



Twin City Iris Society

News and Views

PRESIDENT'S MESSAGE

I first saw 'Ribbon Round' on the cover of the AIS Bulletin. It was described as Chet Tompkins' ethereally beautiful.... I first saw it growing in a garden in California. I was somewhat disappointed. I suppose there are several reasons, none of which were the fault of the genes of this child of 'Crown Point' and 'Caroline Jane'. Last year 'Ribbon Round' bloomed in my Ravine bed. I was out at sunrise the day it unfolded. The light blue stitching reminded me of rivulets starting in the white sands of a desert and flowing to the blue edge of the sea. It was ethereally beautiful.

Alice Stenoien will head a committee for the 20th Anniversary Celebration. She will be contacting some of you for help. 1972 will be designated the anniversary year. Some suggestions made; a special issue of NEWS AND VIEWS to be published and dedicated to the history of the Society, using a 20th anniversary theme as a show dedication. Please make other suggestions

A tentative date of April 18 has been set for a region 8 meeting. It will be held again at West Salem, Wisconsin. I suggest that all who are interested join the American Iris Society and participate in these regional meetings. It is a lot of fun as well as very informative to get together with our friends from Wisconsin and exchange iris lore. We will organize car pools again this year to make sure that all who want to can participate.

On Jan. 23rd I went to Brainard to meet with Bob Tiplady and discuss Outstate Organization. The deliberations of our meeting were reviewed by the executive committee and were well received with some modifications. Garden Clubs as well as individuals can become members of the Society. I might add that the people in the outstate area are enthusiastic about the proposed amendment to our constitution to change our name. This item will be discussed at the February meeting. We are offering the outstate members the following services: 1) NEWS AND VIEWS, 2) Garden tours 3) help and advice in setting up local shows 4) a list of commercial iris growers 5) culture sheets Growing Irises In Minnesota 6) a slide program accompanied by a syllabus 7) invitation to enter and compete in the Twin City Iris Show 8) availability of AIS judges for their shows 9) speakers for their garden clubs or local iris meetings 10) information on iris diseases 11) a sheet on How To Hybridize 12) iris auctions in local areas requesting them 13) a free iris rhizome for new members (of a more recent variety) and finally 14) information of the AIS and how to join. This is an ambitious program and we hope that we can be of help in promoting the culture of irises throughout the state.

We look forward to seeing you all at the February meeting for a lively discussion of our problems and activities.

- J. Wadekamper
February, 1970

PRESIDENT-

Julius Wadekamper
Shattuck School
Faribault, Minn. 55021

1st VICE-PRESIDENT-

Glenn Hanson
7124 Riverdale Road
Mpls, Minn 55430

2nd VICE-PRESIDENT-

Ed Holloway
5501 Emerson Ave No
Mpls, Minn 55430

TREASURER-

Manfred Warmuth
3656 Gettysburg No
Mpls, Minn 55427

RECORDING SECRETARY-

Virginia Messer
Route 2 Box 280
Excelsior, Minn 55331

CORRESPONDING SEC-

Gertrude Hain
4111 Humboldt Ave No
Mpls, Minn 55412

BOARD OF DIRECTORS-

Urban Ipsen
Wilbert Sindt
Maybelle Wright
Ernest Mutterer
Dr. Reuben David
Stan Rudser

EDITOR-

Mary Duvall
4019 - 41st Ave So
Mpls, Minn 55406

Additional Appointments:

LIBRARIAN- Monte Johnson

TELEPHONE- Alice Bakke

MEETING --

FEBRUARY 19, 1970 8PM

Guaranty State Bank ---- 3700 West Broadway

Additions to committees:

Receptionists:

Sandra Lester

Social:

Mrs. Ray Bero

Publications:

Mrs. Ralph Hintze

Scientific:

Donald Barnes, Ch.

