


June July August

May

THE REBLOOMING IRIS REPORTER

Objectives



April

March

February

January

September

October

November

December

Varieties { A B C

To breed an improved assortment of reblooming irises, as to beauty, dependability and usefulness.

To promote a better understanding of their cultural needs.

To extend their geographical range.

To educate the public about such range, regarding varieties currently on the market.

To inspire and encourage beginners in this field of interest.

To spearhead research about rebloomers.


To cooperate with A.I.S. officers and committees in the registration, introduction, honoring, and exhibition of this class of irises.

To supply the AIS Bulletin with articles and quotations deemed of interest to its readers.

To supplement the A.I.S. Bulletin by publishing data of interest chiefly to researchers in this field and to members of AIS Reblooming Iris Robins.

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January 1963 *Jo Anne Fuller* No. 3
173 North St.
Grafton, Mass.



YOU
ARE
INVITED



GET
OUT
TWEEZERS

Polar Flame

A cool climate rebloomer need not have poor form, muddy color, veined hafts or weak stems. Flame-colored POLAR FLAME has none of these faults. In early fall, when all rebloomers should be judged, it is 20 to 24" tall. It is a proven parent of rebloomers in southern Indiana.

The Cast

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Published twice a year, January and July, in Staten Island, N.Y., as a non-profit educational project under the direction of the Editor.

The Re bloomers Are Here!

by Raymond G. Smith

A reblooming iris for a particular locale is one, a rhizome of which, when grown under good horticultural practices, will develop its front and side increase at least two bloomstalks at widely separated intervals during a single annual growing season. (1)

Some years ago I attempted to set up a hypothetical modus operandi for the hybridization of rebloomers. (2) That approach, while partially successful, has subsequently been modified to take into account new evidence and additional experience. It is now my firm conviction that a rebloomer in plant hardiness zones numbered five or milder, (3) can hybridize with a rebloomer successful to his own locale. Newer evidence indicates that the percentage of reblooming seedlings to be expected from reliable reblooming parents with balanced chromosome counts is much higher than formerly believed. For instance, a cross between POLAR KING and AUTUMN SNOWDRIFT produced for me more than 90% rebloomers. A cross between ILLINOIS PRIMROSE and GUIDING STAR is reliably reported to have produced a whole row of rebloomers. FALL PRIMROSE X DOUBLE DATE gives numerous remontant seedlings. Thus the problem has become, not one of producing rebloomers but of producing quality rebloomers.

The following observations constitute my present thinking on the problem. They are generalizations which have proved true for me. I suggest that none be accepted uncritically and that some may be expected to fail under particular soil, climate and rainfall conditions. My soil is heavy clay, rainfall is adequate, and winters are open with frequent temperature drops to minus 10 degrees or below.

First, I assiduously avoid using any parents which show susceptibility to disease. Indications of weakness are a) side increase wilting or dying, and b) some or most of the non-podded bloomstalks becoming rot. Second, I never coddle seedlings. We are interested in only the hardiest and most vigorous.

Next, I now operate on the theory that there are two separate groups of hereditary factors responsible for reblooming. The first of these is a growth and vigor factor. The true rebloomer matures a rhizome and produces a new bloomstalk in a single growing season. It should not be confused with a plant, parts of whose rhizomes simply show late or delayed bloom. A second set of factors permits the mature rhizome to send up a bloomstalk in the fall at a time which would ordinarily prove lethal because of damage by the freezing of new, soft growth. A few plants, because of extraordinary capacity for recovery, "get by" with doing just this. These were the "accidental" rebloomers of the past, and these are the qualities which are presently drawing so much attention from the reblooming hybridizers.

The first set of factors without the second results in a plant that grows rampantly, not infrequently choking itself to a point of little or no bloom. The second minus the first results in a plant that frequently blooms itself out. A balance must be achieved between these two qualities.

If two fertile rebloomers of reliable performance but poor quality are crossed, the hybridizer will almost without fail get a number of reblooming seedlings. The question to ask about such seedlings is, "Would anyone want to grow them even if they did rebloom?" The process

of upgrading by careful selection is tedious in the extreme. I wonder if one good rebloomer with garden value is not worth a thousand poor ones.

I previously avoided all sibling crosses, on the grounds that such inbreeding might lead to loss of vigor and consequently to loss of rebloom. This I now question. It depends upon the vigor of the seedlings. If these are unusually vigorous, it is sometimes true that the offspring will inherit intensified rather than lessened vigor.

The two possible approaches, then, it seems to me, for developing good quality rebloomers are first, to select the best among the present reliable sorts and gradually improve them by selective breeding. The second is to cross these reliable sorts to the best vigorous and disease resistant non-rebloomers and hope that the reblooming characteristic will be inherited in at least a few of the good offspring.

Some of the best tetraploid parents of reblooming seedlings I have used are: AUTUMN FLAME, POTTAWATOMI, GIBSON GIRL, POLAR KING and AUTUMN SNOWDRIFT. I doubt that anyone crossing these in their various combinations would fail to produce rebloomers. And nearly all colors and patterns are carried by their genes. Each has been the parent of at least twenty reblooming progeny and all but POLAR KING have produced rebloomers for me directly out of non-rebloomers.

Certain sorts of considerable quality, although not themselves rebloomers in cold climates, are well known parents of rebloomers. Included are PARADISE PINK, HAPPY BIRTHDAY and TINTED PORCELAIN. I have now growing in my seedling beds reblooming seedlings out of five different David Hall flamingo pink seedlings and I have tried only five. The reblooming parents are: AUTUMN KING, AUTUMN FLAME, AUTUMN SUNSET, and POTTAWATOMI. I am certain that, in addition to the shell pinks, numerous other varieties, including some reported as repeating in warmer climate zones, can be successfully used as parents. LUGANO has produced many reblooming offspring as has the brilliant little Sass plicata, F-53-1. Dr. G. Percy Brown has had rebloomers directly from CHERIE, SALLY ANN, JANE PHILLIPS, MOUNT TIMP, REVELLIE, EVELYN PULLAR, FAIRDAY and REDWYNE. Edwin Rundlett has had them from SYLVIA MURRAY, SKY SONG and PEQUOT; Paul Cook from JUNE MEREDITH; Tell Muhlstein from ECHO VALLEY; William McGarvey from PRAIRIE SUNSET; BOOTS MEYER and MOONTIDE. While all this is true, I am certain that one can mate rebloomers with certain non-rebloomers till doomsday and never get a reblooming seedling. Parentage is tremendously important.

Hybridizers interested in learning about varieties of possible value as parents of rebloomers can readily do so by joining one of the reblooming iris robins. The Editor-In-Chief of "The Reblooming Iris Reporter" is AIS Division Chairman for these robins. See inside front cover.

