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AMERICAN IRIS SOCIETY

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NO. 61

ROCKY MOUNTAIN STATES

Associate Editor: MRS. G. R. MARRIAGE

CONTENTS

Foreword, <i>Kathleen N. Marriage</i> .....	1
The High Rockies, <i>H. H. Everett</i> .....	2
Iris Observations in Region 11, <i>Stanley C. Clarke</i> .....	5
Iris in Idaho, <i>J. H. Christ</i> .....	8
Behavior of Iris Species at 6,000 Feet Above Sea-Level, <i>Abby L. Kernochan</i>	11
Iris <i>Missouriensis</i> at Home, <i>Kathleen N. Marriage</i> .....	15
Taming the Chromosome, <i>P. A. Loomis</i> .....	18
Fewer Iris Varieties and Better Ones, <i>D. M. Andrews</i> .....	24
Growing Iris in Salt Lake City, <i>Herman F. Thorup</i> .....	27
Rocky Mountain Iris Breeders, <i>Sherman R. Duffy</i> .....	38
Tolerance of Bearded Irises.....	40
In Ould God's Time, <i>Nora O'Neill</i> .....	41
An Iris Exhibit.....	42
International Iris Show, Boston, 1965, <i>J. Ester</i> .....	43
The Coming Annual Meeting, <i>J. C. Wister</i> .....	45
Our Members Write:	
From Illinois .....	50
From North Dakota .....	51
From Illinois .....	52
From Alabama .....	55
From Massachusetts .....	56
From Indiana .....	56
From Alabama .....	57
From Oregon .....	58
From Maryland .....	60

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# THE AMERICAN IRIS SOCIETY

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## FOREWORD

■ Irises do lead people to strange lengths.

One onlooker remarks, "When they play their tune you folks that are so nutty about Iris can't help dancing to it." Perhaps the thrill of Iris time does produce a mild temporary "nutteness." Getting up at daybreak just for the fun of seeing them in the early morning light, and then, on coming in for an early cup of coffee, buzz—goes the telephone, "Come over right away. Blue Triumph is perfect in this light. Eclador is opening!"

Superlative foolishness? Hours spent out in hot sun trying to pin one's self down to ratings for this or that. Didn't some precisionist suggest a measurement for the arm "clothed in white samite, mystic, wonderful," reaching for Excalibur?

Mid-winter, and Iris season is a thing of the past—A letter from B. Y. M. "to be associate-editor for a Rocky Mountain edition of the BULLETIN!" What on earth to do—!

The Iris enthusiasts in this region have responded willingly to the call to arms, and if this BULLETIN is slim it's fashionable. Slenderness is due rather to the small number of advanced connoisseurs than to any lack of enthusiasm.

KATHLEEN N. MARRIAGE,  
*Associate Editor.*

*Colorado Springs,  
Colorado.*

## THE HIGH ROCKIES

H. H. EVERETT

■ Forty odd years ago the flower decked meadows of the uplands of Colorado drew my love from the painted speckled beauties of the murmuring streams which traversed these meadows. Our trips to Colorado, Wyoming, to the Eastern slope of the Rockies, were primarily for trout, but day after day we laid aside our rod and creel and set out to explore the meadows and the slopes which led from the heights. Great sheets and banks of the heavenly blue of the larkspur on the slopes found rivalry in the lighter blue of the wild iris which spread out from the banks of the winding stream and across the moist levels of the meadow itself—iris in hundreds and in thousands. Here and there one found darker blues, and here and there little groups of white. The mountain iris of the Rockies is a graceful plant with a leaf and stalk and flower all in exquisite balance.

It could not help but attract the attention of the flower lovers and flower growers of this region who collected the variant forms and have made them available to those who live in quieter, more peaceful lands—the prairies, and the gentler hills and mountains of the Eastern United States. We cannot have the foaming streams, the snow clad peaks, the massive crags or the deep blue sky with fleecy clouds gently afloat, but we can transplant some of our memories of this enchanted land to our own enchanted land—our garden.

I know nothing like these western meadows except the blue savannahs of Florida, moist prairie land blanketed with *Iris savannarum*, the coastal plains of Virginia, and the Carolinas aflower with *Iris versicolor* or *carolina*. There is something in this mass grouping which overwhelms one through its clear bright beauty. With German iris, Mr. Wister gave us the wondrous lost planting at the Simmons' in Connecticut, and now again at Duke University. I am all anxious to see this latter planting when it is once firmly established in its full glory.

Iris lovers on the Eastern slope must have been stimulated and their interest directed toward the multicolored display of the iris in Eastern beds and borders by their own native ones, where color was limited to blues and whites. In our garden iris,



*K. N. Marriage*

*Iris missouriensis at home*

the hues of dawn and of sunset, the deep blue of the noonday sky can be found, some with clear pure color, others with lovely blends and shades from the entire palette.

Whatever the cause may be the fact remains that in Dr. P. A. Loomis and Mr. D. M. Andrews, we have two breeders and introducers of iris who have contributed materially to the color-range of our favorite flower.

The most notable of Mr. Andrews' introductions are Odaroloc and Candlelight together with his selected forms of the native iris. The fields and slopes of the lower ranges and the high alps have led Mr. Andrews afar from the iris. His collections of the native plants and shrubs of Colorado contain many things of supreme beauty which should grace our Eastern gardens. Characteristics of the flowers of the mountain region are their deep and vivid coloring, their daintiness of form, their absolute hardness in foreign climates.

Dr. Loomis is an exponent of "line-breeding" and has been remarkably successful in this type of hybridizing. One must have vision coupled with persistence to follow through generation after generation until a predetermined end is attained. This

last year I had hoped to visit his seedling beds, but torrential rains and winds came at blooming time and rendered a visit inadvisable, however many seedlings were seen in former years in Mrs. Pattison's famous garden in Freeport, and many of his guest iris gave splendid bloom here in Lincoln. Although Dominion enters in the heritage of many of his iris they are found to be hardy in this difficult Middlewest—Blue Velvet does particularly well and increases the equal of any, while Chromylla, Spring Maid and the matchless Shirvan all contribute to the loveliness of early June. Another iris introduced this year of great height, perfect form, and lovely flower is Eilah—if Eilah only had the depth and clarity of tone of Golden Hind it would be the ultimate in yellows!

Perhaps the soft blues of the iris and the columbine, the deeper shades of larkspur and gentian, with the reds and yellows of other native flowers of the Rockies have such a perfect foil in the deep green of the pines that their beauty is enhanced beyond that of similar plants in the ordinary border. I know it was my western impressions which led me to divide my garden by close slipped hedges of native cedar and the Black Hills spruce. It is the opinion of many that lovely flowers are still lovelier against such an effective background. Mrs. Marriage, our new Director, wrote me some time ago that she held this view, and she should know, for she lives on the slope at Colorado Springs and has long been known for her interest and her knowledge of horticulture. The western native flowers have been brought by her from meadow and moor and from the higher peaks where color and beauty spring into exquisite being against the melting snows. No more fascinating region is to be found than this land of sapphire lakes and skies matched by the banks and beds of alpine bloom.

One must remember that this western country is one of vast distances where gardens are few and iris fans are seldom. Our membership spreads from Montana on the north down through Utah, the home of a new hybridizer, Mr. Herman F. Thorup at Salt Lake, through Wyoming and Colorado to the desert lands of Arizona and New Mexico. Here in the far south high above the desert is found this same mountain iris which beautifies the meadows all along the range. As Mr. Farr was impressed by the iris of the Iowa lakes and ponds, so will the dwellers of the west find inspiration in their own native species.



## IRIS OBSERVATIONS IN REGION 11

STANLEY C. CLARKE

■ It has been my intention in the past to say a few nice things about our ideal iris climate here in the "Panhandle" region of Idaho with its mild winters and dry summers, but beginning on October '29 we must have had some of the "unusual" weather that California has to apologize for now and then. Zero weather rushed in upon the Northwest; even our Coast area experienced freezing weather. Minimum temperature records from 20 to 50 years past have been broken by the untimely currents from the polar region. Hunters, in mountain areas, with but a single thought had to hasten to lower elevations to escape blizzards and below zero temperatures. The single thought of an iris enthusiast was about his iris transplants set out but a fortnight earlier. Ordinarily, transplanting of iris in late September or early October is the correct practice here because it is the period when we ordinarily have autumn rains. Iris transplanted in November of last year came through the winter successfully without mulching and developed flower stalks; even *Purissima* did well.

The abnormal weather, such as we have recently experienced, emphasizes the importance of collecting data over a sufficient period of time before making decisions as to the adaptability of exotic plants to a given region. A few horticulturists in Idaho have wasted their efforts and money with orchards of English walnuts because of the occasional abnormal year. For two years, the English iris have done remarkably well at Sandpoint, Idaho. The natural increase has been remarkable so far but time will tell the rest of the story.

Before continuing with some observation on *Iris missouriensis*, I wish to pay my respects to the late Mr. Euclid Snow, whom I first met during business relations and with whom I later got to discussing gardens and particularly iris. About that time, as a novice, I was doing some cross-breeding of iris in La Grange, Illinois, and quite frequently I would drive out to the Snows to have them criticize the results of such efforts. I have recently noted that Mr. Snow had introduced some varieties of his own. The Society has been fortunate in having busy, pleasant, and in-

teresting individuals of the high caliber, such as Mr. Snow, who can find time to further the interests of the organization. This variety of human individuals are far too rare and are the ones we would like to keep with us always.

### *Iris Missouriensis*

In the April BULLETIN, 1934, the statement is made that the Longipetala Group "like a heavy loam and dislike transplanting." In the BULLETIN for May, 1924, the statement is made that Beardless Iris "on the whole are easily grown in good garden soil and rarely require lime or good drainage." It occurred to me that it may be of interest to describe the ecological relationship of *Iris missouriensis*, as it grows natively in northern Idaho.

This species is found only on what is known as Caldwell silt loam a recent alluvial soil derived from a wide range of rocks and minerals and consists of reworked eolian and residual material. The type occupies first bottoms along slow streams, but is ordinarily above overflow. Natural drainage is fairly well established but the type is slower in warming up in the spring and such areas are not tillable when the highlands are ready to cultivate. With the result that much of this type is used for pasture only. The upper soil horizon lies to a depth of 10 to 15 inches and is a dark-gray silt loam and is underlain to a depth of about 36 inches by a silty loam to silty clay loam of a lighter color. The subsoil is usually more compact than the adjoining subsoil of eolian origin. Compact subsoil generally retain more moisture than lighter subsoils. This may be an important factor to the species in its site selection.

The soil of the adjacent highlands, where *Iris missouriensis* is never found naturally, is defined as Palouse silt loam and is eolian or loessial in origin. The surface soil is generally high in organic matter. The subsoil is ordinarily heavier in texture and more compact in structure but in many places they are practically of the same texture. The structure of the surface soil and subsoil permits the ready absorption of rain water and there is little washing even on the highest hills. This soil type occupies the rolling-prairie part of the country and is usually referred to as the Palouse wheat country. The virgin soil supported a rank growth of bunch grass, with scattered brushy growth consisting of wild roses, snowberries, buckbrush, hawthorns, etc., these plants are found now, only, along the roads.



*K. N. Marriage*

*Iris missouriensis*

The pH value of the Palouse silt loam is about 7 and the Caldwell silt loam has a slight acid reaction, about pH 6.2. Authorities agree that unless acidity is quite marked, its effects are usually overshadowed by water and air relations.

*Iris missouriensis* does exceedingly well when transplanted to Palouse silt loam if given sufficient water during the growing period. Apparently soil moisture is the limiting factor for this species. As previously mentioned, the compact clay-loam subsoil retains moisture readily and allows the sub-moisture to rise to the plant roots over a longer period of time. Both of the soil types described are non-calcareous. Elsewhere in Idaho, up to elevations of 6,000 to 7,000 feet, this species can be found growing in the bottoms on alluvial soils and often near groves of aspen and cottonwoods. It takes time to produce special soils for exotic species but I do not believe that this particular species "dislikes" transplanting. Because of the very large range of this species, it would be interesting to hear reports from other areas within the range.

## IRIS IN IDAHO

J. H. CHRIST

■ Idaho has room for a more widespread distribution of iris, and it will do well by them. Of the great number of iris species, only one is indigenous within the borders of the state and that, of course, is the cosmopolitan western one, *Iris missouriensis*. Even it has a restricted distribution and is found primarily in the meadows of the Palouse Prairie, in northern Idaho, and in the valleys and tributaries of the Snake River, in southern Idaho. *Sisyrinchium* is the only other genus of Iridaceae in Idaho. Species of this genus are found throughout the state in the lower meadows, and in the meadows of the rugged mountains in the central part of the state.