Mrs. Jerry Neese

Speaker for the next meeting of the Twin City Iris Society will be Dr. Harold Arneman, professor of Soils in the Department of Soils Science at the University of Minn. His subject will be "Structure and Texture of Soils" in which he will discuss the properties of different types of soils and how to improve them. There will be an opportunity for questions and answers at the completion of his talk.

- Charlotte Sindt

20th ANNIVERSARY CELEBRATION:

Alice Foss Stenooin- Ch.

PROPOSED AMENDMENT TO THE CONSTITUTION: It is proposed that the name of the Twin City Iris Society be changed to The Iris Society of Minnesota.

A ballot will be enclosed with the March issue of NEWS AND VIEWS for your vote on this amendment.

EXECUTIVE BOARD MEETING:

The Executive Board consisting of elected officials, committee chairmen, and Directors met on Tuesday, February 3rd. The budget was studied thoroughly with subsequent approval by the board.

A suggestion for an award (to be called the Minnesota Award) to be awarded to outstanding Minnesota introductions was discussed and a committee will be appointed for further study for future consideration.

Plans were instigated for recognition of the society's 20th Anniversary year with a committee formed for this purpose.

The suggested program for the year was presented and wholeheartedly approved.

There will be continued work on improving the constitution and a Garden Tour committee will be organized.

A discussion of means of increasing outstate membership, of ways the society could promote interest in growing irises, and means of helping iris growers, in other parts of the state, showed that a desire to expand the society to include all of Minnesota seemed to prevail.

The board will also work for increased regional cooperation and development and will promote and encourage ATS membership.

- Virginia Messer, secretary

Our members will be interested to learn that Glenn Hanson has received another request to re-print his article "About Arils and Arilbreds and Such Like", (originally printed in the February, 1969 NEWS AND VIEWS) - this time from the Empire State Iris Society. It was previously used by the Aril Society International.

SHOW DATES

The Early Show ---- May 17

The JUNE SHOW --- June 6 and 7

BORDER BEARDED IRISES

By Maybelle Wright

Interest in border bearded is growing rapidly, partly due to their usefulness in the small garden and mixed border, partly because they never need staking, partly because the flowers of a true BB are small enough to be very useful to the flower arranger, but mostly because they have a charm all their own.

Several hybridizers are carrying on breeding programs aimed at producing good quality border irises. We are attempting to reverse the trend toward hugeness, meanwhile trying to retain all the other good qualities we have come to expect of modern irises. Many new BB varieties have fine proportions and are well-branched. While evaluating our seedlings, we try to keep proportion uppermost in our minds, remembering that although we don't go around actually measuring pretty girls, our eyes tell us a 5-foot-2 lass looks better at 36-26-36 than she would at 44-34-44!

Those of us who are seriously breeding for BBs are approaching the problem from every conceivable angle. Bennett Jones has proved that good borders can be produced through the use of *I. reichenbachii* blood by way of the Progenitor derivatives. The only drawback in using ONLY this approach is that a large percentage of the seedlings will show the dominant amoena pattern, thereby greatly limiting the possibilities for selfs and other patterns. Bennett, along with other hybridizers, has used various other approaches, such as crossing BB X (TB x *I. pumila*), BB X (TB x *I. aphylla*), BB x Tb, BB x BB etc., as well as making crosses involving *I. mellita* and *I. balkana*, but the results so far have been inconclusive.