The careful selection of seedlings to use in carrying on the hybridizing program is of utmost importance. These should show unusual vigor, increase, hardiness, and disease resistance. I had two reblooming seedlings from a cross of PINK LACE X AUTUMN FLAME which bloomed at 5½ and 5 ¾ months of age respectively, and which went on to bloom and set seed the following spring. Thus each, at the age of about 2½ months has bloomed four times, set seed three times, and increased to a total of fifty rhizomes!

Obviously this is more vigor than most growers would desire, for who would want to spend most of his time digging and discarding surplus rhizomes? But plants of this kind should be especially valuable in the reblooming program. (more next page)

The flowers of the best of today's rebloomers are still a far cry from Dykes Medal quality, but it is only fair to point out that they are just as far from the quality of the semi-sterile old intermediates and dwarfs of "off-beat" chromosome pairing that have baffled breeders for ages, yet which do rebloom for many. In mind while making this remark are such varieties as Albicans, Gracilis (the aphylla hybrid), Autumn Queen, Black Hawk, Black Magic, Eleanor Roosevelt, Crimson King, Florentina, Germanica, Golden Bow, Golden Cataract, Ib-Mac, Iris Kochii, Kansas Ingleside, Sangreal, Statellae and Zua.

Hybridizers today have no dearth of good genetic material available; consequently progress should be increasingly rapid. The fortunate introduction of the shell pinks has given excellent fertility and germination. The Sass varieties have contributed hardiness. Selected seedlings from the fields of such hybridizers as Paul Cook and Tell Muhlstein, which later rebloom cannot fail to add much needed quality. It is but a matter of time, and a much shorter time than generally realized, before all fall shows and fairs will be incomplete without sections devoted to the genus iris, reblooming form. The general public has been waiting for several years; our favorite flower is nearly ready. ***

Footnotes: (1) Definition from personal letter from Edwin Rundlett. (2) A.T.S. Bulletin Nos. 155, 156. (3) U.S.D.A. Miscellaneous Publication No. 814, obtainable for 15¢ from Supt. of Documents, U.S. Government Printing Office, Washington 25, D.C.

Ed. - Dr. Smith is a professor of speech at Indiana University and has been ardently hybridizing toward this goal for enough years to feel sure. In a recent robin letter Ray wrote, "I am pleased to report that POLAR FLAME has made some rebloomers when crossed with three different non-rebloomers. It has produced one of the best quality seedlings I have ever had, even though the latter didn't rebloom. Also it has made some very large irises as well as some that are even smaller than it is. I got one reblooming tangerine-bearded pink directly out of it. Obviously it carries this trait. Today (Oct. 12, Bloomington, Ind.) a cute little border iris opened from a cross of Doc. G. Percy Brown's GREEN DRAGON x POLAR FLAME."

Earl Roberts of Indianapolis described POLAR FLAME as seen by him growing in the professor's garden thus: "About 28" tall with branches at 3", 14" and 20"; about ten buds; a sulphur yellow self darker around the beard, which is yellow, tipped orange. Nice form and good size. An excellent bloomer, vigorous plant, rot resistant; buds even frost resistant below 30 degrees." End quote. Looks as though the prof. is modest.

Publication Costs

It is our ambition to make each issue of the 'Reporter' a little better than the one that went before. We wish to operate upon a subscription basis. This will require a continued increase in annual subscriptions @ \$1.00 for the two issues (50¢ ea. for back issues), and a good percentage of renewals. Contact the Editor-In-Chief directly about the above. To stay solvent we must still sell more rhizomes of POLAR FLAME. They have increased well, so the price is cut to \$4.00 ea. for 1963. Contact the Treasurer directly about these. He grows them. Renew your subscriptions without billing. That would help. Bee a booster.

POLLEN SUPPLY FOR REBLOOMING IRIS ROBIN MEMBERS. Now is the time to plan. In order so supply needed pollens, we need your cooperation. Too often requests or offers come too late. Send a list of your wants and offers to Mrs. Don R. Holtz, Box 7, Kellogg, Idaho. She will correlate them and advise where to write. ----- (continued bottom page 17)

Paradise Found

by Mildred R. Johnson

If Milton had been an Irisarian Arranger walking through a reblooming Iris garden in October, he might never have written "Paradise Lost" because this is sheer Utopia!

"Dream Along With Me", not in song, but as you consider the combinations of materials available to the Iris arranger in September, October and November.

In the spring the Lilacs and Pussywillows make delightful Iris companion materials; but give those felines a summer to grow up and use the cattails with Cockscomb and Irises for an entirely new effect.

Imagine the long-stemmed blue MARTIE EVEREST, usually the first of the rebloomers around here (Salt Lake City) to show its true Fall Colors, combined in a line-mass arrangement of Golden Fleece Cockscomb and Golden Trumpet Marigold. Placed in a footed bronze container, you have a banquet centerpiece to whet the appetite of any Iris "fan" - and this is what greeted the Utah Iris Society at their September 29th Banquet, and even well-versed Irisarians were oohing and ahhhh-ing.

When GIBSON GIRL bloomed September 23rd, she was most inspiring. As she bloomed, it occurred to us we had an ostrich plume a shade lighter than the stippled purple edge she sported.... and what Gibson Girl of the 1900 era would have been caught dead without her ostrich plume? We used this curved feather for line, and the three lovely flowers on a pretty-well-branched stalk were placed in a lavender narrow-necked vase (canteen-shaped); a plastic mat in the same shade completed this breath-taking arrangement. You know, when spring shows up in the fall, you're Queen of the Show with not a judge in sight!!

We liked JULY BEAUTY's bluish-purple (or purplish-blue) flowers with Flowering Kale leaves which had been touched with cold weather turning the veining on these blue-green leaves to pale pinkish purple. We knew that people at the dinner would want to take the arrangements home, so we covered soap boxes with pages of 8 x 11 colored catalogs, made an opening into which a glass was placed to hold water and stems. It was quite a SURPRISE PACKAGE in October.

Rust colored button Chrysanthemums brought a brightness into Sass's SANGREAL, and because there was no branching to speak of, we let the stem pop up above the rich colored Chrysanthemums, sprayed some leaf gold - and once again put "spring" into our steps.

It seemed to us that FAREWELL could hold its own at a spring show, so you can imagine our pleasure when we combined this striking large Fuchsia Iris (with good flaring falls) in an arrangement of Peggy Ann Hoover quilled Chrysanthemums. It was strictly sensational.

Arrangements may be made in strict line arrangements - pyramidal, crescent, triangle, etc. at May shows, but good line-mass arrangements incorporating the lovely annuals and fall perennials in the fall months sing out. However, you want to be careful that mass arrangement doesn't turn out to be a "mess" arrangement, so prune stems judiciously as you work so your Irises will be the featured players in this act. If you're a good director, critics will give you rave notices when the curtain falls on the growing season. ***Ed.- Mrs. Merrill S. Johnson is Sec. of Utah Iris Society, an AIS Judge and Awards Chairman, Artistic Designers Arranging Club. Lectures.