In northern Idaho, where the writer's experience with iris has been gained, the climate is singularly favorable for many of the iris groups. Snow cover is frequently maintained throughout the winter, and while there is soil heaving during the spring when the frost is leaving, there is little danger of plant loss. The moist winter and spring months assure a fine growth period for the plants, and with the lessend rainfall of June and July, the iris come out in full panoply and there is further assurance that you will be able to have normal blooms and normal plant growth. Hail, burning winds, drouth and severe storms that so disappoint the iris enthusiast are unknown. Even in 1934, when the drouth was at its peak and iris fans the country over were bemoaning the inferiority of their plants, northern Idaho came through unscathed.

At Sandpoint, Idaho, in the display garden of the American Iris Society, on the grounds of the substation of the Idaho Experiment Station, we had an abundant opportunity to observe varieties and species. Of course, we did not have everything we wanted, such as the newer introductions and the rarer species, but we did have a good combination of varieties in the various color groups and we were proud of the display that the plants made.

At this point, too, it is well to mention the interest which the flower created in that and adjoining communities. It seems

strange that as long as the iris has been developed and the thousands of fine varieties that are available, yet to so many people the name only brings to their minds those three inferior varieties that apparently have been the ever present article to be transported by the pioneers to the new lands of promise, the sickly yellow with the brown falls, the washed out blue-gray, and the ever present purple. These are certainly thrifty, and if any hybridizer wants a plant that will withstand all vicissitudes of climate and soil, here is a wealth of material, for after every other vestige of human habitation has disappeared, we can still locate the farmstead by one or all of these old-timers.

The point of it is that these visitors left our gardens with a glorified idea of what was available in the genus iris, and further than that, they took steps to get the ones that appealed to them. Would it be well to note that a good part of the running expenses of the station could have been met had American Iris Society rules on disposing of surplus stock permitted commercialization? But we are thankful for that little article, for it saved us time to earn the bread and butter which the state expected from its investigators.

As stated before, the garden lacked in innovations and I hesitate to list the varieties which so appealed to us, because of their age and because they have been superseded by such fine originations (according to the hybridizers statements) of later years. But even so, we liked them and are still fond of them, so you can attribute that to stubbornness, lack of appreciation, or to the fact that love of friends comes with continued acquaintance. At any rate, these are the ones that appealed most: In the whites and bicolors, Anne Leslie, Mildred Presby, Dimity and Midwest led the list; and in the blues Ann Page, Lord of June, Souv. de Mme. Gaudichau, Santa Barbara and Aphrodite were our choice. Of the pinks, we favored Dream, Morning Splendor, Tenebrae, Georgia and Susan Bliss; and in the yellows, we chose Citronella, Yellow Moon and Churchmouse. The honors in the large group of blends went to Asia, Midgard, Canopus, Arlington and Geo. J. Tribolet. The dwarfs were always appreciated as being the forerunners of the season, but neither these nor the intermediates gave us anything outstanding. The Japanese varieties were slow growers and while we had a sizeable group of them, they had not done much in five years; but they can, and possibly

they will, yet take their place in the sun. The Siberians and Spurias were especially fine and the foliage and growth blended very well with the creek bank planting. The Regelio-Cyclus group suffered from pampering. The more they were moved for the prevention of summer growth, the more they dwindled, but when left in throughout the year, the growth was excellent.

The most pleasing group of all was that of the bulbous species. However, all the bulbous should not be included, for while the Dutch and Spanish thrived for a year or two, they gradually went into a slump and eventually disappeared. Digging every two years didn't hold them up. The group that was outstanding were the English varieties, of which we had four: King of Blues, Purple Queen, Sky Blue and Fascination. These increased abundantly and were one of the best possibilities for commercial reproduction of all, excluding the bearded types. For a cutting flower, they were greatly appreciated, and they came at a time of the year when the other good outside flowers were rather scarce. Disease did not affect them and, of course, a plant breeder is always interested in desirable plants that can stand on their own without coddling.

*Formerly, Sandpoint, Idaho,  
Now Colorado Springs, Colo.*

## BEHAVIOR OF IRIS SPECIES AT 6,000 FEET ABOVE SEA LEVEL

ABBY L. KERNOCHAN

■ Colorado Springs is situated at the western border of the Great Plains, where the ramparts of the Continental Divide begin. Ours is a semi-arid climate with an annual precipitation of about fourteen inches here at the base of the mountains. The winters are mostly days of bright sunshine with a great temperature range, and some below-zero weather. The ground is only covered with snow for short intervals, and does not freeze to a great depth nor stay frozen all winter. The summer have clear sunny days with cool nights and, in certain months, daily showers of short duration. Supplementary watering is always required. Also, the growing season is short with a late spring and an early fall.

It is an ideal climate for tall bearded iris but some of the species need some special precautions to make them survive. The Juno, Regelia and Oncocyclus do fairly well with spring protection, liking the dry sunny winters.

I grow about sixty species and many of their varieties; some grow happily, some condescendingly. The moisture lovers do not develop the height or size to be found in better watered countries, but do grow and are of fine color.

As the garden budget is limited, most of these species have been raised from seed, often the best method and a very delightful game. Seed fresh as possible to procure is sown in pots in the fall and the pots sunk in sand in a frame. The frames are left open until about March first, when sash are placed over them. When ever snow comes it is heaped into the frame, as suggested by H. Correvon. The effect is surprising in increasing germination. The seed pots are shaded in summer. The seedlings are transplanted into a kindergarten before the middle of July, where they stay until they bloom, unless placed in permanent position. During the first blooming the best are picked out for the permanent planting.

Seeds germinate irregularly, especially in some species, some not for several years, wherein lies the value of using pots or

pans. If the species is much desired, the ungerminated seeds are sifted out when the young plants are transplanted and the seeds reset, many germinating the next spring. They bloom in from one to four years, after transplanting, according to the species. I have procured seed from England, and Switzerland, as well as from various sections of the United States, particularly California.

During the winter the smaller species and moisture lovers and young seedlings are covered with excelsior and evergreen boughs to prevent freezing and thawing. This treatment is also given the tender tall bearded iris.

Of the Apogons the Siberian species are probably best known and show great variety in bloom and in cultural requirements. *Sibirica* and *orientalis*, with their many varieties flourish under ordinary care and watering. Raising them from seed is good fun for there is a great variation in seedlings, in color and markings and size. Height varies from four feet down to twelve inches. I even have one, small, with clear yellow falls without white, and with white standards.

The Chinese species are more of a problem and are lower here, *chrysographes*, especially, is short, averaging about one foot, but the blooms are fine rich color and worth the effort required to grow them. *Bulleyana*, *Delavayi*, and *Wilsoni* do well but *Forrestii* is not easy and does not stay long with me. All this group are given a great deal of humus and more moisture than the ordinary Siberians. Perry's hybrids of *Bulleyana* × *chrysographes*, *chrysographes* × *Forrestii*, *chrysographes* × *Hartwegi*, though low are most interesting with some unusual colors. None of this group are very permanent and are difficult to transplant.

The Spurias, of about a dozen species or subspecies, grow well if placed to suit them, and are very beautiful and valuable as the Siberians go out of bloom. Little *graminea* is lovely in a rock garden. From some *Chamaeiris* seed, I had a very interesting range of buff and yellow seedlings. These grow slowly and do not transplant well.

*Ensata*, though low, does grow well. The blooms are too far down in the leaves for garden effect but are lovely as cut flowers.

*Prismatica* spreads widely in a low spot, with ordinary watering. *Verna* stayed a few years without increasing and died. A *Stylosa* seedling sulks and I am not certain how to treat it.



*Foetidissima*, from seed, made small plants and refused to bloom. I have not found the treatment that suits it; I have tried both sun and shade.

The Japanese need much attention here, but do pretty well. They are given much humus and some manure and, when they sulk and turn yellow, ammonium sulphate as a tonic. They are flooded once a week with about four inches of water, and receive a half hour of sprinkling besides, each day.

Of the Evansias, *cristata* had grown and spread, in a lightly shaded rock garden, with a soil largely gravel and humus; and *lacustris*, an exquisite miniature, has more than flourished in the same place, spreading out in all directions. It always blooms again in the fall. *Tectorum alba* is one of the most beautiful in all the great range of iris flowers. It does very well with us, as does its less lovely blue form. A gravely light soil, rich in humus, in a somewhat raised position and either sun or shade seem to make it happy. *Gracilipes* will not survive shipping this distance, though I have tried it from both coasts and I have not been able to procure seed of it, which seems to be the solution.

Our own *Missouriensis*, ranging in color from white to dark blue, does well if its natural conditions are followed, with plenty of water in flowering season and moderate drying later. Flower and leaves resemble greatly its cousin *Ensata*.

I hesitate to say much about the Californians for I have not had success with them; yet in Mr. Andrews garden in Boulder I saw good growth and bloom of *tenax* in a lath house with underground water, and bell covers over them through the winter to keep them from drying out.

*Foliosa*, *fulva* and hybrids are very satisfactory, blooming and increasing as do the *versicolors*. The other Louisiana species I am just trying to establish—a few plants and some seed. This certainly should not be a good climate for them—but that is the fun of iris species growing.

The Junos tried so far, *bucharica*, *orchioides*, *persica*, do well in a cold frame, blooming in April and early May. They have nothing over them but a mulch of excelsior and evergreen boughs through the winter, but glass is put on the frame to protect them from our very changeable spring. Some of the *bucharica* and *orchioides* I have raised from seed and I have a pot of *persica* seed in which a few have germinated. These seeds are all very

slow in germinating and mostly take from two to four years after germination to bloom.

The *Regelia* species, *stolonifera*, *Leichtlini*, and *Hoogiana* are grown under the same conditions. *Hoogiana* spreads until it is almost a nuisance but its soft blue flowers are very satisfying early in the season and are lovely as cut flowers.

Little *reticulata* blooms but a couple of years and then dies out and new bulbs must be bought. The same applies to the *Oncocyclus susiana*, the only one I have tried so far. However, they are well worth the trouble they give. These species all are grown in a soil containing about one-third sand and one-third humus and with some lime added.

With the group of *Regelias* and *Junos* I find covering with sash through the summer a good practice, but *susiana* must be taken up and stored in dry sand and not put back into the ground until mid-October. Otherwise, it comes up about October first and is very sensitive to freezing.

The *Pogo-cyclus* and *Regelio-cyclus* here require a mulch. Sometimes in a severe winter glass frames on eighteen inch posts are placed over them, as is done for the tender tall bearded. I have not had very much luck with Spanish and Dutch iris in the open garden but find that the English varieties do well in a rose bed, apparently liking the same conditions.

Little *arenaria* is not really happy grown in a sunny rock garden as its blooms are frozen most years, but it is exquisite when the rare bloom is saved.

The season ends with *dichotoma*, of which I have a beautiful clear white seedling. Notwithstanding its curious habit of bloom—never opening until two p.m., it is one of our most exquisite irises. With us the plants do not die after flowering, some of my plants being six years old. It receives ordinary garden soil, and shade part of the day.

The main drawbacks in growing iris species at 6,000 feet above sea level are:

1. Semi-arid conditions with a low humidity.
2. A short season not conducive to maturing tender varieties.

The advantages are:

1. A maximum of sunshine with a scant rainfall.
2. No ice or standing water in winter.

*Colorado Springs, Colorado*



K. N. Marriage

## IRIS MISSOURIENSIS AT HOME

■ Since *Iris missouriensis* seems to be taking the floor some findings about the taming of it may not be amiss.

I may as well confess outright to two distinct loyalties in irises. One for the iris as an individual: a single stem bearing beauty of form, of color, of texture, of indescribable iridescence; and an entirely different loyalty for irises as tubes of paint of varying colors with which to paint a garden picture.

The first of these is being well cared for by the iris hybridizers of the moment. The second is different, since the use of tubes of paint is such a subjective matter, so it is plainly a case of trotting out my own hobby.

In the garden picture *pumilas*, *missouriensis*, intermediate bearded, *sibiricas*, *spurias* and Japanese, are all useful in maintaining continuity of interest. As a garden-maker I am definitely interested in *Iris missouriensis*, and I hope that hybridizers will soon do something besides tell me that they cannot break the charm. Surely they can knock a gene out of it by some means,



*K. N. Marriage*

*Iris missouriensis*

and cross it so as to give us descendants of more widely varying colors and longer season of bloom.