Like many before me, I entered the BB field by the back door, so to speak. In 1962, in a cross planned for other things, I found a small blue seedling that I just couldn't ignore. It had flare, width, ruffles and that elusive quality we call "charm". Still not overly enthusiastic about small irises, I moved it to the "second look" bed and forgot about it. The next year it demanded, not only my own attention, but that of almost every garden visitor. I set a pod on it by Rippling Waters and went back to my TB hybridizing. The third year, after many visitors asked to see "the little blue one", I decided I would probably have to do something about it. I joined the Median Society and that was the point at which BBs became my primary interest and TBs moved into second place. The enthusiasm for BBs that was evident in the Medianite articles sold me on the idea that border bearded fulfill a special garden need and are worthy of the attention of all irisarians. The above seedling was registered as "Miss Ruffles" and shipped to London and nine widely varied climates in the United States, where knowledgeable irisarians agreed to guest it and give me frank reports as to performance and size. It is a well-known fact that irises that grow small in the home garden often grow to huge proportions in other areas. It is of the utmost importance to test BBs in this way BEFORE they are introduced. If they grow out of class in more than one climate they should not be introduced as borders. Luckily Miss Ruffles stayed small and in proportion in all areas, although it did reach the upper maximum in the desert areas of California. It was 1967 before I had all the guest reports and was satisfied that my "child" would behave away from home. That year it was co-introduced by Tell Muhlstein of Orem, Utah and Stover's Gardens, Minneapolis, Minnesota. I am not sorry it was thoroughly tested before introduction as it has been well received.

From the first pod on Miss Ruffles by Rippling Waters, (I've made the cross several times since) I bloomed a blue white border-size seedling which has been named Ruffled Cherub. The same testing procedure is being followed for this one and it will be introduced as a BB, ONLY if the reports are favorable. Since we have no guidelines for this kind of breeding, and since I had to start somewhere, I have planned a series of backcrosses to Miss Ruffles, hoping to eventually lose the factor

(Con't - Border Bearded Irises)

for large size. Having a plan, and executing it are, however, two different things! After three years of failure to affect a backcross, I finally succeeded this year with four pods of Miss Ruffles X (Miss Fuffles x Little Dude). Now IF the seeds germinate and IF there are good quality BB sized seedlings and IF I can manage another backcross to Miss Ruffles, I may be on my way to finding out whether or not this method is effective....

Bennett Jones has done more to advance the BB class than any other breeder. His Frenchi and Pagoda are two of the earlier registrations in the class and are still charming additions to any garden. Bennett's later BB introductions include Glacier Bey, a Whole Cloth type, Crystal Bay, with the Emma Cook pattern, Carnival Glass, a fine reddish blend, Rain Pool, a fine blue, and his latest release, beautiful little Botany Bay, a fine medium blue of perfect proportion, which won the top HM for BB, '68.

Other BBs worthy of mention are, Little Dude, light blue parent of Botany Bay; Debbie Ann, blue white; Timmie Too, purple; La Nina Rosa, Little Lynn and Lace Valentine, all pinks; Little Reb and Little Mark, plicatas; Bride's Pearls, cream; Little Sambo and Black Forest, blacks; Jungle Shadows, a sultry blend; Chocoleto, brown and Tulare, a fine laced yellow. Yellow Dresden is very nice, and although it is on the large side for a typical BB, it is a fine breeder for the type.

There seems to be no EASY road to successful BB breeding but creating a new type of flower is a very real and exciting challenge. We BB breeders invite all of you to join in the effort to breed BBs that are worthy of a place in every iris garden. We will be happy to help you get started in any way possible, from sending pollen to sharing seeds. In the mean time save those good small seedlings that show up in the TB rows and climb on the bandwagon. Border Bearded Irises are on their way to a very prominent place in the iris world of the future! - M.W.

((Maybelle is Vice-President of Border Bearded Irises in the Median Iris Society.))

** We invite you to join the Median Iris Society, a section of the American Iris Society devoted to those interested in the smaller irises. Dues are \$2.00 per year, payable to the membership chairman, Zula Hanson....

The Feb. '70 'Horticulture' Magazine has an article by Lee Eberhardt, president of the Median Iris Society. This article, entitled 'The In-Between Irises' discusses the medians that bridge the gap between the alpine type dwarfs and the TBs, both in size and season. This very interesting article lists recommended irises, which is most helpful in introducing a type of iris which tends to be overlooked. -L. J.

HYBRIDIZERS MEET:

The hybridizers met at the home of Dr. David on Jan. 30th. A very informative program was held. Slides of iris aphylla and the F₂ and F₃ generations of aphylla seedlings were shown. They showed very clearly the genetic characteristics transmitted by aphylla, especially the exceptional branching. There was a slide of Progenitor, the famous iris behind the Whole Cloth line of Paul Cook. It is the seedlings of Progenitor that gives the white standards and blue falls.

