

**Almanac:
Society for
Pacific Coast
Native Iris**

SPRING 1988
Volume XVI, Number 2

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PUBLICATIONS AVAILABLE

Diseases of Pacific Coast Iris

Monograph Issue, Lewis and Adele Lawyer Almanac, Fall 1986 issue. Available from the Editor for \$3.50, postage paid.

Third Cumulative Check List

Pacific Coast Native Iris and their hybrids, 1985 edition. Copies are available from the Editor for \$4.00 each, postage paid.

A Guide to Pacific Coast Irises

Victor A. Cohen: forward by E. B. Anderson. London: The British Iris Society, 1967. This 40 page booklet contains both colored and black-and-white photographs of selected species, line drawings and thumbnail descriptions of all species and major sub-species. There is general material on distribution and botanical affinities among the species, plus a map of western states showing distribution of the species in general. Copies are available from the Treasurer for \$3.50 each, postage paid.

MEMBERSHIP & SUBSCRIPTIONS

The Society for Pacific Coast Native Iris is a section of the American Iris Society; membership in the latter organization is a prerequisite for membership in the SPCNI. If you wish only to receive the *Almanac* (two issues per year), the annual subscription rate is \$4.00.

Membership Rate	Individual	Family
Annual	\$4.00	\$5.00
Triennial	\$10.00	\$12.00
Supporting Annual	\$6.00	
Life	\$50.00	\$65.00
Honorary Life	No dues	

Please send membership-subscription monies to the SPCNI Treasurer.

The *Almanac* is published in the spring and fall; copy deadlines are February 1 and August 1, respectively. For information about availability of back issues, please address the Editor.

PRESIDENT'S MESSAGE

Hi!

Another year, another bloom season, and we hope yours has been a pleasant one.

The past few months, Adele has been hard at work trying to get a non-profit number for us, hopefully its about to reach a conclusion.

I'd be remiss if I didn't send a "bouquet" to our Editors; they are doing a brilliant job,(and on time, too!). But their job would be much easier if you members would respond to the questionnaires that have been distributed or

send in articles about things you'd like to discuss or read about.

There was a fine crowd at Oklahoma City for the SPCNI sectional meeting and 125 questionnaires were given out to be filled out and mailed to your Editors. At last count, two had been returned to them.

We don't like to keep harping, but we sincerely want to do the best we can for our friends and fellow members. With your help, it will come to be.



FROM THE EDITOR

Adele and I spent the 4-day Memorial Day weekend at the Dixieland Jubilee in Sacramento, California. Over 100 bands from all over the world participated; we didn't get much sleep, but we had a ball!

From *I. munzi* country east of Visalia, we heard the High Sierra Jazz Band. From the Botanic Garden at Claremont, California came the band with the best name, "The Nightblooming Jazzmen." From Roy Davidson's home town of Bellevue, Washington came the Uptown Lowdown Jazz Band. From Bob Ward's Little Rock, Arkansas came The Happy-Tymes Jazz Band which was led by a Bob Boyd and trumpeted by Bob Martin, but completely lacked a Bob Ward. Our friends Jo Tunney and Robyn Gully from Australia sent us Mister Crow from North Sydney. And from the birthplace of SPCNI at Vista, we heard the Chicago Six. The Chicago Six? From Vista?

The last band we heard on Monday, Memorial Day, was the Greentown Jazz Band from Ljubljana, Yugoslavia. They were a great group and evidently had picked up a large following of admirers because the arena was filled to capacity by the time they were ready to start their set. Toward the end of their one and a half hour session, the leader came to the microphone and said, "This is our first trip to America. We have only been in this country four days and already I see many familiar faces in front of me. Even if I could speak perfect English, I don't think it would be pos-

sible to express how we feel. Tomorrow we will be back home, but we will never forget you."

The whole audience rose to its feet and there was such a din from the applause that we thought our eardrums would shatter. I couldn't help but think that this was a much better international diplomacy than sending battleships or bombers.

Then I thought that, in its small way, our SPCNI group is doing much the same thing. We are sending plants and flowers and seed back and forth all over the world. Riddle, Mitchell, and Lenz sent seed to Australia, and soon Danks and Hargraves were sending seed back to us. Seeds and plants came back to us from Perry, Fothergill, and Brummitt in England, each plant embellished in some way by the person who touched it.

When we were compiling the article which appears in this issue about the PCN breeding project we received letters from many parts of the world, Holland, Australia, Japan, Wales, New Zealand, and Germany. and all knew of our Joe Ghio and the Erickson-Rigby Portable Acres, Australia's Barry Blyth, Oregon's Lorena Reid, or Washington's Jean Witt. Three of them even mentioned having been inspired in our own little garden, by the Conrads, the Colemans, the McCaskills.

Plants, music, flowers, what wonderful ways there are to make friends!

FIELD TRIP, ANYONE?

How many of you would like to see SPCNI sponsor a field trip or trips to see native iris?

Our President, Duane Meek, has supported the idea and offered to be a tour guide for locations radiating from the San Francisco Bay area, and Roy Davidson offered to plan a tour encompassing the Oregon-Washington area. These areas could be covered on separate years.

Our present thinking is that the tours could be weekend overnights with a motel stopover, or a camp-over (for more hardy souls). If enough people are interested we could arrange for a bus,

otherwise a caravan of personal cars would answer.

There is a further possibility that field trips to see Pacifica cultivars and seedlings in Southern California, Northern California, Oregon, and Washington could be in our plans for the future.

Contact Adele Lawyer, Secretary, SPCNI, if you find the idea of a field trip to see Pacificas in the wild to your liking. This would not constitute a reservation, but a vote of support for the concept. If there is enough interest, SPCNI will start to make plans.

SOURCES OF MAIL ORDER PCN PLANTS

Although there are many sources of potted PCNs at plant sales through botanic gardens, arboretums, native plant societies, and nurseries, there are few suppliers who mail order this group. Those of which we are aware are listed below. If readers know of others in the United States or abroad, please write and tell us about them so that they can be listed.

AITKEN'S SALMON CREEK GARDEN
608 NW 119th St., Vancouver, WA
98685 (206)573-4472 Catalog \$1.00
Mostly Ghio varieties and color-indexed selected seedlings.

BAY VIEW GARDENS
1201 Bay St., Santa Cruz, CA 95060
(408)423-3656 Catalog \$1.00
Mostly Joe Ghio's own introductions plus reselect seedlings.

COOK'S GARDENS
6924 Pacific Highway E., Tacoma, WA
98424 Cal-Sibs and older PCNs

COOPER'S GARDEN
212 W. Country Road C, Roseville, MN
55113 (612)484-7878

I. tenax and related seedlings

DEMING IRIS GARDENS
4122 Deming Road, Everson, WA 98247
(206)592-5008 Catalog \$1.00
PCN seedlings listed

LAURIE'S GARDEN
41886 McKenzie Highway, Springfield,
OR 97478 (503)896-3756 Catalog: One
first class stamp. Species and seedlings

MAXIM'S GREENWOOD GARDENS
2157 Sonoma Street, Redding, CA 96001
(916)241-0764 List on request. Many
PCN cultivars

PORTABLE ACRES

4036 Trinity Drive, Santa Rosa, CA
95405 (707)526-5204 Catalog \$1.00
Exclusively PCNs. Introductions of
many hybridizers past and present,
including Brummitt, Ghio, Meek, Wood.