Some years ago I found a field of this in bloom, about 10 to 15 acres. At first glance it appeared to be a cloud of lavender floating over a swampy mountain meadow through which a stream of clearest srystal flowed. On closer inspection I found variations from clear white to pinky-lavender and on through many blues to lavender-purple. These being "weeds" to the farmer, I dug plants of each of these shades, selecting those of best substance and widest petals. In the garden the pinky-lavender ones have been the most admired, but the whites have more distinctive quality. Mr. D. M. Andrews' Snowbird, a selected white, is outstanding. Lavenders and purples are excellent for massing. The foliage is slender, neat, and unassuming: the flowers of a size and quality suitable for the smallest garden and for front massing in big bold plantings.

This is another flower whose beauty is enhanced by a sympathetic background. One especially happy combination is a group of the lavender-pink in front of *Juniperus scopularum*; scale, suggestion of repetition in color, refinement, all are satisfying. Their

delicacy is easily over-shadowed by big coarse things that are puffing out their cheeks preparatory to shouting their bloom: oriental poppies, peonies and such. Happy garden associates are *Aquilegia coerulea*, *Clematis douglasii* and the gentler veronicas: *rupestris*, Barr's Blue and Royal Blue. In my garden one clump of lavender and purple *missouriensis* happens somehow to sit in the same pew with a group of Ellen Willmott tulips—just in front of a hedge-in-the making of *Juniperus monosperma*—a delectable chance combination. *Juniperus monosperma*, for those who don't know it, has a remarkable way of looking very silvery-blue outside and deep green underneath in its mature foliage; a composition that makes it the most companionable of evergreens.

Time? well, how can one name a date for irises, any of 'em? *Missouriensis* comes between the end of the *pumila* season, and the beginning of the tall bearded. They transplant amiably anytime here. Shipping to eastern and to California gardens seems to be more successful early spring or latish autumn, *never* summer.

Association? single clumps and small groups are often at the edge of Aspen groves in company with Mariposa lilies, Colorado blue columbine, shooting star, *Gentiana Parryi*, but whole fields of them are *always* where there is underflow of water until blooming season, and then gradually diminished moisture till they are dry by autumn. Here in the garden they flourish with the run-of-the-garden treatment, and since humidity is low artificial watering is necessary. One is more likely to find the garden too dry than too wet.

Eastern gardeners have had varying success with growing these. It is possible that ample drainage may help, so that crowns may dry off after blooming. This seems to be a requirement of many of these Rocky Mountain native plants.

KATHLEEN N. MARRIAGE.

*Colorado Springs, Colorado.*

## TAMING THE CHROMOSOME

P. A. LOOMIS

■ It seems to be the accepted lot of the secretary of any Society to give unlimited service, to be deluged with complaints and to receive a minimum amount of cooperation from the members. It requires a real optimist to assume the additional task of publishing bulletins where there are no official papers or transactions to fill them. Purely as a matter of cooperation, then, and not with any intention of enriching the iris literature I will speak my mind on the blending of iris chromosomes at 6,000 feet.

My own preference, among the articles appearing in the bulletins, leans towards the gossip rather than to the scientific phases of iris culture. When a new issue comes to hand, I look through the index for a title which indicates that the author is about to divulge the real truth about the recent introductions. Such an article, particularly if it is of the type which allows the chips to fall where they may, delights my iris tastes as much as the murder thriller appeals to the average Ph.D.

Our garden irises so often have a dual personality; they live a sort of Doctor Jekyll and Mr. Hyde existence. One of my earliest seedlings impressed this fact indelibly on my mind. The first bloom was a really beautiful pink-toned pallida. Many friends admired it and I offered a root to any who wish for it. The next year, which happened to be very wet, with little sunshine, the color was a disaster—a muddy purple. About every third year this iris is quite presentable and I still keep it in a secluded corner.

Color is the one essential in a garden flower and as far as irises are concerned color seems to be where you find it, with no apologies for its origin. Starting with a limited selection, we have a wide range of possibilities in color open to us if we are lucky in planning our mixtures. We must have one white and a few blues or purples of different parentage and, most important of all, a variegata. Nowadays, everyone who grows a few irises takes a hand at stirring the mixture and an astounding range of color makes its appearance each year. Where some

of them come from is a mystery but it is my fixed superstition that variegata supplies the magic wand which brings out the colors in this rainbow. Variegata seems to add something to every shade from white to the darkest purples. The warm whites, light yellows and deep yellows, shading into brown or orange, the near pinks and the nearly red shades, all owe some of their charm to this old and largely discarded variety. The yellow undertone adds distinction to most of our bearded irises. The chemist may explain all this as due to the action of an enzyme; perhaps our colors are completely altered by the unexpected presence of glucoside or the substitution of an acid for an alkaline base. Most of us will ignore the wisdom of the chemist and, with a Ridgway color chart and a morning sun to guide us, we will attempt to decipher the color possibilities concealed in our favorite blends.

Twenty years of pleasant association with the tall bearded irises, largely passed in transferring pollen from one clump to another, transplanting nature's enigmatic response, from pod to seed bed and from seed bed to long double rows of seedlings—this long association should have brought forth a few crisp facts to make up for the 40,000 failures laboriously plowed under. A hopeful search through a hundred pages of records does not seem to reveal much. I suspect that, with the exception of a score or so hybridizers who have had all the luck, and it must be luck; this is the usual experience of the great majority who take up this exciting hobby. There are compensations, of course, which cannot be listed under the heading of success: the confident expectation with which we wait for the revelations which our last cross has promised and which will bloom tomorrow, or next year, or certainly the following year—this is the exciting fare on which we feed. A well-tilled field of iris seedlings on a bright summer morning, viewed from a discreet distance, is always filled with Dyke's medal winners—for the moment.

In place of facts which seem to have eluded me, I can offer brief biographies of two seedlings which, while having no garden value themselves, have an interesting history and a presentable family of descendants. I do not expect to exhaust the possibilities of the genes of these seedlings for some years to come. No doubt the new things cast a brighter light but it does not always pay to trade old lamps for new.

The pioneers among iris hybridizers seem to have been on the alert for "breaks" among their seedlings. Lent A. Williamson, Alcazar and Dominion were notable examples of such breaks. The word chromosomes had not arisen to plague the conscientious worker, but the value of the new qualities of these seedlings and their probable usefulness in breeding was quickly noted. And so, I imagine, it is today; we may not know our chromosomes, but we will probably recognize new characteristics when they appear in a seedling due to an accidental increase in chromosomes; the old-fashioned "break." Chromosome counts explain these phenomena and tell us how they came about but they cannot predict with any certainty when such a "break" will appear. The microscope undoubtedly gives us an insight into nature's magic in producing new varieties, but I am afraid it does not tell us how we are to produce the live rabbit from the silk hat. Personally, I am somewhat skeptical as to the value of Magnifica as a parent in spite of its 60 chromosomes. The only Magnifica seedling of my own that I thought worth saving has a clubbed stalk. This is no argument against the value of the polyploid hybrid, but it does indicate that 60 chromosomes do not necessarily aid us in producing superior forms.

Ten or twelve years ago, in the search for a yellow iris, I crossed trojana with Mrs. Neubronner of the old-fashioned variegata family. I did not know that the former had forty-eight chromosomes and the smaller flower twenty-four. There were two seeds in this pod and the single plant that germinated was numbered C-1. I am quite sure that this seedling is a tetraploid and that the increase in chromosomes was due to a lack of division in the egg cell. This is one of the seedlings which I think deserves a brief biography. It was a dull variegata of good size and height and very fertile both ways. Crossed with Bruno it produced quite a number of brown and bronze seedlings of good quality. Sachem and Shirvan were two of these. There were many others which were superior in size, stalk and foliage but which lacked color. Crossed with Argentina, there were some 60 seedlings, one-third of which were white, one-third yellow and one-third blends. Chromylla came from this pod. The average quality of these seedlings and the fertility of the parent justifies the assumption that this C-1 seedling was a tetraploid. Colonel Nichols reports Chromylla as being a poly-



ploid and I think the transition or break came in this trojana-Neubronner cross.

Another "break" seems to have occurred from a cross between the old variegata, W. J. Fryer, which I assumed to have had a count of twenty-four, and Ricardi which has forty-eight. There were not more than three seedlings from this cross, two of which were lost to sight. The one I still keep, officially numbered F-70, but nicknamed Caliban, behaves like a polyploid hybrid. It is tall, has a large if awkward flower, is fairly hardy and very fertile both ways. Crossed with Dominion it has produced the best parent I have ever had for white and yellow. This particular F-70  $\times$  Dominion cross, teamed up with Chromylla, the seedling of another break, are producing regularly each year a better line of large flowered yellows.

For a long time I have been yearning to find some parentage which would lead toward pink. Not the purple pinks which come from pallida but a pink which we occasionally find a hint of in our variegata seedlings. Ricardi seems to me to have a suggestion of a pink tone and certainly this Ricardi  $\times$  variegata strain has given very encouraging results. Spring Maid is a seedling of M. Cornault and so has variegata blood. Seedlings from these two variegata strains are now coming out self-colored with a very promising shade of near pink.

Strangely enough, the best white irises I have had in the last two years include in their parentage both these variegata breaks ( $\times$  trojana and Ricardi respectively). Dominion and Argentina have each supplied their quota of chromosomes in producing these whites. It seems to me that every promising strain I have had in the last five years has leaned heavily on one or the other or both of these variegata tetraploids.

I would like to make clear that I have the highest regard for the brilliant work that has been accomplished by chromosome counts in throwing light on iris breeding. I wish it were possible to have a test plot accessible to a well-equipped laboratory where we might send seedlings for chromosome counts at a proper fee. I am extremely curious as to the count of many of my own seedlings as well as some of the introductions of recent years. I would be glad to patronize a laboratory test plot such as I have mentioned.

Col. Nichols indicates the strong probability of some dwarf

blood in W. R. Dykes. Some of the white seedlings which have appeared from one of my Dykes' crosses have the very large flowers but rather short stems which might be evidence of dwarf blood. The pod parents were my own seedlings and I am sure without dwarf heritage.

Dog Rose is one of my favorites and I have tried for several years to obtain seedlings from it. It has proved with me to be one of those varieties which set pods with the greatest freedom but almost no seeds. I imagine its count is twenty-four or thirty-six chromosomes.

I am inclined to agree with Mitchell that bronzes and dark blends give us our deepest yellows. Of course, we get veining and often a brownish or greenish discoloration, but these can be removed in later crosses. Secretary Pilkington of The Iris Society (England) crossed the pollen of Depute Nombrot on Purissima and secured as a reward for his good judgment the fine yellow Sahara. I would not have guessed this source of yellow although it seems reasonable now that it has been pointed out.

William Mohr should produce some interesting seedlings if we can find some way of getting viable seed. As a difficult hybrid which is almost sterile, it should have interesting possibilities. I have always pollinated a few flowers and in 1933 I had two good seeds and in 1934 from a small number of crosses I obtained five seeds. A small aril indicates their oncocyclis blood. Next year I hope to put on an intensive campaign as William Mohr grows very well here. I intend to use the widest possible assortment of pollen in the hope of finding one which will stimulate seed production. I understand a few seedlings have been raised and bloomed from this hybrid.

My main worry at the moment, aside from the depression and this vexatious question of chromosomes, is how to find a method of blooming seedlings one year from pollination. So far I have been unable to find any reliable method of securing fall germination. I have used solutions of sodium sulpho-cyanate in various strengths with no success. Mr. Edgar Marston of Broadmoor has very kindly treated seed for me with Ethylene gas and also with X-ray. So far, we have had no results. Refrigeration at various temperatures and of various durations has given no assistance. Early planting of the seed usually gives a certain percentage of fall germination. Last year I carried about

200 seedlings through the winter in a small greenhouse and bloomed most of them this summer. This winter I am using three hours of artificial light with ordinary incandescent bulbs in the greenhouse to hasten growth in the hope of early spring bloom. The greatest difficulty is still the question of reliable fall germination.

Merely as an experiment, Mr. Marston has also treated iris seed and iris seedlings with a various unit doses of X-ray in the hope of altering the chromosome arrangement. I do not anticipate any startling results but almost anything can happen when chromosomes go off on a spree.

*Colorado Springs, Colorado*

## FEWER IRIS VARIETIES AND BETTER ONES

D. M. ANDREWS

■ Time was, when a new iris made a definite splash in the shallow pool, known as Public Attention. My own Candlelight flung out the widening circles of its impulse for a brief period, partly because of an apt name, and partly because soft-toned blends were not as common then as now.