A significant part of the meeting was devoted to slides of iris seedlings developed by members of the Twin City Iris Society. Mrs. Bakke showed slides of Bakke-Messer seedlings including Glenzula, Minnesota Glitters and seedlings from the Glenzula-Brightside cross. Maybelle Wright showed slides of Miss Ruffles and seedlings from Miss Ruffles x Rippling Waters. Some of Dr. David's Court Ballet crosses have given him very fine pink seedlings. Mr. Don Briggs from Luverne, Minn. showed slides of his seedlings which are notable for their very good branching. He has several hundred seedlings growing from several years of hybridizing efforts. Julius Wadkamper had slides from his first crosses. The Rudgers had slides of their garden and a very good seedling developed by their son.

- J. Wadkamper

GARDEN JUDGING OF TALL BEARDED IRISES

By Wilbert Sindt

One of the features of the 1969 AIS Convention in Milwaukee were the various Sessions on Judges Training. One of the best ones was presented by Mr. F. G. Stephenson of Roanoke, Virginia on "Garden Judging". I shall try to present some of his thoughts in this article.

For Garden Judging there is no specific score card as there is for exhibition judging. Each judge has his own concept of what the perfect iris might be. For a good evaluation, at least two years of observation is required. This evaluation would be throughout the entire growing year and not only during the blooming season. Observations should also be made in the morning, at noon, and in the evening. A beautiful flower in the morning that wilts under the noonday sun and is folded by evening is not very desirable.

The first evaluation of a clump should be taken from a distance (10 feet or more) to get an overall impression of the proportion and balance. Huge blooms on short stalks, small blooms on tall stalks, large foliage with small blooms and wide branches on short stalks are all faults. The stalks should hold the blooms so that all can be seen with branching in proportion to the entire plant.

Judges should be very tough on number of buds and branching. Color of the bloom must not blot out the sense of judgment. The minimum number of buds should be seven. Anything with less than seven buds should not be considered for introduction or an award. It should be remembered, however, that we are considering here only tall bearded for number of buds. Other types, such as Arils or Arilbreds do not need as many buds. The objective should be to have four blooms open at once. The minimum number of branches should be two in addition to the terminal and spur buds. The spur bud is the one directly below the terminal and is not considered as a branch. The branching should be over the top two-thirds of the stalk and not all of the same length. There should be a minimum of two buds per socket, and there may be up to four. All buds should open and be spaced in time so there is a long period of bloom. A good specimen on the show bench is also good in the garden.

The plant should be disease free as observed over a period of time. Very often comparison judging can be done here with the use of well known varieties. One should expect at least two increases per year, so that the number of plants would multiply in the following ratio: 1-2-4-8-16 etc. The entire plant or clump needs to be vigorous

Color is the one most important characteristic. It must be clean, not muddy or dirty. Colors must blend, harmonize or contrast pleasingly. Plicatas should be clean and sharp, without a bleeding of one color into the other. The beard should contribute to the overall effect. At present fat beards are in style. The color can be self or contrast. Color faults are: dirty, fading (fading may not always be a fault unless it detracts from the overall picture), and burning, which is always a fault.

Good form has the standards and falls in proportion. The standards should be erect. At present flaring falls are very much in vogue, but they should be considered as part of the whole. There is no one "best" form, but pinched, narrow, strappy falls are not good. Interesting haft markings should not extend below the tip of the beard.

Substance supports form, color and texture. Rain spots and torn petals indicate a lack of substance if other varieties are free of them after adverse weather.

The individuality and personality of the iris in the garden is that certain

Con't - Garden Judging of Tall Bearded Irises

something which attracts you.

The preceding are from my notes taken at Milwaukee. One does not need to be a judge or even aspire to be one to use the information given. Apply it to varieties in your own garden to eliminate the less desirable ones. All too soon we find we have too many and must get rid of some, and with some knowledge the better ones can be kept.