Heredity vs. Environment

by an Ardent Student

The golden age of senior citizenship having arrived, the practice of professional horticulture has been laid aside and the fun of delving into records of achievements of others has begun. This is fascinating. For maximum benefits the findings must be shared with others.

Long personal contact with home gardeners in many places has brought into focus some common misconceptions. One of these is that ornamental perennial flowers, including irises, will gradually become adjusted to new environments far different from their original homesite when transplanted. If not the original herbage, they believe, then the offsets from the originals will make themselves at home. Scientists of the Carnegie Institution of Washington thought this topic of sufficient importance to assign several first rate Ph D's to seek the truth. Stanford University in Palo Alto, south of San Francisco, provided facilities and full cooperation for a series of extensive, expensive experiments over a period of sixteen years, and involving plants of several families, genera and species, including two members of the iris family. Dr. Harvey Monroe Hall started operations which, after his death, were carried forward by Dr. Jens Clausen and associates.

Unfortunately much valuable scientific data gets buried in back shelves of great libraries where only ardent students dedicated to research find it. The rather thick volume, Carnegie Inst. of Wash. Publication 520, was brought to the writer's attention by 'Reblooming Iris Reporter' Staff Consultant, Dr. H. Clark Dalton, a professor of biology at N.Y. University. It proved very enlightening.

The introduction pointed out that the individual plant propagated as a clone, is far more fruitful in such studies than more numerous individuals propagated from seeds, since the latter involve individuals of varying heredity. This fact is often overlooked by gardeners with leanings toward science. So whenever possible the statistics were based upon multiple divisions of individual plants. Those yielding most data were the genera: Potentilla, Zauscheria, Achillea and Artemisia, over 1000 individuals being brought into cultivation.

The general plan was to establish along a transect of the state at about the same latitude as Stanford University, several plantings at widely differing elevations and to observe behavior of single clone divisions at these sites. Then they were switched around in various ways and finally re-established in their original sites. Reciprocal plantings were made repeatedly over the years. This transect included warm, maritime climate, Sierra foothill climate, timberline climate and desert basin conditions. The entire book cannot be done justice here, but the conclusions presented will be quoted faithfully. A few difficult words will be simplified, otherwise it is to be exact quotation. The clone plantings most often cited were those at Palo Alto, elevation 98 feet, Mather, 4593 ft., Tuolumne Meadows, 8600 to 9100 ft., and Timberline, 10,000 feet.

Under "CONCLUSIONS" we find a statement of general principles, as follows. "The individual plant is subject to the interplay between heredity and environment. When grown under different environments it may be quantitatively changed in varying degrees. The changes induced by a new environment give no evidence of permanence, but have been shown to be reversible modifications. Some of these changes in vegetative characters

are quite spectacular, yet they never obscure the individuality of the plant, which is retained irrespectively of the conditions of altitude, light and moisture in which the plant is grown."

"Each individual has as part of its inheritance a certain capacity for modification when grown under different conditions. The modifications vary with different species, different races, and even different individuals from the same local population."

"Modifications are quickly induced. Meristems (growing points) developing under changed environment seem immediately to give rise to organs with modified characters. No evidence suggests yearly cumulative effects on perennial transplants."

"Species with widest distribution are observed to have most races. Conversely, species of narrow distribution have fewer races and are less variable. For example, species exclusively of the lowlands or of high elevations have few distinct races while those found in both situations have many. Wide latitudinal distribution, or occurrence at both coastal and interior situations, has the same effect shown by Turesson and by ourselves. Greater differentiation into regional races may therefore be expected in areas with more varied topography, as, for example, in the Pacific Coast states."

"The regional races of a species are heritably distinct ecotypes (types), not modifications. Detailed studies involving records of hundreds of individual plants and their clone members grown simultaneously at different altitudes, show conclusively that there is no tendency for lowland and alpine plants to become morphologically (as to form) identical when transplanted to the same garden, where this is situated near the sea level, at mid-altitudes or at the timberline. The dwarfing of lowland plants at high altitudes sometimes causes them superficially to simulate alpines, but their essential structural differences are retained. Moreover, physiological differences as expressed in earliness of flowering and in capacity for survival in specific environments are often accentuated in such experiments. These conclusions are based on experiments lasting from ten to even sixteen years."

Miscellaneous Excerpts from Same Report

"It is well known that changed temperature, moisture and light relations will modify the velocity of physiological processes. It is therefore quite natural that modifications in morphological characters and in manner of development take place in response to transplanting to different environments. Although such modifications may be linked with the tolerance of plants to changed environments, the evidence indicates that ecotypes as a rule are unable to succeed in conditions very unlike those of their native environs."

"Physiological characters subject to modification include the time of inception of growth following dormancy, the rate and duration of growth, the ability to flower, the time of flowering, and the ripening of seed. Numerous examples have been cited of modifications in seasonal rhythm, including the observation that plants at Stanford begin growth two or three months ahead of propagules (divisions) of the same individuals at Mather, which in turn, are equally advanced over those at Timberline. Instances may be recalled of plants from the vicinity of the coast which are continually active at Sanford, but which have a definite period of dormancy at Mather. The opposite instance is just as interesting, with the alpine forms of Horkelia fusca dormant in their native

habitat, but assuming the evergreen habit at Stanford."

But we stray from the subject. Let us get back to heredity. Again we quote. "The second generation of this hybrid (Potentilla nevadensis x P. reflexa) between an alpine and a foothill ecotype, presents a picture of the variation commonly seen in the F₂ of hybrids between ecotypes and ecospecies --- none of them appears to be due to a single gene difference. Special interest is attached to the classification of earliness, because this character is closely related with the ability to survive in certain environments. The results of a tabulation made at Stanford during the first year the culture flowered were unexpected. Some plants came into flower about March 20, others not until early June. Some were earlier than the alpine parent, and even earlier than any other plants than P. glandulosa in the transplant experiments. Others were extra late, and some did not produce flowers during the year in which the tabulations were taken. The latter may have been either extra late forms that have to an extreme degree the characteristic alpine tendency of failing to flower at Stanford. The great majority of F₂ plants grouped themselves between these extremes, some like their parents in earliness and others corresponded to the more common forms of P. reflexa in the sub-alpine ecotype of nevadensis."