SISKIYOU RARE PLANT NURSERY
2825 Cummings Road, Medford, OR 97501
(503)772-6846 Catalog \$2.00
Iris innominata mixed seedlings and
yellow to gold forms.

YERBA BUENA NURSERY
19500 Skyline Blvd., Woodside, CA 94062
(415)851-1668 List on request
Douglasiana, macrosiphon, Pacific Coast
hybrid seedlings

JEAN WITT
16516-25th NE, Seattle, WA 98155
(206)362-9206 Jean is no longer in-
volved extensively in commercial
distribution but she will sell hard-
to-find cultivars and species on an
individual basis.

In a separate category, we are listing Longview Iris Gardens, even though they do not distribute through the mail. We do this because they are currently the only outlet in Southern California distributing PCN's only, and because they are normally the principal source of Dr. Lee Lenz's introductions. In 1988, only Ghio varieties are listed but it is anticipated that Lenz and Hubley *I. munzii* varieties will be listed for 1989.

BOB HUBLEY, LONGVIEW IRIS GARDENS
12407 Fremont Street, Yucaipa, CA 92399
(714)797-8700 List on request

RESULTS OF QUESTIONNAIRE TO SPCNI MEMBERS

*Robert D. Fabel-Ward
Little Rock, Arkansas*

This article is the result of growing the Pacificas since 1978 here in Arkansas, and with lots of success. I became interested in others who are growing these irises outside the West Coast areas; so I made up a questionnaire and sent it to members in different parts of the country with an attempt to find out how they grow these irises and what problems they encountered with rhizome divisions and/or seed cultures.

For the moment I'd like to tell my story. I started with potted plants of *I. douglasiana* from Golden Gate and some that I collected in the same area. I requested plants of *I. tenax* and *innominata* from Jeans Witt and Erickson et al and started a programme in 1980. Many of these clones continue to grow with no apparent problems and I increased them by allowing seeds to drop onto the soil near the clones.

It took several years before any success could be counted; but with hard work and improved methods of soil preparation, I was able to establish good growing clones so as to start my own hybridizing programmes, as stated, and with lots of success.

As time passed, many people have begun to accept the fact that seed cul-

tures are the best for many gardeners to start these irises because they are root and rhizome sensitive. I have gone from pot culture to garden sowing for best results; but it has taken five years to learn this. So one can begin with seed culture and not have as many problems as they would with rhizome divisions.

Many of the problems from the questionnaire are listed here: seed germination, seed death, and soil problems. Rhizome death was mentioned more than any other problem facing most of those who answered the questions.

There were hints that planting into soils that were not properly prepared could be the reason why many of the failures were listed. Several reported good foliage, but no blooming at all. This could mean that location was a problem for some.

If there are any answers here, it is probably that soil preparation should be taken into consideration and that you should get more information on seed culture and the like before you start.

I'm convinced that articles from these people would help them and others, and, with the exchange of ideas, these members can be more successful and really enjoy these irises.

Let's get to work, members!

EXPANDING OUR TERRITORY A PROJECT OPEN TO EVERY MEMBER

Edited by Lewis Lawyer

PART 1 INTRODUCTION

It is an accepted fact that the Pacific Coast Native Iris are not easily grown in many areas where iris enthusiasts might otherwise be growing them. It is also axiomatic that a group of irises as pretty as the PCNs should be available to everyone.

During the 1986 National AIS Convention, Adele and I had an opportunity to discuss this predicament with Jean Witt of Seattle and Richard Kiyomoto of New Haven, Connecticut. Dr. Kiyomoto, who has devoted his career to the genetics of vegetable and cereal crops, agreed

to set up tests and a breeding project for resistance to freezing temperatures if others could furnish him the necessary materials: plants, seeds, pollen, whatever.

I had previously discussed the problem from another viewpoint with Roy Davidson of Seattle. He wanted to be able to grow some of the blue *I. munzii* hybrids in Washington, but they wouldn't live through his winters. Roy and I did exchange pollen, but by the time pollen was ready on his frost-resistant *I. tenax* all of my *munzii*-derived plants had long since quit blooming. Also, for some reason, his *I. tenax* plants refused to get pregnant when subjected to my *munzii* pollen.

Now I think that it is time that we all get into the project. As you will see later, Richard Richards of Corona in Southern California and Bob Ward of Little Rock, Arkansas, are already exchanging material for their breeding projects for heat tolerance. But we need to widen our sights to include all extremes of climate if PCNs are ever to become more widely adapted.

As Bob Ward has done for the previous article, I wrote to some of our ALMANAC readers for information on problems, to others I requested suggestions for specific genetic sources to be included, and to others for their experiences in similar breeding projects.

In nature, there is a continuing, centuries-old, bee-directed breeding project through which various clones of the different PCN species have become adapted to many widely-divergent ecological niches. Often, however, as they do this, they become less adapted to other conditions to which they are no longer subjected.

According to historians, the PCNs probably are descendants of the 40-chromosome Siberians which emigrated to the United States back in prehistoric days when we had better connections with the USSR. On their way to California, they separated from freeze-hardy species such as *I. tenax* which is now poorly adapted to Southern California. In Oregon they said farewell to *I. innominata*, and along the salt-sprayed, fog-enshrouded cliffs of the California coast they parted company from the well-adapted *I. douglasiana*.

Some of them hitched rides on ani-

mals and birds as far south along the coast as Santa Barbara; but an adventurous few migrated inland as far as the hot, rocky foothills of the Sierras, leaving colonies of *I. tenuissima* along the way. On the hot interior hills of the Coast Range, and on the hotter Sierra foothills east of Chico, *I. macrosiphon* adapted itself even to some inhospitable open slopes in full summer sun. From there, south along the western edge of the Sierras, *I. hartwegii* found homes, and when it got to the citrus belt in the foothills east of Porterville, *I. munzii* found the mild winters so inviting that it lost all its resistance to frost. How *hartwegii* ssp. *australis* ever got to the San Bernardino Mountains of Southern California, I will leave to your imagination.

This natural distribution includes a multitude of very diverse microclimates, and if the bees can do it, why can't we! So, as was envisioned by Jean, Dick, and Adele and I, we are going to propose a gigantic breeding project in which all of you may become involved. The first requisite is a divergent seed supply, including, but in no way limited to, pure species. This is where you first become involved.

From the north, Jean Witt and Roy Davidson of Seattle, Washington, and Lorena Reid of Springfield, Oregon, have agreed to send seed from their frost-tolerant plants. Ben Hager, who for many years has been involved in a heat-tolerant breeding project for his hot, interior valley, California area, will send seed from his plants in Stockton.

Adele and I have obtained permission to harvest bee-pollinated native iris seed from the species collections at the University of California, Berkeley and the East Bay Regional Parks Botanic Gardens. We will also save seed from our own garden plants.

John Weiler, Richard Richards, and Bob Ward are saving seed from plants which from their experience, seem best adapted to survive hot summer climates.

