are somewhat more deeply colored than the main surface.

The ovary has six longitudinal ridges or ribs which give it a hexagonal appearance. The mature seed capsule, however, is nearly ellipsoidal, being about two inches in length, and contains a large number of seeds arranged more or less in two rows in each of the three chambers. The seeds are large, pale brown, with a thick corky husk. They are more or less flattened, semi-circular and irregular in shape due to the pressure within the developing pod.

The seeds possess a high degree of viability and seedlings may be obtained easily. In the course of our experiments several have been grown to maturity and they have shown a remarkable similarity to the parental type. We have also had clones from different sources, all coming, however, from the vicinity of New Orleans, and only minor variations or differences have been noted between these.

Iris foliosa

Color Plates: Dykes (1913) plate 20, Small (1924) plate 315, Reed (1931).

Iris foliosa was described by Mackenzie and Bush in 1902. Actually, however, the iris was first reported by Rafinesque in 1817 under the name of *I. brevicaulis,* a fuller description being added in 1837. Further, the same plant seems to have been known as *I. hexagona* variety *lamancei,* being recorded as such by Lora S. La Mance and named but not described in Garden and Forest in 1895. It was Mackenzie and Bush, however, who clearly distinguished the species from other kinds of iris. They stated that it "grows in dense masses in low open dry woods and prairies in Kentucky, Illinois, Missouri and Kansas. This species is distinguished from *I. hexagona* Walter, a species of the Southern States, to which it has been referred by Watson and other American botanists, by its smaller pedicelled flowers."

This iris is characterized by the relatively short leaves standing more or less erect, little more than a foot in length. The flower stalks are much shorter, more or less zig-zag, prostrate and hidden by the leaves. There are usually two terminal flowers as well as others in the axils of the leafy bracts. The falls are a light bluish-purple, except near the base of the blade where there are numer-

ous white lines on either side of the clear yellow linear crest, which extend down the claw. The standards are light bluish in color, becoming pale, nearly white, towards the base.

The ovary of *Iris foliosa* is six-angled, or hexagonal, due to the longitudinal ridges. The mature capsule is nearly spherical, about an inch in diameter. It contains relatively few seeds which are quite large, more or less irregular in shape and size, with a thick corky covering.

Iris foliosa extends much further north than *I. fulva,* although the two overlap in a part of their area. It differs from *I. fulva* in that the leaves die down in the fall and the new ones grow very little until the following spring. Consequently the species will stand much more severe winter conditions than *I. fulva.*

In the lower Mississippi valley and along the Gulf there are variants of this iris, some of which have been described by Small and Alexander as distinct species. Albino forms have been described, Daniels (1907) first recording one as variety *Boonensis.*

Hybrids of Iris foliosa and I. fulva

Several different clones of *Iris fulva* were used in making the crosses, one of which had been growing at the Brooklyn Botanic Garden for several years. All of the clones resembled each other quite closely and fitted with the usual description of the species. *Iris foliosa* was obtained from Columbia, Missouri.

First generation plants of Iris foliosa and I. fulva.

Fulvala (Iris fulva x. I. foliosa F_1).

In 1907 Dykes pollinated *Iris fulva* with pollen from *I. foliosa* and in 1910 one of the seedlings which flowered was named Fulvala. A color illustration appears on plate 21 of "The Genus Iris," 1913. Leaves: similar to *I. fulva,* slightly broader and greener; stalks: erect, to 3 feet or more; flowers: 4½-5 inches, falls and standards spreading, red-purple (Rood's violet); falls: 3 x 1½ inches, the veins darker, especially near the bright yellow crest on the base of the blade; standards: narrow, 2 x ¾ inches; style branches: rather broad, pale towards the base, the tips red-purple.

Dorothea K. Williamson (Iris fulva x I. foliosa F_1*)*

Color plate: Reed (1931).

A first generation plant, introduced by E. B. Williamson in 1918, was obtained by pollinating *I. fulva* with pollen from *I. foliosa.* It is a vigorous growing plant with broad green leaves about as long as the flower stalk, somewhat reflexed. The flower

stalk is nearly erect, to 3 feet. Flowers: rather large, 5 inches, falls and standards spreading; falls: 2¾ x 1¼ inches, violet-purple (Hyacinth violet), darker along the narrow central crest, veins faint; standards: 1½ x ¾ inches, paler but similar color tones; style branches: narrow, red-purple, tips darker and more violet.

Iris foliosa x I. fulva—first generation

In 1931, I published an account of first and second generation plants, the parental species, first generation (Dorothea K. Williamson) and five second generation plants being illustrated by color figures.

A cross was made in 1924 and the hybrid plants flowered in 1928. The growth was not so vigorous as in *Dorothea K. Williamson.* Flowers: 4 inches, falls and standards spreading; falls: 2½ x 1⅛ inches, violet-purple (Petunia violet), differing from the red-violet Fulvala and violet-red of Dorothea K. Williamson, in being diluted with gray, darker along the bright yellow crest; standards: 1½ x ⅝ inches, violet-purple (Petunia violet); style branches: greenish at the base, pale red-purple at the tips.

Iris foliosa x I. fulva—second generation plants

A large number of second generation plants of the foliosa-fulva crosses have been grown, of which thirty are described in some detail. The first five plants were illustrated by color plates in 1931 and eight others in the present paper.

1. Flowers: smaller than Dorothea K. Williamson, falls and standards arching to drooping, violet purple; falls: narrow, yellow crest inconspicuous; standards: narrow, pointed; style branches: greenish yellow, crests red-purple.

2. Flowers: larger than number one, falls and standards spreading, red-purple; falls: broader, yellow crest silghtly more distinct; standards: broader; style branches: red-purple.

3. Flowers: 4 inches, falls and standards spreading; falls: 2 x 1⅛ inches, margin light blue-violet, underlaid with yellow which is more marked towards the base of the blade; standards: 1⅝ x ½ inch, darker, blue-purple; style branches: greenish, center and tips red-purple.

4. Flowers: 3¾ inches, falls and standards arching and drooping as in *I. fulva*; falls: 1½ inches, yellow, with brownish veins at base of blade; standards: ¾ inches, yellow; style branches: narrow, pale yellow, overlaid with greenish.

5. Flowers: 4½ inches, falls and standards spreading, pink (Old Rose to Mallow purple), no yellow at base of blade; falls: 2½ x 1 inch; standards: 1¾ x ½ inch; style branches: similar to falls in color.

6. Flowers: 4 inches, falls and standards spreading; falls: 2¼ x 1 inch, medium red-purple (Phlox purple) darker at base of blade, no yellow at base; standards: 1⅞ x ⅝ inch, lighter than falls (light Phlox purple); style branches: color similar to standards, tips large and frilled.

7. Flowers: 4½ inches, falls and standards drooping, dark red-purple (Nigrosin violet); falls: 2¾ x 1 inch, veins deeper, distinct yellowish crest, with two or more fainter lateral yellow lines; standards: 2¼ x 1 inch, veins slightly darker; style branches: narrow, pale yellow at base, light red-purple at tip.

8. Flowers: 4 inches, falls and standards spreading, yellow with pinkish overcast (light Cadmium yellow, flushed geranium pink); falls: 2 x ½ inch; standards: 1¾ x 1 inch; style branches: broader, color similar to falls.

9. Flowers: 4 inches, falls and standards spreading, dark red-purple (Nigrosin violet), veins darker; falls: 2¾ x 1⅛ inches; standards: 2 x ½ inch; style branches: moderately broad, lighter than falls, red-purple.

10. Flowers: 4½ inches, falls and standards spreading, red-purple (Petunia violet); falls: 2¾ x 1¼ inches; standards: 2¼ x ¾ inch; style branches: pale red-purple.

11. Flowers: 5 inches, standards and falls arching; falls: 2⅜ x ⅞ inch, bright red-purple (Old Rose) underlaid with yellow and veined at base of blade; standards: 1¾ x ⅝ inches, color similar to falls but paler; style branches: long, rather narrow, color red-purple, tips large and fringed.

12. Flowers: 4 inches, falls and standards arching, dark red-purple (Raisin purple); falls: 2½ x 1½ inches, darker veins, yellow crest and faint lateral yellow lines; standards: 1¾ x ⅝ inches, color of falls, a little lighter; style branches: paler than standards, rather broad, tips fringed.

13. Flowers: 3½ inches, slightly arching; falls: 2¼ x ⅞ inch, violet-red (Dull Magenta purple); standards: 1¾ x ⅝ inch, violet-red, brighter than the falls (Mathew's purple); style branches: rather broad, paler and brighter than falls.

14. Flowers: 3¾ inches, falls and standards nearly horizontal, dull red-purple (Dull dark purple); falls: 2½ x 1 inch, notched at tip; standards: 1¾ x ⅝ inch; style branches: medium, dull, red-purple, greenish toward base, margin yellow.

15. Flowers: 4½ inches, slightly arching; falls: 2½ x ⅞ inch, dull blue-purple (Hyssop violet), lightly veined, darker around dull yellow crest; standards: 2 x ½ inch, paler; style branches: medium, dull red-purple (Litho purple), darker on fringed tips.

16. Flowers: 4 inches, falls and standards spreading; falls: 2¼ x 1⅛ inches, red-purple (Pompeian purple), veins distinct, darker around yellow crest at base of blade; standards: 1¾ x ⅞ inches, color of the falls slightly paler, veined.

17: Flowers: 3½ inches, falls and standards arching; falls: 2 x 1⅛ inches, dark red-purple (Rood's violet), faintly veined, darker around dull yellow line at base; standards: 1½ x ⅝ inches, dark red-purple (Aster Purple), brighter than falls, veined; style branches: medium, dull yellow at base, crests dark red-purple.

18. Flowers: 3¼ inches, falls and standards slightly arching, dark red-purple (Pansy violet); falls: 2 x 1⅛ inches, faintly veined, darker around yellow line at base of blade; standards: 1½ x ½ inch, faintly veined; style branches: broad, dull red-purple, with yellowish overcast.

19. Flowers: 3½ inches, falls and standards nearly horizontal, bright red-purple (Liseran purple); falls: 2 x ¾ inch, deeply veined, basal ⅔ of blade zone, grayish yellow-green; standards: 1¾ x ⅝ inch, deeply veined, base yellowish; style branches: basal part light red-purple, tips brighter.

20. Flowers: 3½ inches, falls and standards drooping, bright red-purple (Pompeian red); falls: 1¾ x 1¼ inches, base of blade bright yellow with narrow red-purple veins; standards: 1¾ x ¾ inch, paler than falls, veined, yellowish toward base; style branches: yellowish green tinged pale red-purple.

21. Flowers: 4 inches, falls and standards slightly arching; falls: 2¼ x 1⅛ inches, dark red-purple (Litho purple), veined, distinct yellow zone at base; standards: 1⅞ x ⅝ inches, dark red-purple (dull Magenta purple), paler than falls, veined yellowish toward base; style branches: broad, red-purple.

22. Flowers: 4¼ inches, falls and standards slightly arching; falls: 2⅞ x 1 inch, dark blue-purple (Hortense violet), yellow crest at base surrounded by conspicuous white zone, dotted and

lined with blue-purple; standards: 2 x 5/8 inch, dark blue-purple (Hyacinth violet), paler than falls, greenish yellow haft veined with blue-purple; style branches: broad, red-purple.

23. Flowers: 4 inches, falls and standards spreading, pink-purple; falls: 2½ x 1¾ inches (Phlox purple), with yellow tinge over central area; standards: 1¾ x 7/8 inch (light Phlox purple); style branches: greenish, tips dull pink-purple. Plate III, 1

24. Flowers: 4 inches, falls and standards spreading, dark violet-purple (Dark violet); falls 2 x 1⅛ inches; standards: 1¾ x ¾ inch, nearly white base; style branches: greenish, tips purple. Plate III, 2.

25. Flowers: 4½ inches, falls and standards drooping; falls: 2½ x 1⅜ inches (Mauve to Manganese violet), bright yellow crest; standards: 2 x ¾ inch (Mauve), base yellow with red-purple veins; style branches: dull purple, base greenish. Plate III, 3.

26. Flowers: 4 inches, spreading, orange-pink; falls: 2¼ x 1⅛ inches, (Mallow purple), darker veins, yellow crest and lateral lines; standards: 2 x ½ inch (Mallow pink); style branches: pink with greenish base. Plate III, 4.

27. Flowers: 4¼ inches, falls and standards spreading, yellow (Light cadmium); falls: 2¼ x 1 inch; standards: 2 x ¾ inch; style branches: greenish yellow, tips red-purple. Plate IV, 5.

28. Flowers: large, 5½ inches, falls and standards slightly drooping, dark red-purple (Aster purple); falls: 3 x 1½ inches, deeply veined, narrow yellow crest; standards: 2½ x ¾ inch; style branches: red-purple; base dull greenish, tips violet-purple. Plate IV, 6.

29. Flowers: 5 inches, slightly drooping, dark red-purple (Blackish red-purple), bright yellow crest; falls: 2¾ x 1⅜ inches; standards: 2¼ x 7/8 inch; style branches: dull red-purple. Plate IV, 7.

30. Flowers: 4½ inches, spreading, orange-pink (Light Rosolane purple), deeply veined; falls: 2½ x 1½ inches; standards: 2 x ¾ inch; style branches: orange-pink. Plate IV, 8.

Hybrids of Iris fulva and I. giganticaerulea

Reciprocal crosses between these two species were made, several clones of each being used.

Iris giganticaerulea was first described by Small (1927) and the question as to its relationship has yet to be determined. By Foster (1937) it is regarded as a variety of *Iris hexagona*. On the other

hand, it might be looked upon as a variant of *I. foliosa.* The plant has stout rhizomes which become quite long. The leaves are one to one and one-half inches wide, bright green in color. The flower stalk is erect, two and one-half to four feet, depending upon the conditions. The flowers are a blue-violet with white lines bordering the yellow area at the base of the sepals. The capsules are relatively large, three to four inches in length. The plant grows generally in the lower Mississippi Valley region.

The flowers are large, 5-6 inches; falls: 3¾ x 1¾ inches, nearly horizontal, lavender violet to Bradley's violet, veined, darker along yellow crest and white veins near base of blade; standards: 3 x 1⅛ inches, nearly erect, lavender violet, lightly veined; style branches: dull red-purple, crests more lavender violet, fringed.

Iris fulva x I. giganticaerulea—first generation (Plate I)

Five first generation plants of *Iris fulva* x *I. giganticaerulea* and ten plants of the reciprocal cross were grown and they resembled each other in their general appearance. Due mainly to environmental conditions there was a good deal of variation in the vigor of the growth, plants grown in the greenhouse being much taller and more robust than those grown out of doors.

1. Flowers: large, 5½ inches; falls: 3½ x 1½ inches, drooping, pointed, red-purple (Nigrosin violet), darker near the bright yellow crest, base of blade yellowish, veined bright red-purple; standards: 3 x ¾ inches, spreading to slightly drooping, red-purple (Mathew's purple); style branches: red-purple, margin yellow, tips darker, fringed.

2. Flowers: 5½ inches, falls arching, red-purple (Amparo purple) and the standards nearly erect (Manganese violet); falls: 3¾ x 1¾ inches, bright yellow crest with short lateral yellow rays, color much deeper around basal zone; standards: 2¾ x 1 inch, not deeply veined; style branches: red-purple.

Three additional plants resembled rather closely the two described above. The color of two matched fairly well number one, the falls being a similar red-purple (Manganese violet) and the standards (Nigrosin violet). The third was duller, the falls Vernonia purple), and the standards (Dahlia carmine).

Iris giganticaerulea x I. fulva—first generation

Three first generation plants of the reciprocal cross were grown.

1. Flowers: 4½ inches, falls and standards spreading (Petunia violet); falls: 3 x 1½ inches, bright orange crest, deeper veins;

Plate I

Plate II

Plate III

Plate IV

standards 2¼ x 1 inch, veins distinct; style branches: broad, dull red-purple.

2. Flowers: 3¾ inches, falls and standards spreading, slightly arching (Petunia violet); falls: 2¾ x 1¼ inches; standards: 2⅛ x ¾ inches; style branches: narrow red-purple.

3. Flowers: 5 inches, falls arching and standards erect (Mathew's purple); falls: 3½ x 1¾ inches, deeply veined, short yellow crest; standards: 2¾ x ¾ inch, paler, finely veined; style branches: red-purple.