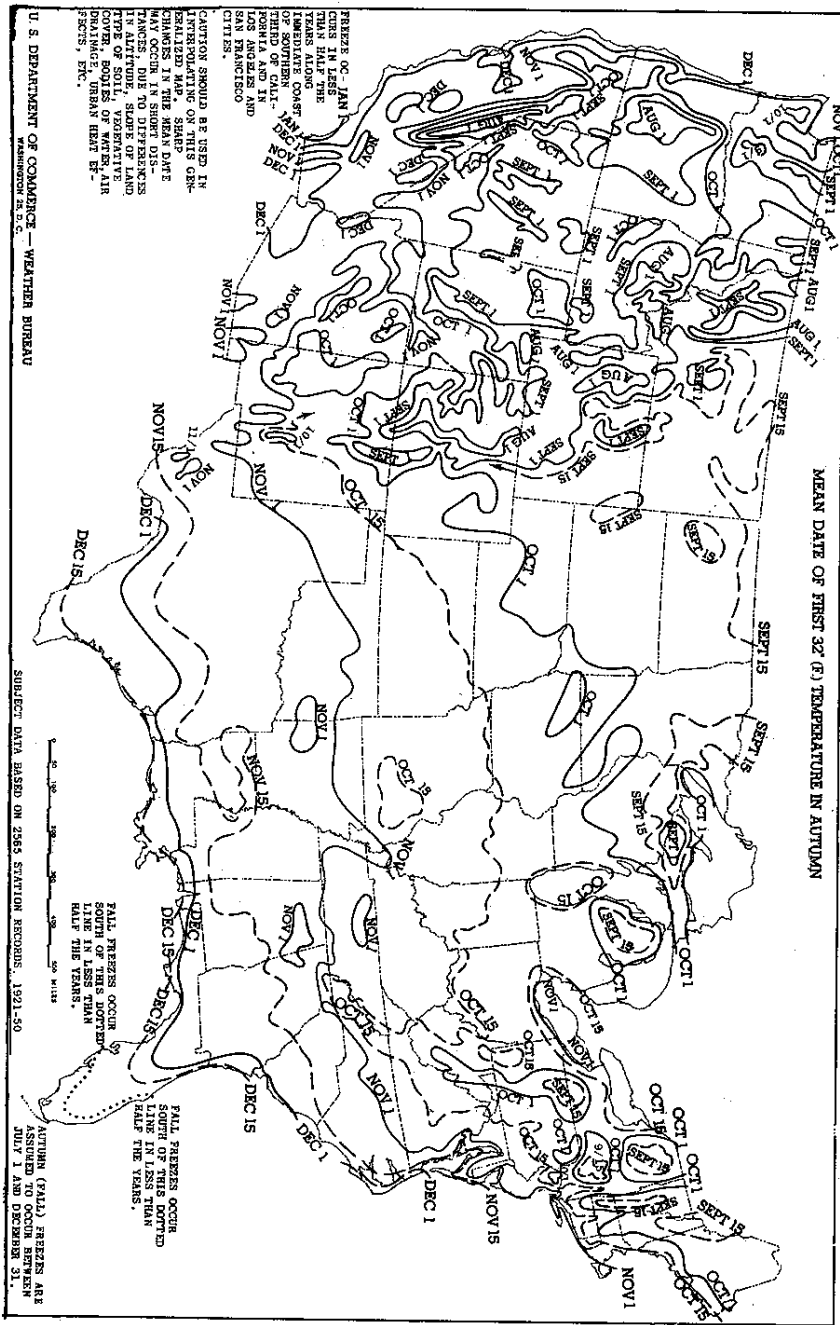
"From this analysis it is obvious that all the variation in earliness found in natural populations - and possibly even more - can be produced by recombinations of the genes of a single cross. The Transgression segregation, shown by the presence of plants that are earlier or later than either parent, indicates that earliness is determined by many genes located in different chromosomes, or at least at different loci." End quote.

"All serious students of genetics who are attempting to produce more and better reblooming irises should take the above statement to heart. In the writer's opinion, it is folly to assume that this recurring trait is due to a single gene, the presence or absence of which in a plant determines whether or not it is a rebloomer. Think it over and be guided by the results. Stop trying to trace pedigrees back to a "missing link". Let those "oldies" that died because they were unwanted by the gardening public stay dead. To keep bringing back their faults leads to disappointment and to disease. Work with the better sorts. The needed genes are all present in them. All that is needed is the brains to select the right parents. Bee pods are an abomination. They return hybridizers to the starting point again and again. Remember the F₂ generation. This is the one in which the recessives get together to produce variations that matter. The F₁ is usually mostly "doggies" because of dominant traits.

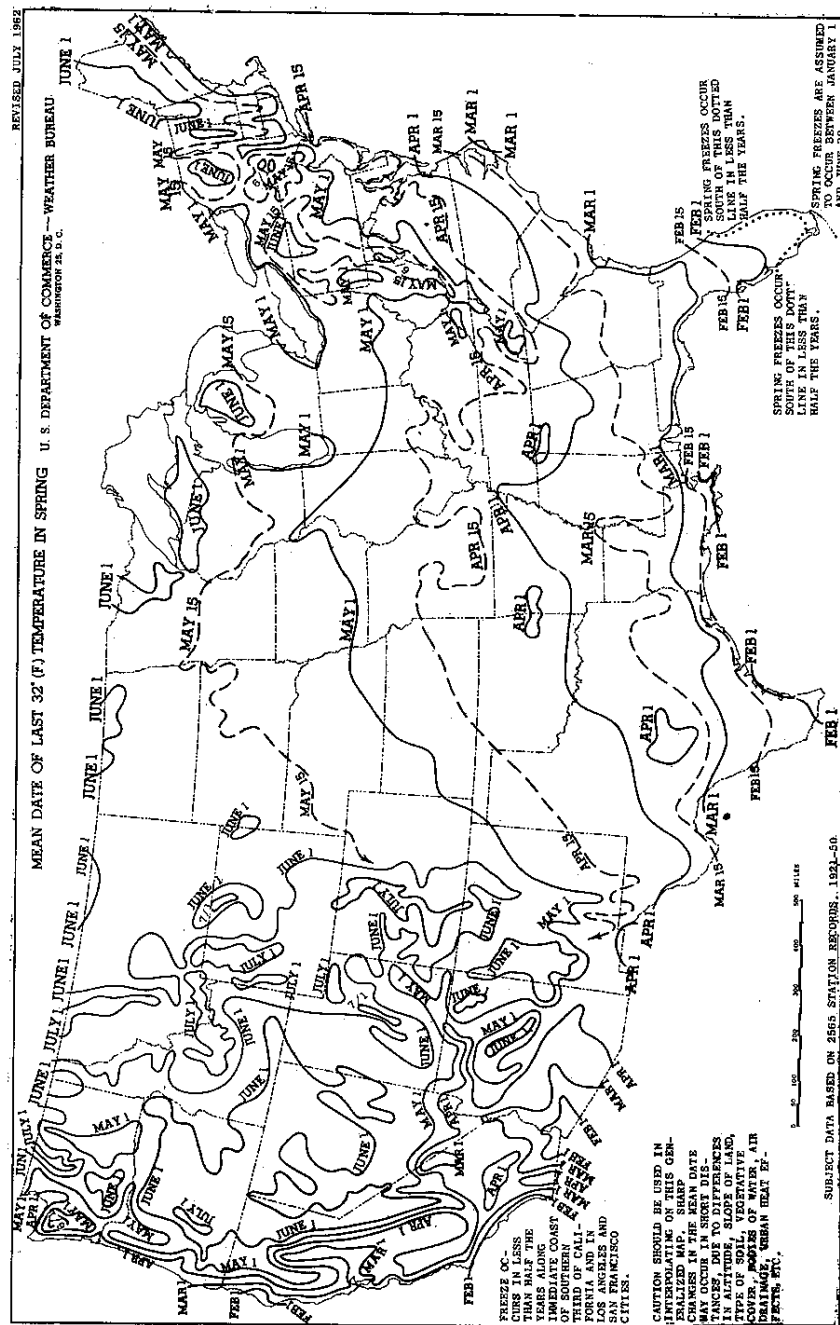
It is good to interrupt heavy reading with the lighter sort. Our readers are urged to read Edwin Way Teale's delightful book, "North with the Spring". Not only is it scientifically correct and bearing lightly upon our subject, but it provides a vista along another angle of our problem: geographical distribution. In one place he remarks that an ascent of 1000 feet up a mountain is the equivalent of a journey northward of 600 miles. Looking back at the first page of this article, read off the elevations and then start a mental journey northward with irises in mind and all of their mystifying behavior. This book, published by Dodd, Mead & Co., N.Y.C., can be found in most libraries.