All the rest of you are invited to send seed of anything appropriate from your own breeding or favorite cultivars. Seed can be obtained from bee or from hand-pollinated pods.

Finally, we would like to get spe-

cies seed from any of our readers who are close enough to a wild source to do some collecting.

Please send all seed, completely identified as to source, purpose, etc.

to me, Lewis O. Lawyer, at 4333 Oak Hill Road, Oakland, California 94605. I will see that it is distributed to all who are interested in cooperating on this project.

PART 2 THE GENETIC THEORY INVOLVED

If you continuously intercross plants which grow well in your area, plant the seeds from such crosses, and again intercross the best, you will eventually produce plants, most of which will grow well for you. If you want to get plants or flowers that are on a cultivar which will not grow in your area, however, you will have to modify your methods. First you will have to find a means of growing the reluctant cultivar, at least long enough to get it to bloom. Then you must cross it to and with plants which grow well in your garden and select from the progeny, vigorous seedlings which most resemble the desired cultivar.

An example of this type of breeding

is a program I started in 1980 to get a VALLEY BANNER-type flower on a plant which would grow in my yard. (Note: For a discussion of the VALLEY BANNER pattern see ALMANAC, Spring 1987, page 18.) VALLEY BANNER would bloom for me, but then would fade away and die, as it does in many areas of California. I wanted to retain the small flower and plant size of VALLEY BANNER, so I crossed it to Marjorie Brummitt's SUGAR CANDY, which has the same plant type but which grows like a weed for me. The result was CANDY BANNER which is illustrated below. CANDY BANNER has grown well for me for seven years and has a flower nearly identical to that of VALLEY BANNER, i.e. white petals veined with purple, and style arms which are red-purple.



CANDY BANNER

PART 3 TRANSPLANTING DIFFICULTIES

The first obstacle to the dissemination of established desirable clones is a seemingly universal one of transplanting. We don't often think of transplanting death as a problem which could be solved genetically, but I have reason to believe that it can be. Unfortunately, my experience with genetic influence on transplanting difficulty was in the wrong direction; but if you can produce clones which are more difficult to transplant, you should be able to produce one which will be easier!

One clone of mine has proved to be near-impossible to move. The first year when we moved it from the line-out bed, the plant had three fine fans. When transplanted, two of the plants wilted almost immediately, but fortunately the third survived. Fortunately, also, it has always increased well once it became established, so that by the time we decided that we would introduce it, it had increased sufficiently to fill 23 pots and still leave a sizable clump for our garden. Four of the twenty three transplants survived! The rest never even started to grow! The next time we tried it, all seventeen of the seventeen potted transplants died. Transplant losses from this particular clone were the only failures out of the 100 clones transplanted that year. In the meantime, we have grown the four surviving plants in our garden. All have become large clumps with a total this year of 31 bloomstalks and 45 fans. Now what do we do?

I have experienced similar problems with a few other clones, all of which had *I. munzii* background, and all of which were discarded. But that one clone was used in many of our crosses, and I have been able to make selections from such crosses which transplant with no apparent difficulty. I have a feeling that the problem has something to do with growth habit, but so far have been unable to pin it down.

There are many reasons other than genetic, of course, for problems encountered when transplanting. For reasons not yet fully understood, the use of Subdue dip when transplanting adult plants has proved beneficial. Other problems seem to relate to the length of time the plants have been held be-

tween digging and planting.

During the four years that we have been using a Subdue dip prior to planting, we have obtained 66 cultivars from Joe Ghio. All were picked up at his garden when dug, placed in a bucket of water for transporting to our home, trimmed, dipped in a Subdue solution for ten or more minutes, and immediately planted into an appropriate soil mix in small pots. We have found that a four-inch pot is usually large enough. The plants were kept in the pots until a good root system developed, (about two months), and were then slipped from their pots without disturbing the roots and moved into the garden. All but one of the 66 has survived this treatment. During this same four years we have transplanted 275 of our own selections and, as with the Ghio plants, only one failed to grow. This adds up to two deaths out of 341 transplants, a survival rate of 99.4 percent.

Dorothy Hujsek

Transplanting, however, still remains a formidable problem. Dorothy Hujsek of Tulsa, Oklahoma writes: "I started with a group of named varieties from Ghio in a fall shipment, but, (sigh), lost almost all of them. I just knew that if I could get plants in the spring, before April, they would do well. But I was wrong! Colin Rigby and Jean Erickson used me as part of an experiment, and sent me plants in their special pots. NATIVE BORN, CANYON SNOW, and FAIRY CHIMES have done well. But, after bloom, I lost CHIMES, POPPY, LOS ALTOS, EMIGRANT, LOS GATOS, BAN-BURY GNOME, and MOONLAD. My heart still hurts, just writing this, because all were so beautiful."

One has to wonder about the cause of death in this instance, since the plants apparently became well enough established to bloom before they died. Maybe the plants hadn't become sufficiently established and the bloomstalk was their final effort at survival. I understand that Colin and Jean are making a study of the problems related to transplant shipping and may come up with an answer.

I would suggest that the next time Dorothy (and all of you with cold-winter survival problems) receive bare-root

plants from Joe or other suppliers, pot them immediately in a good, organic mix, keep them cool and moist over winter, and plant them out in your garden without disturbing the roots, after all danger of frost. By the time the next winter arrives, they should be well established.

Jean Witt

Jean Witt writes from Seattle, Washington: "Seedlings do best in this area if transplanted in very early spring. Seedlings set out in the fall often do not make it over the winter, but I think this is because they have not become sufficiently established before the ground freezes. The biggest problem, however, is transplanting adult plants. Unlike seedlings, fall is the preferred time, but even then, losses occur. The loss of a valuable clone can be prevented by dividing only half of the clump at one time, and doing the other half the following year after the first group of plants have become established.

"I have found that divisions of PCN plants put into pots in the spring for Arboretum plant sales in May, never seem to do very well; but seedlings potted at the same time grow beautifully."

Dora Sparrow

The most difficult aspect of transplant death has to do with government bureaucracy. For example, the problem experienced by Dora Sparrow of Christchurch, New Zealand: "After falling in love with them at the AIS Convention in 1978 when we visited your garden and that of the Colemans', I ordered some from Joe Ghio. He sent my parcel and it arrived in mid-October 1987 with 15 choice varieties.

"On arrival in Auckland, the plants were subject to a very indifferent

treatment at the hands of the Agricultural and Customs Department. By the time I received them a week or 10 days later and planted them with tender, loving care, it was already too late and about half died. The nine which survived, however, are still doing well.

"I received another package from Joe in November, 1982, with even more disastrous results. The Agricultural and Customs Department closed down over a 4-day holiday weekend, and nothing survived!"

Maureen Foster

Maureen, who gardens in Crickhowell, Wales, reports similar problems with Customs. "Most of my Pacificas are from Joe Ghio who has been most encouraging and who packs my plants faultlessly. The worst losses are directly related to delays of up to 18 days in Customs. The delayed plants seem susceptible to botrytis, and losses show up in February. We suffered 100 per cent plant loss on the 1986 imports."