Iris giganticaerulea and I. fulva—second generation (Plate II)

Many second generation plants from the crosses between *Iris fulva* and *I. giganticaerulea* were grown and these showed great diversity in form and flower color. Of those described the seed parent of the first two was *I. fulva* and in the others this iris was the pollen parent. A most interesting fact is that no yellow flowered plants were obtained.

1. Flowers: 3¾ inches, red-purple (light Phlox purple), darker veined around yellow base of blade, pointed; standards: 2½ x ¾ inch, pale red-purple (Phlox pink); style branches: dark red-purple.

2. Flowers: 4 inches, falls and standards drooping; falls: 3 x 1½ inches, violet-purple (Litho purple), blade rounded, lightly veined, darker around small yellow crest; standards: 2½ x 1 inch, violet-purple (Litho purple), slightly veined; style branches: yellowish green, purplish tips.

3. Flowers: 3½ inches, spreading, red-purple (Aster purple); falls: 2½ x 1¼ inches, faintly veined, small yellow crest; standards: 1¾ x ¾ inch, faint veining.

4. Flowers: 5½ inches; falls 3½ x 1¾ inches, drooping, deeply veined red-purple (Mallow purple), base of blade more deeply veined on yellow background, crest orange, grayish around yellowish zone; standards: 2¾ x ¾ inch, pale red-purple (Light Mallow purple), lightly veined.

5. Flowers: 5 inches, falls and standards spreading, notched at the apex; falls: 2¾ x 1¼ inches, red-purple (Rosolane purple), lightly veined, darker around narrow yellow crest; standards: 2¼ x ⅝ inch, light red-purple (light Rosolane purple), veins faint; style branches: paler red-purple.

6. Flowers: 5½ inches, slightly drooping; falls: 3¾ x 1⅞ inches, reddish violet-purple (Amparo purple), veined, bright yel-

low crest; standards: 3 x 7/8 inch, paler than falls (light Phlox purple), veined; style branches: dark red-purple.

7. Flowers: 5 inches, falls and standards slightly drooping, notched at apex; falls: 3 1/8 x 1 1/2 inches, violet-purple (Haematoxylon violet), faintly veined, darker around yellow crest; standards: 2 1/2 x 1 inch, violet-purple (Pleroma violet).

8. Flowers: 4 1/4 inches, falls and standards spreading, notched violet-purple; falls: 2 3/4 x 1 1/8 inches, violet-purple (Pleroma violet), veins faint, darker red-purple at base of blade along narrow yellow crest; standards: 2 1/4 x 5/8 inches, violet-purple (Hortense violet), faintly veined; style branches: red-purple.

9. Flowers: 5 inches, falls and standards notched, slightly drooping; falls: 3 1/8 x 1 1/2 inches, red-purple (Schoenfeld's purple), lightly veined, dark violet-purple along narrow bright yellow crest; standards: 2 3/4 x 1 inch, red-purple (Amparo purple), lightly veined; style branches: red-purple, paler than standards.

10. Flowers: small 3 3/4 inches, falls and standards spreading; falls: 2 1/2 x 1 1/4 inches, notched, yellow background, deeply veined red-purple (Amparo purple); standards: 1 3/4 x 5/8 inch, notched, red-purple (light Amparo purple).

Back Crosses—Iris fulva x (I. giganticaerulea x I. fulva F_1)

Altogether thirteen backcrosses of the parental species and first generation hybrids were grown. There was great variation in the size of the flowers, the position and shape of the falls and standards. The color was mostly dull due to the presence of gray.

1. Flowers: 5 inches, slightly drooping falls and standards light red-purple (light Rosolane purple); falls: 3 x 1 1/2 inches, lightly veined, faint yellow crest; standards: 2 1/4 x 5/8 inches, lightly veined; style branches: light red-purple tinged with yellow.

2. Falls: light russet vinaceous; standards: vinaceous lilac.

3. Falls: medium red-brown (Hydrangea red); standards: dull orange-red brown (Etruscan red).

4. Falls: dull red-brown (dark vinaceous); standards: dull light pink (Laelia pink).

5. Falls and standards: dull or pale gray-red (purplish vinaceous).

6. Falls and standards: dull red-brown (dark vinaceous).

7. Falls and standards: medium dull orange-red brown (Etruscan red).

8. Falls and standards: dull light brown (Fawn).

9. Falls and standards: dark red-brown purple (Dahlia carmine).

10. Falls: dark red-purple (Auricula purple); standards: dull dark red-brown purple (dull dark purple).

11. Falls and standards: medium dark red-purple (Schoenfeld's purple).

12. Falls and standards: dull black violet (Anthracene violet).

13. Falls and standards: bluish violet (deep dull bluish violet), the latter a little paler.

Iris fulva "lutea" x I. giganticaerulea—F_1

A yellow flowered seedling somewhat similar to *Iris foliosa* x *I. fulva* F_2 (number four) was pollinated with pollen from *I. giganticaerulea.* The flower was a little larger, not so clear in color, with traces of pink in the veins. The falls (2½ x 1¼ inches) and standards (1¼ x ¾ inches) were spreading to arching, not drooping, and the style branches narrow, greenish-yellow, with yellow tips.

The flower of the F_1 of the cross was large (5¼ inches), the falls and standards spreading, red-violet purple in color (Mathew's purple), closely resembling the first generation plants of *Iris fulva* x *I. giganticaerulea*; falls 3 x 1½ inches, deeply colored veins radiating from the narrow bright yellow crest; standards: 2½ x ⅞ inches, veins distinct; style branches: rather long, red-purple, tips darker.

Hybrids of Iris Fulva and I. Hexagona

Iris hexagona Walter. Color plate: Small (1924), plate 314.

This species, described in 1788, is found along the Atlantic Coast region. The leaves are rather broad, three feet or more long, and erect. The flower stalk is three to four feet tall, usually more or less erect but slightly zig-zag. The rhizome is thick, bearing several leaves. The flowers are large and borne in the usual manner at the upper end of the flower stalk. They vary somewhat in color but usually are some shade of violet-purple.

One of the characteristic features is the fact that this iris blossoms much later than the others. In Brooklyn, *Iris fulva* and *I. foliosa* are in bloom usually before the middle of June and it is late June or July before *I. hexagona* comes into flower.

Flowers: 5 inches, falls and standards spreading to arching, dark violet; falls: 3½-1½ inches, blade ovate-rounded, yellow-green crest, surrounded by white which extends slightly between the deep

red-purple veins, haft lined greenish and greenish yellow; standards: 2¾ x ¾ inches; style branches: paler, greenish at the base.

Iris fulva x I. hexagona—first generation

Altogether fifteen first generation plants were grown and they showed remarkable similarities. There was some variation in the size of the flowers (falls and standards). They were also rather close in their color range. A brief description of one plant is as follows: Flowers: 5 inches, falls and standards spreading, deep red-purple (Raisin purple); falls: 3 x 1½ inches, blade broad elliptical, crest yellowish green, sharply bounded by deeply colored veins of blade; standards: 2½ x ⅝ inches; style branches: dull red-purple, margins yellowish.

The remaining plants may be summarized:

2 plants: falls: red-violet (Mathew's purple) and standards more violet-red (Pleroma violet), dulled by gray.

8 plants: falls: violet-red (Rood's violet); standards: more red-purple (Hyacinth violet).

3 plants: falls: violet-red (Rood's violet); standards: more red (Pansy violet).

1 plant: falls and standards: dark violet-red (Raisin purple).

No second generation plants were grown. However, *Iris fulva* was pollinated with pollen from one of the first generation plants and three seedlings grown to maturity. These showed noteworthy differences in color, one having violet falls (Dauphin's violet) and bluish violet standards (soft bluish violet). A second plant had dull orange-red falls (Ochre red) and standards (Etruscan red), the flowers of both plants dulled by gray. The third plant had dark brown-red purple falls and standards (Dahlia carmine).

Crosses Involving Iris "oenantha"

Iris "oenantha," described as a new species by Small, is a rather tall robust plant with an erect flower stalk. The flowers are large, five inches or more. The falls and standards are drooping, dull red-purple (Nigrosin violet); falls: 3 x 2 inches, dull red-purple, deeply veined, crest bright yellow with usually two laterals; standards: 2½ x ⅞ inches, nearly the same color as falls, some paler, and almost as long as the falls; style branches: relatively long, red-purple with dull yellow margins, tips large and paler in color.

Two F_1 plants of cross *Iris fulva* x I. "oenantha" were grown. The flowers of both were rather large with drooping falls and

standards. In one the color of the falls was an orange-red (Pompeian red) and the standards a medium brownish red (Acajou red). In the other the falls and standards were nearly the same color, a dull orange-red (Dragon's-blood red).

Three F_1 plants of *Iris "oenantha"* x *I. giganticaerulea* were grown. In one the flowers were rather large, the falls drooping, the standards somewhat erect. Falls: 3¾ x 2 inches, violet-purple (Hortense violet to Anthracene violet), deeply veined, much darker around the faint crest; standards: 3 x 1 inch, a paler violet-purple (Hortense violet), veins distinct; style branches: dull red-purple, tips fringed.

The flowers of the second plant were smaller, the falls spreading and the standards more erect. The color was a more distinctly redish hue. Falls: 3½ x 1½ inches, dull red-purple (Litho purple), darker around the bright orange-yellow crest; standards: 3 x 1 inch, a more violet hue (Hortense violet), faintly veined; style branches: dull red-purple, tips fringed.

In the third plant, the color was even more of a red hue; falls: (Mathew's purple); standards: (Litho purple).

A back cross (*I. fulva* x "oenantha") x *I. fulva* was grown. The color of both falls and standards was a medium dull orange-red brown (Etruscan red).

Five back crosses of (*Iris fulva* x "oenantha" x *I. giganticaerulea* were grown:

1. Falls: a dark violet-purple (Prune purple); standards: a dark red-violet (Pansy violet).
2. Falls: a dark red-violet purple (Pansy violet); standards: a lighter and grayer hue (Litho purple).
3. Falls: a medium red-purple (Mathew's purple); standards: dark red-violet purple (Manganese violet).
4. Falls: a dull red-purple (Petunia violet); standards: a very dull red-violet purple (Aconite violet).
5. Falls: dull red-violet (Bishop's purple); standards: a very dull red-violet purple (Argyle purple).

Iris Dorothea K. Williamson x I. "oenantha"

Dorothea K. Williamson is a first generation plant of *Iris fulva* x *I. foliosa.* The color of the flower is a violet-purple (Hyacinth violet). In contrast, I. "oenantha" has red-purple flowers (Nigrosin violet). From this cross nine plants were grown. The flowers

varied in size and in the position of the falls and standards. From the standpoint of color there was also great variation which may be briefly indicated.

1. Falls and standards: medium brown-red (Acajou red).
2. Falls and standards: dull red-brown (dark vinaceous).
3. Falls: light brick-red (orange vinaceous); standards: dull orange-red brown (Etruscan red).
4. Falls: dull red-brown (Corinthian red); standards: dull light brownish pink (Japan rose).
5. Falls: dull red-brown (Corinthian red); standards: light red-brown (light Corinthian red).
6. Falls and standards: dull red-brown (Corinthian red to Acajou red).
7. Falls: dull red-brown (Corinthian red); standards: dull pale gray-red (Vinaceous).
8. Falls: dull light brownish pink (Japan rose); standards: dull grayish pink (pinkish cinnamon).
9. Falls: dull red-brown (dark vinaceous); standards: dull pink-brown (deep vinaceous).

Hybrids of Iris Giganticaeurulea x I. "Thomasii"

Iris "*thomasii*" is a vigorous growing plant with an erect, stiff flower stalk. The flowers, 4½ inches, are medium in size and red-violet (Mathew's purple) in color; falls and standards: spreading or slightly drooping; falls: 3¼ x 1½ inches, veined, darker around the basal zone, the crest bright orange-yellow with several yellowish laterals; standards: 2¼ x ⅝ inch, about the same color as the falls, faintly veined; style branches: rather large, dull red-purple with large fringed tips, paler in tone.

Two first generation plants were grown. In one the flower was large, 5 inches or more, the falls and standards spreading or slightly recurved, lavender-violet (lavender-violet to mauve) in color; falls: 3½ x 1¾ inches, lightly veined, darker around the basal zone, the crest bright orange-yellow with greenish yellow on each side; standards: 2¾ x ⅝ inch, faintly veined, paler than falls; style branches: pale red-purple, tips light violet.

In the second plant the flowers were smaller, 4½ inches, falls and standards spreading; falls: 3⅛ x 1⅝ inches, deeply veined, darker around central zone, dark red-purple (Manganese violet); standards: 2¾ x ⅞ inch, faintly veined, a paler hue (Petunia

violet); style branches: broad, dull red-purple with greenish overcast.

Two second generation plants of this cross were grown. In one the flowers were small, about 4 inches, with incurved falls and standards; falls: 3¼ x 1½ inches, pale bluish violet (light mauve), veins faint, crest bright yellow; standards: 2½ x ¾ inch, nearly erect, pale lavender (pale mauve); style branches: greenish yellow, tips pale bluish violet.

The flowers of the second plant were larger and the falls and standards a pale pink color (pale Amaranth pink); falls: 3½ x 1½ inches, spreading, veined, bright orange crest; standards: 2¾ x ¾ inch, erect, tips arching inwards; style branches: very pale pink.

Hybrids of Iris Fulva and I. "Chrysophoenicia"

Iris "chrysophoenicia" was described by Small (1929) and illustrated in color plate 452. The flower stalk is erect, 2½ to 3 feet tall. The sepals or falls are 3 inches or more long, oval in shape, spreading or arching, and violet-purple or plum color. The crest is yellow and there is a broad yellow and white area at the base of the blade. Darker veins are evident. The petals or standards are more or less erect and similar in color to the falls but some paler. The style branches are large, red-purple with greenish margins.

Reciprocal crosses were made between the two irises. In one first generation plant, in which *I. fulva* was the male parent, the flowers were small, the falls and standards drooping and medium red-purple in color. The falls, 2¾ x 1½ inches, were deeply veined, dark adjacent to the short yellow crest, the color a medium dark red-purple, Schoenfield's purple); standards: 2¼ x ¾ inch, paler (light Rosolane purple), and the veins less distinct; style branches: light red-purple with a yellow undertone. A second plant had larger flowers with dull brick-red falls (deep Hellebore red) and dull red-brown standards (dark vinaceous).

In the reciprocal cross, in which *I. fulva* was the female parent, one plant had red-brown falls (Hyacinth violet) and dark red-violet purple standards (Pansy violet). A second plant had dull red-brown falls (Corinthian red) and very dark dull pink-purple standards (deep vinaceous).

Hybrids of Iris "Chrysophoenicia" and I. Gaganticaerulea

Three first generation plants of this cross were grown. In one with *Iris giganticaerulea* as the male parent the plant had dull red-purple falls (Petunia violet) and very dull red-violet purple (Aconite violet) standards. Two plants in which *I. giganticaerulea* was the female parent were grown. One had dark red-violet falls (Raisin purple) and standards (Mulberry purple). In the other plant the color was much duller, medium dark red-violet purple falls (Manganese violet) and standards dull lavender (Saccardo's violet).

Iris Giganticaerulea x I. "Albispiritus"—F_2

Iris "albispiritus" was described by Small (1929) and recorded as a native of southern peninsular Florida. The flower stalk varies from 1½ to 4 feet in height. The flowers are large with drooping falls and erect standards. The falls are nearly white, somewhat tinged with green, and a bright yellow crest. The standards are long and narrow, also nearly white. The style branches are greenish white with large white fringed tips.

One of the F_2 plants of the cross had dull lavender (light Hyssop violet) falls and bluish violet standards (light bluish violet). The other plant had yellow flowers, the falls (Barium yellow), drooping, a bright long yellow crest, and the standards (pale Chalcedony yellow), erect, with greenish veins toward the base. The style branches were a dull red-purple with yellow-green margins, the tips more deeply colored.

Iris "Cacique" x I. Fulva

Cacique was an iris introduced by Dr. S. S. Berry, in 1925, and was derived from a cross between *I. fulva* and *I. savannarum*.

Two seedlings of the Cacique-*I. fulva* cross were grown. In one the color was a dark red-violet (Pansy violet). In the other the color was diluted with gray, a dull pink tone (Tourmaline pink).