For beginners we add that the F₂ generation is the "grandchildren". Many beginners stop breeding when their "children" disappoint. The "grandchildren" of irises are much more fun and much more variable

Edwin Rundlett
The Student



Find your garden on these maps. Figure length of your growing season.



Length of growing season largely decides which sorts are best for you. Rainfall matters too. Excess brings troubles.

Importance and Peculiarities of Microclimate

by Jesse W. Collier

Did you ever wonder why the official weather bureau measurements are made at fairly uniform heights of about 5 feet above the ground? This height was chosen by the Europeans in the early part of the 19th century because the air layer adjacent to the ground is "a zone of disturbance which should be avoided." Location of the instruments at this height makes it possible for the data collected at a particular station to be considered valid for a larger surrounding area. The climate measured by these stations is usually called the large-scale or macroclimate.

The macroclimate is of direct significance to man who is upright, breathes at a height of about 5 feet and is continually changing his environment. Most plants, however, are bound to one location and are very dependent on the climate near the ground. This particular climate is often referred to as the microclimate. One of the peculiarities of microclimate is that it changes within very small distances as well as with short periods of time.

At this time it seems desirable to state a few of the basic principles about heat exchange in the atmosphere and at the ground surface. Briefly, solar radiation is received into the earth's atmosphere where part of it is reflected by clouds, some of it is scattered by air molecules and some is absorbed by ozone and water. Less than half the solar radiation received at the upper limit of the atmosphere actually reaches the surface of the earth, but this is still an immense amount of energy. Wherever this radiation strikes the surface of the ground, a small amount is conducted into the soil but most of it is passed back to the atmosphere as outgoing longwave radiation and by reflection, evaporation and convection. Thus it is very evident that the layers of air near the ground are subject to rapid changes in temperature during a 24-hour period. Evaporation takes place at the soil surface and the loss of water by plants, or transpiration, takes place in the lower layers of the air. These processes affect both the temperature and the relative humidity in the zone of microclimate.

The two simple graphs shown in Figures 1 and 2 indicate several well known facts about the microclimate when there are no clouds and no wind. Figure 1 shows the temperature distribution at noon on June 15, 1915 near Tucson, Arizona. Very similar figures were obtained by the writer on July 6, 1956 near Temple, Texas. Notice in the figure that the temperature just above the ground surface is considerably higher than at 40 or 50 inches above the ground where the official air temperature is recorded. Perhaps of even more importance are the high temperatures of the top few inches of the soil. At Temple, Texas, the temperature of the top one fourth inch of dry soil was 150 degrees F. In an adjacent plot that had received irrigation water the day before, the temperature of the top one fourth inch of soil was 130 degrees F. in full sun and only 98 degrees in partial shade.

The common nocturnal inversion over the ground is shown in Figure 2. Although the temperature changes at night are on a smaller scale than during the day, the additive effects of the two result in considerable temperature variations during a 24-hour period. There may be a tendency to assume that the strongest outgoing radiation occurs during winter time, but outgoing radiation during a warm summer night is double that of a cold winter night.

As the outgoing longwave radiation is lost to the atmosphere, the warmed air rises and the heavier, cold air settles into the lower areas of the field or garden. This drainage of cold air into the lower areas becomes important during clear winter nights and is one of the causes of the spotty frost patterns. Clouds and high humidity reduce the amount of energy reaching the ground surface during the day and also trap the outgoing longwave radiation at night. Shrubs and trees act in a similar manner but the smaller effects are determined by the height and density of the cover as well as the size of the shrub or tree. Fairly uniform ground surface temperatures are maintained under good snow cover and the damage caused by alternate freezing and thawing are prevented as long as the snow cover remains.

Some of the other factors which affect the microclimate of small areas include the presence of buildings, walls or fences, and their colors and directions in relation to the sun; the topography including both the degree and direction of slopes; types and density of vegetation; and a number of others. Both the macroclimate and microclimate of cities are different from those in the country nearby. One reason for this is the large proportion of surfaces that reflect or absorb heat in the cities.

Let us now consider briefly, iris performance and its relationship to microclimate. In general, irises are fairly well equipped to survive extreme environmental conditions. The fleshy rhizomes are resistant to sudden changes which occur near the ground level. Some protection to the growing points of the plant is provided by the rhizome and food reserves, which accumulate during periods favorable for growth and are stored in them. However, if an iris reblooms, it must do more than survive. It must continue growth, make sufficient increase and initiate flower buds several times during the year. It is reasonable to assume that different iris types require different temperature ranges for optimum growth, development and flowering. Flower bud initiation in one type or group of irises may be dependent upon slightly different combinations of environmental factors than in other groups. These probabilities indicate how much we need to know about the basic growth responses in irises and the factors that affect them.

Pedigrees of rebloomers include a number of different types of irises. This should be expected because rebloomers have been selected from southern California to Massachusetts and at many locations between these extremes. The successes that have been accomplished should encourage many other hybridizers to strive for rebloomers in their areas. It is not clear what is involved in the reblooming tendency. If flowering in the regular tall bearded varieties is induced by certain combinations of temperature and/or day length, then the rebloomers may be more or less insensitive to these requirements. Extra vigor of growth may be responsible for more than one bloom season or long periods of bloom. It is possible that insensitiveness and extra vigor are very closely associated with each other. Regardless of the processes involved that cause irises to rebloom, they are often selected or observed in a particular microclimate. When these varieties are moved to another location or area, they may fail to perform as rebloomers. In some cases there are obvious differences in cultural practices and/or the macroclimate of the two locations. In others, a careful consideration of the microclimate may be very helpful in explaining differences in performance.