Botrytis is difficult to control genetically, but this would be a case where a Benlate or a Benlate-Subdue dip prior to shipping might well prove beneficial. Better yet, would be to make arrangements ahead of time to expedite delivery through Customs and Agricultural Inspection. I contacted the U.S. Agricultural Inspection Office in San Francisco and was told that if they were informed ahead of time, they would watch for the shipment, telephone the recipient as soon as the plants were inspected, and they could be picked up immediately at the airport. The package, of course, would have to be accompanied by the necessary documents from the country of origin. It seems probable that similar arrangements could be made in other countries for shipments originating in the United States.

PART 4 OTHER PROBLEMS AND SOME SOLUTIONS

From Bob Ward's survey, he concluded that one of the primary problems was failure to properly prepare a soil in which to grow PCNs. We will all have to agree with this, and until we can produce seedlings that will survive in other than a slightly acid, well-

drained, organic-content soil mix, we will have to provide such a medium.

Seed germination was also mentioned in Bob's survey. This topic was quite thoroughly covered in the last (Fall 1987) issue of the ALMANAC, and I am not going to add anything to the subject ex-

cept to say that I have just concluded a carefully planned and executed seed-germination experiment in which the results were so contrary to my pre-conceived ideas that I am not going to report on the results until I have repeated the test with appropriate modifications.

One of the most difficult areas climatically in which to grow PCNs is the extreme Southwest. To illustrate: Ellene "Rokki" Rockwell, of Fentress, Texas writes, " I have never been successful in growing the PCNs. I have lost track of how many seeds and how many years I have tried."

Audrey Roe

From Albuquerque, New Mexico, Audrey Roe also has some challenges: "I moved to Albuquerque in June of 1987, leaving my Pacificas in the Santa Monica Mountains of Southern California. I had been trying to grow species and hybrids from SIGNA seed for some years and was beginning to have a little luck when the move to this New Mexico area became necessary.

"Pacificas can do well in the Santa Monicas, especially with the proper care, but Howard Shockey, the aril hybridizer, of Albuquerque, tells me that they will not grow here. However, I will have to find out for myself. I brought some seed with me and hope to have something started for 1989.

"My minimum temperature this winter, here in the northeast section of the city and at almost 5000 feet in elevation, was 9 degrees F. Howard Shockey, living in the valley below me, had a minimum of minus 6 degrees F. Daytime temperatures for December and January were recorded in the 20s and on through the 30s.

"I have not, as yet, tried to test the soil, but am told and have read that it is mostly alkaline in this state. There is little humidity until the rainy "monsoon" season starts in late June or very early July. Rains continue off and on through August and barely into September."

Audrey's environment is certainly one to test the genetic flexibility of the *Californicae*, and perhaps this is an example of where we will have to combine the most widely divergent gene base from nature into a single plant, a sort of "tri-state toughie."

Perhaps at the other extreme, is the high humidity of the Northeast, East, Midwest, and Southern summers, which can be combined with every kind of winter imaginable. Despite a lot of effort, little has been accomplished genetically for this area.

Bob Ward

At the southwest edge of this tough eastern climate zone is the successful PCN garden of Bob Ward, Little Rock, Arkansas.

Bob writes: "I now have 250 established plants and hundreds of seedlings waiting for their place in the garden. I grow all the species except *I. bracteata* and *macrosiphon*. All do well here in Arkansas, and, of course, many seedling hybrids grow like hair on a dog's back from dropped seed.



I. innominata x *I. tenax* seedlings
Bob Ward's Garden

"I've been trying to get a pure SI-ERRA SAPPHIRE for several years now, but with no luck. Can you help me? *I. munzii* grows here. I have one, but it gets so much rust disease that I must keep cutting it back to the ground."

As you have read, Bob is already exchanging material with Richard Richards and will be a great asset to our proposed extended breeding project. Bob's experience with rust fungus on

I. munzii is, of course, parallel to mine, as is his difficulty in securing a pure clone of SIERRA SAPPHIRE. I succeeded after several years, but in the seven years that I have grown it, it has never produced enough stalks to get an extra division. This year I will have seed from SIERRA SAPPHIRE and SIERRA SAPPHIRE III open-pollinated, mostly by other *munzii* material, and I will see that he gets some of this seed. Next year I will self SIERRA SAPPHIRE because it seems to come quite true to type in the SIERRA SAPPHIRE patch at Claremont.

Dorothy Hujsak

Now to go to the problems and successes of another borderline area grower, Dorothy Hujsak, of Tulsa, Oklahoma. Dorothy writes: "Last year in late March and early April we had two devastating hard freezes (unheard of)! Bloom on the bearded all over Tulsa and Oklahoma was practically nil. Even the *Apogons* were affected. And then we had scorch, even in the guest beds for the '88 National Convention! But my PCNs were glorious. They started blooming for Easter in mid-April and I was enthralled!

I grow a few named varieties but mostly seedlings. Seeds have come from conventions, from Joe Ghio, from Stan Dexter in Seattle, and from the SIGNA Seed Exchange.

"My best named cultivars are SUZY KNAPP, FAIRY CHIMES, and CHIMES which have good bloom over a very long period. SOQUEL COVE, NATIVE BORN, and CANYON SNOW are also reliable bloomers.

"When the temperature is going to go into the teens I get nervous and cover with burlap sacking, even though they are already mulched with chopped oak leaves. The temperature went as low as 5 degrees F and we had a horrible record ice storm during Christmas, but the PCNs came through fine.

"Our real problems are squirrels, toads, dogs, and even birds; so we have to cover beds with hardware cloth until clumps get bigger."

I don't know of any genetic resistance to squirrels, but who knows?

Clarence Mahan

Now we will move further east into the real problem area, where in McLean, Virginia, Clarence Mahan, a long-time

irisarian, is just getting started on PCNs. "Two years ago I tried six named PCNs. I believe I removed mulch too early, but one survived, BIG MONEY. It is now a nice sized clump. Last year I was able to take two stalks of it to the FSK Show in Baltimore.

"This has encouraged me, so I bought about a dozen more this year. The first year I mulched BIG MONEY with pine needles. The second year I mulched it with manure. It did just fine with both mulches, (This was before I learned one should not put manure on PCNs)."

Fortunately we don't have to mulch in California, either with pine needles or manure, so I will make no comments.

Elaine Hulbert

From McLean we will jump to nearby Floyd, Virginia where Elaine Hulbert is experiencing a few problems. Elaine writes: "During the years 1980 through 1987, after moving here from Connecticut, most of my experiments with PCNIs only confirmed lessons learned up north. I tried, for the first time, growing seedlings in open situations in well-prepared soil, and had some glad moments seeing rapid increase and taller, wider clumps with very good root systems. These increases were usually checked after a couple of months, and all these plants eventually died, the preferred time for passing-on being early spring. One seedling has survived without much increase but blooming faithfully for four years; but its situation is in the most sheltered corner of the open garden. A whole, long row of *douglasiana* seedlings grew very well for a season, were decimated after the first winter, but survived in spots along the row into a second winter, - not beyond. These tried to grow all winter, and were a pathetic sight in the cold weather.

"Four transplants from Seattle were planted in a very cold spot where they did quite well. They had a shed wall for insulation and (too much) shade. They might still be there after six years, except that the terrific flood of November 4, 1986 scoured the bed out and took everything planted there.