Many things have happened rapidly since, and because the mechanism of cross-fertilization in iris is easily manipulated, a small host of would-be iris breeders have found themselves possessed of fondly cherished seedlings which they have guarded zealously since the first spear of green peeped up from the brown earth.

Little wonder that the lure of fame or possible fortune should have caused many of these to be introduced to a credulous iris world. But the pool is no longer placid. Due to constant agitation, the splash of a new offering is effectively silenced, and no concentric circles ripple toward the shore. Yellows, blends and reds, which once came to us singly or not at all, now arrive in platoons. Owing to a dearth of appropriate names, anomalous titles are beginning to usher the advent of good iris, not absolutely needed, and which we are led to suspect will be out-classed within two seasons at the farthest.

The iris game is played both by amateurs and professionals. For professional, let me substitute the term commercial, which has a clearer application, and which by courtesy may include those who sell the surplus from a back-yard garden. This latter class is not so small a group as one might suppose, because various ones issue lists, yet derive their sustaining income from some other source. The iris game thus becomes the game of business, permitting its devotees glimpses behind the scenes in the market place; and a pleasant game it is, with compensations aside from profit.

Just how strong the voice is of those who grow iris exclusively, and whose income is derived from iris dealings alone, I do not know. I believe the exclusive dealers to be very few. But regardless of combinations with other undertakings, their commercial interests must be respected; and everyone who does any iris business, however microscopic, is thereby obligated to

abide by a self-imposed code of fair practice, playing the game in a thoroughly sportsmanlike manner. A consensus of iris growers to this effect will give the popularity of the rainbow flower a new and powerful impetus.

But returning to the originator, we discover a debt of gratitude seldom repaid in money of the realm. The prospect of gain has been chiefly a minor incentive in the field of iris breeding. The thrill of participating in the creation of new forms and color has had a far more potent attraction as a diversion for those of keen discrimination.

The other day I submitted to an interview by a very young man who had mercenary aspirations as a plant breeder, and who indicated his inexperience by inquiring the parts of an iris flower and the method of fertilization. I parried by asking the extent of his educational background, and learned that above the grades it was nothing, flat. How could I put him up against a firing squad of experienced breeders? I took what seemed the merciful course, and advised him to take on plant breeding as a quiet summer sport.

Do not get me wrong, because I hope that every iris fan will at some time or other, enjoy the experience of raising and flowering some iris seedlings. If not already interested in the subtle pattern of inheritance, you will find such an interest easy to acquire.

Without the originator, the enthusiast, inspired by the originator's productions, would pass out of the picture. Our debt to him remains. Call it a debt of gratitude. But it is worthy of better pay.

In a number of instances some of our most acceptable iris breeding has been done by persons not commercially interested in the sale of plants. On the other hand, the originator-introducer role has been criticised as involving problems in ethics. I doubt if the latter position is well taken, because in either case, the prolific sources of new varieties must satisfy with quality, and those engaged in the dual role of introducing their own productions must be their own severest critics to avoid the natural consequences of inflation.

The present-day plant breeder has access to the comparatively new science of inheritance, otherwise known as genetics. Several recent publications have given important side lights, each a step in advance of what was known only a few years ago. Although

I attach importance to educational preparation, I grant that many a chance seedling has endeared itself to a gracious public by its sheer loveliness. Putting sentiment aside, the old adage that "Knowledge is power," holds for plant breeding; and when well used gives a tremendous advantage over haphazard methods.

So much for the inflow. Elimination is a drastic idea no doubt, and one upon which no two persons will agree. But the inflow will continue, and the surplus above what the buying public will absorb includes, not only obsolete varieties, but many that still enjoy something of a following.

Do we raise iris for their expression of beauty in the garden, or do we crowd our limited domain with the utmost number of varieties for which we can find room to stick labels? Our answer will vitally affect the future of the rainbow flower, because the glory of the garden ever depends upon what has been omitted; in other words eliminated.

I am inclined to class the dealer as the oft-time offender. I do not favor life-imprisonment for the third offence, but the dealer who publishes a bargain list of his discards, is inviting the customer to fill his garden with trash, to the partial exclusion of better varieties on the one hand, and more profitable sales on the other.

The fact that nine out of ten gardens are limited by space, more than by the purse of the owner, accounts for much of the plethora of really good iris. One often hears the expression, "When I plant a new iris I have to dig one out." But the trouble is, they do not dig them out, and all concerned are losers, including the dealer.

Proper elimination is not loss, but a necessity. I am confident that the dealer should use the plow at replanting time instead of the bargain list. I am familiar with the arguments pro and con.

The most difficult phase of elimination is that of the junior iris fan who faces a surplus. The natural increase becomes a matter of concern. Painless destruction of our "don't wants" is infinitely better than to fill the country-side with a monotony of inferior color. Put the educational touch into the bit of joy you would part with to a friend, by sparing as your gift a beautiful iris that you still prize.

*Boulder, Colorado*

## GROWING IRIS IN SALT LAKE CITY

HERMAN F. THORUP

■ Ever since I became a member of the American Iris Society and had become somewhat familiar with iris problems and cultural methods in those parts of the land which were their source of supply and dissemination, I have had in mind and hoped to write something about the iris applicable to this section that might prove of interest to the readers of the BULLETIN.

Located geographically in the "Heart of the Rockies," where the normal spring months are not excessively wet; the summers and the greater part of the fall months practically rainless; with an average annual precipitation of sixteen inches, the bounty of relatively mild winters; zero and sub-zero weather occurring without exception when the ground was covered with a blanket of snow, I felt from what I had read on the subject that this locality might prove to be an ideal place in which to raise iris, particularly those varieties or species that were difficult to grow in the East due to cold open winters and excessive spring rains. For as nearly as could be ascertained from what had been written on the subject, our arid summers and relatively uniform winters were similar to those which held forth in the native habitat of these plants.

But a beginner had much to learn, alone and isolated from established iris gardens of the East and the Pacific Coast; gardening under climatic conditions more or less dissimilar to either; with all the available information on the subject of irises written where excessive moisture was a handicap and a real problem to the iris enthusiast who tried to grow the tender varieties or species. One thus situated would naturally be influenced more or less, at first, by such advice as "never water newly planted rhizomes, even at the time of planting; allow them to obtain their own moisture." "Reset" plants should "sit in the soil like a duck sits in water;" plants received by mail "ought not wholly be covered with soil."

The *oncocyclus susiana*, was to be planted in "late Fall" a few days before the ground froze; "about November first," dug "about July 25th," washed and sunned two or three days, then

placed in "a box of perfectly dry sand and stored in a cool place" till time to plant again in late Fall.

These instructions apply no doubt to the sections in which they were written, but if followed here literally, will in the case of *susiana*, bring only disappointment and loss to the one who tries to grow it.

Here *susiana* must be planted in September so that it can make growth before the ground freezes or it will not grow at all.

Our first plant of *susiana* came from an Eastern grower; it arrived in good condition the first of November, too late, however, for it to make any Fall growth. It was planted about two inches deep. The following spring when no growth appeared, I dug down and found that it had rotted. Determined to have it, the order was repeated with the request that it be sent earlier, but the grower no doubt thought he knew best, and like the former plant, sent it too late for it to make the necessary Fall growth; it therefore shared the same fate that befell the first plant.

After the second failure to get *susiana* to grow, due to too late Fall planting, a friend of ours, the late N. J. Thomas, received from a friend his entire clump of *susiana*. He had grown it successfully for several years at his country estate near Salt Lake City, with the same treatment given the rest of the garden. We (Mrs. Thorup is as interested and enthusiastic about the iris as the writer, and renders valuable assistance during the blooming season) had never seen *susiana* and were therefore thrilled the following spring when we beheld a dozen or more blooms of it in the Thomas garden. The first glimpse of them was from a distance, as we approached the place where they were planted. The first impression was that one saw so many Sage Hens, until a closer inspection revealed a flower.

After gazing a while in silent admiration the wild fowl suggestion changed to that of the Orient, the land of mosques and turbans. But the climax came a year later, when a visitor, after gazing a while in silence on our first *susiana*, remarked, "It is named wrong, it should be named 'Madam Queen.'" My first impulse was to resent this remark. I looked to see if such a comparison could be made, and was sensibly struck with the appropriateness of what he had said, for the heavy blotch of black and brown on the falls and style branch were certainly negroid and feminine at that. *Susiana*, at any rate, will always be "Madam Queen" to him.



Had my friend and I been ignorant of the above recommended culture for *susiana*, we would no doubt have succeeded with it from the beginning the same as the original owner had done. But we had read that it lost its foliage in the early summer and must be kept dormant and absolutely dry during the summer months, or it would not bloom. But these plants kept green all summer. My friend became alarmed and dug his plants and stored them in dry sand until October, when they were planted out again.

We were very happy to be able to obtain a plant from him at the time he dug them for storing. I did not believe it necessary to dig them on account of our dry summers, and therefore intended leaving our plants in the ground permanently, but not having a special bed ready, for such a bed was deemed necessary from what had been written on the subject, it was temporarily planted where it received water regularly once a week because it stood in the path of the sprinkler. I was therefore a little dubious about results the following spring, but the green plant looked well and kept right on growing and to our surprise bloomed the following spring.

But, strange to relate, not a bloom appeared among the many plants of our friend's, although all survived the winter. Whether this was because they had been interrupted in their attempt to recover from being transplanted by remaining green all summer, or whether it was due to "sitting on the ground as a duck sits in water" without any winter protection, for that was how they sat the following spring; they had been planted shallow in the first place, but not early enough to develop a root system long enough to anchor themselves against the alternate thawing and freezing of February and March, which made them duck-like. Whether it was due to this or the former cause I cannot say with absolute certainty, but from my own experience I am inclined to believe that it could have been from either cause, or both. At any rate, our friend couldn't understand why our plant that was permitted to grow on bloomed and his many plants treated as recommended failed to do so.

We had previous to this grown the *Regelias Hoogiana* and *stolonifera* successfully under conditions favorable to the tall bearded. These *Regelias*, together with *susiana*, were moved to the special bed mentioned above, where, if necessary, they could be kept absolutely dry during the summer months. As our ground becomes bone dry in the summer and early fall unless watered

regularly once a week, I felt certain that we could duplicate the desert state of their native soil. But now, after three years' trial, I realize the dryness of that soil was overestimated, for the *Rege-lia*s and *susiana* have practically stopped blooming. They were kept too dry, hence their growing season has not been long enough to produce mature or blooming size rhizomes. Of course, under such conditions *susiana* did not and could not, had she felt the urge to do so, remain green during the summer time.

But to return to the Thomas plants; these were dug again, but earlier than the year previous and stored in dry sand until planting time. When that time came their owner decided to pot the greater part of them, hoping by this method to obtain bloom the following spring. But as a safeguard, in case the potting proved unsuccessful, five plants were set out in the open ground. It was fortunate that he did so for all those that were potted died, but two of those set out survived the winter.

Last year about the middle of August, these were moved to our garden. But it was apparent that only one might live due to the growing season having been cut short by the drought of 1934. Suspecting that our plants had been kept too dry these were planted among the tall bearded, where they would receive water regularly during the summer months. Strange to relate that under these conditions, the surviving plant failed to remain green, as it had done in the Thomas garden, but behaved as a desert plant should behave. I noticed, however, that it had not completely died to the ground, as was the case with those in the dry bed, life was just visible above ground. This pleased me, for I felt this was as it should be. In their native soil the roots of *susiana* no doubt penetrate it deeply and thus contact some moisture, but I doubt whether during normal years that soil becomes as dry as does our soil if irrigation is withheld.

In September it commenced growth again and is developing into a fine thrifty plant.

The dry bed was kept dry longer than usual this Fall and although it was October when the plants there were transplanted to where the Thomas plants were thriving, no foliage had appeared above ground, but in their new moist soil they responded at once.

I have also found that *susiana* resents being divided too severely, the irregular mass of smaller rhizomes should remain attached to

the mother rhizome until large enough to shift for themselves, or they are apt to become winter killed.

*Susiana* also does best here if given some winter protection. This would not be necessary if the ground could be depended upon to remain covered with snow until about the first of April. To safeguard against an open winter, *susiana* is given a mulch of sticks and leaves which are not removed until April. In a more sheltered spot this precaution could no doubt be dispensed with.

I have also found that in our soil *Ricardi* and *mesopotamica* require much more water than recommended in order to thrive properly. *Ricardi* came from an Eastern grower and *mesopotamica* from a grower on the Pacific Coast. The former when received showed signs of climatic handicap, the reason no doubt why the grower was so generous in what he sent, for it could be made into two plants.