Discussion

Ecological distribution and taxonomic studies.—Small and Alexander's (1933) criterion for species was stated as follows: "Our usual criterion for assigning the status of species is an isolated colony or colonies, the plants persisting through propagation by root-stalks and by an annual accretion of seedlings without showing variation in the characters of the perianth." However, there is no evidence that the many species recorded were grown from seed,

thus establishing their constancy. It is true, however, that *Iris fulva* comes true from seed as I have shown. Probably this is true also of *I. foliosa* and *I. hexagona.*

Viosca (1935) attacked the problem of the southern iris from the standpoint of ecology and taxonomy. His criterion of an iris species is "a large aggregation of plants with reasonably definable similarities of structure, freely inter-breeding whenever in sufficently close proximity, the separate colonies of which have similar ecological requirements, and the aggregation as a whole having a geographic range which can be defined in terms of physiographic features and throughout which colonies are found in all suitable localities." On this basis, Viosca recognizes only four species in the region in Louisiana where he made his studies and considers the large majority of the plants described from the same area by Small and Alexander (1933), as well as others yet undescribed, in part as variants, and in part as natural hybrids.

Of the species recognized by Viosca three have been known for more than a century. One of these, *Iris virginica,* belongs to a very different iris group—the *Laevigata* group of Dykes (1913), the *Virginica* sub-section of Waller (1931), or the *Versicolores* of Small and Alexander. The other three species belong to the *Hexagona* section—*I. brevicaulis* Rafinesque (1817) (*I. foliosa* Mackenzie and Bush (1902)), *I. fulva* Ker-Gawler (1812), and *I. giganticaerulea* Small (1924). Some of the other so-called species are regarded as variants of *I. brevicaulis* or *I. giganticaerulea,* but most of them as natural hybrids between *I. fulva* and *I. giganticaerulea.*

Viosca provides keys for identification of these species, one in the absence of the flowers, based on leaf and rhizome characters, and another when flowers are available. On the basis of flower color his description of *I. fulva* is interesting, the flowers being described as "varying from dark cardinal through various shades of brick or coppery red, Indian red, henna, chinook, terra-cotta, and apricot to golden and chrome yellows." His natural hybrids between *I. fulva* and *I. giganticaerulea* have some shade of purple or red-purple as the flower color. Where do the species end and the hybrids begin? In my various hybrids the flower color range is very great, consisting of many shades and tints of various hues from blue-violet, violet-purple, red-purple, to orange-red and true yellows. Brown (1946) has also raised the question as to the possible limits of *Iris fulva* as a species.

In the older accounts *Iris fulva* has been a definite type. I obtained several clones from various sources, some from the vicinity of New Orleans, the others doubtless originally from the same locality. I have selfed some of these and the seedlings obtained showed a remarkable correspondence to the type. The plant characters and tone of flower color, orange-red, varied within narrow limits.

Hybridization—In addition to the various hybrids recorded above scores of others have been grown but no extensive notes were made. From these results of hybridization it is evident that a wide diversity of plants may be obtained. These differ in the plant characters in many ways but the variations are most evident in the size, shape, and color of the flowers. The diversity is comparable to that found in the bearded iris in the origin of which several species are involved.

Another point is the ease with which fertile crosses may be secured. Practically all attempts succeeded in giving fertile offspring, although Riley (1939) mentions some evidence of sterility.

Within the Iris genus many species are capable of crossing with others closely related. Extensive hybridization occurs within the bearded iris group making possible the development of the large array of garden varieties. Crossing between these and some of the Oncocyclus group also occurs. The Regeliocylus group of many varieties has arisen from crosses between members of the Regelia and Oncocyclus sections.

The Siberian iris varieties have been developed from the hybridization of the European *Iris sibirica* with the eastern Asiatic *I. orientalis* and fertile offspring is the usual result. Within the Siberian group *I. forrestii* x *I. chrysographes* produce fertile hybrids; *I. forrestii* also crosses with *I. sibirica* but the hybrids are sterile. Many of our West Coast irises readily cross with each other.

We have succeeded (Reed 1936) in crossing *Iris laevigata* with *I. versicolor* and *I. virginica* and the hybrids of the latter cross have been partially fertile.

The Japanese iris have been supposed to have arisen from the hybridization of *Iris laevigata* and *I. ensata* (*I. kaempferi*). There is no good evidence, however, that this has occurred. Probably they have been developed by the Japanese horticulturists from collected wild plants of *I. ensata* which show minor variations in plant structure and flower color.

At the Botanic Garden we have made many attempts to cross *Iris laevigata* and *I. ensata, I. laevigata* and *I. pseudacorus,* and *I. ensata* with *I. pseudacorus* but without success. Frequently the ovaries start development, but fail to reach maturity and to produce ripe seed.

By means of the embryo culture method we have obtained seedlings of crosses between *I. ensata* and *I. pseudacorus* but in the course of a few months they have perished. These two species have many characteristics in common. They are adapted to the same growing conditions and there is a close resemblance in their rhizomes and leaves. In fact they may be growing together and only careful observers will note the presence of both until flowering time. *Iris pseudacorus* is more robust and vigorous in its growth but many Japanese iris varieties approach it. If this cross would succeed it might be possible to introduce the yellow color into the Japanese group and develop a series of varieties with yellow tones. A few years ago a Japanese nursery advertised seed of a yellow variety of Japanese iris. Some of the seed was obtained and it looked like that of the yellow flag of Europe. The plants grown from them turned out to be typical *I. pseudacorus.*

Abbeyville's Giant Irises—Nelson (1946) records that about 1940 Mr. W. L. Macmillan found especially fine native Irises of a giant *fulva* type in a relatively small swamp in Louisiana. These have not been found elsewhere and no other irises are found closely associated with them. They are very striking in appearance, 3 to 5 feet tall, with the parts of the flower exceptionally broad, suggesting the Japanese iris type. The color range varies from yellow to crimson. Among the Abbeyville "Reds" the copper-red of *Iris fulva* is predominant, the tones, however, varying from cardinal to light peach. The Abbeyville "Yellows" are not pure color tones but show dilution with gray.

The rhizome is large and may grow a foot or more in length in a single season. The flower stalks are taller than the leaves, branched and bearing several flowers. The leaves are large and have a tendency to droop a little near the tip. The color of the foliage is similar to that of *Iris fulva.*

Viosca (1946) has approached the problem of the origin of these irises from the standpoint of ecological distribution. He believes that they have originated by hybridization between the red swamp iris, *Iris fulva* and the blue *I. foliosa* and *I. giganti-*

caerulea. Locally isolated colonies of *I. fulva* have been encroached upon by the other two species and the super-fulvas have originated by hybridization with them.

Southern Iris Gardens and Societies.

The iris enthusiasts of Louisiana have brought together many fine varieties of southern iris, some collected wild plants and others obtained by crossing. The Mary Swords Debaillon Louisiana Iris Society (Cornay 1946) has established a collection at the Southwestern Louisiana Institute where annual shows are held. In gardens at Shreveport, La. (Colquitt 1946) many varieties of great garden value are grown.

Thus whether species of ancient origin or hybrids of yesterday and today these irises are finding their place in the iris world—a recognition long overdue. Not only do they have great value as garden plants but they are also of special interest to the ecologist, plant breeder, geneticist and cytologist, furnishing fine material for the production of new horticultural creations and for the investigation of scientific problems.

Acknowledgments

Dr. John K. Small generously supplied me with material of many of his southern iris plants. Clones of *Iris fulva* and *I. giganticaerulea* have been sent to me by Mr. Percy Viosca, Jr. Prof. Frank M. McFarland also supplied a clone of *I. fulva.* The many crosses and records of the plants grown have been possible by the competent assistance of Miss Marjorie Udell, curatorial assistant, Miss Elizabeth D. Marcy and Miss Jeanne Walther, research assistants, at the Brooklyn Botanic Garden.

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COLOR PLATES

Drawings by Miss Louise B. Mansfield

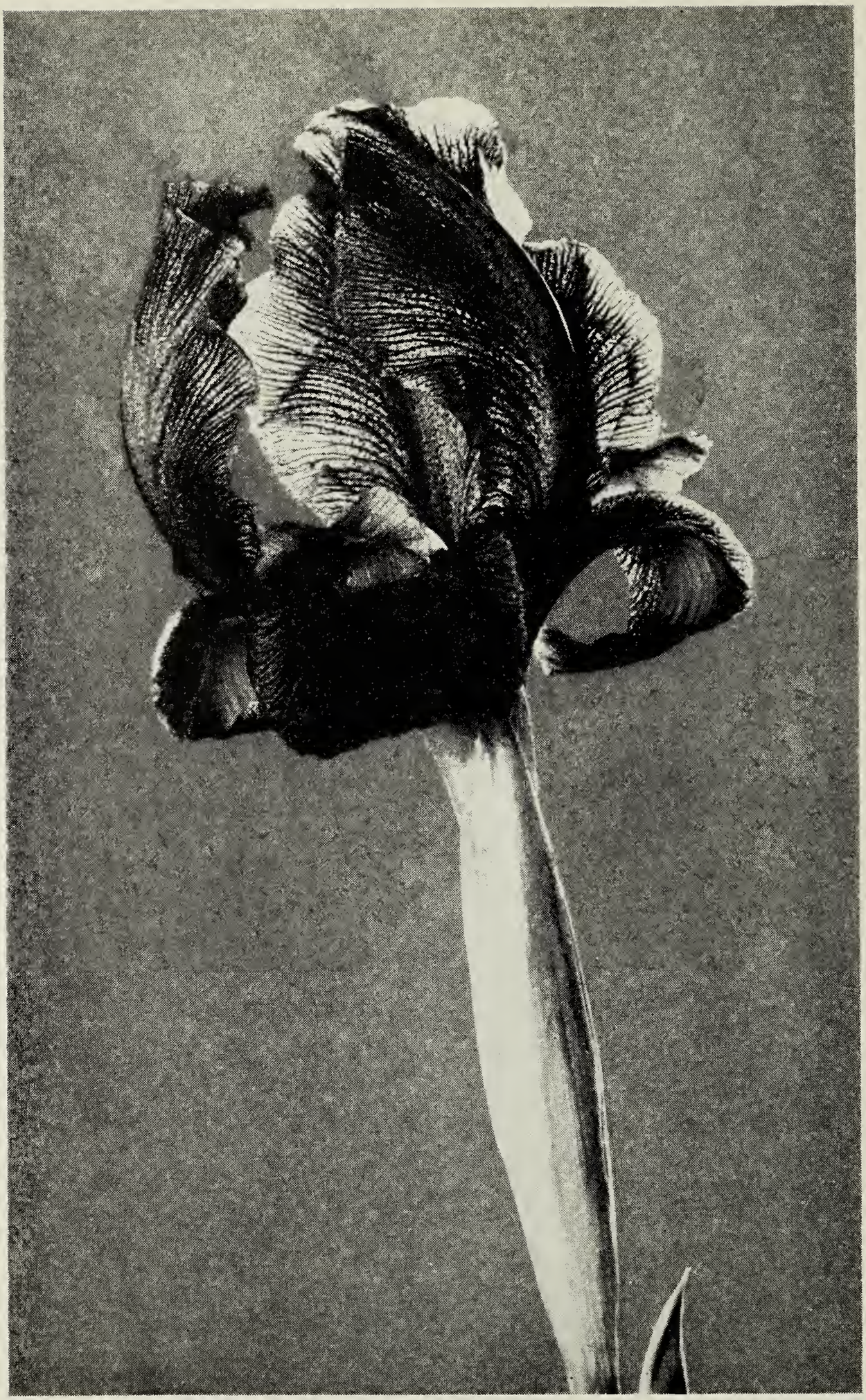
Plate I—Parental Species and First Generation Hybrids.
Fig. 1—*Iris giganticaerulea. Fig.* 2—*Iris fulva.*
Fig. 3—First generation hybrid.

Plate II—Falls and Standards of Second Generation Hybrids, of *Iris fulva* and *I. giganticaerulea.*

Fig. 1	Plant No. 7	Fig. 6	Plant No. 10
Fig. 2	Plant No. 8	Fig. 7	Plant No. 6
Fig. 3	Plant No. 9	Fig. 8	Plant No. 4
Fig. 4	Plant No. 2	Fig. 9	Plant No. 5
Fig. 5	Plant No. 3		

Plates III and IV—Second Generation Plants of *Iris foliosa* and *I. fulva.*

Fig. 1	Plant No. 23	page 65	Fig. 5	Plant No. 27	page 66
Fig. 2	Plant No. 24	page 65	Fig. 6	Plant No. 28	page 66
Fig. 3	Plant No. 25	page 65	Fig. 7	Plant No. 29	page 66
Fig. 4	Plant No. 26	page 65	Fig. 8	Plant No. 30	page 66



Iris atrofusca Baker.

SPECIES—IRIS ATROFUSCA BAKER*

By Tuviah Kushnir

■ Iris *atrofusca* was first described by Baker (Gard. Chron. 1:384, 1893) as a new species of the Oncocyclus section. This species was first found in the vicinity of Tekoah about 15 km south of Jerusalem and is endemic in Palestine.

Simonet (1934) after examining the karyotype included this plant amongst the Regelia species.

The characteristic features of the cytology of Oncocyclus Irises are the following: The diploid set consists of 20 chromosomes, four of which bear satellites; the remainder are acrocentric (rod-shaped), 8 being pronouncedly longer than the rest.

The species of the Regelia section have 44 chromosomes, including four metacentric chromosomes (V shaped), four satellite-chromosomes and four long acrocentric chromosomes. (Editor's Note: Regelia species also have 22 and 33 chromosomes.)

In both form and number the chromosomes of *Iris atrofusca* were found to conform to the Regelia type, and not to that of Oncocyclus.

Darlington and Janaki (1945) accepted Simonet's point of view, and included it amongst the Regelia species.

Since *Iris atrofusca* belongs to the Oncocyclus type in all its morphological traits, it seems surprising that its idiogram should be of the Regelia pattern.

The taxonomical position. Iris *atrofusca* is related to *Iris nigricans* on one hand and to *Iris atropurpurea* on the other. It differs from *I. atropurpurea* in its colour being chocolate rather than purple, and in its signal patch which is white instead of yellow. It differs from *Iris nigricans* mainly in the fact that it is lighter in colour and its standards from the base upwards bear broad brown stripes. The leaves of *Iris atrofusca* are similar to those of *Iris atropurpurea*—swordlike but somewhat broader (12-14 mm in *I. atrofusca*, 8-10 mm in *I. atropurpurea*). They differ markedly from the leaves of *I. nigricans* which are narrower and bent outwards.

Its rhizome is altogether different from those of both *I. atropur-*

*This work was carried out partly at the Botanical Department and partly at the Zoological Department of the Hebrew University. I should like to express my sincerest thanks to Dr. E. Goldschmidt for her interest in the work, her help and instruction. I also wish to thank Miss Rachel Shlubsky who prepared some of the slides for this work. I am greatly obliged to Dr. Ashner for taking the microphotograph.

purea and *I. nigricans,* the nodes being more densely spaced. It resembles the rhizome of *I. Haynei* but differs also from this in its colour and size.*

Ecological position. Owing to its geographical situation, Palestine constitutes a meeting place for three large phytogeographical regions: The Mediterranean, the Irano-Turanian and the Saharo-Sindian (Eig 1931, 1938). According to this system Palestine may be divided into the following territories each possessing a characteristic flora of its own: A) The Mediterranean territory in the west, from the Mediterranean Sea eastward to about 10 km east of the watershed. B) The Irano-Turanian territory spreading on the eastern slopes of the mountains. C) The Saharo-Sindian territory ranging further east and south of the above area; it includes the Negeb and the Judean-Desert. In Trans-Jordan we find the Irano-Turanian Territory in two areas i.e. on the eastern and western slopes bordering the Mediterranean upland.

The most outstanding feature in the distribution of Oncocyclus Irises is their limitation to the Mediterranean-Irano-Turanian border land.