"The transplants and seedlings that have hung on best are on a slope that

cuts off north winds, but has a little shade. They are high enough to escape some of the latest frosts (which may occur until May 20). These are the "nook and cranny" plantings that worked best for me in Connecticut, among rocks and shrubs. Hybrid seedlings have had the best success. I can think of only one species, an *I. innominata* plant, that has survived for three years in that area.

" My greenhouse adventures, too, have been almost all disasters. In hindsight this seems to be due to water molds, because when I have bloomed a few PCNIs in the greenhouse they have all done well. Other trials have been complete failures. It is a real disappointment that nothing happening in the Blue Ridge has been materially different from what went on in Connecticut. The better showing of other iris series has, of course, distracted me from the PCNIs generally and a degree of pessimism has prevented me from keeping very complete records on the PCNIs lately. I do mean to turn over a new leaf now that I have learned a few things from the Society's publications, and if anything really comes of my new methods I will certainly let you know, and I thank you, Lawyers both, for giving me new hope."

We hope that some of the seeds we send to Elaine will help her to travel on a more rewarding path. We even hope that one day she will be sending seeds from her own hybrids to someone else in trouble.

Alan McMurtrie

From Alan McMurtrie who lives in Willowdale, Ontario, Canada, we get a similar distress story about his cold-related problems with PCNs. I like the way his first sentence lets you know in very few words exactly how serious his situation is! "I grow only one PCN seedling. It was raised from seed, I believe from the SIGNA Seed Exchange, by a friend who lives near here. I've had it for two and a half years and last year was the first year it bloomed. It is planted at the front of the house which has a southwest exposure, protecting it from the cold northwest winds we get during the winter.

"Here in Toronto the lowest winter temperature we've had in recent years was minus 10 degrees F, which occurred

this January. Although we usually have more than a foot of snow, we seem to be getting more occurrences of warm spells in January which melts the snow. Temperatures then quickly fall back to around five degrees F. This year we had almost no snow for all of January! There wasn't any snow cover on the coldest day, but the PCN had some straw cover.

"The summers get quite dry, so dry that the grass turns brown. The garden at the front of the house gets a fairly regular watering, however, so annuals look good all summer. This bed has quite good drainage. It's two-tiered with the upper tier, where the PCN is growing, raised about two feet above the lawn level. The soil is sandy loam, which was trucked in, and the area where the PCN is had a large amount of gritty material mixed in (several sizes of small stones plus coarse sand), to give even better drainage.

"I grow about five Cal-Sibs currently. Like Siberians, it seems they can be planted almost anywhere.

"I have tried to buy named PCNs twice, - once from Joe Ghio, and once from Barry Blyth of Australia. None of the plants survived very long into the next spring, yet all of the plants seemed healthy when they arrived. I have given up growing plants but I obtained a lot of PCN seed from the 1987-88 SIGNA Seed Exchange. We'll see what happens!"

For a comment on a possible solution to Alan's lack of success with named bare-root plants see the section on "transplanting".

Now back for a brief stop in California. No PCN species are native to the hot, flat valleys of California, but much has already been accomplished by breeding especially for these areas. Ben Hager says that his favorite cultivar for resistance to his hot Stockton summers is AMIGUITA, a 1974 Neis introduction straight out of Hollywood. John Weiler has published a list of top interior valley performers in the Spring 1984 ALMANAC in which AMIGUITA also leads the list, (helped out, admittedly, by the fact that the list is arranged alphabetically). Other cultivars appearing on his list and which have been mentioned in others are: AMI ROYALE, CANYON SNOW, GONE NATIVE, and SUSIE KNAPP.

Most of Australia has areas where the climate is similar to that found in the interior valley of California. Winters are cold and wet and summers are hot and dry. As in California, Australian hybridizers of PCNs have been quite successful in their breeding efforts.

Jo Tunney

Jo Tunney, of Lesmurdie, West Australia, writes: "Both Don Grieves and I grow a few Pacific Coast Natives in this part of Australia and we have been experimenting by growing them in different positions. I have found that they grow best in full, filtered shade or where they get a little morning sun and complete shade for the rest of the day. They just don't do well when grown in full sun. We have very hot, dry summers with no summer rainfall and have just experienced three weeks where the temperature has been around 95 to 105 degrees F each day. In that environment, they just burn off completely.

"They grow very easily and well from seed. I have used seed brought to me from the Chelsea Flower Show in the U.K. and also from Gilbert Cole in South Australia. I had very good germination and flowered these last year.

"I have some named varieties, too, all purchased from Barry Blyth in Victoria. The best are CHIMINITA, MORESCO, TANJIL, NAYOOK, SMOKEY BANDIT, and MIL-DURA. BIG MONEY, on the other hand, is struggling to survive.

"We have a very heavy clay soil, too heavy for the PCNs, and they rot in the winter if planted without amendments. I now have them all growing in a lighter mix. Last year I tried preparing a bed with plenty of pig manure topped with clean sand for planting the rhizomes. They have really gone mad. The growth is beautiful and I'm hoping for a good flowering this year. Got quite a lot last year, but the plants are so much bigger and healthier this year!"

Robyn Gully

Also from Australia, Robyn Gully of Hawthorndene, South Australia, has written about her experiences: "I grew my first Californian iris, probably an *I. innominata*, around 1970, in my previous garden on the Adelaide Plains. It originated in a collection of irises (all sorts) from an interstate nursery.

I tried to transfer it to my present abode in early 1973, but it perished as they often do when moved at the wrong time.

"My next experience was to be the forerunner of most of my efforts with Pacific Coast Natives ever since, - that is growing them from seed. The first of these came through the auspices of an Australian member of SIGNA through Lorena Reid's Seed List. I still have one of the original plants described as a *tenax* x *gormanii* which, although it has never been a large clump, always flowers in its fairly dry, well-drained position. Any others from the same period which were mostly *innominata* hybrids, are long gone.

"For quite a few years, all subsequent seed was through SIGNA. Most thrived with ease and growth unmatched in most of my other iris species. Our hot, dry summers and cool, wet winters, a true Mediterranean climate, is most conducive to their growth. And living in the slightly cooler Adelaide Hills also has its advantages. They receive varying amounts of water during the warmer months depending on where they are planted. Most get a good soak once a week, but no water at all in a few cases has not really affected them adversely. Mostly they thrive for at least five years after which time they seem to exhaust their supply of nutrients and the quality and more particularly, quantity of flowers, seems to subside.

"Experience has shown some differences between the performance of the species. *I. douglasiana* and its hybrids, *I. munzii* and *I. tenax* hybrids all thrive with minimal care and are long lived while the *I. innominata* types are slightly more delicate and tend to die out after five to seven years. I have tried *I. hartweggi* twice and it has never made much growth or ever flowered. My experience with the lesser-known species like *fermaldii*, *macrosipon*, and *tenuissima* have been minimal.