WANTS AND RESULTS

By Greta M. Kessenich

The Government wants and needs money. The State wants and needs money. The Cities want and need money, - but all we want is your beautiful specimen Iris stalks for the June 6th and 7th Iris Show, to be held in the garden court of Southdale Center.

It is never too early for a Show Chairman to talk about the coming show, and the success of it depends on you - the dedicated members of the Society.

Now we look forward to spring and the uncovering of the irises. Depending on the weather, this will be done from mid March to mid April. This is a very critical time. If hot weather comes early, your irises under all the hay or leaf covering may be in an oven, especially if drainage is not too good and the covering retains moisture and is on the top of a plant that has started to grow. This will surely result in the loss of your bloom stalk and rot will develop. It is only wise to use your good judgment and be a daily thermometer reader and listen to the weather reports. If the sun is too hot, temperatures too high, do pull back some of your covering. It is not necessary to remove all at once. If you see anything wrong, treat the plant with a fungicide and give it air and sunshine. Many a rhizome can be saved, even though the bloom stalk may be gone.

During this winter, we all have had some spare time for reading, research and study of many flowers, especially the irises. I read an article of which one line remains so vivid in my mind,

"Land is one of those things they are not making any more of".
How true! It is up to us to take care of that precious soil. What are you going to do this year to enrich your soil? We do know growing irises on the same soil year after year takes away nutrients that are so needed for this plant. Commercial fertilizer is a great boon to all gardeners, but that alone is not enough. Working humus into the soil replaces food substances.

Since we all are so conscious of air pollution, if you haven't a compost pile now, start one in the spring. It is most rewarding.

I have hybridized irises on a small scale for many years. The parents are chosen with great care, but when the seedlings finally bloom, the desired genes aren't there. When I look them over you might hear me say, "Oh Lord, how can you do this to me again?" I believe, if I have enough persistence and keep on complaining, the Lord will lose patience, put his hand on Mother Nature's shoulder and say -- "Ipsen grows the most miserable seedlings I've seen, and he's always complaining to me. So, on your travels around the earth, stop and give him something that looks like a modern iris." ----- Come June; I'll be waiting.

IRISES IN THE SMALL GARDEN

One constantly hears it said that the iris is not a good garden plant, that it has a very short season of bloom and is extremely untidy and unattractive for most of the year, so that in a small garden space cannot possibly be spared for a plant giving so small a return for the area it occupies.

Is this really so? As the possessor of a very small garden, having an enthusiasm for irises, both T.B.s and species, I can confidently say no. In the first place, to those bothered by the supposed untidiness of iris beds, I would say this; do not grow more than you can manage to cultivate well, and groom adequately, and do not let the tall bearded irises occupy so much space that the garden becomes out of balance. In our own garden, some 90ft. by 24ft., T.B.s occupy approximately 126 square feet, in four beds cut from the lawn, planned carefully to add, not detract, from the garden layout as a whole. This plan was adopted because of the conviction that these hybrid irises demand beds of their own. Species, less exacting, crop up in numerous situations, blending happily in woodland, waterside or border conditions according to their respective needs.

Nothing, I admit, looks worse than a sort of iris allotment, and we do our favourite flower no service at all if we present it growing about as attractively as a bed of Brussels sprouts. How then to set about it? Irises need grooming.