Owing to this most peculiar distribution Oncocyclus Irises are to be found only in three narrowly delimited areas: one in Palestine, and two in Trans-Jordan. These species are highly endemic, and confined to areas of not more than 20 km in length on the average. Thus they occupy a series of narrow zones all arranged on the phytogeographical frontier line. *Iris atrofusca* complies with this rule as well as all other species of Oncocyclus. We find it at the southern end of the series in Palestine. *Iris atrofusca* is found from Tekoah in the south, to Ramun (north east of Ramallah) in the north, i.e. an area of distribution which does not exceed 30 km in extent; even here it has been found in four localities only (Fig. 1). None of these four biotopes extends over more than 50 meters in breadth and more than 300 meters in length. The biotope of *I. atrofusca* is further characterized by the following flora: *Echinops Blancheana, Carlina corymbosa, Ononis Natrix, Scrophularia xanthoglossa, Asphodelus microcarpus* and *Poterium spinosum.* The first five of these species are characteristic of the Mediterranean-Irano-Turanian border land, whilst *Poterium spinosum* is a typical Mediterranean plant but is also a component of

*In the Alphabetical Iris Check list Iris Haynei is classed together with Iris atrofusca, a classification which is not justified, as the species are distinctly different.

some of the border land associations. At Ramun the Irises are very sparse, and grow in areas not exceeding 20 meters in breadth. 50 meters eastward we observe the beginning of *Phlomis brachidon* associations—a typical Irano-Turanian association.

Since in its morphology as well as in its ecology *I. atrofusca* is a typical member of the Oncocyclus group it was decided to re-examine its cytological characteristics.

The karyotype of Iris atrofusca

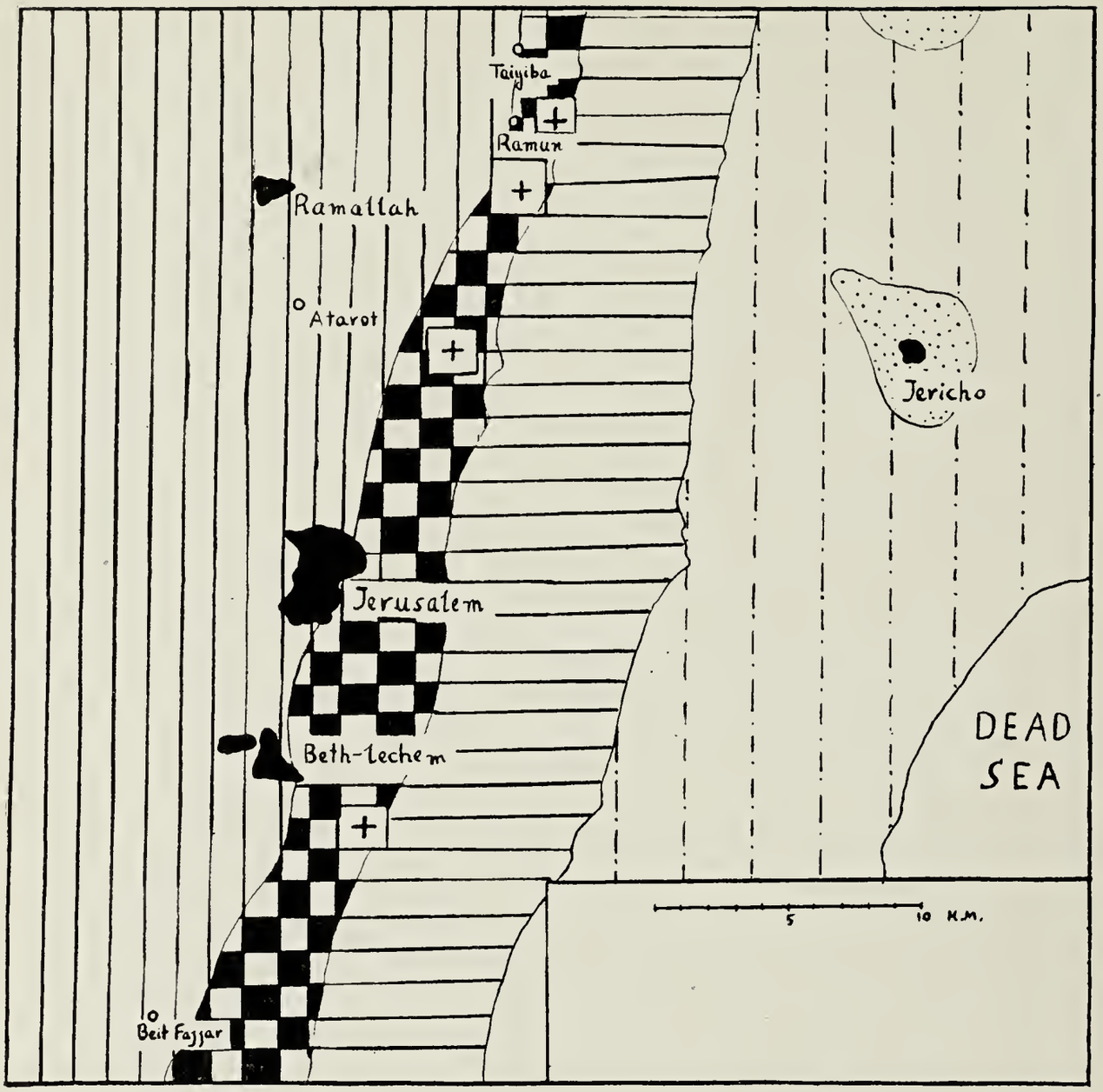
Material and methods.

The cytological examination was carried out on root tips cut from rooted plants a month before the onset of the flowering season. The root tips were fixed in Navashin's solution. The sections were cut transversely or longitudinally, 12-16 thick, and were stained with Heidenhain's iron hematoxyline or with Newton's Crystal Violet. The number of the chromosomes as well as their shape were studied in metaphase plates.

The number of the chromosomes is 20 (Fig. 2, 3 and 4). Four of these bear satellites, the other 16 being acrocentric (rod-shaped). The two satellited pairs may easily be distinguished. In one pair the constriction is short, and the satellite is large and as thick as the chromosome itself. In the second pair the constriction is long, and the satellite is small.

The other 8 pairs of chromosomes can be divided into three groups according to their lengths: a) three long pairs, one of which is slightly longer than the others, b) three medium sized pairs, one of which is slightly longer than the others, c) two pairs of short chromosomes. In most cases a minute second arm can be observed. As regards the satellite-chromosomes, the centromeres are apparently situated at the end of the constriction adjoining the bigger arm. This may be deduced from the fact that in the anaphase the larger part of the constriction together with the satellite and the long arm are turned away from the poles of the achromatic figure (Fig. 5).

There is little doubt that the constrictions of these two pairs of chromosomes function as nucleolar organizers. In some figures of late prophase the connection between the constriction of the chromosome bearing the small satellites and the nucleolus could be observed. (This could be determined in preparations stained with



The Mediterranean terretory.

The Saharo-Sindian terretory

The Mediterranean-Irano-Turanian border land.

The Sudano-Decanian Enclaves

The Irano-Turanian terretory.

Locality of Iris atrofusca

Figure 1

Figure 2

Newton's Crystal Violet. This stain leaves the nucleoli transparent, and thus the connection can be recognized).

Although there are four satellites the number of the nucleoli is not constant. In most cases there are two nucleoli. Sometimes, however, one, three and even four nucleoli can be found.

The following table shows the number of nucleoli counted in 100 cells chosen at random. Complete cells were picked out as far as this is possible in sectioned material.

Number of nucleoli	*Number of cells*
One nucleolus	21
Two nucleoli partly fused	25
Two nucleoli	47
Three nuceoli	7
Four nucleoli	—

This rough table gives sufficient indication that the number of nucleoli is not fixed and does not correspond as a rule to the number of satellites which is four. Cells containing four nucleoli are very rare, the majority having only two. The variation in the number of nucleoli may be explained by the following assumption: the constriction of the large satellites may occasionally function as an additional nucleolus organizer, but its potency is less than that of the constriction of the small satellites. If there is competition amongst the four chromosomes for the nucleolar material, this would explain why we can find from one to four nucleoli of various

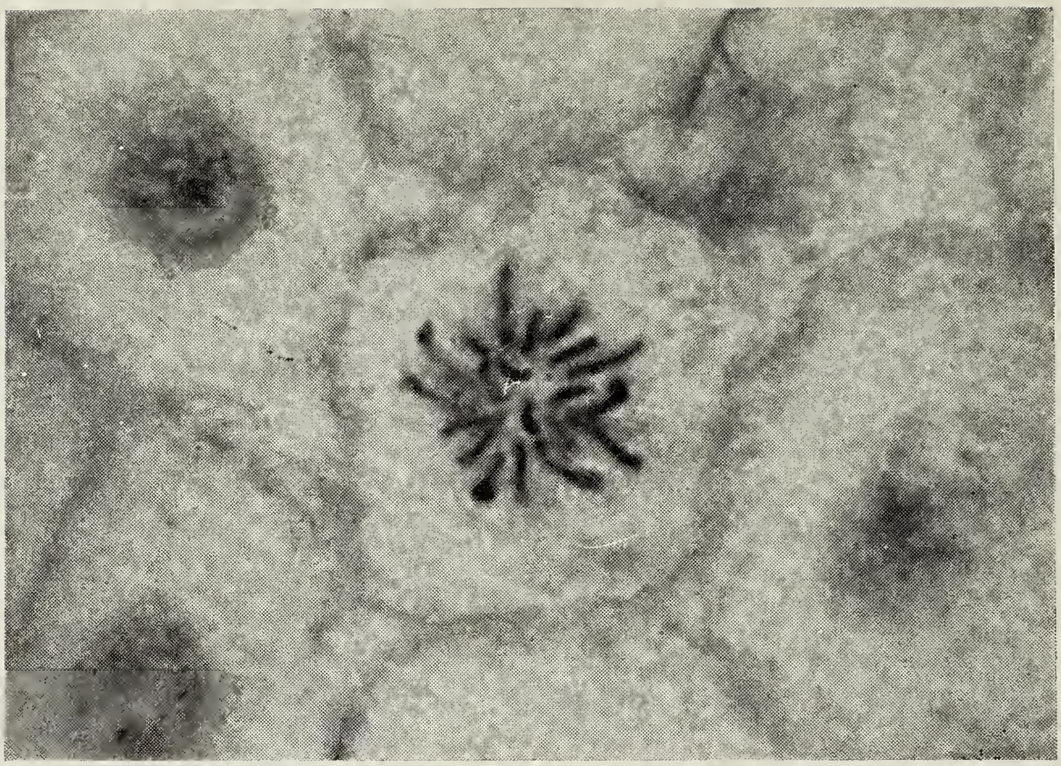


Figure 3

sizes. It is probable that in many cases a single nucleolus is formed by the fusion of the nucleoli organized by two different chromosomes which happen to be near each other. It may be that the 25 cells listed in the second row of the above table belong to this category.

Discussion

The above results are so different from those obtained by Simonet in his material of *Iris atrofusca* that the discrepancy can only be explained by the assumption that his stock did not belong to the same species.

In this connection it should be noted that Simonet himself was puzzled by the idiogram of the *I. atrofusca* material he had ordered from Van-Tubergen de Haarlem (Holland) and decided to repeat his examinations on a new lot of material ordered in the subsequent season. It appears that he was once again supplied from the same stock.

Summary

1. The ecological and morphological characteristics of *Iris atrofusca* are described, and shown to conform to the Oncocyclus type.
2. The idiogram of *Iris atrofusca* consists of 4 satellite chromo-

Figure 4

Figure 5

somes and 16 acrocentric elements. Thus, the cylogical features of this species are likewise in agreement with the Oncocyclus pattern.

Explanation of Figures

Fig. 1. Diagram of the distribution of *Iris atrofusca* in Palestine on the boundary between the Mediterranean and the Irano-Turanian territories.

The Mediterranean territory
The Mediterranean-Irano-Turanian border land
The Irano-Turanian territory
The Saharo-Sindian territory
The Sudano-Deccanian Enclaves
Locality of *Iris atrofusca*

Fig. 2. Camera lucida drawing of metaphase plate of *Iris atrofusca.* Section 16 μ, Heidenhain's hematoxyline. x 3600.

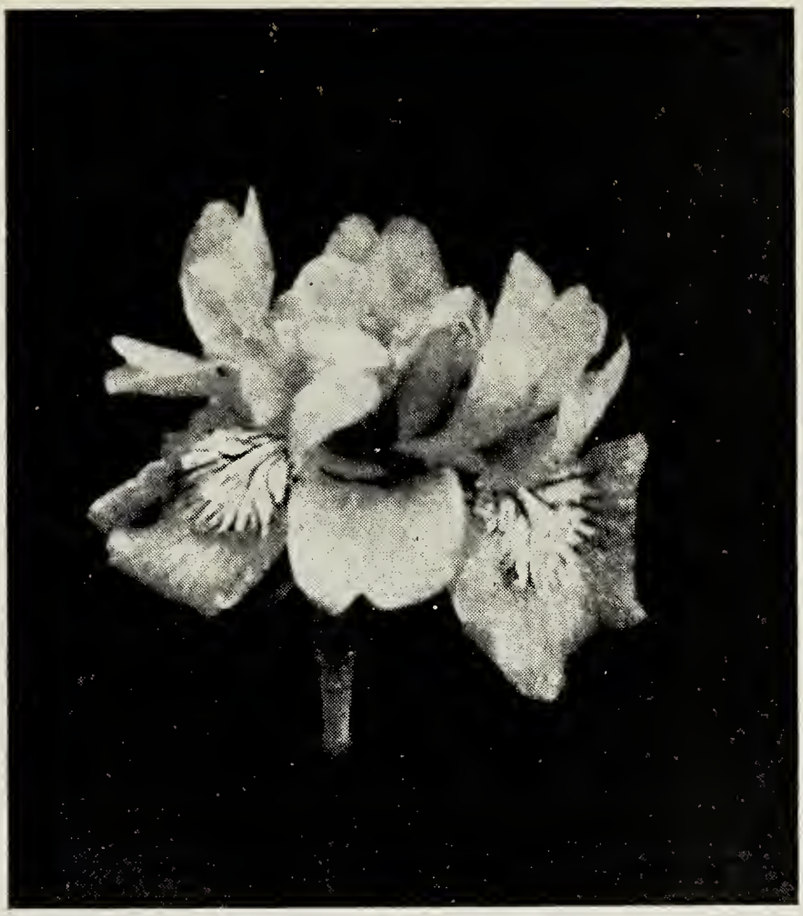
Fig. 3. Microphotograph of metaphase plate represented in Fig. 2.

Fig. 4. Camera lucida drawing of metaphase plate of *Iris atrofusca.* Section 16 μ, Heidenhain's hematoxyline. x 4200.

Fig. 5. Camera lucida drawing of metaphase plate of *Iris atrofusca.* Section 12 μ, Newton's Crystal Violet. x 4200. Note satellite chromosomes at the upper left.

. . . . . .

We welcome to our list of contributors Mr. Tuviah Kushnir whose article on I. atrofusca appears above. Concerning himself Mr. Kushnir writes, "I was born in Palestine in 1923, and grew up in Kfar-Jechezkiel, a settlement in the Valley of Jezrael. I have been collecting Irises in many parts of Palestine for the last 8 years, and I am especially interested in the Oncocyclus group. I am now taking a biology course at the Hebrew University in Palestine and this is my third year as a student."



Iris Blue Rose

Iris gracilipes—"BLUE ROSE"! One of the most beautiful of iris species producing an abundance of soft lilac-blue blossoms. One would hardly dare to claim an improvement, but we do feel that when you have seen the double form you will agree with us that it is even more lovely. The color is the same soft lilac-blue, the size of the flower the same, but the doubling up of both standards and falls give this iris the appearance of a tiny blue rose in full bloom. And Blue Rose is its registered name.

Blue Rose originated in our garden, not that we wanted a double iris. The original plant was single, and had been planted in full sun, wedged among rocks, in a very dry position. And when established left to its own devices. The hardship was very apparent in as much as the fans barely reached four inches, but to our surprise the flowers turned out double. Since then the plants have been propagated and the flowers are still double even under the best conditions after six years. The better conditions have produced the same abundance of soft green foliage and many flowers, which get more double as the season advances. It was a happy accident which produced this unique and beautiful Iris.

K. Christiansen, Victoria, Canada.

(Obtainable from Carl Starker, Jennings Lodge, Ore.)