"My experiences with named varieties have also been minimal, mainly because I prefer the species, but also because I have had such abysmal failure with the ones I obtained locally. LEMONADE SPRINGS, however, has been easy, very floriferous, and has been much admired by all who have seen it over the years. Other attempts at named hybrids have

been confined to those released by Tempo Two in Victoria of the Hargrave strain. Of the first twenty plants which were released unnamed, only two survive. Only one named one, a 1983 introduction called MORESCO survives of the five I bought, and although it flowered last year, it is pitifully small and hardly thriving. To say I find this disappointing would be a gross understatement as these Hargrave strain Pacific Coasters are quite outstanding. I have obtained seed from Barry Blyth at Tempo Two, but I do not seem to have the success I did with my previous seed. It is even more disheartening as two of my friends nearby who received a few of these seedlings now have massive clumps and grow them to perfection. I am at a loss to explain what causes the losses as they are only moved during June and July and grow on well until the summer months. My drainage is excellent, but they die off regardless of how little water I give them. Even more irksome is the fact that the older seedlings from SIGNA are growing so well under virtually the same conditions nearby."

It is possible that Robyn's new planting has become infested with a fungus or that the soil pH or fertility is less than ideal. Growing identical plants in pots filled with soil from the two areas might be helpful in determining if the problem is in the soil.

Dora Sparrow

Now we will hop a little way to Christchurch, New Zealand, which is just about as far south of the equator as Eugene, Oregon is north. There, another iris friend, Dora Sparrow, grows her PCNs: "In 1978 when I was in Pasadena, my very good friend, the late Stanley Foote, asked me if there was anything I especially wished to do. I said I would love to meet Dr. Lee Lenz. Next day he took me to meet Dr. Lenz who was most generous with his time. He took me out to his recently-planted paddock of new divisions, showed me his method of propagation, listened to my sad story of imports, and asked if I would like to receive some of his seed! When I saw the open exposed areas where Dr. Lenz was propagating, I knew, at worst, Christchurch climatic conditions would be on a parallel. Dr. Lenz encouraged me to work with seed and this is what I have

done.

"I have a beautiful blue from the Lenz seed, not as good as ALMA ABELL, although the fall petals have the same markings with the turquoise shading. It has three terminal flowers and a lower branch has two flowers. Foliage is about 20 inches long, dark green, and tough. The seed pods are the slim type and poor in the production of seed. Spider mites seem to get into this type of pod. It is not a fast increaser. I top-dress the crown and around the heel of the rhizomes when the weather is wickedly dry. I think this helps to minimize die-back.

"I received a certificate of registration from the AIS in May 1987 for one of my seedlings grown from open-pollinated seed of Santa Rita. It has two terminal flowers, good velvety substance, broad falls with a light mustard blaze, and a soft, mist-blue wash and ray pattern. This is extended into the standard petals. It is called IDRIS. I wish I could say it was from a controlled cross, that is what I prefer to work with.



Sparrow seedling

"In 1985 I planted seed of *tenax*, but have nothing to show. In January and February 1986 we had extremely high summer temperatures for a number of days on end, and the boxes of seedling Pacif-

icas, though they were in the shade, were completely burned off. Thank goodness, this happens not too frequently.



Sparrow seedling patch

"In 1986 I secured seed from our pool of a few seeds of the Hargrave (Australia) strain, reputed to be very good. Of six seeds, five germinated. One flowered last spring, a delightful diminutive innominata type about four inches high, yellow with feather fall markings. I also had some lovely seedlings in the spring of 1987 from seed Ralph Conrad gave me in 1984.



Seedling patch in bloom

"All my plantings are elevated above the lawn or pathways by about four or six inches for good drainage. The soil mix is a good compost with pulverised pine bark for texture and a little sand. When the areas are free, I dig in pea straw (what is left after harvest for canning).

"The main seedling patch is a piece of the ever-diminishing vegetable garden. It is about 12 feet by 8 feet. The seedlings are planted out 12 inches apart in rows about 16 inches apart. There are about 50 plants at present, planted about 14 months ago and they should flower this coming spring. A soil test of this area indicates a pH of 6.5."

On our way from Dora's garden to Hawaii we will stop in Osaka, Japan just long enough to visit Akira Horinaka of the Japan Iris Society. Akira reports that he lost many of his plants after they bloomed but that plants sent to him from the United States last year are doing well. He will send us a report later.

Terry Murata

Now to the island of Maui and the little town of Kula on the slopes of Mt. Haleakala. Here, the main crop is the exotic protea flower, but Terry Murata would prefer to grow Pacificas ever since he saw them growing in the wild in California some years ago.

Terry explains: "At present I have only eight PCNs planted in the garden. Seven of these are unnamed Ghio seedlings that I purchased from Magic Gardens in Berkeley in May of 1986. I kept these in pots until early February of 1987 and then transplanted them out to permanent positions in my yard. Five of these plants flowered, four of them ranged from yellow to apricot and one a pale lavender with violet veination. (March to May) Surprisingly, the most vigorous of these seedlings which

sent out six divisions was debilitated by a leaf-spot disease which affected its overall vigor and health. But it continues to grow and has sent out eight new leaf points: hopefully it will bloom this spring.

"Georgia Maxim sent a little root of CITY HALL and AMIQUITA along with another order. Within three weeks after planting, both clones had sent out leaf points. Poor AMIQUITA was eaten by something, - completely disappeared overnight! CITY HALL grew and grew and is the most prolific of all the plants. I'm really looking forward to seeing it bloom this spring. This clone has shown no sign of dormancy, continuously growing throughout the summer with no yellowing foliage or slowdown. I feel I might be better off growing named clones rather than seedlings. My lack of patience is a weighty factor in this thought, but all the time and effort expended has provided me with one of life's greatest pleasures.



Unnamed Ghio seedling, Terry's garden.

"My home is on the western slope of Haleakala at an elevation of 3,300 feet on the leeward side of the island. The thermal heating of the lowlands usually produces afternoon clouds, so a half day of sun is the usual. The soil is volcanic loam, very fine and well-drained. Temperatures are like perpetual spring, - warmer in the summer but never going above 83-84 degrees with evenings in the mid to low 60s. Winter nights are cooler - upper 30s to mid-40s with rare frost and days

from the 50s to the 70s F. Although we experience less rain on the leeward side of the island, we still have the humidity of mists and clouds, not unlike coastal California."

K. Sahin

From Hawaii we will fly straight across the North Pole to Holland where, in an entirely different climate, K. Sahin, of Alphen aan den Rijn, also wants to grow Pacific Coast Iris. "I am interested in modern Pacific Coast Iris hybrids and wonder where I can obtain these. American sources are as welcome as others. - I do visit the U.S. A. frequently and am many times in the Bay area. Perhaps we can meet one of these days."

I will look forward to such a meeting. In the meantime we are publishing in this issue a list of sources of plants. We do not have a list of sources outside the U. S. Perhaps some of our readers can fill us in.