Knowing how dry our ground becomes unless supplied abundantly with water at weekly intervals and that all living things, including desert plants, can not grow or live without water, I was a little dubious about adhering strictly to the culture recommended for sections which were naturally wet and did not have to practice irrigation in order to produce crops, but not being sure just how dry their native soil became, we had to experiment and find out for ourselves.

*Mesopotamica* and *Ricardi* arrived about the same time, the former and one plant of the latter were planted together in that part of the garden where it was a little inconvenient to supply water regularly and where a private hedge absorbed the greater part of what was supplied.

The extra plant of *Ricardi* was planted where the garden received water abundantly at weekly intervals, but where the ground sloped and shed the greater part of the moisture that fell upon it.

The two Eastern plants did not bloom the following spring but the fine plant of *mesopotamica* did. However, as the summer advanced it and its companion failed to make normal leaf growth; as the one planted in moist soil was making normal leaf growth, it was decided that the ground, where they stood, was too dry, so they were moved to a more favorable location as to moisture but not as to drainage. Neither of these bloomed the next spring, but the one first planted in moist soil did and as the seasons passed it

developed into a fine clump, that was really outstanding despite the weak stems.

Our plants of *Ricardi* and *mesopotamica* are identical as to form, growth and habits, but not as to color. *Ricardi* is much lighter and a near self when compared with the darker *mesopotamica*. Both commence active leaf growth each Fall, unless they have been kept dry during the summer and early Fall. The new foliage attains a height of approximately twelve inches before freezing weather sets in, and comes through the winter in almost perfect condition providing they stand where ample surface drainage has been provided that will keep the base of the leaves drained during late winter and early spring.

We have never given them any winter protection whatsoever, nor have they failed to bloom each year once they became established. Here they bloom toward the end of the iris season. In California *mesopotamica* is said to bloom early. This is no doubt due to the uninterrupted or continuous growth during the entire Fall and mild winter season. Our original plant of *mesopotamica* bloomed early, as might be expected, but our cold Falls and Winters have made it late.

With the exception of *susiana* as stated above, no other iris receives any winter protection whatsoever, except such protection as nature provides at this season of the year.

William Mohr was a success from the very start, no doubt due to the fact that it was treated as a tall bearded. Judging from the height of the bloom stalk, it is apparently more at home here than in the state where it originated. Its height there is given as twenty inches, while here it attains a growth of 32 inches.

The late N. J. Thomas succeeded in obtaining a viable seed from Wm. Mohr which germinated in 1932. Having read that young Pogo-cyclus seedlings grow very slowly and are apt to "go off" the first year, it was left undisturbed in the seed bed a full year. This year it matured, had fine summer foliage, and promises to be as good a grower as its seed parent, judging by the young plants or increase that are now waiting for spring to give them birth. We are looking forward with interest to its blooming in the hope that it will prove worthy of its hybridizer.

Unfortunately the seed bed record of this seedling has been lost. I know, that same year, that Mr. Thomas obtained seed from Wm. Mohr with pollen from Cardinal, El Capitan and one or two

other varieties, but which of these produced the viable seed may never be known with absolute certainty.

Now that the study of iris chromosomes has accounted for the difficulty breeders experienced in crossing the diploid and tetraploid groups, it would be of interest as well as of value to know the chromosome number of Wm. Mohr. Theoretically, if a true hybrid, that number should be 22—(Parisiana (24) by *Gatesii* (20)). Theoretically also, the chromosome number of Zwanenburg—(*Lutescens aurea* (40) by *susiana* (20))—should be 30, but Col. J. C. Nicholls in the 48th BULLETIN reports its number as 42. It is therefore possible that the chromosome number of Wm. Mohr may not be intermediate between those of its parents, a knowledge that would be of value to the breeder in planning future matings in that he could avoid crosses that were likely to prove unfruitful and devote his time to those most likely to produce viable seed.

The California introductions may all be said to do well here, if ability to bloom each year is a criterion. The majority, however, of those derived from *mesopotamica* are affected more or less by the cold and moisture of March and April. Perfection of bloom does not go hand in hand with weakened and imperfect foliage, yet they are all worth growing and really outstanding; one might not suspect the less susceptible did better elsewhere were it not that published photographs made the difference obvious.

We might grow them here as well as they do in California if we took the trouble to cover them with a cold frame during the winter months and early spring, but in my opinion an iris that can not survive our winters without coddling is hardly worth growing. However, they are less affected by cold and moisture if given a sheltered position. We try in this way to favor them as much as garden space will permit.

The following varieties, beginning with the one most susceptible to cold and moisture, which develops a wonderful stand of fine fall foliage but which by spring has nearly all wasted away, are tender in the order listed.

San Gabriel, Argentina, Mauna Loa, Don Quixote, Mirasol, Alameda, Purissima and San Francisco.

The varieties that are hardy and practically so are respectively in the order listed.

Primavera, Conquistador, Esplendido, Gaviota, Valencia, El Capitan, Shasta, Rayo de Sol, Aurifero, Frieda Mohr, Los An-

geles, Santa Barbara, Sacramento, San Diego, Hidalgo, Azulado and Soledad.

We have not grown Alta California, Padre, Modoc and Shining Watres long enough to know for a certainty to which class they belong. The first two, however, appear to be hardy.

I feel constrained to write a few words about Primavera. I am at a loss to know why the introducer dropped this fine yellow intermediate from his list. I have looked in vain for favorable comment about it in the BULLETIN, for it is one of the few of the many varieties that we grow that truly makes worth while and joyous appeal. With us it has evergreen foliage that comes through the winter practically unscathed. It blooms over a long period, the last flower as fine as the first. In size it is fully as large as W. R. Dykes; for this reason a taller bloom stalk would be desirable, but its fine appeal makes this defect a minor fault. It has better form than W. R. Dykes, and its color is more uniform. Its pollen is fertile, and it will give viable seed with tetraploid pollen.

While San Francisco is more vigorous and a much more dependable bloomer than its sister, Los Angeles, the latter is hardier and its well formed flowers make an appeal to the eye that satisfies the soul more than do the fine flowers of the former.

I also prefer the form of Shasta to that of Purissima, but a "close up" where its smooth texture inherited from its pallida ancestry can be seen never fails to make joyous appeal. As it resents cold and moisture, though never fails to bloom, we of course do not see it at its best.

With the exception of Leverrier, the Ricardi hybrids of M. Denis are all hardy here. Those we have are M. Cornault, Menetrier, Mme. Durrand, Micheline Charraire, J. B. Dumas, and Mme. Claude Monet.

We have tried repeatedly to grow the Japanese *Iris Kaempferi*, but without success. Our dry lime laden soil is not to their liking. My brother, however, grows them successfully planted at the edge of his flowing well streamlet where the ground is saturated with water every day of the year but never freezes, hence they are never covered with ice, which is said to be fatal to them.

In this same location the foliage of the English water flag, *Pseudacorus*, attains a height of six feet or more, while in our garden it is little more than a third of this. The difference in quality of bloom, however, is not so marked.

The Siberians and Spurias thrive under ordinary garden culture. This is also true of the Xiphiums, Dutch and Spanish, and the *Xiphioides*. Of the Junos we have tried only *Bucharica*, which is readily raised from seed, and is easy to grow provided the fleshy roots are not broken off in transplanting.

It might be worthy of note that the same year a blue sport of Zua appeared in the Sass garden a blue sport of the same variety appeared in ours, from an early fall division from the mother plant. Having seen blue and partly blue flowers on *Florentina alba* on different occasions, which never recurred in successive years in the same plant, I thought at first that this might also be the case here, although the matter of permanence was indicated in the fact that the flowers were uniformly all of the same hue. This blue mutation of Zua is also more vigorous than the original plant, and has a slightly taller flower stalk. Except for this and color it is identical to the original in form and crepiness.

We also have two variations of Zwanenburg. Our plant and the Thomas plant, as we call the one that came from his garden, were secured from two different sources. Which one is the original type I do not know, but I am inclined to believe that ours is. Of the two variations we prefer the Thomas plant, which is darker and more flaked with brown on the falls and has better substance because the standards are smoothly domed and the falls more flaring and smoother, in contrast to the listless character exhibited in ours.

It would be interesting to investigate the chromosome number of these plants and learn whether that number is identical for each of the original types and their mutations. If the somatic count of the latter should be found to vary from that of the mother plant, we might have an explanation as to one of the causes if not the cause of mutation in plants.

Due to our isolation from important iris collections, we have endeavored to secure as many of the most outstanding of the newer introductions as possible, so as to be able to compare and judge our own seedlings. Our iris collection at present numbers 386 named varieties, exclusive of our own seedlings. During the 13 years that we have been acquiring these, we have deliberately discarded only some four varieties, the most offending of which was Amber; it was so bad that we didn't have the nerve to even give it away. It must have done better elsewhere or I do not

understand how any one for the sake of his own reputation would have dared to impose it upon others.

These years have demonstrated beyond a doubt that in order to make normal growth certain varieties require more moisture than other varieties of the same class. This has been true particularly of W. R. Dykes, Pink Satin, Blackwings, Indian Chief, Magenta, Clara Noyes and Aphrodite.

When one pays a high price for an iris, as was the case with the first two, he is apt to be over-careful with them, especially when he can't afford to replace them. So for fear they might succumb to the effects of too much moisture they were purposely kept a little dryer than otherwise would have been the case. Yet their neighbors all around them made relatively normal increase and bloom, but these made little or no growth from year to year.

W. R. Dykes was purchased the year it was introduced in the United States. It bloomed the first year after planting, for which we are grateful to the grower who sent it. Since then it has bloomed twice, once in 1933 and again this year, each time on a single bloom stalk. Last summer it had increased to five plants.

Suspecting that lack of vigor in a variety such as this, which was apparently more exacting in its requirements than ordinarily was the case, was due to too dry growing conditions, it was moved to where it was convenient to supply any amount of water. Here the ground was never allowed to become dry and the result was that for the first time in 5 years it produced normal Fall increase. The other varieties mentioned above were also given more water and responded more or less in the same manner. In this regard Pink Satin proved exceptionally prolific. Blackwings, Indian Chief, Clara Noyes and Magenta, which bloomed the first year after planting, should, for the first time in three years, bloom again this coming season.

Last April and May were exceptionally wet for this section; during those months each week averaged better than an inch of rainfall. But that occasion proved more than anything else that, to do their best, iris require much more moisture than supposed. Our iris were fine other years but never as tall or fine as last season, when nature provided moisture many times in excess of that supplied artificially at the blooming season. We were also surprised to find that under these conditions varieties and seedlings—triploids—that had refused to set seed other years did so to a remarkable extent. One of these, a seedling, that year after



year had produced only abortive seed pods, matured many that gave a few seeds that stood the water test. But we must wait the seed bed test to prove their fertility.

We have found true the claim that sunshine in abundance is the chief requirement of the iris, and that a heavy lime soil suits them best. But in this section where these requirements are met one hundred per cent, that of ample moisture during the growing season is in importance equal to that of sunshine. For without moisture our lime laden soil, baked in the hot rays of our common benefactor, would produce nothing but a parched ground, such as was experienced in normally wet sections during the drought of 1934, only more seriously so. In fact, the majority of the iris in commerce, if not all, would become extinct in a relatively short time if left to shift for themselves on our Wasatch bench land. I doubt whether established clumps of *florentina* and *Germanica* could endure its arid state unaided for many years.

Many of the old varieties are still favorites of ours because they have what is with us paramount in the iris, good form. Those less favored both old and new are retained because our garden serves iris lovers of this section as a natural catalogue in which to check and learn their names, names which were unknown, lost, forgotten or disregarded when they obtained their first iris; or which they have become interested in through the printed catalogue, and come to see in true colors in the natural.

## ROCKY MOUNTAIN IRIS BREEDERS

SHERMAN R. DUFFY

■ Some iris breeders are not particular enough and others are, perhaps, too particular about the irises they introduce. In the latter class is Dr. P. A. Loomis.

Introduced to the iris trade world by an all-time iris, Blue Velvet, we have from this Colorado breeder irises of exceptional quality but never more than one or two a season. Meanwhile, we have seen some of his seedlings in bloom upon which we cast covetous eyes but which he has refused to introduce, such as a pink seedling of Spring Maid and a white Dominion-race intermediate of crystal quality that certainly is the top notch of its class.

We are moved to wonder in the case of this iris just what Dr. Loomis thinks is the matter with it.