I. verna, a native of wooded hillsides from Pennsylvania and Kentucky southwards has long had a reputation of being one of the most difficult of rock-garden plants. Years back, from a batch ordered from a collector, one did grow, perched on a gravelly hillside close, as it happened, to the equally difficult *I. korolkowi* from Palestine. It is dwarf and early and normally presents the most brilliant contrast of blue and orange crest of all the irises, unforgetable as a dream for a bearded variety.

Anyone familiar with the pages of the National Horticultural Magazine (which now shares our office) will be familiar with the delightful articles by Mrs. J. Norman Henry, an indefatigable hunter of rare plants in distant hatbitats. It is not surprising that she has bred or selected a group of color variations in this species (obtainable from Fairmount Gardens). Vernal Snow and Dawn were introduced in 1941, Vernal Evening, Fairy and Simplicity came out in 1945 and my presumption would be, immediately, that they would be far from difficult to establish in proper settings. In New England it would be with a carpet of the dwarf sedums, *dasyphyllum, acre,* etc. or perhaps *Mazus* or *Mitchella.* In Tennessee, only the native sedums thrive and the evergreen tufts rise barely from the earth as do mats of the Bird's foot violet, an equally difficult problem. Frankly I would try the species as inexpensive collected roots first, then blow myself to these delightful variations. The difficulty is not with transplanting as with so many of the California species, it is with the soil and location, perhaps with a complete lack of coddling and cultivation. Mrs. Henry is also responsible for at least one, bicolor, form of the far more easily grown *I. cristata* and has selected an equally beguiling name Crested Fairy.

R. S. Sturtevant.

MEMBER GROUPS

■ Although the Regional Vice-Presidents may call local meetings, the Society is actually interested in any constructive work on irises by either members or non-members, individually or as a group. The funds of the Society are not sufficient to give much help, except in a limited way to the Regional Vice-Presidents and at times Bulletin space is at a premium so that your editors must select only points of common interest from your publications. We

hope, however, that we may be put on your mailing list and you can rest assured that any group opinion requesting action by the A.I.S. will be brought to the attention of the Board of Directors.

Originally there were only six Regions and Regional Vice-Presidents, ex-officio non-voting members of the Board of Directors and specifically empowered to appoint assistant secretaries, treasurers, chairmen, etc. as the need arose. By 1928 when the Society was incorporated under a new set of by-laws the number of Regions had increased to fifteen (now eighteen) and it was not considered practical to specify as wide powers either of representation or financial support without specific action, on request, by the Board of Directors. For many years the Regional Vice-Presidents were invited to attend the meetings of the Directors for special discussion when circumstances permitted. Reports in person or for publication are still expected but the activities—and the co-operation of the Society—in any one case, have varied greatly.

At present a committee is studying the possibility of re-organizing the Regions to reflect growth habits of irises rather than being based on state groupings and arbitrary lines. Just what the current practice in other similar societies is, I do not know. It would seem unwise to carry too heavy a burden of titles when the same results might be obtained by each member group appointing a reporter to send in general news to the Bulletin.

The fact that any member can apply for assistance in their local annual show should give a local group opportunity to publicize their cooperation with the national Society and in accordance with its rules. One or more medals, exhibition supplies at cost, etc. become available. Naturally more space is given to a show report than to that of the most pleasant of meetings.

Lantern slides, if not otherwise in use, are also available at a rather nominal cost.

Furthermore the member groups can help specifically this year in at least two respects. 1. Regional ratings and/or symposiums are under serious discussion.

2. Before another spring we hope to list "Gardens Open to Members." Even if your member with a garden were not an A.I.S. member, our listing of your "Garden Secretary" with approximate dates might lead to many an entertaining visitor from afar.

3. And this may or may not prove practical owing to delays

in printing. Dates of both Shows and Meetings could be announced for the benefit of out-of-town members.

Although our members, for the most part, have few opportunities for getting together except through the pages of the Bulletin, many opportunities may be developed for local visits and discussions and any help that can be given from headquarters will find a ready hearing.

THE KENT GROUP (England), Hon. Sec. Anthony W. Drewett, Homesdale Rd., Orpington, Kent, a town known to every grower of iris so that to find Mrs. Murrell an active member is no surprise. There are both Iris Society Members, and associates, and meetings were held Nov. 14, Dec. 14, and Jan. 18 with spring meetings out-of-doors in prospect and even a show considered for 1948. We hope for a report on their Symposium.

Of especial interest to us perhaps (and especially in view of our Amoena and other Breeding Programs) was the initiation of a hunt for old varieties and their preservation. The original Plicata (Lamarck, 1785), Buriensis, 1820 (also a plicata and reputedly the oldest recorded TB hybrid) and a probable Dominion were available. If true it will be unmistakable and still handsome even by modern standards.

Buriensis is definitely not attractive, its falls rather twisted and incurved its etching on the pink-lavender side, height inconsiderable. I wonder how true a thirty year memory proves.

Another point worthy of emulation is that each member brings in any iris species in bloom, a custom established by the Royal Horticultural Society and of great value through the years. There is also a chance for both plant and pollen exchange.

SEATTLE IRIS SOCIETY (Mrs. F. B. Eylar, Renton, Washington, Pres.) meets the first Monday in every month—often a luncheon meeting—and puts out also a monthly news sheet. It begins its second year and is not only doing a grand job of publicizing our work but is furthering breeding projects and a wider knowledge of species as well as of the constructive work of the A.I.S. As Mrs. Eylar writes, Seattle has a climate of its own, ideal apparently for the Japanese which she numbers among her 1200 varieties. Such a report emphasizes the need of Regional selections on a far smaller scale than our official regions would permit.

REGION 18, Mrs. Agnes Whiting, newly appointed but has she jumped into an active campaign of "gardens open to visitors,"

thus getting a head start on the Society as a whole? "I have had dozens of grand letters, seven new members, several offers of slides, two offers of group meetings this fall, reports of three meetings already held, and such a wonderful spirit of cooperation —it warms the heart. And all this within a week. Of course a lot of them think that this is a service out from headquarters (as it should be. R.S.S.) but that is all right with me. Even this beginning is well worth the time and money." We look forward to her annual report and also to glean from her correspondence bits of news for everybody.

REGION 6. Mrs. Silas B. Waters is again on the move with a questionnaire on Dwarf Bearded Irises with Mr. Walter Welch, Middlebury, Ind. as Chairman. Again the Bulletin is looking forward to publishing the results.

"The Dwarf section of Bearded Iris has remained in an obscure position for so long that we have decided to find out why this is so, and after proper diagnosis, to try to apply remedial measures. It is a question as to whether this neglect is due to lack of interest, knowledge, or quality or whether the membership is less articulate on the subject. Hence this questionnaire and a symposium if the returns justify it."

REGION 7. John E. Pierce, though it was an enthusiastic guest, Mrs. E. B. Blalock, Como, Miss. that reports of an informal meeting with talk of a municipal planting in Memphis, Tenn. and a show at the Pink Palace.

For years, we have been accustomed to a varied number of annual reports from the Regional Vice-Presidents but the last issue was the first to start what appears to be becoming a regular department. May space keep pace with such activities!

R. S. Sturtevant.

OUR MEMBERS WRITE

■ Both last year and this a certain opening the gates of publication in the Bulletin has been the subject of criticism. As editor this was one of my early policies, and Mr. Douglas the present editor, has rarely censored my copy. I stepped on someone's toes in merely wondering why so few catalogs recommended the A. I. S. One dealer, and not the one I had in mind at all, as fully 40% of the catalogs at hand were in default, has since sent in more than 100 new members. Then I published a raft of "plik" comments

and other members were rampant, but we hope you will like the articles in this issue, which is dedicated to plicatas, and will find the results of acrimony helpfully constructive.

Again both classifications on Intermediates and on color have been opened to discussion. Such a classification in its relation to fields wider than that of iris alone, and the possible effect of changes on past publications which have found recognition in the whole world of horticulture, is not a matter of careless preference. There will be more open discussion, but already the dropping of height as a dividing mark between Dwarf, Intermediate and Tall Bearded is under serious consideration. At present there seems to be no valid objection to this idea. By the time the 1949 Check List is ready for publication, important but thoroughly justifiable changes may find recognition.

It has been suggested that a fee be charged for registration and it is argued that anyone who wishes to register an iris would be willing to pay some sort of fee, since theoretically an iris registered is a potential introduction. If a fee is charged won't this be a bit hard on the less moneyed member? Again the Bulletin is open-minded on this question and welcomes your opinion.

In our request to commercial growers to advertise and offer for sale (or as premiums) the book on irises we expect to have ready in the late fall, we ran into that perennial question, "does the A.I.S. help commercial members?" I have no letters to quote on this subject but there is as much difference of opinion among the growers as there was about "pliks." Again it is a matter of opinion, and hence of general interest, and again it should not be taken as a matter of personal pique. Surely we can disagree—and especially at a distance—one from another by correspondence or in print—without prejudice.

Breeders with small lists offering only their own introductions tend to make no recommendation of the Society EXCEPT when they have an award to publicize. "My mailing list is small—hence unimportant" is one quote; "I merely use it with garden visitors" is another, BUT there must be many cases when the membership list is their one and only mailing list to other than old customers. A careless inexperience seems to be a more justifiable excuse. With the big specialty growers it may be mere thoughtlessness but it also may be due to 1, a fear of competition if other growers should use the A. I. S. membership list, 2, mere lack of thinking, and 3,

an analysis of the customer list that reveals a very small number of A. I. S. members.

In the early days Glen Road Iris Gardens had a mailing list of between 5-7,000, the A.I.S. a membership list of perhaps 5-700. The sales of high priced novelties was divided between those who saw them in the garden, those who believed the catalogue and the relatively few that read about them in the bulletins. The A. I. S. gave very few awards before 1928, and though there were symposiums beginning in 1924, ratings and a few awards, there was no publicity compared to the multiplicity of awards in recent years. That some recent dealers with mailing lists running over 25-30,000 might consider the percentage of A. I. S. customers too small for consideration is not surprising. What the A. I. S. has done in promoting the development and popularity of irises in over twenty-five years can not be measured statistically and certainly not in the analysis of the sales of any one dealer. It certainly compares favorably with the other floral societies in the establishment of nomenclature, classification, standards of excellence, and scientific investigation. Perhaps the amazing number of breeders is a better estimate, and the enhanced quality of individual varieties a better basis for judgment of the contribution the Society has made to horticulture and gardens. At any rate, no specialty grower would hesitate to be a member as a matter of keeping in touch with current developments and, logically no grower should hesitate to give at least an inch of space (as compared to perhaps a page to a new introduction) to inviting a customer to become a member of the A. I. S. That seems the least we might expect of any member —a recommendation—and in complete disregard of whether the Bulletin has given them as breeders or introducers what they consider sufficient publicity.

After all, we seek to publish any comment which does not seem like a catalogue *blah* from an interested party, and it is no fault of the Society that certain gardens, certain varieties get undue publicity purely and simply because more reporters send in the information. Few members realize how dependent an editor is upon voluntary contributions. With experience an editor realizes that praise of a certain variety can be due to an organized campaign, that votes can be evolved to win an award, (it has occurred, I am sure, for at least fifteen years) but that it is no reason for the Bulletin to omit such a report. "Freedom of the press" is a

frequent rallying cry but in our case it is more a matter of which member will contribute items of general interest. Any contribution that is considered free of personalities presumably will be of interest to other members of the Society.

And please do not forget that these points have the general approval, perhaps, of your editor but are actually the opinions of yours truly. *R. S. Sturtevant.*

With this all too long introduction I group the varied comments from members and do not refrain from adding personal comments or bits of information.

On Time and Color. "I would certainly like to have a listing of irises with the same color value, together with their time of blooming. For instance, last summer I wanted to plant Wabash among clumps of white and clumps of blue the color of its falls. I read catalogues and asked everyone who might know when the whites bloomed or what I could plant for blue. The result—nil.

"Wouldn't it be fine if we could have a page in the Bulletin and have members note pleasing combinations with blooming times alike. For instance, I'll send you this note if my plans work out, "Wabash planted contiguously with—white and—blue, all blooming at the same time gave an excellent effect." *Mrs. Lee Reynolds, Tennessee.*

Sweet Neglect. "I am a fanatic on cultivation in my thin soil and drought and I think I lose varieties by over-coddling them. The one bed which has never had a case of soft rot is the one with protection from both heat and cold. It has a tall hedge to the north and oak trees to the west, the leaves of which drift in as a winter mulch and it gets only four to five hours of sun a day." *Mrs. West, Mississippi.*

A Vote for the Tried and True. "Flowers should be judged as Garden Clumps, or at least both for garden and show value, because most iris or any flower is enjoyed from morning to dusk. There are too many of us who can not afford the novelties and find enduring pleasure in the older varieties which have proved their value through the years. *Mrs. Lee Brown, Kansas.*

RATINGS. Our good president suggests a "Medley of Rating Comments for the October Bulletin (closing date Aug. 1). It may prove illuminating. What we want specifically is to give the ratings a greater spread, instead of having them all hover around 85-89." From Michigan Mr. Cronin writes, "Of what value are

they?'' while Mrs. Nesmith who has used them in her catalogs to help purchasers (and it is excellent publicity for the A. I. S. also) reports that New England was not in favor of dropping them. She considers ratings of far greater value than the symposium, whereas Mr. Cronin wants symposiums for every botanical group and Bearded classification, and, we hope he will volunteer to do one of the lot. In all seriousness many members (and the membership would have to be canvassed) would appreciate any grouped report on the Siberians, etc., at least every third year. It would develop an added enthusiasm and bring forth articles of interest for the Bulletins.

As to ratings, a numerical spread will never appear until the judges become thoroughly accustomed to the use of a score card, where the individual qualities are separately evaluated. Too many judges are in the habit of giving an iris a rating without actually analyzing its good or bad points. In the early records a divergence in votes from different localities might often exceed 25%, and ratings were made largely on varieties of known performance.

REGISTRATION. The question of a fee of from $1.00 to $10.00 is still discussed. Mr. Linse (Yakima, Wash.) thinks that ''many breeders have been using the Check List as a stud book'' and suggests that they keep their own records and help keep our published lists within reasonable size, cost and labor. He goes on to list one case of 60 registrations from which one introduction, five years later, and practically no distribution was made. Mr. Gersdorff could better outline the work involved in any one name sent in, for first comes the making of a file card (often preceded by correspondence to get full and accurate date) then the sorting of cards and copying them for the printer, and at least three proof readings to be followed by corrections on both cards and records. The registrations are published annually and finally added to a Check List with its due need of proofing, and both reader and printer needs experience to handle the various types and symbols. Personally I consider it a necessary evil but one that should be a free service to any grower. Many breed irises and offer them for sale as non-members and their work must be recorded. Hence, why penalize our members? If their conscience pricks, let them make an outright gift from time to time to a fund for research or any other acknowledged objective.

To be complete our Check List must include hundreds of *un-*

registered varieties, many of foreign origin, and registration is merely an attempt to cover the time lag between the major task of publishing a Check List.

Incidentally few breeders, as yet, have made any attempt to help as requested in the October, 1946 Bulletin.

Many members seem to begrudge good names to originators and would prefer to re-use them after a longer or shorter period. The 1931 DISCARD LIST carried both extinct and superceded varieties, as well as recommending others, individually considered by the Directors as worthy of discard. The 1939 Check List indicates names and varieties considered 1—*obsolete,* 2—*nearly obsolete* and 3—*superceded,* which covers the same ground and uses the 1931 information plus further knowledge. Assuming that Check Lists continue to be published at ten year intervals, it would seem to me unwise to clutter up the annual lists with even more names and changes therein purely *to make it easier for a breeder to find a name.* There was an Afterglow (Cap. 1901) but no record of its distribution, and Afterglow (Sturt. 1917) that received considerable mention in articles as well as in catalogs, and an outstanding variety in 1948 with the same name will merely confuse the historian. An error in chromosome count (*I. atrofusca*) of fifteen years standing is reported in this issue. It was due to incorrect nomenclature. With our increased interest in genetics it seems still more unwise to consider a name obsolete without careful limitations. The Amoena program could use a number of the 1931 discards to advantage.

From "Bill" Cahoon in Birmingham comes another tirade. He thinks, perhaps, a plant might go to a test garden in lieu of a fee. "I should like to give the coming new members a chance at the thousands of names of non-existent varieties so they would not have to rack their brains for a name that is not appropriate now or a credit to the English (or American) language."