Maureen Foster

Our next stop is at the garden of Maureen Foster of Crickhowell, Wales, who writes: "We are growing about 60 named Pacifica cultivars, most from Joe Ghio, a few are Marjorie Brummitt's



BIG MONEY (Ghio '84) grown by Maureen Foster

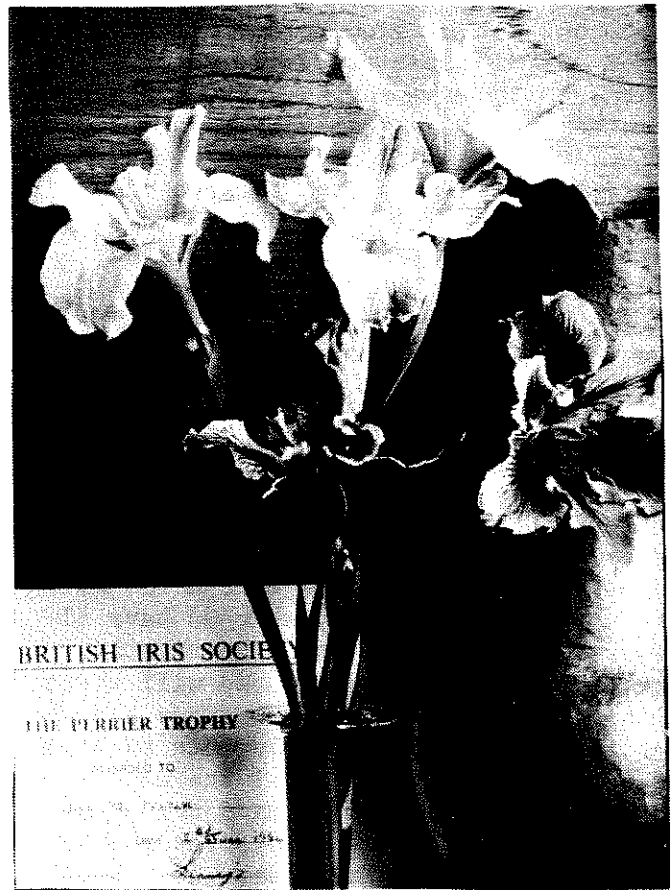
and one or two are from other sources. The colors Joe is getting are out of this world and one of the biggest joys of the iris season. Top performer from the standpoint of sheer reliability, floriferousness, and vigour is SIMPLY WILD, stunning in every way, and if I could grow only one, this is it. Others are CANYON SNOW, BIG MONEY, OVAL OFFICE, and GONE NATIVE.

"Clumps are left undisturbed for 3 to 4 years before splitting up. Our climate is cool maritime, with rainfall averaging about 36 inches, mostly in autumn through winter to early spring. Killing frosts occur by mid-October and we can have late frosts into May. In winter, frosty spells of 15 to 25 degrees F are expected, otherwise winters are cool and wet. Iris plant growth is obvious starting in February and peak bloom is sometime in May. So far we have experienced no plant losses on established plants.

"Our soil is deep boulder clay on Old Red Sandstone, has a pH of 6.7, and lies at a one in 10 slope, facing south. The soil in Pacifica plantings has a lot of added peat, plus potash, bonemeal, and a fortnightly application of a low nitrogen liquid fertilizer from late February through spring and early summer. All plantings of Pacificas have a 1-inch top-dressing of bark (decorative/clean) chippings which are renewed annually.

"For the first time, the 1987 imports were potted up (instead of directly planted out) and overwintered in a cold frame, the pots sunk in expanded-rock insulation chips. We have had only one loss so far due to rot whereas in 1986 we lost all our imports due to the 18-day hold in Customs.

"We make two or three planned crosses each year. Our aims are for floriferousness and a good garden plant with well-held, reliable, clear, bright-colored flowers. Seed is sown fresh, thickly, into



British Iris Society, Perrier Trophy won by Maureen Foster in 1984 and 1986
Left to right: ALL AROUND, PESCADERO, ENCIRCLE, QUINTANA, BIG MONEY.



CELTIC COPPER (M. Foster R'86) Russet-red, rimmed yellow with yellow signal.

seed-compost in 6-inch pots, left in the open, but not allowed to dry out at any time. Germination starts by October and continues through spring. Seedlings are planted out individually in late July to early August. Late summer is often very humid and seedlings seem to like the natural moisture. We usually have a warm, dry September, and if the seedlings get established then, they will

survive the winter pretty well."

I think now we have a fairly good idea of the problems facing some of our members. We have also learned of many individual solutions to some of the problems, but there are still enough left unsolved so that we have our work cut out for us. We will now go to some ideas about how to do this.

PART 5 OVERCOMING THE OBSTACLES

I was at a loss trying to choose a title for this section since I wanted it to be general enough to cover all bases and yet be precise enough to express exactly, not only what we have already done, but even more importantly, the things we need to do. We will start with some ideas on cold tolerance and go out the other end with tolerance to heat. In between, and in fact all the way through, we must keep in mind the eventual need to infuse some desirable attributes of the better modern-day hybrids. It may be fine as an interim step but we don't want to end up with a plant that can be grown anywhere, but with a flower only the hybridizer could get excited about.

Jean Witt

We will start with some comments and ideas from Jean Witt, iris grower and breeder, very active in the field of inter-specific crosses, who has her garden in a northeastern section of Seattle.

"I am pleased to hear that Richard Kiyomoto will undertake a project for us. Development of PCNs suitable for growing outside the Pacific Coast states certainly has to be done outside of our area, since we don't have conditions that will really test them.

"I can't say that I have had many problems with PCNs, but I work with a slightly different mix of species from those used in California and make much greater use of *Ii. tenax* and *chrysophylla*. As for frost damage, I have had *I. purdyi* foliage burnt badly at the ground line when the temperature dipped to 9 degrees F, with only an inch of snow. The burn began just above that one inch, but the plant itself survived. I have two clones of *munz-doug* hybrids

from Ben Hager, which were nearly killed out by similar weather several years back, but have made a complete recovery. This is probably the least cold-hardy material I have, as one would expect. Leaves of some of the *Ii douglasiana* and *innominata* have been burned by cold but I don't believe I have lost any plants outright from cold, - it is not the biggest problem here. Losing plants to over-watering in summer is the biggest problem, even though my glacial-till soil is very gravelly and I'm sure does not pose the problem that heavier soils would.

"Many *I. douglasiana* clones get their last year's leaves burned (turning a rust color) over winter, varying from year to year. Lorena Reid says she gets a great deal of this. I can't see that it does the plant much harm, but it looks tough and it would be a good breeding goal to find clones that don't do this.

"As to which species might be of use in breeding for winter-hardiness, I have one clone of *I. tenax* which comes from 5000 feet elevation in the southern Washington Cascades. Lorena probably has some from fairly high elevations in Oregon. It sticks in my mind that at least some *I. hartwegii* come from fairly high in the mountains, but I don't know, offhand, which others of the species in California do so. *I. chrysophylla* is also found quite well up in the mountains of Oregon. I would think that *tenax-douglasiana* hybrids, *tenax-chrysophylla* hybrids, and combinations of all three species would be useful. Also we should try *tenax-innominata-douglasiana* hybrids. I have a few seedlings to bloom this spring that involve *I. hartwegii* and *feraldii*. I also have a new correspondent in Oregon

who has lately found a number of "Valley Banner"-types in the wild. We might be able to get some strains from him which would be different from anything currently in cultivation. VALLEY BANNER, itself seems to dwindle for me.