Rocky Mountain irises seem to take kindly to the middle west and grow well and vigorously, the only exception that the writer has ever noted being Mr. Andrews' Candlelight but last year it bloomed magnificently at Freeport and justified the high rating it was once given.

There is little need to comment on Chromylla, Shirvan, Spring Maid, Erebian, and Blue Velvet. They are well known and highly appreciated.

We are more interested in the newer productions of Dr. Loomis in the way of whites and yellows of which reports have trickled eastward, and which we saw visualized in yellows and a blend in Mrs. Pattison's garden at Freeport. And there's word of six superfine whites yet to appear.

The yellows, know as his O series, we await with much interest as we have reports of their fine color quality. We had a beautiful sample in three of them last year, Eilah, the former J-20 we watched for several seasons at Freeport, improving with each year, shy on branching on its first blooming there but giving indication that there would be branching later and there has been, a fine stalk, a beautiful clear yellow, not one of the yellows that make you ponder whether it is really a yellow or a cream white. Of the pale yellows, his L-14 looks like a great iris on a single stalk display. K-8 is a fine color, a real yellow.

What the breeding background of these yellows is we are not

informed but Dr. Loomis has succeeded in getting fine, pure yellow, whatever the ancestry and with it fine form and substance and sturdy stems.

We also learn that he has some fine blends, one example shown by Mrs. Pattison being of singular beauty because of the salmon tones in its falls, and which would be as fine an iris for a striking and brilliantly colorful clump as Dr. Loomis' Shirvan, the most sumptuously rich and at the same time brilliantly colored of the variegata blends.

Mr. Andrews, likewise, has given us a very few irises but all of fine quality. The writer is inclined to consider Rusty Gold his finest production so far from standpoint of garden value and color value, although Gilead has been more highly publicized. It is bigger and taller and a grand iris but it has not the individuality or character of the tan and gold of Rusty Gold, most appropriately named, which makes a gorgeous group and is particularly striking with a blue of about Corrida tone. It is also an excellent companion piece for some of the deep velvety browns such as Grace Sturtevant, illuminating them most effectively. Amerind is an attractive but rather elusive color, not of the garden value of either Gilead or Rusty Gold.

Dr. Loomis has worked along well defined scientific lines and his irises indicate steady progress. We have yet to see one that had not the most valuable quality of good substance and stem.

Recently from Utah we have been getting some extra fine irises, Nebraska, Colorado, and Utah providing an iris breeding belt of distinction. The late N. E. Thomas was on the threshold of producing a fine line of irises when he passed away, and from his Utah garden have come some promising seedlings under trial, notably a blue blend and another blend on the Genevieve Serouge order and even finer.

Mr. Herman Thorup, another Utah breeder, sprung into fame by giving us the largest flowered plicata we have yet sighted in Wasatch, a flower of fine coloring in blue stippling and feathering that has a cleaner and better carry than most plicatas. It is an iris of grand quality and in the writer's opinion, far superior to San Francisco.

The care with which these breeders of the Rocky Mountain region have selected their irises for introduction cannot be too highly commended.

## TOLERANCE OF BEARDED IRISES

■ The adaptability of the bearded irises and their tolerance of wide variation in soil, cold, heat, humidity, aridity, and the Lord High Everything Else, is attested by the following:

Mrs. J. F. Huckel, an ardent gardener with a garden at her Kansas City and her Broadmoor homes, writes, "My own experience has been that, of the irises grown in Broadmoor compared with those grown in my garden here (Kansas City), those in Colorado are of more brilliant color, much taller and last longer. I have seen most of the iris gardens around here and never have seen such specimens as we find in and around Colorado Springs."

Miss Florence Wilkins, of Walden, Colorado, writes, "This summer past I had iris in bloom up until almost the first of August, by planting some of them in a spot where they did not get much direct sunlight, but were shaded by buildings south of them. The altitude here is 5,800 feet and the winters are very severe, often 42 degrees below zero, and yet I never cover my iris, and never lose any from winter killing. The soil in my garden is none too rich, and when I tell you that I have all kinds of flowers, and do all the work in the garden and have to be in the office from 8:30 a.m. to 5:00 p.m., you know that they can't get a great deal of care. Last summer my William Mohr bloomed, and while it was a very large bloom I was disappointed in it as to me it was top-heavy and ungainly, but how I did revel in Grace Sturtevant."

U. G., Colorado Springs, says, "We began to grow pumila irises at 9,000 feet elevation in order to retard their flowering season to synchronize with the tall bearded bloom here at 6,000 feet for cross-pollination both ways. The blooms lasted so much longer up in the cooler air that we added several varieties of tall bearded iris and a few William Mohr. These bloom there in July, often spilling over into August; producing flowers of such unruffled coolness that last and last. They take the run-of-the mountain weather conditions, without protection; sub-zero temperatures much of winter. July and August are the only months to count on free from frost at night."



## IN OULD GOD'S TIME

■ Once upon a time the Duke of Bedford owned thousands and thousands of sheep in Australia. He thought why wouldn't little knuckles (knee-joints) from enough sheep make a good paving instead of cobble-stones. So he had many tons of them sent from his sheep ranch in Australia to his Devonshire estate on the Tamar. Now these sheep-knuckle drives and paths attracted many visitors, one of which I happened to be many years ago. But the picture most vivid in my mind of that day is not sheep knees, but irises, for standing on an old stone bridge and looking down stream I was struck by the unusual color of some blue irises on the right bank of a bend in the Tamar, Lord of June-ish blue, if an unthinking immature eye can be trusted. I sometimes wonder if they were some of the Bliss seedlings used in the making of Dominion.

Having acquired the maturity (if nothing else) necessary to the making of a gardener, thrilled to the core I slip out at six o'clock of a June morning impatient to see what seedlings have opened, the best of them every one showing Dominion heritage. Strange to think they may be descendants of those blues on the Tamar five thousand miles and twenty-five years away.

And we went to see the sheep knuckle drives!

NORA O'NEILL.

*Colorado Springs, Colorado*

## AN IRIS EXHIBIT

■ Three members of the A. I. S. in Colorado Springs, Colorado, eager to stimulate interest in better irises, wanted to have an Iris Show, but shied at all the work entailed and still more at the heartburnings and jealousies resulting from a competitive show for amateurs. So they up and made an iris exhibit of their own, just the three of them.

The room selected was well suited to this—a modern well ventilated, well lighted, Cadillac show-room, about the right size for a little semi-formal garden.

Borders 10-12 feet deep, edged with brick, were filled tight with clumps of iris foliage lifted with soil on roots and placed on the tiled floor. The tight background to the whole garden was Foxtail pine trees set as if growing. The terminal to the main entrance path was a bird bath, around which irises *tectorum album*, *missouriensis* and some early *sibiricas* looked well.

Between the clumps of iris foliage were arranged in groups and drifts of self-color the iris blooms: Pluie d'or, J-20 (later named Eilah), Chromylla and Coronation, edging into a group (in best light) of Black Wings, Blue Velvet faced by Louis Bel. This drifting into a white corner with Shasta, Selene, Purissima, and gradually toning into soft blues and lavenders by beginning with San Francisco and other plicatas, and reaching a climax in a group of Blue Triumph, Missouri, Pacific, and Sierra Blue.

Going the other way round, the yellows softened into paler things, Moon Magic, Desert Gold and Gilead, making the peace between such pinks and blends as Spring Maid, Pink Satin, King Midas, Clara Noyes and Rusty Gold, farther along deepening into Red Dominion, Shirvan, Dauntless and finally ending in darkest Nurmahal.

The instigator of this plot arranged a table in the entrance with a big sign, "Join the American Iris Society," and offered roots as a bribe to cajole \$3.00 subscriptions out of innocent visitors. Some of these subscribers may in time make real members.

## INTERNATIONAL IRIS SHOW, BOSTON, 1965

■ "Let's be on the ground early tomorrow to meet these chaps from Europe. The Asiatic and South African exhibitors won't be much later, probably here by nine," Jim concluded, over our last pipe, after surveying and prophesying and re-surveying the entries for the morrow's Iris Show.

Competition is keen for the oldest trophy, the Dykes Medal. Jim and I have just been looking over accounts of Iris Shows way back in 1935 when the medal was awarded for huge irises on stems 4 feet high, according to some thick old yellowy tomes called Bulletins that Jim has in his attic. Freakish taste to run to such monsters!

8 a.m. June 1, 1965. Jon arrives bringing Spencer and Beecham from England, Lehmann from Leipzig, Rasmussen from Copenhagen, Petrovich from Poland, apparently friendly even though such keen rivals.

It is soon evident that they all expect the honor of the day to be won of O'Hara from Toronto, reputed to have produced the bright warm red of the old time giant bearded Iris in 8 mm. flower on a 2.5 cm. stem, a strain his father began by crossing old Minuta on Palustris.

By 1 o'clock the judges have awarded the trophies.

A chip of white porcelain from Wisley Botanic Garden is the year's winner. The exhibits are intensely interesting. Those from Rhodesia are the only ones showing a sign of fatigue. This method of arranging them and sealing them up in little glass cases for transit and exhibition is a vast improvement on the way we used to manhandle them. How they ever got those mammoth blooms of the old days to a show in decent condition is a wonder.

O'Hara is disgusted at his luck. But what can he expect when he comes blundering in with that incomplete pedigree for his Ruby. No excuse for such carelessness in the future, with this iris encyclopedia just out, displayed at the show—seems to have a complete register of pedigrees.

Oh well, tomorrow we'll all be flying home, each determined to breed a winner.

J. ESTER.

## IRIS IN NEW YORK CITY

Mr. Virgil V. Johnson, Superintendent of The Andrew Freedman Home, 1125 Grand Concourse, New York, N. Y., has extended an invitation to the members of The American Iris Society to visit the garden there during the last week of May. Mr. Johnson owns the garden personally and has a fine collection, including many of the newer iris.

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### RE: TEST GARDENS

Many letters are coming into the office in regard to test display gardens. I am asked by the President to say that the A. I. S. does not find any workable plan by which test gardens can be continued. No one is willing to undertake the necessary correspondence, the inevitable supervision, the labor of shipping. Stocks for such gardens are dependent upon the generosity of the donors with an inevitable drain upon individual owners. If there are any persons who wish to discuss this, will they please send their suggestions to the President, but do not send more protests. Send workable plans.

B. Y. M.

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### CORRECTIONS

BULLETIN No. 59, October, 1935, the sentence at top of page 41 should read: "Here I have them in the rock garden where they seem quite at home. Of the newer ones P O 34-I (Hoogiana x Sound Money) with arched standards and flaring falls is a very clear pale blue with greenish lights . . ."

BULLETIN No. 59, October, 1935, page 43, reference to "Mrs. Collier" should read: "Mrs. Currier."



## THE COMING ANNUAL MEETING

JOHN C. WISTER

■ The 1936 annual meeting will be held in Hartford in early June, as has already been announced. This is the first eastern meeting since 1932 and will give an opportunity for our members to compare the irises grown here with those grown in Illinois, Nebraska and Tennessee, where the last three annual meetings have been held.

Hartford was chosen primarily because of the great collection of Mrs. L. W. Kellogg, who for years has tried to collect and grow in her garden every American introduction. Most of our New England members have made it a practice to visit this garden each year to see these new things. It has been my privilege many times to enjoy Mrs. Kellogg's hospitality and to see her fine flowers. I am looking forward with pleasure to the meeting and hope as many members as possible will attend.

Those coming from any distance should see also a number of other great collections of irises. The meeting will probably be somewhere between the 3rd and 6th of June, but irises will be in bloom as far south as Washington at least two weeks before that. I do not know whether there will be a show in Washington this year, but whether there is or not those who can stop off there will find it well worth their while to visit the collections of Mr. J. Marion Shull and Mr. H. P. Simpson.

Coming a little further north to Wilmington, there will be a special iris show about the 20th or 25th of May, and many of the fine gardens around Wilmington at that time will be opened to visitors. Fine irises are to be seen particularly in the gardens of Mr. Harry du Pont, Mrs. W. K. du Pont and Mr. and Mrs. Irene du Pont.

By the 26th or 27th of May there should be a goodly sprinkling of irises in the Philadelphia district. I wish to extend a cordial invitation to any of our members to visit the iris collection at Swarthmore College. This comprises well over 100 varieties, most carefully selected, and as the plants are now three years old the bloom should be very good. Many of the newest varieties may be seen in the garden of Mrs. J. Edgar Hires, at Ardmore, which is a little later in bloom than the collection at

Swarthmore. I am sorry that I shall not have many iris flowers as my plants have just been moved, but I shall be glad to welcome visitors to my garden, and there should be either tree peonies or herbaceous peonies in bloom, according to the season.