The Editor has received many bouquets that we delete, not because they are not heartening to us, but because they are of little constructive value to our members. However, they do help enormously in formulating policy.

Our member groups have been so active and the discussion of various points of classification so voluminous that we relegate them to separate titles, and even at that must apologize for omitting much, we hope intelligently. *R. S. Sturtevant.*

CLASSIFICATION

■ Though Mr. Douglas was among the first to explode in print on Intermediates and Mr. Allen the one to seek "Strange Bedfellows," I am opening the show with a brief excerpt from Dr. Randolph.

"I have no preconceived notions or fixed ideas at the present time, except perhaps that we had better *go slow* until we are sure where we are going." After all, the Directors of the Society fifteen years ago did offer a practical but very unscientific solution of these problems. Now, however, we should be realistic and try to anticipate complications that are sure to arise. The only difficulty (in all classification) is the problem of disposing of the border line cases, a problem that is always present when one attempts to distinguish gray from black and white."

The following is a goodly part of a talk given by Mr. Allen before the New England Members:

INTERMEDIATES and Border Irises.

In its 27th year the A.I.S. has reason for feeling reasonably mature and of some wisdom. However, an academic friend who has followed my iris adventures for the past ten years recently took me to task for a chance remark that I had made about the science of iris growing. He admitted that we had made a little headway in disease control (I didn't tell him how little) but went on to say—"You iris lovers, like all flower lovers, are just a lot of artists and esthetes who go wild in pursuit of your hobby first in one direction and then in another."

When I showed him the Check List and the various articles on genetics and other technical subjects, he was willing to concede that we were developing that sense of order which is preliminary and necessary to scientific progress. The human mind is, of course, an essentially orderly thing. The great majority of us think in terms of association, design, plan, consequence and the like. Our many forms of expression derive principally from organized thought and that leads naturally to orderly action and finally we have patterns for describing and classifying irises. Each pattern has a name and the name is a convenient and useful word or words that take the place of, and avoid the repetition of, long descriptions that would otherwise be necessary every time we wished to refer to an amoena, a spuria, or any of the others.

The founders of the Society were orderly minded right from the start. Only a few months had elapsed before work was started on a catalog of known varieties and a symposium was initiated to determine the relative quality or popularity of varieties. (Jan. 1921, No. 2.) Since that time there has been steady progress in the development of iris nomenclature, description, classification, and evaluation, a more rapid progress because the Society could observe and profit by the trials and errors of the older horticultural societies and botanical groups.

We do not seek to invade the strictly botanical province, nor do we concern ourselves as much as we should with the many rare and difficult species from the far places of the world. We pay all too scant attention to many a group that our members enjoy—in fact we are sometimes called the Tall Bearded Iris Society, a soubriquet that we will have to avoid unless we wish to become the specialists that we certainly are not at present.

A NEW PATTERN IS NEEDED. Although we are in the habit of conforming to custom until we outgrow it or development outstrips it, we have no hesitancy in clamoring for an improvement when that seems needed. Recently we are becoming aware of an expressed need for several improvements.

Perhaps the most urgent is for some reasonably good and accurate way of describing—by symbol—the many polychrome blends and some better descriptive term is needed for the new plicatas to which Dr. Mitchell has applied the seemingly appropriate term "Fancy."

My immediate interest, however, is the emphasis on height as the group determinant between DB, IB, and TB. (For definitions see 1939 Check List.)

It will be observed that while many of the dwarfs are 40 chomosome tetraploids and most of the talls are diploids and tetraploids of approximately 24 and 48 chromozones respectively (with a few triploids, 36, and pentaploids 60) the Intermediate section *as described* includes many 44 chromosome hybrids but may include some medium height varieties of the other two sections (by chromosome count).

Fortunately relatively few varieties have been described as IB but there is a recent trend toward including more tetraploids which will lead to further confusion.

A re-examination of the situation naturally goes back to the

early days of the intermediates. It must be remembered that prior to 1933 the word Intermediate meant intermediate in time of bloom between the average dwarf and the average tall bearded. Naturally it became a catch-all. In 1933 came the sincere effort to solve temporarily at least, a problem of increasing preplexity. If our breeders had not extended the range of all types of bearded irises, both as to season and as to height, and if we had not become so chromosome conscious the rule would probably still be effective.

NOW WHERE ARE WE. We had some ten varieties registered or re-registered in 1946 and only one is likely to be a TB x DB hybrid from the given parentages.

Granted that the TB x DB or vice versa hybrids are the true intermediate shall we call the others "false intermediate" an absurdity, or "Intermediates perhaps" as Mr. Gersdorff suggests? Or can we make a clean-cutting definition, *eliminating height* as I suggested on page 74, No. 104.

This would immediately establish a list of perhaps fifty fair to excellent "intermediates" and the very smallness of the list would tend to provoke interest among the growers and breeders. (Many of whom already offer them in a separate list.)

TYPES OF TALL BEARDED. If this Intermediate problem can be solved on a genetic or botanical basis we still have the problem of the increasing confusion among the tall bearded, which now includes the following categories:

Genetic: Diploid, Tetraploid, Pentaploid, Heteroploid.

Plant Growth: Short, medium, tall, very tall.

Blooming Season: Very early and combinations to very late.

It includes the very early tall triploid San Gabriel and the short,mid-season heteroploid Black Valor and only the chromosome numbers are uneffected by soil, location, climate, or weather.

Of course, we may become accustomed to saying "Tetra Irises" just as Tetra Phlox or Snapdragons have been publicized, but, as a Society, I hardly think we are ready for that.

For the present it seems appropriate to omit the chromosome count of the big (tetraploid) varieties. Description of the blooming season is satisfactory but what about heights of 12 to 72 inches? We might get a classification of 1—less than 18 inches; 2—18-30, 3—30-42, and 4—More than 42 inches with almost 90% of the novelties in the 30-42 group.

We might use Mr. Douglas's term "Border Iris" for the 18-30

group. Human nature being what it is there is relatively little prospect of any other than a Tall Bearded Tetraploid receiving top honors. It is unfortunate that there is no provision for a high award for lower varieties. Perhaps time and member interest will bring such interest. *Robert E. Allen.*

Mr. Douglas confesses that his suggestion of the term "Border" was just "fishing" to get people talking but "when I got to thinking about it, it seems to complicate matters, and require a "Table" group, perhaps more, so that now I wish it used purely as a catalog descriptive term.

"Why not avoid height except as relative—SHORT, MEDIUM, TALL and the border line cases—throwbacks genetically—would land in either DB or TB, the chromosome count being a guide and not a determinant.

"WHY NOT LET THE BREEDER BE THE JUDGE when he registers a variety?" To quote Dr. Randolph:

"IT should be the originator's responsibility throughout."

"The placing of Oncobreds and Wm. Mohr derivatives with the Intermediates would be most unfortunate as it would tend to obscure their distinctive origins. After one or two generations seedlings of Elmohr by TB tetraploids will be essentially TB in chromosome number and breeding behaviour.

(Miscellaneous Bearded, Dwarf or Tall would permit subdivision into Oncobred, Pogocyclus, or Regliopogon, etc. where origins were of genetic value. *R.S.S.*)

"Here are some of the complications we have to face (among the Intermediates) due to the fact that there are all sorts of intergrading forms, genetically, cytologically, morpthologically, and physiologically.

1. What are we going to do with advanced generation hybrids of true intermediates backcrossed either to the dwarf or tall parents? e.g. Florentania (Titania x Florentina) (G. Douglas) a source of real progress.

2. What to do with 48 chromosome *balkana?* I have rather nice selfed seedlings that are highly fertile and look like intermediates in all respects.

3. What about the genetic dwarfs we are going to find among the TB tetraploids and diploids—like Mendel's dwarf peas?

4. We usually think of the true intermediates as having 44 Ch. but I have some interesting 32s from Trinket x Pluie d'Or.

5. Not all dwarfs have 40 chromosomes. There is *attica* with 16, true pumilas with 32, and probably others with 36. It looks as though the 40s are pentaploids; certainly they cannot be tetraploids from a base number 10, for that number is known only from the Oncocyclus section.'' *Dr. L. F. Randolph.*

Mr. Miles is a bit ahead of time in thinking his ''pet peeve (the height specification) is to be scotched'' though, as through a glass dimly, I am beginning to sense certain agreements, satisfaction with TB and DB, perhaps with a true IB, satisfaction with E. M. and L. seasons for each, and perhaps short, medium, and tall for each. Will I start something if I call Tom-Tit a very late DB or Peewee a mid-season what?

Mr. Welch drifts into added groups of ''Bedding'' for oversize dwarfs, and ''Border'' for short or early TBs (nice intervening catch-alls) and Table Iris; in conjunction with DB, IB, and TB; each with its specified range of height in inches.

The great value of relatively small, recognizable groups for catalog purposes is unmistakable—any grouping as to season, height, or color, adds enormously to the ease of selecting varieties for garden use but, in a catalog, there is a chance to bring out the attractions of a variety whereas in a Check List we are already faced with a host of symbols that are none too easy to remember. Again the grower knows his varieties and can group them as he wishes whereas the compiler depends on records many of them made by others and cannot make close distinctions. Are we trying to reach an impossible perfection in our abbreviated classifications?

COLOR is next on the agenda and Mr. Allen again is a protagonist. His ''Strange Bedfellows'' brought many letters and I quote from the following from Mr. Lloyd Austin of Placerville, Calif.

''Personally I dislike the double approach now required. The entire lack of named classes as pink, lavender, purple, orange, brown, and copper is annoying and also the need of finding these by trying to combine ''Predominant'' and ''Subordinate.'' Pink is an iris color of such importance that it would not be ''created'' by the combining of white and red but would be a color in its own right and subject to modification as are the other main colors.

''I think the errors now are not on the part of the originators but in the system. If there were more main colors, the average person would come closer to proper placement.

''I would also eliminate the heading ''Blend'' as a predominant

and place it on a par with "Plicata" which I prefer to "Feathered." In my first catalog which included only 170 varieties, I grouped them into 28 color classes whereas my full color classification of 500 varieties would make 82 more refined classes—a basis for my Rainbow Garden with each class following the sequence in the spectrum."

AS usual I comment, I preferred the original classification (No. 13) into Yellow, Lavender, Blend, and White as major divisions with its hint of genetic origins and I always considered that the attempt to divide red and blue (as at present) became almost an impossibility in all too many border line cases. Naturally Mr. Austin's suggestion of 28 such major subdivisions seems beyond belief. That first attempt made further subdivisions on typical varieties which is actually what Mr. Austin has done, it is what I do still in my notes. Take the "new pinks" I have the faintness of Buffawn, the shape of Melitza, the attractive veining of Spindrift perhaps as "types" and many notes group themselves about these three or more older or more easily remembered varieties.

A similar grouping in any Varietal report is most helpful BUT it complicates rather than simplifies a classification which, in abbreviated form, is adapted to a Check List description. I find the present set-up of classes and botanical groups, of season, color, fragrance, references and awards, of actually many more symbols, almost beyond comprehension. I am continually embarked on a "refresher" course that never reaches that last bitter-sweet hint of asafoetida and I certainly pray that further changes will not seek to enlarge an already cumbersome amount of information. I appreciate the difficulty in classifying blends, a fact that is intensified when so many fade from an exciting richness to a common drab. That is the underlying division at present and in the eye of any one observer at any one time it will work with mighty few exceptions. *R. S. Sturtevant.*

■ The Bulletin takes this opportunity of congratulating Mrs. Milton Trichel on being elected the new President of the Mary Swords DeBaillon Louisiana Iris Society, and Mr. E. P. Arceneaux as the new Vice President. Miss Marie Caillet serves again as Secretary-Treasurer. Those interested in the affairs of the M.S.D.L.I.S. may contact Mrs. Trichel at 811 Kirby Place, Shreveport, La.

ON JUDGES AND JUDGING

By J. Marion Shull

Judging is quite a tricky business. However, to judge a small show such as most of us are called on to judge, is not very difficult for here one need only determine which is the better of two or the best among several without too much regard as to whether either or any is really good. All the judge needs in that case is a decent sense of fairness. But judging an Iris, or any other subject, for the purpose of establishing a rating is quite another matter. That calls for the judicial mind and unfortunately not all of us, not even all of the appointed judges, had the good fortune to be born with the makings of a judicial mind, and even that grows and benefits by maturity and increasing experience. I am sure I could write a volume on judges I have known, but it would be a little too personal for safe publication so I shall confine myself to somewhat more amiable generalities.

The best judicial mind is one that is never thrown off balance by sudden enthusiasms or dislikes, nor quickly or deeply influenced by the opinion of others. It must go its own way, exercising its own skill in applying all tests, weigh all opposing values with the completest impartiality at its command. But you should be warned that the possessor of such a mind is by no means the happiest of Iris fans. Happier are those who make no effort to restrain their enthusiasms or curb the constant tendency to let enthusiasm outrun their better judgment. Like the late Sam Burchfield they light heartedly find the "Best Iris in the world" every hundred feet along the way. One envies them the sheer joy of living as they go unfettered, possibly quite unaware that they possess such a thing as "better judgment," or that it is being outrun. They too have to be born that way and can not help it—but they seldom make good leaders of others.

Having thus taken a quick look at the desirable qualities in a judge let us now turn to a few good or bad qualities that may be encountered among the Iris both old and new. Oldness and newness are neither commendable in themselves. A new thing may be of interest because of its newness at the same time that it contravenes all the canons of good taste or beauty but when its novelty is outgrown as all novelty is bound to be sooner or later, there is

nothing left to sustain further interest. But the intrinsically good remains good everlastingly. As judges it behooves us to become familiar with these lasting qualities that never grow stale.

Items of greatest and most permanent concern are associated with color, with form, and with proportion. There are other factors to be considered, such as vigor, dependability, sturdiness, but these things may fluctuate regionally and have to be allowed for on that basis, but color, form and proportion are everlasting abstracts, that do not vary the world over, so the aspiring judge should consider these things before and above all else. They are all rather subtle, things that can not be reduced to rigid formulas.

As regards color, it is true there are now elaborate scientific means of measuring exact color, but these are not available as a practical means of assessing the esthetic value of an Iris. We say in practical terminology that a color is pure, clear, sparkling, harmonious, contrasting, even "singing," if we are inclined to be poetical; or we apply such adjectives as delicate, glowing, pastel, and so on, each having a fixed and fairly acceptable popular significance. The color may be velvety, or have a sheen. All these attributes are generally conceded as favorable to the recipient. On the other hand colors may be characterized as dull, muddy, mixed, inharmonious, impure, lack-luster, in fact almost as many opprobrious or disapproving expressions as there were in commendation. These are the descriptive tools of the judge in dealing with color, and merely to list them indicates pretty well what the judge should train his eye to discern in the color of his subjects.

I have chosen to list form and proportion separately though proportion is of the very essence of form. However, the word proportion is a far more widely useful entity since it may be applied to other matters than just the individual flower.

Of the flower itself the judge should avoid acceptance of any one form as "ideal." There is no such thing as a *best* form. That is a matter of purely personal preference and does not belong in the bag of tricks a judge carries about with him. There are many good forms all equally desirable, but whatever the form, whether spreading, globular, vertical, flaring, or what have you, the flower parts within that form must bear a pleasing proportional relationship to each other resulting in a unity not easily defined but clearly and keenly sensed by the discerning judge. Unless you are conscious of this esthetic sense of proportion you are hardly

qualified to join in rating or reporting on Iris values.

Generally we assume that one who knows and lives intimately with many varieties is thereby qualified to serve as an Iris judge but this is by no means necessarily true. He may be an enthusiastic collector of varieties and yet be totally indiscriminating in his taste.

Having decided with regard to a given variety that color, form and proportion are beyond cavil the judge will then give consideration to lesser but still important items. Are the flowers well carried on the stem? Are they too crowded so that each flower encroaches on its fellows obliterating the more important desideratum of fine form? After the first flower, does it become merely a shapeless blob of color? Or do the buds toe in and jam delicate flower parts out of place against the rigid stem so that an otherwise beautiful form is forced into unpleasant distortion? The breeder keeps, and sometimes names, such misfits because they happen to be something new and unusual in color, but from the start they are candidates for immediate replacement with something better.

And how many flowers are there per stem? Nobody wants a five-flowered stem if he can have nine of like quality.