Ed.- Dr. Collier is a professional horticulturist at Texas Agricultural Station. He is Immediate Past Regional Vice President of AIS, Region 17.

State Fair Fun

by Jean Yocum

I can't wait any longer to share with you my happiness. First let me say it isn't pride, as the iris quality that would build pride isn't present. But I must be dreaming, or ready for an institution; there just couldn't be that much bloom in the fall. You should see my seedling patch!

Though haft markings drive me crazy, they don't show so much in the fall, as there are no clean ones to show them up. Those from plicata breeding have worse hafts than most irises, but of a different and more decorative type. From a distance some are a joy to behold. And today (October 6th) a whole row of tiny dwarfs is in bloom. I've had (Lieut. de Chavagnac x self) seedlings in bloom for some time, some pretty good, not strappy.

But let me tell you about the New Mexico State Fair. That was a once-in-a-lifetime chance for me to help people see irises in the fall. Our State Fair lasts eleven days and there are six completely different flower shows. My seedlings have been most cooperative.

The first day I had only three poor ones to show, but all the workers (Federated Garden Club members) saw them, also the first surge of Fair visitors. Saturday I took five, - that was the day! When I reached the show with my irises, many others were entering, and everyone almost at once quit to come and look. The crowd almost stopped activity.

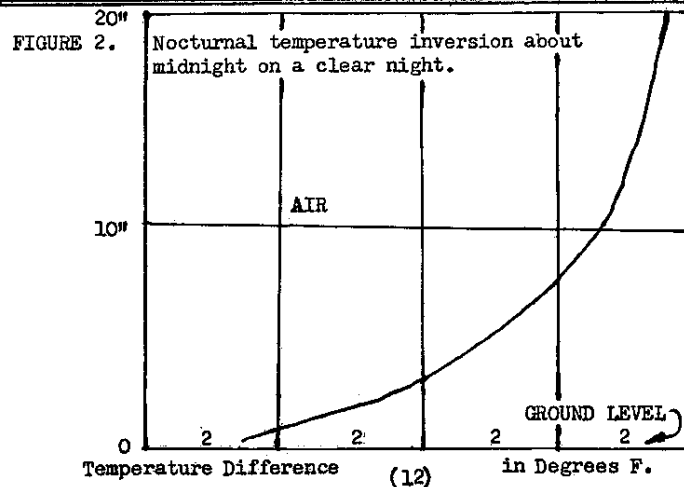
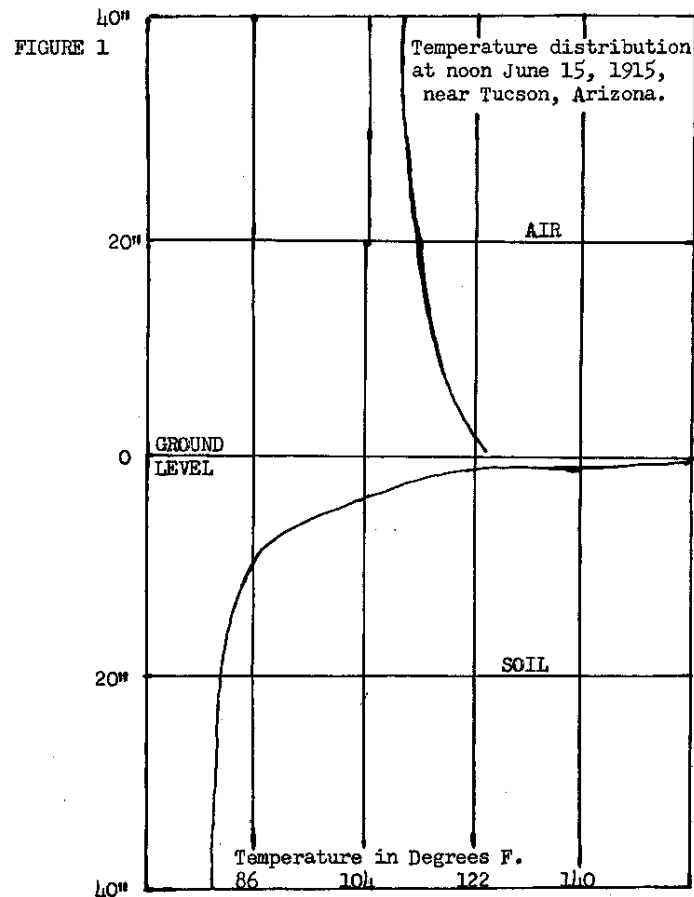
What rules they use in judging I can't imagine. The irises don't have to be named, so whether they ever had names or not, they were grouped by color; big against small or median. Who cares? The irises are there for people to see and enjoy.

Saturday my yellow seedling ((Gladson x Arcadia Buttercup) x (sib)) won not only a lovely blue ribbon but also what they call an Award of Merit. It must have point-scored 95 to be considered. It was runner-up for Best of Show. Best was a Peace rose. So my iris was placed on a special table where it was really a show-off.

Sunday I couldn't go. Tuesday I took seven seedlings and won a blue, a red and a white. It was really a one-lady show. People asked all sorts of foolish and not-so-foolish questions. We must beat the reblooming drums harder and harder. People are amazed that there can be such blooms in the fall and want to know more. They seemed disappointed to be told I am not a commercial, and have nothing to sell; have registered none and have no intention of registering any. It is just a hobby and a great joy. Anybody can do likewise. Commercialism would spoil the fun.

Now, after all six shows are but an exciting memory, I still have one more envelope of ribbons to come. Friends tell me that the comments of visitors, if heard by me, would have made my efforts seem worthwhile in spite of all the aggravations and irritations.

But the best I have still to tell you. I'm still laughing! And don't you dare mention names in sharing the fun with others. One day I was unable to go, but had blooms to show. Determined not to let these go to waste, I tagged them and prevailed upon a very kind friend to take them to the show and to set them up. Hasty instructions were given and the posies went to town; my hopes and dreams skyward.



This friend, of whom I am very fond, had had no show experience, and it takes more than a moment to make a skilled exhibitor. In unloading the car, one fall of one bloom was broken. That happens to all of us. My friend felt very badly about this and wanted to make things right. Thinking that appearances would be improved by having the fall in proper position, she took a straight pin and pinned it up - no thought of cheating, but just of putting on a better display. The pin was not hidden.

Ever since then I have been kidded unmercifully about pinning up iris parts to make a good bloom out of a poor one. The name of my dear friend is still a deep secret, but I have a good nickname for her (or should I say for myself?). It is PIN UP GIRL.