No deep cultivation should be attempted, merely a periodic "tickling" of the soil which we find is best done with a small round tined hand fork, so that no damage occurs to the roots. This is made easier if care is given to the method of planting, so that each variety is kept separate from its neighbor, making weeding possible, and also the careful removal of dead and dying leaves which is essential if slugs are to be kept at bay, and the maximum amount of sunshine is to reach the rhizomes. Our method is to plant the rhizomes of each variety in a tight circle, pointing inwards and just touching. By this means even an old clump overdue for division will never be confused with the adjacent plant. If these clumps are planted in the first place about 1ft.9in. apart (centre to centre) and 1ft.3in. from the edge of the bed skilful use can be made of companion plants. We grow species crocus thickly around all our iris beds where they provide a solid mass of bloom from late January till early March. Their leaves have all disappeared by the time the irises bloom, and when the time comes to remake the beds the bulbs can be gathered up, or at least most of them, and replanted the following autumn. To give color and interest later on we are now planting the Kaffir Lily (*schizostylis coccinea*) in the spaces between the iris clumps. In our southwest facing garden these bloom from August until cut down by the frosts. Like the crocus, they are iridaceous plants so are perfectly happy in soil conditions suitable for T.B.s. They can be lifted when the irises are divided, and are completely trouble free. By this simple means we have colour in our iris beds in early spring, midsummer and late autumn. At other times the eye can turn to other features, the small pond and swamp and adjacent rock garden, trees and flowering shrubs, the lilies which follow the irises so conveniently, roses and other popular plants, all of which can be accommodated even in this small area as a result of keeping the irises in their place and refusing to be tempted to grow too many of them.

- Mrs. E. M. Osborn

-author Mrs. Osborn has taken over the Editorship of the British Iris Society Yearbook (1970)(with her husband.)

NEW ROBIN - ARTS AND CRAFTS

for members who enjoy "doing it yourself". Members interested will receive and share information, patterns, ideas, etc, using the iris as design.

Those interested may contact Mary Ward, 204 Goshen Ave., North Little Rock, Ark. 7211 or: Peggy Burke Grey, 8191 Franz Valley Road, Calistoga, California, 94515.

THE EFFECTS OF LOW TEMPERATURES

Carl Jorgenson

A better understanding of some of the effects of low temperature on plants may be gained by first considering the fact that the range of temperature within which plants normally grow, of course, varies with the species. The high mountain *Iris missouriensis* found in western U. S. thrives in the alpine zone and does well at a temperature slightly above freezing to around 50 degrees F. The temperate zone iris species, in which the tall-bearded could be included, usually grow from around 40 degrees F. to as much as 110 degrees F. So we see that the summer growing temperatures of our tall-bearded species have a rather wide range.

Seeds of different species of iris have different optimum temperatures for germination. Usually the roots of plants have a lower optimum range (ideal temperature for growth) than the above-ground leaves and flower parts. We know, too, that in the temperate zone in which most of the United States would be located, there are species of plants which begin to grow at lower temperatures than other plants. Iris is one of these. We find the little shoots of iris starting to grow as early as the earliest of spring plants.

Why do iris flourish at these relatively low temperatures? Do they use their internal energy more efficiently? Is there a difference in protoplasm between two different kinds of plants? These are just some of the questions that come to mind. We also know another effect of low temperature on plants. Dropping the temperature below the optimum retards the growth of plants and this is a common observation. In chemical reactions, whenever we lower the temperature, we also reduce the activity of the reacting molecules. Perhaps this is also true to some extent with the physiological reactions of plant cells. Undoubtedly, temperature has a direct bearing on such processes as diffusion, imbibition, osmosis, and the absorption of minerals. It may hold true for some of the living processes such as the protoplasmic streaming within cells, respiration, transpiration, and the translocation of food to various parts of the plant.

Some plants need low temperatures in order for the flowers to become initiated. However, my observations of iris do not seem to substantiate this need. Rather, when a certain level of food storage has been reached in the rhizome, then the flower stalk will be forthcoming if external temperatures permit. We also know that low temperatures play a part in the development of color in leaves and flowers. Formation of anthocyanin pigments in leaves is the cause of coloration of leaves in autumn, and we do know that cool weather increases the amount of coloration. We also know that cooler climates favor the development of color in fruit. My observations on the high mountain iris would indicate that we get better color in *Iris missouriensis* in its native habitat in the mountains than we do if that same species were brought down to a lower elevation and there flowered.