Again I say, judging for rating purposes is a tricky business and not everyone is qualified for the task.

FERTILIZING IRISES

By Guy Rogers

This is intended as an unvarnished statement of fact—*though from Texas.* We have here in Wichita Falls, an altitude of 900 feet, an annual rainfall of 29 inches, considerable sunshine, some wind, and a mean annual temperature of 65 degrees, ranging from 111 degrees in some summers to minus 12 degrees last January. Soils vary from garden to garden, and generally there is hard pan under the surface that is all but impervious to water. So a careful gardener here will haul in sandy loam to mix with his own dirt to obtain an average garden soil.

As moisture, heat and air are essential to the germination of a seed, so such elements plus food, sunshine and drainage are required for the growth of an iris. Some years ago I began to supply food to the soil, timorously at first because most written advice

was against the use of any fertilizer, depicting dire results of rot, burning and general disaster to follow its use. The irises continued to grow. The more I fed them, the better was their growth. Moisture additional to rainfall was supplied as needed by soaking. So over the years I determined that fertilizer was essential to vigorous growth.

Then in June, 1945, I made two substantial beds and heavily fertilized them, planting therein new irises obtained in July or later, feeling that since they were not mortgaged I could do as I pleased about them, but still fearful somewhat that the written advice which I had disdained would prove sound. However, perhaps to my surprise but still to my gratification, those irises bloomed wonderfully well in 1946 and again in 1947. For example, a single rhizome of HELEN MacGREGOR was planted in 1945. It bloomed in 1946. This year it bloomed beautifully on 8 stalks. Its foliage now stands at 32 inches, with 17 fans to increase and bloom another year. LAKE SHANNON did even better. LADY MOHR bloomed at 48 inches, etc.

Exact information concerning the building of such beds is not available, but it is available on a bed built in May, 1946, using generally the same substances. This bed was built in full sunlight on level ground that was in bermuda. Its dimensions are 9 feet by 66 feet. Written instructions to the yardman were carefully written as to each successive step in the building of the bed, and I saw to it that he carried out such instructions implicitly. They were:

(1) Stake out and run a straight edge through the bermuda around such area to insure straight lines.
(2) Lift out and lay aside 5 inches of sod, getting below the bermuda roots.
(3) Spade the bed good and deep, removing all grass roots. Then level.
(4) Evenly spread 4 yards of propagating sand, forking it in thoroughly, for drainage. Level off.
(5) Spread 3 yards of very rich compost over this, forking it in. Level off.
(6) Screen 8 yards of barnyard fertilizer, with the unscreened portion being next spread and forked in. Level off.
(7) Screen one-half the removed sod into the bed, smoothing out evenly and forking. Level off.

Judge and Mrs. Guy Rogers

(8) Spread 2 yards barnyard fertilizer over this, forking it in thoroughly. Level off.

(9) Spread 4 yards sandy loam over this, with 300 pounds of commercial fertilizer, 100 pounds of superphosphate, 100 pounds of Vigoro, 100 pounds of bone meal, and with two tubs of wood ashes, forking and leveling.

(10) Then put in the screened portion of the fertilizer, forking and leveling off.

(11) Soak thoroughly by laying the hose in the side ditch and letting the water run slowly for a day or so until by capillary attraction moisture has come to the top of the bed.

The bed was completed May 18, 1946, and was approximately 7 inches above the surrounding ground, with a ditch around the outer edges approximately 4 inches deep and graduating up to the level of the bed. In 30 days there was the finest crop of careless weeds, cockle burrs, Johnson grass and other forms of plant life that you ever saw, but this was removed and irises planted crosswise of the bed at intervals of 12 inches the latter part of June, 1946. The bed was soaked during the summer as needed. The rhizomes grew, multiplied and bloomed well, and today it

represents the most vigorous growth in the garden. There has been no disease at all in this bed since its planting. A careful inspection this morning discloses not the slightest trace of rot, leaf spot, bacteria or other disease. Other members in this area have observed my method and have used it effectively in their own gardens without ill effects.

Is there ever any rot? Of course. Does leaf spot sometimes appear? Certainly. Is any plant ever affected by blight? Sometimes. Has scorch ever affected a plant? Rarely. It is, however, my observation that these things are caused by conditions other than the fertility of the soil and that the vigorous plants grown in fertile soil are in a better position to withstand the attacks of such diseases than a poorly nourished plant. In this conclusion I have the concurrence of competent judges from other areas who have observed my garden and theirs for the past several years.

This method may not work in other areas, in different climates, under different situations, with different soils and other conditions, but so satisfactory has it been locally that I have pursued the above method of preparing new beds for the planting of many 1947 introductions.

THE GREEN LIGHT

By Mary F. Tharp

■ Not that it makes any difference, but in a G. I. Poll (Green Iris Poll), conducted recently in District 11, the members have given the hybridizers the green light, or in other words, the GO AHEAD signal.

Receiving many comments concerning the origination of a green iris, I wondered how the members in this district felt about the idea, and what place, if any, it would have in the iris kingdom.

On reviewing the possibilities of a green toned iris while tossing a green salad for lunch, I got all dewy eyed over visualizing an iris, ruffled and crisp, the color of a lettuce leaf with style arms the color of a cool green pepper; while the dewy eyed business may have been due to a certain amount of onion in the salad, I still think it a good idea and truly believe that soon the iris judges are going to have to dust off all their superlatives or coin new ones to describe the beauty and wonder of THE coming green iris, and by that I do mean green and not one with just a hint of

olive—a thing which leaves some iris with about as much expression as a fish.

Reading the comments of our members one can easily see that they (or most of them) have "got green iris in their soul!"

My first response to my questionnaire was from Mrs. Sidney D. Smith, Shoshone, Idaho; listen to this—"much interested in a hardy green iris of a real chartreuse green color and had been so hopeful, that in 1943, I got Appointee, which had one bloom the next year, then folded up. Again in 1945, I got Palos Verde which promptly folded up without even blooming. I think it would be a wonderful idea, especially for arrangements."

Our next comment comes from W. L. Bosworth, Treasureton, Idaho. "I have nothing to quote, but a green iris would be okay as a novelty! Personally I like green foliage and pink flowers."

Switching to Wyoming, we get an interesting angle on green iris from Kenneth S. Moore, Sheridan: "I really believe that a green or a green toned iris would have great garden value and that in breeding for it, the results of such an attempt might be of more value than the original idea. However a green iris would most certainly be unique as so very few flowers carry much green in the bloom."

"Any color, just so its green" might be the keynote of the reply received from Mrs. L. D. Harris, Nampa, Idaho, who writes—"the olive green of Lady Mohr I thought very interesting but not what one could call pretty. I saw a clump of it among others in a large bed set among grass and trees at one of the shows I saw in Southern California last spring, the exhibit being that of Miss Miess. Perhaps you had in mind a brighter green like the touch of green in the Fantasy tulip. Wouldn't that combination of pink, white and green be beautiful in an iris? Many of those off whites or creams look dirty in the garden, but I find if they are picked before they are fairly open and brought inside, they really make the nicest cut flowers of all for the delicate blends show up best of all. Green shades would be ideal for arrangements, though they might be better picked and opened inside. In other words, I am for anything you are."

Our florist member Winston Roberts, Boise, Idaho, says—"Personally I do not care for green flowers, so a green iris would not appeal to me, but I imagine it would be liked by those who like the novel and unusual"; and here we think Mr. Roberts reneged,

for he continues, "just the right shade might be all right; I have a yellow-green gladiolus that I call 'Green Gold' and it isn't a bad shade."

Mrs. Arthur N. Walker, of Kimberly, Idaho, would like to see a green iris, but only as a novelty and adds—"Nature has been more than generous with green and I would think that as the hybridizers spend so much time and work creating a new iris, that a color would be more pleasing to them." To Mrs. Walker, we would say that the hybridizer is much like Rubinstein; I understand that when he listened to a sermon, he liked to hear a man who tempted him to do the impossible. The impossible(?) tempts the hybridizer.

Miss A. M. Blakeslee, of Nampa, Idaho, has yet to see a green iris, although she adds, "Green Shadows, Green Pastures and Green Gold all sound enticing, and I hope to see them some day. If some one could produce a clear green iris with a tangerine beard, I could fall for that, as nothing seems impossible in the iris world, one might as well let our imagination run riot. At least it is something to work for and what a pleasing contrast to the pink strain!"

Mrs. Arthur D. Johnson, Nampa, Idaho, adds these words of wisdom regarding green iris—"I really do not think I would care much about a green iris, as there would not be enough contrast with the foliage to show it off; however from a scientific standpoint, I would say YES by all means, just to show it could be done. I once bought a 'green rose,' enough said."

O. N. Summers, Laramie, Wyoming, is definitely "agin" it! But admits he could be shown. (He doesn't like the peony Solange; neither do I.)

Mrs. J. C. Hickenlooper, Preston, Idaho, feels that a green or green toned iris would be adding a new dimension to Irisdom for she says—"The green iris would undoubtedly be a new world to conquer as all other fields from dark to light have been covered; however this green iris should be tremendously outstanding in every way, but I am wondering if it should be on the warm side or a cool green to be most effective." (We would say a cool green, with a white beard.) "I understand Lady Mohr is on the warm green side, but falls only."

Mrs. Sidney W. Smith, Twin Falls, Idaho, states that she had not thought much about a green iris until I raised the question,

and since then had come to the following conclusion; that a green iris would be extremely useful in arrangements of certain color harmonies or classes. Then comes this delightful description of an imaginary garden; "At first I thought a green iris would have no garden value, but certain fine effects might be achieved if the green iris were grouped with purples, dark blends of purple, wine or rose; or if placed with very light yellows of the Elsa Sass order, creams and with whites that have a suggestion of cool green in their depths. No blue whites. A background of evergreens would help to set them off, that is the greens and yellows. A green iris would give one a chance to try a color scheme in varying shades of green. The background would be very dark evergreens, say Arbor Vitae, against which the shape of the lighter green iris would stand outlined. Then the iris leaves might provide a different shade of green as would the foliage of the accompanying plants which bloom after the iris. More study on the possibilities of the green iris could bring about many charming pictures."

And again from Nampa, Mrs. W. C. Fox writes—"How do I feel about a green iris? Many a time when I have been admiring my Henryi lillies, mostly because of their fascinating green centers, I have tried to visualize an iris of like combination of colors, or for that matter, any color in combination with green, if the latter were a good clear color. A good white with green at the center would be lovely. There are green orchids that are very much admired, so why not a green iris?"

Mr. Art Schroeder, Couer d'Alene, Idaho, tells us that he and wife both are in favor of a green iris—"A green toned or a yellow with a lot of green in it would be fine. I had thought there was a green iris in Green Shadows, until I read the description of it in the Bulletin of October 1946."

And again from Couer d'Alene, Mrs. Ralph Nelson sends us this interesting message—"I have pondered over the subject of a green iris ever since receiving your letter and the answer that always comes to me is 'why not.' Even if they were leaf green they would be acceptable. On the yellow side one could have lime or chartreuse shades. An expert on flower arrangement said in one of her lectures that she used chartreuse vases a great deal of the time as they were lovely with anything in them; if that is true why wouldn't an iris of that shade harmonize with anything? I have heard Lady Mohr described as being of chartreuse color, or

partly so, but it just 'ain't.' Then on the blue side of green, we have the lovely aqua green. I can imagine nothing more lovely than an aqua colored iris next to Melanie or Flora Zenor. Still greener would be robin's egg blue and peacock blue. It seems to me you have an unlimited field in these shades and all would be lovely.'' (How about a teal green iris?) Yes, Mrs. Nelson would like a green iris, but soon.

While all members were not heard from, we would still have a majority in favor, were all others against the idea. They probably think ''squirrels to the nuts,'' but refrain from saying so. To them let me quote lines taken from a Burgess Bedtime story:

''The wonders that today you face
Tomorrow will be commonplace.''

IN THE GARDEN

By Mrs. Leo F. Reynolds, *Tennessee*

There seems to be quite a variation in people's ideas of iris—and the use of iris. Personally, I think the primary value of an iris is its use in beautifying a landscape. I think it has a landscape value higher than that of almost any other flower. Even the common ''blue flag'' can make a lovely Spring picture. One of the most satisfying of my childhood memories is of a neighbor's white stone house set on a green hill and bordered by a wide ribbon of blue against a contour-following stone wall.

It doesn't take ''fine'' iris to paint a beautiful picture—just good taste. However, that doesn't mean that the newer, finer irises can't paint even lovelier pictures.

To do this successfully one needs good firm, stocky plants to work with. We have a border about three feet wide that wanders in and out for about five hundred feet in our yard. Perhaps one day it will be almost too beautiful to be borne and the next day, after a wind or driving rain, Sierra Blue and Shining Waters (and many others) will be sprawled here and there and yonder and the whole picture smudged disgustingly. I mention these two blues because they are so beautiful for landscape work.

Personally I can't grasp why tall irises are so extolled. They are almost impossible to keep erect without staking. My cry is for more irises with the sized flower, perfection and general stability of Gudrun. I have Winter Carnival, Snow Carnival, Snow

Flurry, Jake, Purissima (my husband's favorite), Matterhorn, Crystal Beauty, Easter Morn (how beautiful this is) Venus deMilo, Birchbark, Alba Surperba, etc., etc., but the uninitiate visitor gravitates straight to Gudrun. That's because it "gives" all it has.

Arctic and Azure Skies are two others that are well up on my list; so is Blue Shimmer. Treasure Island, though an older iris, has a lot of garden value, and so does little old Golden Lights. And if a pink is wanted that carries and makes a definite accent try Pink Ruffles. I never saw a finer landscape accent than it made on Geddes Douglas' hillside. He had a seedling near the top of the steps leading down to the asparagus bed that was extraordinary in that respect it was deeper and livelier than Pink Ruffles. I was too tired, though, to go back and inquire about it.

Mr. Wills has used his iris plantings as well as any I have seen from a landscape point of view, and he hasn't relegated his older iris to the trash heap, either. Apparently he has kept those with definite garden value. Here are some that I noted that had the characteristics I prize—Patrice, Summer Cloud, Shannopin (this is inclined to be a little sprawly but has so much carrying power). Lake Huron divided my attention with Lake Shannon, its much more expensive neighbor. Then there were Dainty Bess, Russet Wings, Hit Parade, Rocket, Mount Vernon, Peach Glow, Fantasy, Dream Girl, Chamois, Garden Flame, Brown Thrasher, Francellia, Golden Hind, Gold Beater, Copper Pink planted near California Peach, Minnie Colquit, Glen Ellen, Down East, Sunset Tan, Black Wings and Chicory.

Mr. John Pierce of Memphis has succeeded under trying circumstances. We all know how much better results we could achieve with fewer irises of certain colors—and how hard it is not to want "all" the new ones regardless of color harmonies. John is a genuine "fan" (no pun intended) and so is impelled to acquire all of the finer new varieties though his space is quite limited. This because he has a young family and a charming wife and prefers to spend his recreation hours in their midst rather than out on his small farm. But down one side of his yard he has a natural terrace. He has planted this with various and sundry irises of striking beauty and color. For a background he has climbing hybrid-tea roses. The total effect is beautiful beyond expression. A lovely strip of brocaded tapestry! He has the proverbial "green" thumb —because his irises are as well grown and as fine as any we saw

anywhere last spring. And he is a real ambassador for iris culture he is so kind and gracious, happy to share beauty, time and knowledge.

In direct contrast was Mr. Rubel's garden in Corinth, Mississippi. He was out at the farm when we arrived but we were hospitably received by his gracious wife and lovely little daughter. For quantity his plantings would be hard to surpass—never before nor since have I beheld such profligacy in planting. He got home in time to assure us we would save time and money to stay in Corinth rather than drive to Nashville as he had more and better iris than we'd find in Nashville. I am sure he had more but we didn't regret the trip. I would say his Japanese peonies were much finer than his iris but no attempt toward landscaping had been made in any of his far-flung acreage.

Mrs. West at Sardis, Miss. had a restful, well designed small garden. Her excellent taste was well-reflected in the grouping and selection of her varieties.