(Mrs. James R.) Jean Yocum, Albuquerque, New Mexico.

Ed.- PIN UP GIRL is also the name of a fine quality tall bearded apricot amoena iris originated by Mrs. Walter E. Noyd, 1501 Fifth St., Wenatchee Wash. It is reported as a rebloomer in some areas. We need reports on its reblooming performance from many locations. Write us about this.

A Report from England

The English Remontant Iris Robin Group was formed in February, 1962 with 9 members of the British Iris Society living in the counties of Yorkshire (North); Essex, Suffolk & Huntingdonshire (East); Berkshire & Dorset (South); Warwickshire (Shakespeare's county in central England. A more recently joined member lives in Hertfordshire which lies immediately north of London. It will be seen that we cover a wide variety of soils and climate, which will give added value to our experiences in breeding varieties of irises which can be relied upon to rebloom in our temperamentally temperate climate.

Mrs. Bovey, Warwicks, probably has the largest collection, having at least 30 kinds, but most of these are Californian rebloomers. It remains to be seen if they adapt themselves successfully. Reports of others about success of alleged remontants have been disappointing. SANGREAL and one seedling from *Iris aphylla* seeds are the only exceptions. Seeds of the latter were obtained from Laurence Neel of Orpington Iris Nurseries under the BIS Exchange scheme.

Seven of eight of Dr. G. Percy Brown's seedlings bloomed well over a long period during the May-June season and many crosses were made, resulting in a seed crop of 600-750 seeds for my own use and distribution to other members of our group. From this nucleus it is hoped to have in a few years a few clones from which English Remontant stocks can be built up.

I must here mention the generosity of Roswell Johnson of Los Angeles, who has supplied me with frequent pods of seed from his Calif. rebloomers. Our members eagerly await 1963-64 to see if such comparative exotics with mesopotamica ancestry will thrive here. The New England climate probably is America's nearest approximation to ours.

Maurice Peach, 34 Silver Street, Buckden, Huntingdon, England.
Robin Director

ADDITIONS TO GROWER LIST (see page 29 of July issue). 22. Wm. H. Lilley, 1150 West Ave., J-14, Lancaster, Cal. 23. Mrs. H.C. Farrell, Rt. 3, Bx. 111, Belton, Tex. SUNBIRD not yet available in U.S. Write originators about the rest registered in 1961.

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Earl F. Beach
Catalog Researcher.

How to Make Reblooming Irises Repeat After Spring Bloom —

by David J. Flesh

The iris is a hardy, vigorous and wonderfully adaptable perennial, but it cannot perform any miracles. Spring blooming performance takes away much strength, and consumes much plant energy which must be replaced or restored before a second crop can be produced. Merely because an iris variety is listed in some catalog as a "rebloomer" does not change this requirement in the least.

Even the best of the proven rebloomers will usually fail to bloom twice in a growing season unless the gardener gives them the following helpful encouragement.

- (1) Cut off the old bloomstalks, all the way down to the ground and clean up any debris or dead foliage around the plants.
- (2) "Top-dress" with 5-10-10, 3-12-12, bone meal or superphosphate, raking this gently into the top soil around the plants. Then keep the soil moist (not wet) through the hot, dry summer months, encouraging active new growth, to produce a full crop of fall bloom.

We, in Jefferson, northeastern Texas, use 3-12-12 fertilizer plus bone meal, as bone meal acts slowly, while 3-12-12 acts more rapidly. Liquid fertilizer sprayings with a mild solution of Ra-Pid-Gro, Hyponex, Folium, or similar fertilizer compounds, at regular intervals, two weeks apart, have given wonderful results for us.

- (3) Keep the iris garden clean of weeds and pests and just cultivate shallowly so as not to cut or disturb the feeding roots.
- (4) Be sure the plants have adequate sunshine and never let them suffer from drought or deluge. Good drainage is very important.
- (5) Choose varieties recommended by a known reliable grower who is honorable enough to tell you the truth about what he feels will rebloom in your area, or will not do so. This is quite important as all "rebloomers" will not rebloom in "all" areas.
- (6) Plant your rebloomers where they will never have to compete with the roots of trees or shrubs for food and moisture, and far enough apart so that competition among themselves is not excessive.

- (7) Reblooming irises are most often grown successfully in beds by themselves rather than in mixed borders or intermingled with regular iris varieties. Caring for them is easier that way.

We have found over a dozen good ones for our own northeastern Texas area but over fifty varieties of so-called "rebloomers" appear in catalog listings, most of them probably successful in some areas elsewhere in the U.S.A. We are hybridizing, testing, and working with others so that we may add to those varieties now found suitable over a wide range of climatic conditions.

David J. Flesh

Ed. David is a valued member of the Editorial Staff of the 'Reporter'. He will be remembered for his splendid article in the No. 2 issue about Arilbred breeding to produce a new type of rebloomers. His vocation is Consulting Engineer in the oil well business. Busy man!

Questions and Answers

by The Editors

- Q. When is the best time to feed rebloomers?
A. Immediately after spring blooming, and again in early fall. Repeat again about six weeks before spring blooming time.
- Q. Do you recommend planting rebloomers in a special bed?
A. If possible. They can then be given special care during summer when spring-only bloomers do not demand such attention. Afternoon shade pays off too (where temperatures run high) in helping to keep the soil from extreme heat during July and August. (a Texas report)
- Q. What type of food do you recommend for rebloomers?
A. One with low nitrogen content for fall and one with higher nitrogen content for spring feeding
- Q. What are the chances for obtaining good seed from blossoms pollinated in their reblooming period?
A. Sufficiently good to make such efforts worth trying. After four weeks of development and before hit by frost, the stalks carrying pods may be cut so as to include a piece of the rhizome and then allowed to mature indoors. The cut stalks need not be kept in water or be replanted.
- Q. Will rebloomers rebloom in the fall if divided and replanted after their first bloom period?
A. This depends upon whether the new bloom stalk has formed before replanting. If it has, nothing can stop it from further development except freezing or burning. Even if left out of the ground such divisions go on to produce stalks although these are usually stunted.
- Q. Are rebloomers a recent development?
A. Let us quote from "The Genus Iris", by the great English irisarian, W.R. Dykes. "This iris (*Iris subbiflora*) was observed by Clusius in the neighborhood of Coimbra in Portugal about 1565 and was described and figured by him as *Iris lusitanica seu biflora* on pp. 282 - 3 of his "History of Rare Spanish Plants" (1576). He there states that he found plants in flower in November and gave it the name of *biflora* on account of its habit of flowering in the autumn as well as in spring."
- Q. When should rebloomers be judged?
A. When they rebloom. Since their ability to rebloom is their most important characteristic this is their classification now, and for the foreseeable future.
- Q. Are there rebloomers as handsome as the award winners of the regular season?
A. Not many, but some are better looking than many in commerce and recent progress has been so rapid that this question will soon become meaningless.
- Q. Is there any method of preventing soft rot from starting in known susceptible varieties?
A. There is no sure method. Some growers have reported remarkable success from the use of a double handful of agricultural gypsum on and around the rhizome. This has even been reported to have checked rot in rhizomes already affected. If good drainage is provided it will go a long way toward preventing bacterial soft rot. Raised beds are best. Surface irrigation is better than sprinkler irrigation.