Let us now discuss the effects of temperatures that are low enough to cause freezing. We all have observed temperatures low enough to actually kill the developing buds of iris. This usually occurs after growth has commenced and where possibly the bud stalk is beginning to emerge. It is rather difficult to know just how living cells are destroyed by freezing. There have been three general theories advanced. One is the idea that ice crystals form in the spaces between cells and these draw out water from the living cells to the extent that the cells are dehydrated. If this continues long enough, then the protoplasm within the living cell becomes so concentrated that the proteins literally "salt out". Technically we call this phenomenon plasmolysis. A homely example comes to mind. When we fry an egg, heat changes the liquid egg white to a whitish semi-solid mass. The proteins in the egg white have precipitated out. Once this "salting out" of the protoplasm within the living cell

(Con't - The Effects of Low Temperatures)

occurs there is no reversing the process. The cell is dead and it can no longer function. Plasmolysis of cells can occur both with too much heat or by too much cold as in the killing of cells of iris in winter. Another theory is one in which the formation of ice crystals occurs and these ice crystals cause mechanical injury to the cells. These ice crystals form from free water either in spaces between the cells or water in the cell sap of the cells themselves. When water freezes rather slowly, these crystals become long and needle-shaped. If, however, the freezing occurs rapidly, we have less pointed crystals which do less damage. In any case, if the crystals puncture the surrounding cells, these cells die. The third theory of the killing of cells has to do with the rapidity of rise or drop in temperature. It is thought that a rapid drop in temperature and a rapid rise in temperature are both harmful to plant tissues, especially the rapid rise in temperature after freezing. It is thought that water which was removed from the living cell and taken out into the inter-cellular space by freezing, now upon thawing rapidly surrounds the living cell with too much water. Unable to breathe under these conditions, the cell drowns. However, if thawing occurs slowly, the water is reabsorbed into the cell at a normal rate, and the dehydrated cytoplasm of the cell now becomes normal again. This probably occurs many times during the average winter without damage to the cells.

Winter hardiness in plants may be the result of several conditions. Certainly we have observed that some varieties of iris invariably come through our winters in better condition than others. Some of the ideas expressed as to why this occurs are these. First, some plants have a low free water content of tissues and thus because there is less free water in the tissue, it is difficult to freeze. Second, and what I feel is more likely the case, is the fact that during the preceding summer and fall, the soluble products of photosynthesis, such as carbohydrates, sugars, acids, and other soluble substances, are found in the cell sap in a high concentration. This of course raises the osmotic pressure of the cell sap and lowers the freezing point. An analogy to this might be the adding of antifreeze to the water in the radiator of your car during the winter months. The more you put in, the lower the freezing point. The third idea is the presence of bound water in the cell. This is water which has been imbibed by certain colloidal substances so that it is no longer free water and consequently freezes with difficulty if at all. Thus according to this bound water idea, certain gels (hydrophyllic or water-loving) withdraw or imbibe water from the plant sap and make it more difficult for this sap to freeze.

Not all tissue of a plant freeze with equal difficulty. Meristem cells and cambium cells of a plant during dormancy have the greatest resistance to cold. Roots of all plants are less hardy than above-ground parts. The roots of iris plants are of course established during late summer and fall months. These roots cannot tolerate real low temperatures in winter. The above-ground portion, the stem and perhaps the remains of the fan, can tolerate temperatures well below zero, while roots would be severely injured by temperatures even approximating zero. Fortunately for us, the soil is a huge reservoir of heat, and this heat is being given off even during the coldest weather so that seldom do the upper layers of soil ever reach a temperature of zero or less. Where a cover of mulch or snow exists or even where the old leaves cover the crown of the plant, we have a covering which prevents severe cold from entering the root zone of the plant. In this connection, I am of the opinion that the dead leaves should not be removed in the fall but left on the plant to give this protection to the crown. Many of our iris growers then remove these old leaves very early in the spring before any new growth appears, by burning. Some have indicated that they do this with weed burners. The intense heat created by such a burner would certainly remove all the disease spores and any insect eggs that might be present on the old leaves. It could even lessen the ravages of botrytis rot, a soil-borne organism, by exposing the rhizomes to the air and sun.