Mr. M. E. Douglas, of Woodbury, New Jersey, is only about twelve miles from Philadelphia, and his is the largest collection in the Philadelphia district, with many of the finest new varieties to be seen in well established clumps. There are several other collections near by which could be seen on the same visit.

By the first of June the great public garden established by the Union County Park Commission, the Plainfield Garden Club, and the American Iris Society in Cedarbrook Park, Plainfield, New Jersey, should be in bloom. This park was designed by the Olmsted Brothers and the irises were selected and planted by our member, Miss Harriette Halloway, acting for the Plainfield Garden Club. When I saw this in bloom two years ago the quality and the number of varieties was by far the finest of any public garden that I have seen. The garden will be four years old this spring and has many hundreds of varieties of iris including many novelties given by outstanding breeders, such as Miss Grace Sturtevant, Mr. Hans and Mr. Jacob Sass. Many of the Japanese iris were given by Dr. Reed after his trip to Japan. In all, the garden at present contains about 12,000 Tall Bearded iris in 635 varieties, 1,600 Intermediate Bearded in 65 varieties, over 300 Dwarf Bearded in 88 varieties, and over 200 fall bloomers in 22 varieties, and 1,300 Pogo-Cyclus in 38 varieties. This brings the total of Bearded iris to over 15,000 plants in 848 varieties. There are over 200 plants of Crested iris in four varieties and in Beardless iris we have 38 varieties of Siberians, 45 other species and hybrids, and 103 varieties of Japanese, and a few bulbous kinds. The grand total is over 17,000 plants in 1,042 varieties. I give these numbers so that our members may get some idea of the quantity of plants which they may be able to see.

I have been interested in this garden since its beginning and have been glad to see many of our members, such as Dr. Reed, Mrs. Peckham, Mr. Wright and Mr. Douglas and others, help Miss Halloway in her difficult task. She tells me that the Park Commission has been unusually interested, all the executives helping her in every way possible, and the superintendent, Mr. Fitch,



*The Iris Garden at Elizabeth Park, Hartford, Conn.*

being particularly helpful in the many problems which have arisen.

The Park Commission has thought so well of this garden that the last year it has sent out a number of press releases which were printed in practically all the papers within driving radius of Plainfield, with the result that in five weeks from the first of May through the first week in June over 8,000 people visited the

garden. The plants are arranged by color and all carefully labeled.

Only a short distance from Plainfield by car is the Frank H. Presby Memorial Garden in Upper Montclair. This garden was founded by Mrs. Walther, who with Miss Gertrude M. Smith, has been responsible for the collection of the varieties and their planting in a most attractive manner. The first plants were of rather old varieties but in recent years many of the finest novelties have been added and should be in good bloom this year. We have a number of members in the Montclair district who I presume would be glad to welcome our members to their gardens, and not over twenty miles away to the northwest is Madison, with the charming garden of Mrs. McKinney, which has been mentioned a number of times in our BULLETIN.

Crossing the Hudson we come to a number of fine collections which ought not to be missed. There is the original American Iris Society Test Garden in Bronx Park, in which the color planting is still in good condition, although the alphabetical planting in which I personally was so much interested has been given up.

In the Brooklyn Botanic Garden in addition to the Japanese iris which are Dr. Reed's special interest, there is a good collection of Bearded irises also, but of course the largest collection on Long Island and one of the very largest in America, is that of Mr. Robert Wayman, at Bayside. This is probably most easily reached by train from the Pennsylvania Station rather than by driving through crowded streets. Trains run frequently and take less than half an hour. The garden is within a five-minute walk of the station. Mr. Wayman, as most of our members know, grows his plants magnificently and has all the newest European novelties as well as many American ones, so that by seeing his garden and then Mrs. Kellogg's, practically the whole iris field is presented.

Irises are well grown in many of the famous Long Island estates, but I do not know if any of these will be open this year to our members.

Many members have asked if they could see the Simmons iris garden at Greenwich, on their way to Hartford. It is a great disappointment to tell them that this garden has been given up and the plants of all the Bearded iris have been taken out of it, so that there will be nothing to see at this season.

But before reaching Hartford coming from the south there is a fine collection of Bearded iris at the Marsh Botanic Garden, in New Haven. This is a small and attractive formal garden with the irises exceedingly well grown. The garden of Mr. J. B. Wallace, our former secretary, is near by and will also be well worth seeing, although it is quite small compared to the others.

I understand that our members near Boston and Worcester are making special arrangements to have gardens open to visitors. I am sure that Mr. McKee's garden and Mrs. Homer Gage's, at Shrewsbury, would make an interesting stop between Hartford and Boston, and in the Boston district of course we are surrounded by great collections, among which are Miss Sturtevant's, at Wellesley Farms; Mrs. Merton Gage, at Natick; Mr. T. E. Donahue's, at Newton Lower Falls, and Miss Marion Case's, at Weston. This latter collection is of particular interest to me as I helped get the varieties for it many years ago. For those who are interested in older varieties this is probably the most complete collection to be seen in this country, comprising over 700 varieties, most of them originating before 1925, although there are some novelties which have been added from time to time since.

To the north of Boston Mrs. Nesmith's collection, of course, is outstanding, and should be not much later than the others. I am sure any members who can stay over into the middle of June would find it well worth while to visit Dr. Graves, in New Hartford, and Mrs. Tobie, in Portland, Maine.

I have tried to give some suggestions of places which our members may see if they have the time. This list is by no means complete but comprises some of the gardens which I have seen in the past which I know to be full of interest.

## OUR MEMBERS WRITE

■ In BULLETIN No. 58, page 52, Mr. G. Percy Brown tells of his failure to keep iris pollen in capsules, and asks for some method of keeping pollen for a month. Moisture will spoil any pollen, and keeping it in an airtight capsule is about the worst thing one could do with it. I have good success keeping peony pollen by simply spreading it out very thin on a plate and letting it stand in the living room. In a humid climate this might not work, and I never tried to keep pollen for a month.

Prof. A. P. Saunders, whose name should be familiar to iris lovers since he originated the iris White Knight, has an article in the May, 1918, Bulletin of the American Peony Society entitled "The Preservation of Pollen for Hybridising." In this article he suggests keeping pollen in an airtight dish in which is also stood a vessel containing a solution of water and sulphuric acid. The latter has the ability to absorb water, and so keep the pollen from being injured by dampness. He quotes from an article written in Germany, in which results of trials with different pollens and different solutions are given. Peony pollen might live 56 days in open air, only 14 in a tight dish in which was also stood a dish with a very weak acid solution, but 157 days where a mixture of 56 per cent acid and 46 per cent water is used. Pollen from *Iris Graminea*, the only iris species reported on, might live 20 days in open air, 48 days confined with the strong acid solution. Professor Saunders also stresses the importance of getting pollen before it has been injured by dampness. Probably the surest way to do this is to pick the bloom just before the flower unfolds and carry it indoors. If the bloom is desired for seed raising purposes then the stamens could be picked and taken indoors at first possible moment, and allowed to shed their pollen there.

In my work of crossing Peony species, those which might bloom at entirely different times, I often send 600 miles for pollen bearing Peony blooms. These I have picked when dry, about half opened, and shipped with all leaves stripped off, in boxes which have several holes in them for ventilation. Even though sometimes the pollen moulds, I always get enough live pollen to do the work. Iris blooms could undoubtedly be mailed for a similar purpose. Professor Saunders has worked out some plan of mailing pollen, but I am not familiar with the details.

EDWARD AUTEN, JR.

*Princeville, Ill.*

*From North Dakota*

■ October is here and as yet we have had no rain this fall, hence, today, all day I have had the lawn sprinkler on the iris beds seeking to give them one good long drink to send them into the winter in good shape. The new plantings in spite of the dry weather have all started well and the entire planting is in good shape. One of the fine things about iris in our North Dakota conditions is that it can take dry weather and still look well in the closing months of the year.

Have had no fall bloom this year which is not surprising considering local conditions. I have been thinking back over the past five years and the joy that has been mine in turning an old tennis court into a place of beauty. Our first fall here we decided on a few tulips and had the courage to order the bulbs. That was another dry fall and when I came to spade for them I could not sink the spade into the hard baked clay loam so I compromised and cut out a trench using the ax for a weapon to work with. In the bottom of the trench I put a good portion of bone meal and pulverised the lumps and gave the soil a real soaking after planting. The next spring the tulips came very finely and along with them my first iris bloom. Rather scattered and small and mostly of the common garden varieties.

Each year since has seen more and more of the tennis court worked up and each year I have sought to build in a little more fertility and each year the bloom has been an increasing joy. I have had the fun of my life out of this experience and through the years have come to know and love iris and it has been the old story of each new bloom creating the desire for more.

I am experimenting this year with a small planting of Balroudour thinking it will do well here on our northern prairies and am hoping to increase the list of species that are hardy here in the Dakotas. Although *Iris missouriensis* is not found growing locally we are trying to get it started here from plants we brought back from South Dakota this summer. There seems to be an increased interest in iris in North Dakota and we are hoping that this will mean better show in the years to come as well as more plantings about our prairie homes. With this in view we have been doing some experimental work as to which of the older varieties are the best for our severe winters. Our local nurseries have done some work along this line but only

with the older varieties so far and we are hoping that some of the newer varieties will prove themselves good citizens of the Northern prairies. We have no trouble with heaving as our cold is usually continuous and we thus do not worry about any variety that is really hardy. Have been keeping a careful record of bloom over a period of years and hope this proves valuable as to hardiness and value in northern plantings.

What breeding we have done has been simply for the fun of it and out of love for the flowers. But out of it we do get some real pleasure and who knows but what we may get some good flowers too that will fit into the picture of the Northwest.

I have a nice seed bed this fall of *Iris missouriensis* from the Black Hills. The seed for this bed Mrs. Jackson and I gathered from various parts of the Hills while on vacation this summer. I am hoping that it will all grow and perhaps there will be some variation in it. Will report on this later. Regardless of whether it does or not the fun of gathering it up Rapid Canyon will long remember. If you have not seen the Black Hills in a favorable year like 1935 you have no idea of the beauty and variety of the flowers to be found there. The School of Mines at Rapid City publishes a very fine Botanical Survey of the Black Hills of South Dakota by Arthur C. McIntosh head of the Department of Biology, South Dakota School of Mines at Rapid City. This may be secured at a nominal cost and persons visiting the Hills will enjoy them all the more with this fine background.

REV. ELLIS L. JACKSON.

#### *From Illinois*

■ About six years ago I tried an experiment that may be of interest. I decided to try out the effect of different fertilizers in iris. I made six beds and in each used a different fertilizer, and planted each with about a dozen different kinds of iris. I had already found some kinds of iris much more prone to rot than others, and some were better growers. Of course, I did not use any of my newer kinds but used such kinds as I had a surplus of at that time—*pallida dalmatica* for one. I don't remember the names of the different kinds of fertilizers I used, as I had some that a greenhouse was experimenting with, but I used bone meal, sheep manure and vigoro. I planted these beds soon after blooming season, and all did well that summer. Some of these new fertilizers I was using produced the finest, largest rhizomes I ever



had and I was delighted, but when next spring came in these beds, I had rot, and lost almost every plant. The bed I used bone meal in did the best, so I have used more of that since.

Two years ago I was sent to try out some "Marl" from a bed that had been found in the northern part of the state. It seemed to me to be full of small shells, so I decided it was of a limestone nature. I tried it out on a bed of mixed iris. Last spring, right after blooming time, I had rot in this bed, and most of the plants passed on. I tried this "Marl" on one border of mixed annuals and perennials—no iris—and they did beautifully. Until four years ago I always gave my iris beds a light coating of lime, or limestone each year, and always was troubled with rot, but I had always read that iris needed lime. Since then, however, I have used no lime—even on new beds, and have had very little rot.

This last summer I decided to try out two other fertilizers for iris,—some I had not used before. They are well rotted cow manure and cottonseed meal. I will have to report on these later.

I have found that iris exhausts ground more quickly than many other flowers. No matter how much fertilizer you use, after you have used the same beds for iris a number of years they just seem to run out. By moving them to new ground that had never grown iris you get a good new growth again.