- Q. I have read that one should never water irises if the temperature is higher than 90 degrees. How then can one keep his plants growing during dry weather?
A. Try adding two tbs. liquid chlordane to each gallon of water. This practice has enabled some growers to water regardless of high temperatures. There must be a good reason for such results. Do find out. What does the chlordane (an insecticide) do to what? Research needed!
- Q. Is there any method of telling whether a seedling carries the reblooming tendency even though it does not rebloom?
A. No, but there are several indicators. If the seedling is unusually vigorous; if the rhizome swells at the base of the fan in fall; if the two sides of the fan drop, leaving the three center leaves clustered, forming a sort of three pronged fan; and if one or both parents were rebloomers, the seedling may carry the trait.
- Q. Is there any method of telling when a seedling will not rebloom?
A. If the seedling develops slowly, if it shows no side increase, if the center leaf is light colored and soft appearing, the seedling may never rebloom.
- Q. When should reblooming seedlings be discarded?
A. Rebloomers generally do not yet meet the standards of the once bloomers. But if the seedling is poorer than its parents, melts in the summer sun, fades badly, has poor substance, is badly haft-marked, or for some other reason is so poor that you wouldn't want to grow it regardless of its reblooming characteristics, it should be discarded.
- Q. Is it true, as rumored, that it is impossible for rebloomers to give satisfaction in England?
A. No. And the word "impossible" is one of the most stimulating words in the English language. It is the signal to get busy moving heaven and earth to prove it false. Speaking of another problem, one of our staff members, a first class breeder had this to say. "Personally, I like this challenge, and would feel lost if forced to admit that we had now already done as much as we could hope to accomplish. Many breeders who have preceded us have either abandoned the effort or decided that the prize is not worth the struggle. I disagree with this viewpoint, as I am raising "impossible" irises every year right here in our own gardens."

Here are two reasons for not accepting defeatism. In the U.S.A. there has been success with rebloomers in a very great variety of environments, including some places with rainfall, sunshine, humidity and temperatures very similar to those in parts of England. Also, the power of wide and continued effort in breeding can work wonders. Such efforts can be very rewarding to those who try. And remember the F2 generation (See article on Heredity vs. Environment).

Note: This is the first attempt of your editors to answer frequently asked questions about rebloomers. If you like this feature, please let us know. While we may not be able to answer every question, your asking them will release accumulated information received from many growers and scientists. Ours is a large circle of devotees.

POLLEN SUPPLY (from page 3) These lists should be in her hands no later than March 15th, which, except in very warm areas, gives plenty of time to make the contacts. If you delay later than that, it may be impossible to help you. A stamp or stamped envelope will be a great help in forwarding the information to you. This service limited to reblooming iris robin members only. Join a robin and learn.

Geographical Distribution of Varieties

The following irises have been reported to have given satisfaction to robin writers in the locations indicated. Additional notes of the same sort were made in the No. 1 issue last January. This listing can be helpful in the selection of varieties most likely to perform well in similar climates. There is no such thing as an All-America rebloomer.

Saline, Mich. Autumn Bronze, Autumn Twilight, Black Hawk (IB), Dorcas Hutcheson (IB), Encore, Fall Primrose, July Beauty, Lieut. de Chavagnac (DB), Sangreal (IB), September Sparkler.

De Kalb, Ill. Martie Everest, Bouquet (DB).

East St. Louis, Mo. Autumn Twilight, Autumn Queen (DB).

Xenia and Zanesville, Ohio. Autumn Snowdrift, Autumn Twilight, Fall Primrose, Fall Violet, Gibson Girl, Guiding Star, October Shadows.

Brewerton, N.Y. Autumn King, Autumn Twilight, Fall Primrose, Nappanee.

Eastern North Carolina. Autumn Bronze, Autumn Snowdrift, Autumn Twilight, Beau Catcher, Black Magic (IB), Carabella, Gibson Girl, Green Dragon, Lina Beth, Polar King, Summer Surprise, Surefire (IB), Ultra (IB)

Colorado Springs, Col. Autumn Elf (IB), Autumn Twilight.

Salt Lake City, Utah. Autumn Delight, Gibson Girl, July Beauty, Martie Everest, Nappanee.

Birmingham, Ala. Black Magic (IB), Lieut. de Chavagnac (DB).

Belton, Tex. Autumn Delight, Autumn Snowdrift, Autumn Sunset, Autumn Twilight, Fall Days, Fall Violet, Joseph's Mantle, July Beauty, Orchid and Flame, Pink Lace, Royal Band, Sally Ann, Sangreal (IB), Sou Sun.

Jefferson, Tex. Autumn Afternoon, Autumn Bronze, Autumn Elf (IB), Beau Catcher, Autumn Twilight, Bountiful Blue (IB), Carabella, Double Duty, Gibson Girl, Fall Velvet, July Beauty, Lieut. de Chavagnac (DB), Martie Everest, Menominee, Mohrloff, Mons Steichen, Pearl Oriental, Persian Pattern, Polar King, Pottawatomi, Slick Chick, Western Hills, Witch Doctor.

Dallas, Tex. Good Sir, July Beauty, Iris Kochii, Lieut. de Chavagnac (DB).

El Paso, Tex. Autumn Elf (IB), Autumn Twilight, Beau Catcher, Black Magic (IB), Canby Sunset, Crimson King (IB), Ethel Peckham, Fall Fairy, Fall Gold, Fall Violet, Galatea, Gladsong, Guiding Star, Harvest Medley Hit Parade, Kansas Ingleside (IB), King's Choice, Miss California, Night-fall.

New Braunfels, Tex. Beau Catcher, Joseph's Mantle, Mrs. Douglas Pattison, Orchid and Flame, Steeplechase, Technicolor, Western Hills.

Pacific Palisades, Calif. Aahme, Autumn Queen (DB), Blue River, California Pink, December Royalty, Green Goddess, July Beauty, King's Choice, Lieut. de Chavagnac, Lina Beth, My Darling, Sea Lavender, Tour't. Queen.

Sacramento, Calif. Autumn Twilight, Beau Catcher, Eleanor Roosevelt (IB) July Beauty, Persian Pattern, Joseph's Mantle.

Ed.- This listing could be more complete if reports of fall bloom told whether these same plants had bloomed in spring. For a given location a rebloomer must repeat both times or more during the annual growing season. Fall alone is insufficient.