A garden radiating love, peace and beauty is Mrs. Blalock's garden in Como, Mississippi. This past fall she tried an experiment that should, it seems to me, open up a new field for iris growers. She potted up a good sized clump of China Maid in a suitable jardiniere and brought it into blossom in the new little green house her daughters gave her for Christmas. Never have I seen a lovelier indoor plant of any kind. It was full of blossoms and the colors were more beautiful and more intense than I've ever seen it in its natural habitat.

May I end with an appeal to hybridizers to please stress color and stamina in their new introductions.

VARIETAL COMMENTS

A late season in Nashville found Rocket, Blue Delight, Dream Castle and Fantasy just coming into bloom on May 3rd in Mr. Wills' garden. By the 5th there were a dozen more with the clumps of Blue Delight and At Dawning especially lovely and no competition whatsoever for the brilliant Rocket. Today, May 13th, Lady Mohr, all a sparkle after a terrific downpour was as untouched a clump as there was in the garden, a memorable picture. Under normal sun or cloud I find it intriguing—only a bit too odd perhaps for real beauty—but as the sun broke thru the

clouds today I hardly saw even Rocket across the path and a bit bedraggled.

MISCELLANEOUS BEARDED — with especial reference to the Wm. Mohr hybrids.

From W. P. Aylett, Mangoplah, N.S.W. Australia. "Re my seedling Mohrdyke, it is a real mother of pearl, an easy 9 inches across. A chap was here from Singapore the first year it bloomed and said "Well—it's a true orchid." I have had one pod, 13 seeds when crossed with Lady Mohr and all the pollen has been used on my huge bronze yellow (Grace Mohr x Naranja) called Golden Nugget. It's a perfect—the whole flower a golden bronze with a copper sheen. A cross with Lady Mohr should give a bit better height. It was the only one that bloomed out of twenty this spring (October).

"There is great promise in the Grace Mohr x Ormohr back-crossed to my first Wm. Mohr seedling Try Again. I think it the best so far out of William—a truly lavender magenta lined a silver white. The foliage is purple tinged at the base. Some nice hybrids of Land Mark x Grace Mohr—one a pure coffee brown with the center lit up. I hope to see that white one of Milliken's. My Victory V (Grace Mohr x Snowking) is huge, snow white with crinkled standards."

We thank Mr. J. G. Linse, Yakima, Wash. for the above letter.

LATES. By May 24th here in Nashville this year only a relatively few varieties in the Douglas garden were just approaching their height. Three Oaks was showing its first blooms, a lovely stalk, tall and well branched, its blended tones with a touch of the Red Amber plum in marked contrast to the warmth of nearby Nancy Hardison. This is a smaller bloom perhaps but an equally compact flower with smoothly rounded falls.

The English High Command, its standards a pale citrine, its velvety falls with lemon border and veined haft was excellent and I can hardly wait to see more than two stalks of Blue Ensign, a lovely medium to dark blue with dark haft blue beard, and flaring, slightly waved falls. It seems vigorous and has a better balanced flower than Lake George which may be a hair lighter but has a less rich haft.

Starshine (Wills) has claimed my attention as 7-44-341 in previous years for its flair and crispness, a character I like immensely in Lady Mohr. Incidentally its falls seem close to the color of the

ladies' standards. It has continued to make an outstanding clump in all weathers and will remain in memory.

Permanent Wave is just coming into bloom and has a similar charm with an exaggerated stiffness.

This year Mimosa Gold held well into the Dividend season and received unnumbered plaudits. Curiously both St. Regis and Helen McGregor were so pale as to be almost classed as whites. The ruffled Pale Primrose and Amandine carried on for Elsa Sass in cool yellow.

Silvertone was good, a real blue tho pale but, this year, entirely too big for its short stalks. I much prefer the deeper little Billet Doux at that height.

Blue Crown was again noteworthy. We are accustomed to reversed yellow with darker standards than falls in things like Raejean or Treasure Chest but this is the only one I know with tinted blue above its smooth white falls. Mr. Douglas has an even paler sample that one has to look twice at but neither are at all comparable to the blue-whites like Mt. Hermon or Mt. Cloud nor the White City-Wedgewood group. That Blue Crown has much of the form and glisten of Gloriole is an added attraction.

Lothario was in great shape, an excellent companion to Amigo, equally velvety but in two tones of blue. It may be just a bitone but it will hold its own in any garden.

PINK BUDS. Literally dozens in the seed beds but few at variance with last years report. "Apricotta and Tangerina" (Williams) proved to be good breeders only and will probably not be introduced—perhaps our standards have risen. Pink Cameo I saw for the first time, a lovely self of most tender pink, not large but a charmingly full flower. I fear it will put a number of lovely seedlings out of consideration if it performs well.

There is clearly a place for some dark tones with tangerine beard and I expect Mr. Douglas will make a beginning with at least one from his patch—a bicolor of striking effect, the standards a bit warmed in contrast to the clear cool violet of the falls. It is curious how this beard color alone among irises seems to pervade the flower and give completely new effects. For its group the flower has size, spread and a reasonable compactness of form. Fortunately a number of the pink buds give good poise and branching and height.

Chantilly was even lovelier than last year and I saw seedlings

from both Hall (a soft amber blend) and Cook (still paler) with the characteristic crimped edges—more apparent in the standards than in the falls. It may increase the substance (on the principle of a corrugation); it has a bit of the corruscation of the old Zua but the latter did not live despite its unique quality and I doubt if these do either. I do think they will compete most successfully with the appeal of the pale plicatas of Tiffany-Susette ilk.

On checking old plicatas I ran across three names Clematis (Bliss), Rosette (Sturtevant) and Japanesque (Farr) which like the double Celeste, May Alison, had the shape of a Japanese iris rather than of a bearded. The first was so well-named as to need no description in its bitone lavender, the second was a pale blue self, the last a bit blotched and all have passed on presumably without leaving a trace. Actually this shape we consider abnormal had inherent distinction, at least the flower was not open and spidery at the center nor did the out-size petals flop, flute or twirk and there was no lack of substance or balance as we find in all too many a current novelty.

Anthony (Randall). Late blooming gold, buff and lilac bicolor. Fine Stalk. Excellent substance. (Tenn.)

Blue Ensign (Meyer). Very blue, flaring, good substance, large flowers, clean haft, blue beard. Superlative branching. 36 inches. One of the top ten iris on my list and easily the best in its color class. (Tenn.)

Goldbeater (Kleinsorge). Medium sized flower of fine finish. Poor grower in this area. (Tenn.)

Good News (Kleinsorge). Somewhat reminiscent of Fortune this iris is startingly bright. Good branching. (Tenn.)

Golden Echo. (Ketchum). Mrs. Morgan Ketchum of Memphis has a fine yellow in this iris. The color is very bright and the falls have a softer shading in the center. (Tenn.)

Lavender and Gold Lace (Whiting). A medley of lilac pink and bright gold. A brighter Duet, with good branching and growing qualities. (Tenn.)

Mistletoe (Ketchum). The stands are caramel-tan. The oyster-white falls are bordered with the same color while the haft is overlaid olive-buff. Stiff, crisp flowers on tall well balanced stalks. (Tenn.)

Misty Gold (Schreiner). In the manner of Golden Fleece this iris is a worthwhile addition. Very bright and fine in every respect. (Tenn.)

Typical example of "Pineappling."

"PINEAPPLING"

Iris growers in the south-west are experiencing an epidemic new to those who are familiar with diseases of iris. Evidence of this disease was seen in Memphis, Tenn., Shreveport, La., Dallas, Ft. Worth and Wichita Falls, Texas. The physical manifestations are as follows: the plant has no foliage; every fan and every potential eye on the side of the root stalk sends out a stunted bloom stalk. In some instances these bloom stalks develop to the point where a distorted flower appears on a short stem. In most instances the bloom stalk does not develop, but the scape sheath grows in a curious twisted fashion simulating a pineapple, hence the name. When the rhizome is lifted there is no evidence of ordinary rot and no odor. All root growth has ceased. A sample rhizome so affected was sent to Dr. Philip Brierley, Senior Pathologist, U. S. Department of Agriculture, Washington, D. C. We quote Dr. Brierley's report:

"This is the first time the problem has been brought to my attention. The samples had no living fibrous roots, all of these being killed back to their points of origin in the rhizome, but there

is no extension of rot into the storage organ. There seems to be no authenticated disease of fibrous roots of iris, but this looks like a possible primary cause of the trouble.

"The multiple shoots without chlorosis do not match the symptoms of any known virus in this plant, and I am pretty sure that is not an effect of the common iris mosaic. I have tested the material on Belamcanda, and will report further if anything unusual develops.

"The possibility of a virus cannot be ruled out. In Southern California and Texas these plants may be exposed to some virus not found in the East."

IN MEMORIAM

Mrs. Ruth Marsailis Dormon

The beauty of her life was not expressed in flowers only, but in patience and fortitude under almost insuperable difficulties, and in indomitable cheerfulness.

She was interested in discovering, developing, and introducing native American and other species of plants as well as rescuing from oblivion and loss many old fashioned garden flowers whose worth had been forgotten for a time. She was a member of both the American Iris Society and of The Mary Swords Debaillon Louisiana Iris Society and had developed and introduced several very interesting hybrids. There are hundreds yet to bloom.

We have lost much in losing her but we gained much by knowing her.

Lillian Hall Trichel, Shreveport, La.

ERRATA. No. 105, p. 105. Pearly Gates and Jack O'Lantern, (Groof Est.)

No. 105. p. 103, ATHALA (not Athaia).

p. 104. The following names are unapproved, Florentine, Hermione, Helios, and Harmonie; also Rapiere on p. 105. They are not synonyms. *Chas. E. F. Gersdorff.*

■ HEMEROCALLIS. The First Yearbook of the Midwest Hemerocallis Society is dedicated to Hans Peter Sass and among the contributors are many iris names. The Editor Mrs. Harshbarger has done a splendid job both in format and in the grouping of much information gathered from hither and yon and, I gather, has done it in record time. Check List, registration, data card, definitions all have a familiar sound. There are excellent articles on propagation, hybridizing, and on use, but above all what amounts to an informal symposium in the number and quality of individual reports from many areas. That a number of the articles have been reprinted merely enhances the value for reference use. I found the color classification, self, bi-color, and polychrome and it was interesting to note that there were 3 color classes among the earlies, an added "green yellow" in the intermediates, 11 in the summer, and only 2 in the late group, a contrast of variety from season to season that suggests what careful breeding will accomplish.

The "Round Robin Roundup" sounds both educational and entertaining. I hope one of our members can report for the Bulletin how it works. It clearly provides a far quicker exchange of special news than a bulletin and if based on some specific subject of common interest would gather together a symposium of experience of real value.

Such a report based on ratings must give an excellent cross section of the quality of some fifty day lilies.

Membership (and the annual) is $3.00. Send to Frederick Fischer, Treas., Box 5, Shenandoah, Iowa.

■ NASHVILLE 1948 TRIALS. The briefest of reports have gone to each entrant and there have been few losses tho, in a number of cases, the one fan may not give bloom in 1948.

The better than 50% of bloom is as with newly planted novelties in adjoining beds tho few show characteristic stalk development. It was most fortunate that none of the plantings were caught by the late frost which almost ruined the seed beds of Wills and Caldwell. In general the quality of the seedlings is not good—one suspects that in many cases they have proved themselves excellent as garden clumps and hence not up to the current standards. Nashville had relatively few out of town visitors but they can vouch for the good treatment accorded our guests. My reports to the individuals are sent more as a matter of identification than of judgment.—*R. S. Sturtevant.*

DYKES MEDAL 1947

CHIVALRY ..... Originator J. E. Wills

Runner-up

OLA KALA ..... J. Sass

AWARD OF MERIT—TALL BEARDED

BRYCE CANYON ..... Kleinsorge

BLUE RHYTHM ..... Whiting

KATHERINE FAY ..... Fay

SOLID MAHOGANY ..... J. Sass

CASCADE SPLENDOR ..... Kleinsorge

ROCKET ..... Whiting

EXTRAVAGANZA ..... Douglas

CHANTILLY ..... Hall

GARDEN GLORY ..... Whiting

Note: Chantilly and Garden Glory tied for eighth place.

AWARD OF MERIT—OTHER THAN TALL BEARDED

PRISCILLA (Intermediate) ..... Whiting

LOUISE BLAKE (Intermediate) ..... Smith

HONORABLE MENTION—TALL BEARDED

Name of Iris	*Originator*
ADMIRATION	K. Smith
ALDURA	Larson
AMBER GEM	Salbach
AMITY	Corey
BARBARA LUDDY	Lapham
BLACK BANNER	Nicholls
BLUE VALLEY	Smith
BRILLIANT AMBER	Salbach
CALIFORNIA ROSE	Salbach
CAMPFIRE GLOW	Whiting
CHERIE	Hall
CLOTH OF GOLD	Whiting
CORDOVAN	Kleinsorge
COUNTRY LASS	Walker
EBONY QUEEN	J. Sass
ESQUIRE	Lothrop
FALL DAYS	K. Smith
FANTASY	D. Hall
FIRE DANCE	Fay
GENERAL PATTON	Kleinsorge
GENTLE FLORENCE	Taylor
GOLDEN RUSSET	D. Hall
GOOD NEWS	Kleinsorge
GREEN PASTURES	Heller
INNOVATION	D. Hall
JULIET	Kleinsorge
LADY LOUISE	Graves

MARY ELLEN ..... McKee
MELODIST ..... Deforest
MEXICAN MAGIC ..... Whiting
MIOGEM ..... McKee
NEW HORIZON ..... Fay
ORANGEMAN ..... Don Waters
PALE DAWN ..... Fay
QUAKER MISCHIEF ..... White
RAINBOW ROOM ..... Sass
RED TORCH ..... H. P. Sass
SALMONETTE ..... Sass
SEA LARK ..... Muhlstein
SNOW CRYSTAL ..... Wills
SORREL TOP ..... Mitchell
SOUTHERN PACIFIC ..... Taylor
SPRING SUNSHINE ..... Milliken
SYRINGA ..... Lowry
TEMPLAR ..... White
VENTURA ..... Walker
VICE REGAL ..... Miles
VIGIL ..... Wills
WHITE RUFFLES ..... Taylor
YOUR WORSHIP ..... White
ZANTHA ..... Fay

HONORABLE MENTION—OTHER THAN TALL BEARDED

BUTTERFLY WINGS ..... White
CAPITOLA ..... Reinelt
ILLUSION ..... Kleinsorge
ORMACO ..... Kleinsorge
PRESENT ..... White

HONORABLE MENTION—FALL BLOOMING

KANSAS INGLESIDE ..... Hill
PRIORITY ..... Lapham

HIGHLY COMMENDED*

ANOCISCO	Tobie	285A	Johnson
CAHOKIA	Faught	12-d-39	Larson
44-7	Carruth	SQ-72	Loomis
43-9	Carruth	L-5-9	Lowry
46-46	Cook	Mary Newport	Barker
7-45	Cook	4-78	Mitchell
85-H	Corey	46-00	McKee
7-142	Craig	47-11	McKee
7-143	Craig	47-17	McKee
7-144	Craig	47-20Y	McKee
Deep Buttercup	Muhlstein	47-S-7 (Spuria)	Nies
Gay Orchid	Muhlstein	Pink Formal	Muhlstein
Glisten Glow	Muhlstein	Radiation	D. Hall
46-14	Hall	Red Satin	Palmer
46-16	Hall	10-42B	Salbach
46-20	Hall	Sea Gull	Ilse Smith
46-30	Hall	Sylvan Radiance	Palmer
46-42	Hall	356	Taylor
47-21	Hall	The Spartan	Graves
R-7	H. Hall	22-46	Walker
Helen Fitzgerald	Thorup	D-1-47 (Dutch)	Walker
Helen McKenzie	Graves	S-1-47 (Spuria)	Walker
Jane Phillips	Graves	1-47-19 (Onco)	White

*Incomplete

CERTIFICATE OF COMMENDATION*

Nobska Light	Corey	27-46 (Spuria)	Walker
32-6	Childs	45-19A	Fielding
19-2	Childs	45-19B	Fielding
23-11	Childs	46-55	McKee
7-240	Craig	Pink Tower	Muhlstein
7-210	Craig	46-70C	Muhlstein
Mitchie	Craig	46-17W	Muhlstein
Pt. Mugu	Walker	47-43	Wallace
44-A (Spuria)	Fielding	B102 (Spuria)	Wallace

*Incomplete

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