I have also tried planting the rhizomes deep and also "like the duck sitting on water" and have decided "no duck planting" goes for this part of the country. If you plant "duck fashion" early, our hot sun burns the rhizomes deprived of their protection of leaves. If you plant this way later in the season, you can't keep them in the ground over winter. Of course, you can get them in too deep. I find for here the best manner of planting is to make deep enough hole to let the roots down and to leave about an inch of well packed soil over the tops of the rhizomes. This holds them firmly enough for them to get a good start. I have also found by experimenting the best time to transplant and get the most bloom the next season is in September or even the first part of October. I have been transplanting part of a bed one time—the rest later, and have found I get the poorest growth and bloom the next year from the ones transplanted right after the blooming season. The best results from the ones put out around the middle of September.

I have also tried Japanese, Siberian and the bulbous iris, both Spanish, Dutch and English and many of the other species, such as *cristata*, etc. The Siberians do fairly well, since I have learned to see they have no lime in their soil—leaf mold and well rotted manure help them. The Japanese I have given up after trying very hard to do something with them for years. I can make the soil to their liking but they must have water and our water is full of lime. Their leaves turn yellow, and after struggling along with no bloom or only one occasionally they pass on. I have decided my money goes to others I can get some pleasure from. I have had almost the same experience with bulbous iris. They will only bloom when they make fall growth. If I get them in the ground early enough to make this growth they get frozen during the winter, no matter how much covering I put on them. When this top growth is frozen I get no bloom. I have had bloom from some of these bulbous iris the first year—more from the Dutch than any others, but have never succeeded in getting bloom the next year. I have left them in the ground and have taken them up after the foliage is off, and kept them dry until fall. I am very fond of these iris and every year try a few just chancing that I may be lucky in getting a few bloom.

About the fall blooming iris. I have a few—about twelve varieties I think, but have not had all of them long enough to get bloom. I think this part of the country the fall bloom from these will depend entirely on the kind of weather we have. A year ago last fall Autumn King bloomed beautifully, but this last fall we had a killing frost about October 9 and so had no bloom on any of the fall bloomers.

The two things that give trouble with iris are rot and the iris borer. For the rot, copper carbonate has proved the most satisfactory thing I have used. That pest, the iris borer—I believe every planting of iris around here has it. The best way to handle these is by hand picking. By watching you can get these when they are in the leaves before they reach the rhizome. In the fall I clean up all the iris, cut the tops off to about six inches and take all the old leaves and burn them, then spray with soap and Black Leaf 40. Do this as late in the fall as possible. This seems to help. The last spring everyone in this locality had more trouble with these pests than usual. We had a very wet spring and early summer, and we have wondered if the dampness helped them to hatch.

There are a few things I have found out in my raising of iris in the central part of Illinois. If they can be of help to any I am glad. If there is anything else I can do to help along I will be more than willing to do my best. I always talk Iris Society when I find anyone interested in iris, and have been able to get a few new members in the past. Will continue to try for more members, as I think the work much worth while.

LELIA M. BACH.

*From Alabama*

You ask some questions in a BULLETIN that I can answer now, as I have tried out the different things that you mention. First, as to the depth which they should be set. I think a plant knows what it likes better than I do, and if given a choice will select what it likes best. But, when roots are set, they have no choice in the matter until new root growth is made, so they have to do the best they can for the time being. Seedlings for me establish the rhizomes just beneath the surface of the soil, varying from almost nothing to about three-fourths of an inch and they never crowd out of the ground until the rhizomes grow on top of one another, and I expect that if they could talk they would say, "no duck setting for us—just let us get beneath the soil where we will not have to endure the hot sun without any protection. Don't bury us so deep we cannot feel its warmth and store up its energy and be protected in a measure from our enemies." Planting rhizomes at this depth enables me to rake away the earth and let the sun on them when afflicted with bacteria, and enables me to fight fungus better. I have tried them set side by side—the same varieties all depths, from ducks to four inches deep, and those set with the rhizome just below the soil do best for me, and it is going to take a lot of argument to get me to change, especially so since seedlings establish themselves as mentioned, seemingly in disregard of the depth planted.

It has been my experience that I have less bacterial rot with iris on acid soil than where limed, and fungus seems to be about as bad with one as the other. However, I have set some plants in neutral soil, acid, and alkaline soil and hope to get a photograph of them when blooming season arrives, and with deference to a certain New Yorker, I hope "the record will speak for itself."

### *From Massachusetts*

I enjoy reading the BULLETIN and like the letters and comments from members. One member wants to know how to prevent worms in the seed pods—probably the larvae of the verbena moth. I use a curtain scrim cover for the pods, held on by an elastic as soon as the pods form. This is very effective. Another method is to scratch off the small bitten holes as they appear with a knife or the finger nail. Mr. Waller's experiment is interesting and no doubt applies to most iris. However, from my experience with fall bloomers, I think moisture is the stimulus for bloom. Length of day and heat are secondary. Tropical plants bloom during the rainy season and the wet and dry seasons determine bloom. I think everbloomers are in this class. As for the germination tests, I have tried drying and planting without drying and find little difference. I think heredity causes early germination more than length of time in the ground. Some of my seeds that were planted late started to grow this fall while those planted in August did not have any more start to grow than those planted out in September.

Last year I planted out my seeds August 15 and had 22 out of 2,008 seeds come up in the fall. This year I started planting August 21 and had 34 out of 2,080 seeds sprout this fall. At any rate, a week later in August made no difference. Probably after September 1 would make a difference. As I find on checking over my records 2 out of 33 planted out in September sprouted. Only 7 or 8 of the 22 I had a year ago lived and they did not grow any better than those that came up in the spring. I am using salt meadow hay for a covering for the first time this fall. Mrs. Nesmith has used it with great success for four or five years past, and I rather think I will have more bloom on my seedlings as well as the other sorts. I think some sorts of iris grow too much in the fall. The buds start and are killed early in the winter and then rot starts in the spring where the dead bud is.

I like to experiment and find out as I find a good deal that passes for actual fact is not always true.

DR. G. PERCY BROWN.

### *From Indiana*

As new combinations in iris planting are ever a matter of experiment, as well as their reaction to location and soils, I wish

to tell of my success in exploding the superstition that fertilizers necessary to roses are death to iris. Because I must use all my garden space I experimented by planting iris, varieties Princess Beatrice and Shekinah as a filler to a bed of climbing roses, variety Gardenia, which were trained to a long trellis. The roses are six feet apart, so space between each bush was used as well as space on each side of the rack. The size of this bed is four feet by thirty feet. As an edge I used the old variety Ma Mie. This planting has not been changed in ten years. Each spring it is such a profusion of bloom and such an attractive combination in color that the enthusiasm of visitors restrains me from replacing any part of it by more recent introductions.

The care of this bed consists of giving the roses each a bushel of stable manure, hilling it up, and leaving it over winter, working it in the soil in early spring. Then I give the iris their top dressing of bonemeal and lime. The soil is a sandy loam, so the drainage is good.

If any iris lovers hesitate to combine their favorites with flowers whose needs are thought to be opposite, try giving each one what it needs even if they are to be close neighbors. I am wondering whether or not propinquity changes characteristics and prejudice?

It is said that under favorable circumstances, "The lion and the lamb shall lie down together."

MRS. J. M. RICHER.

#### *From Alabama*

I noticed what Mr. Snow had to say about Dutch iris. His experience is different from mine in that they "play out." I started with them a few years ago and only had about a dozen, and now I have hundreds. Last year they were larger and better than they have ever been before. The land they have been grown on was a light sandy soil, with a slight amount of clay in it, and the bulbs have been taken up on an average of every three years—the blooming size planted to themselves and the bulblets planted separately, or rather in the position where they are expected to grow. Chicken manure in a small quantity has been worked in the top of the ground when they are dormant and that is all that has been done for them. Considering the fact that most of the soil in this section of the country—especially the light soil—is infested with nematodes, they have not done so badly for me and I

am putting out more of other varieties that I did not have this season.

*From Oregon*

In the BULLETIN you have asked for letters from members of the Society. As an amateur may I tell you some thoughts I have had in regard to the BULLETIN and also some of my own experiences? They may be of value or, again, entirely worthless.

Every society bases its growth and prosperity through passing years upon the interest and enthusiasm of its newer members, who in turn receive their guidance from the older and more experienced members. The American Iris Society in its earlier years all "started together," so to speak—commercial growers and mere gardeners—and many early chronicled facts and experiences are now old facts to them—very well known—but there are a host of new gardeners coming on who have to begin at the beginning and desire more or less elemental facts. A society desires these amateurs as members as well as its old established membership, so might I suggest a small portion of the BULLETIN—perhaps one article—be set aside for the "Junior members?"

It can be said the monthly garden magazines have articles of interest to amateurs, which is true, but these articles are quite general, and not as specific as even an amateur would sometimes like.

I find the old numbers of the BULLETIN have much of interest to the beginner. Could some of these articles be reprinted for those who do not possess them?

The government bulletin on iris is of value, too, but it could be brought much more up to date. A suggestion is an article on species—showing dormant traits by which one can attempt to determine parentage, characteristics of leaf, stem, growth on stem, etc.

I find my friends who are very much interested in iris growing enjoy my BULLETINS but feel they are "beyond" them. They desire the better varieties of iris in their gardens and are glad to read them. You might reply: "A growers' catalog would satisfy." But, I feel something more is needed to stimulate true interest—something more technical than the magazine articles.

A plan I have been following may be of interest to new growers. I bought a loose-leaf notebook and have a page for each variety which I own. Thereon I put the name, originator, date of

origin, classification as to color, ratings given by the A.I.S., of whom I bought or received each rhizome, price paid, date of buying, any award it may have received in rating (H. M.); then I copy any and all growers' catalogs what is said of the variety—all information I can find from any sources. From there, I begin my own record—when planted and where planted, time of the year, soil, date of bloom (and even bud), seed, if allowed to ripen, any variation in bloom in shade and sun. I record my own reactions to the bloom and that of others. I note particularly its adaptability to use as a cut flower in regard to stem length, color combination, under artificial light, the size and type of container to be used. I am most interested in the Japanese method of arrangement.

I find my notebook is now plural, but I do not find the more recently added pages necessarily hold the most interest. Nothing gives more pleasure each year than Florentina for interior use.

This record may seem useless to many amateurs, but I find it adds greatly to my enjoyment in growing iris and now as pages are being added for my own seedlings it is still more pleasure, and I am sure a similar procedure would increase iris growing as a hobby.

The article in the last BULLETIN on The Gaspé Peninsula interested me for at hand we have acres of wild iris and I am sure this coming spring I shall study variation.

MRS. G. A. KRAUSE.

*From Maryland*

In 1935 various pictures of English iris were included with notes on the varieties. In the autumn three new varieties were discovered that now are pushing up their vigorous shoots much earlier than the varieties planted in 1934 appeared in 1935. Doubtless this is due to the season, which has shown many plants blooming together that did not ever flower together before this year.

The older plantings are reappearing but not with equal vigor nor in their entirety. Indications so far would suggest, however, that English iris will be more permanent here than Dutch.

A new planting of Dutch varieties was set out in October which made considerable growth before our severe winter set in. Nearly all of these froze off to the top of the snow line and now are pushing into growth that seems fairly uniform. A full report will appear later in the year with illustrations, I hope.

Old plantings of Dutch iris still persist with far more plants of apparent blooming size than showed either the first or second year after their first blooming. Possibly it will develop that they behave like cottage tulips that are not lifted, i. e., they will develop into clumps, some plants of which will always be strong enough to flower.

B. Y. M.



## THE AMERICAN HORTICULTURAL SOCIETY

The 1935 Daffodil Yearbook went to many members of The American Iris Society and it is hoped that the 1936 issue will go to even more, since narcissus make a wonderful picture before the iris fill the garden. If you have not discovered this, try them. The 1936 Yearbook is of great value and sells for the ridiculously low price of fifty cents. Some copies of the 1935 issue are still available. Give yourself a treat and order both. Send your remittance to the Secretary, American Horticultural Society, 821 Washington Loan and Trust Building, Washington, D. C.

## THE AMERICAN IRIS SOCIETY

ALTHOUGH all readers of the BULLETIN are supposed to know that the annual dues of the Society are three dollars payable by the calendar year, it has been called to our attention that there is a chance that someone who is not a member may read your copy and wonder how he too may become a subscriber. If you happen to be such a reader, let us assure you that the Society welcomes to membership all persons who are interested in iris who feel that special knowledge of iris would be welcome in their gardening.

Make your check or money order payable to the American Iris Society and send to Mr. B. Y. Morrison, Secretary, 821 Washington Loan & Trust Bldg., Washington, D. C. Please follow this instruction. It will help us all in the record keeping.