In conclusion may I say that, in my humble opinion, the best winter protection

- Continued

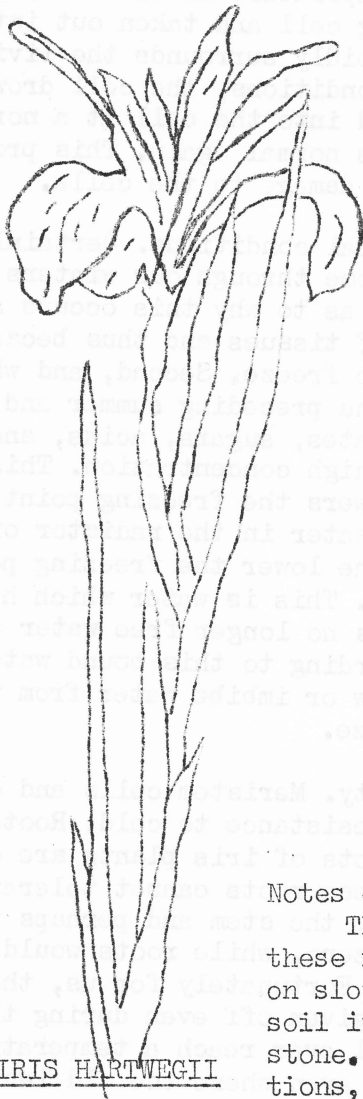
(Con't - The Effects of Low Temperatures)

is a healthy plant; one that was planted early enough to permit the establishment of a good strong root system, one where the leaves were not infected by disease or had insect injury, a plant that had an adequate water supply and a good nutrient level in the soil. Such a plant really prepares itself for winter. When the cold weather comes it goes into winter in the best possible condition. Such a plant will certainly be able to tolerate the adversities of winter best, and put on the largest and finest flower display at bloom time.

Reprinted from Wisconsin Iris Society Standards and Falls. Feb. 1966

- author Carl Jorganson is Professor in Horticulture at Colorado State University

Professor Jorganson is currently on leave in South America.



IRIS HARTWEGII

IRIS HARTWEGII

Iris Hartwegii was discovered by Hartweg in 1848 in the Sacramento Mountains of California. Baker classified it as a distinct species in 1876. It is closely related to *I. tenax*.

Iris Hartwegii grows at elevations of 2,000 to 5,000 feet on the fringe of the yellow pine forest. It is found from Butte County to Kern County in the Sierra Nevada Mountains of California.

The flowers are lavender, cream or yellow. They are small and frail looking, two to a stem. The perianth tube is short and stout. The leaves are narrow and pale green with pink or pale coloration at the base.

Iris Hartwegii belongs to the California group of Apogon iris. Iris of this group have small slender rhizomes. The seeds are cubical and light brown. The red-brown color of the dying leaves is a typical characteristic of this group.

Subspecies include *australis*, *columbiana* and *pinorum*.

- J. Wadekamper

Notes on cultivation - from A Guide to the Pacific Coast Irises

The most important single factor in the cultivation of these irises is drainage. The species is almost invariably found on sloping ground where drainage is effective and rapid. The soil itself is neutral to slightly acid, often full of grit and stone. It can be successfully grown here under greenhouse conditions, when grown from seed. Not reliably winter hardy here...

APPLICATION FOR MEMBERSHIP

NAME		TELEPHONE
ADDRESS		
CITY	STATE	ZIP CODE
AMOUNT OF DUES		
☐ TWIN CITY IRIS SOCIETY	SINGLE	\$1.50
☐ " " " "	FAMILY	\$2.00
☐ MINNESOTA HORT. SOC.	SINGLE	\$2.00
☐ AMERICAN IRIS SOCIETY	SINGLE	\$7.50

MAIL YOUR REMITTANCE TO:
Mrs. Glenn Hanson
7124 Riverdale Road
Minneapolis, Minnesota
55430