"About Cal-Sibes: Currier McEwen says they do better for him on the coast of Maine than either of the parental types do, so I think that they might be worth including in Dick's project. They need not be a dead end, since good ones could be colchicine treated. Personally, I do not feel that the sterility is a disadvantage. Not having to worry about seedlings swamping the original is actually an advantage to my mind, since it is really easy to get a good looking flower in the F_1 . Of my existing Cal-Sibes, I do not feel that any except perhaps GOLDEN WAVES and FAR VOYAGER would be worth colchicine treating, and I don't think they would be improved, as they are big enough already. HALF MAGIC probably would be worth it, and perhaps FINE LINE. So far, I haven't achieved quite the combinations to suit me, but feel sure it is only a matter of time and more tries.

"You ask about the *I. douglasiana* x *I. missouriensis* cross. (Ed. note: This refers to my question about an unregistered hybrid, MONWAT, supposedly made by Amos Perry about 1939 between *I. missouriensis* var. *pelogonas* and *I. douglasiana*.) "I have real reservations about this one, that is, whether it was "for real" or not. We should of course try again, and perhaps with tetraploid *I. douglasiana*. There is such a big discrepancy in the chromosome numbers between the two species, that I doubt their hybrids have much future.

"What I would like to see is further experiments a la Tomas Tamberg, with PCNs x *I. lactea*. *I. lactea* should add some real toughness, though it does little for flower form. Colchicine treatment, however, could lead on to something better. I don't have any luck with blooming *I. lactea* here, so I'm rather out of luck in pursuing this in my garden. There must be people in California who grow both who could at least set some seed."

Roy Davidson

Next we will turn to some ideas on some of the lesser-used species by Roy Davidson, ex-Chairman of SIGNA, and

probably the most traveled person in the world insofar as the haunts of the PCNs are concerned. "During my ramblings I've seen growing in their "native condition" nearly all the described species of *Californicae* iris, and each and every one has some good quality. Although many will not take easily to cultivation, if at all, each is worth growing in its own right. Of the Californians, only the evergreen *douglasiana* is easy here in Puget Sound country. I have managed to keep one *macrosiphon* going on a dry clay bank. It is a seedling of no color saturation, not worth using in breeding, but nevertheless a triumph of small consequence, I suppose.

"I once had a magnificent form of *tenuissima* gathered by a fisherman friend somewhere around Lake Shasta, but unfortunately it got lost in a shuffle and dug out as a coarse grass. Plants of *hartwegii* dwindled but those of *hartwegii australis* were totally unhappy and went abruptly. I've not seen this latter in the wild, nor have I made it to see *munzii*. *I. munzii*, of course, is not suited here, but I had for a good many years a plant of *douglasiana-munzii* Ben Hager sent in a shipping experiment; the experiment succeeded and the plant was not half bad. It showed little promise, however, and was not used in any crosses. I should have tried though.

"The Oregon-Washington PCIs are not so intolerant of water in summer as are the Californians. Excess water, of course, must be quickly drained away. Clumps of *chrysophylla*, of *chrysophylla* crossed to *innominata*, and of *tenax*, of course, are the mainstays in PCI for this garden. In addition, I have selections of *douglasiana* and of *innominata* in both the purple and the yellow forms and the "medleys" where those two have crossed in the wild, as in the upper Rogue River.

"One that always impressed me in the wild and particularly where I saw it last April up in Napa County, is *fernaldii* for its strong stem. This is a station Lenz had not known, almost to Lake Berryessa. They seemed to be free, or almost at least, from *macrosiphon* influence, all a lovely rich cream except for a single pale, slate-blue one.

"Not many working with PCI have investigated the potential of other species so that the *innominata-douglasiana*

gene-pool is quite dominant in what is being produced. It seems that we will be a long time in exhausting all the color-pattern possibilities, but there is clearly lots of room for other expressions. Lenz's work proved the worth of *bracteata*, and *purdyii* shows equal promise if you begin with the best form.

"If I lived where *feraldii*, *macrosiphon*, and *hartwegii* would flourish, I'd be very tempted to cross them heavily into *innominata* and *douglasiana* hybrid lines, envisioning tall, strong stalks with rather prim flowers of pastel coloring. Crossing *macrosiphon* to *feraldii* gives, in the wild at least, really wild disharmony. This was true in a field near Calistoga where I have seen this happening. There is too much orange signal for my taste and I never found a flower there that I really admired!

"In the one report I've heard of using *hartwegii australis*, George Stambach got nothing promising in the F₁ and dumped the lot; further generations crossed among themselves might have shown some individuals of promise. The orange form of *hartwegii* Lenz described would seem to me to have great potential, and pollen brought in from the Sunday drive to the Mother Lode could provide exciting color breaks in the PCI patch from that one."

Richard Richards

From Roy's suggestions relating to species we will go to the breeding project already underway by Richard Richards of Corona in Southern California. His project is similar to that of Bob Ward which was outlined in the Spring 1985 issue of the ALMANAC. Perhaps Bob isn't quite as rough on his plants as Dick, but at least their aims are similar. The important thing to remember, however, is that they are cooperating in the exchange of seed from each others programs and this is what I envision as the eventual most important element to the success of our proposed PCNI-wide breeding project. Now to get on with the Richard Richards program at least until I interrupt it later (as is an editor's prerogative) for one more comment.

"Since the problem with Pacificas from my pragmatic perspective seems to involve a combination of heat and mois-

ture, my breeding program can only be described as a brutal assassination. We have heat here in Corona, - 90 degrees all summer every day with few exceptions and often well into November. So we have the first ingredient. I supply the other factor by keeping the plants moist all summer long, rarely being gone for long, and directing my helpers to keep the plants moist. That means watering two and three times a week. Such a program is designed to eliminate the weak. It surely does. But I am not going to raise a herd of weak seedlings!

"Of course named varieties and seedlings alike drop like big names at a Hollywood party. The first few years I had virtually no seedlings survive, which was fine. I had a few clones that could survive, and kept on breeding, trying to cross named varieties into my hardy seedlings. Gradually I have more and more seedlings which will survive, and I have the luxury of eliminating the unattractive ones. But this program leaves me with plants whose aesthetic value is mostly well behind the latest introductions, though I am pursuing a couple of lines that show promise at this point. And I am still adding the genetic material from some of the latest introductions. But work is slow, and I may end up with a race of seedlings that thrive on abuse, but my particular kind of abuse.

"However, I have shared much material with Bob Ward back in Little Rock, Arkansas, who is having excellent results in keeping my seedlings alive, sometimes even better than I am.

"I make a few concessions to Pacificas, but not many. When I prepare a bed for planting, I acidify with sulfur and lots of peat moss. That is all. I do have all the typical problems we have in Southern California from stock ordered from elsewhere. The Santa Barbara Botanic Gardens get good results using a treatment for newly-arrived irises which they have worked out for native plants in general, a procedure described years ago in an edition of the ALMANAC, and which I do not think has been altered since."

(Ed. note: The treatment consisted of dipping the roots in a solution containing Captan, a fungicide, and Malathion, an insecticide, before planting in a prepared soil mix.) "Bob Hubley and others seem to have good luck

using Subdue, but somehow that would spoil the fun for me. It probably would keep new introductions alive for a while despite my rough treatment, but it would certainly not let me know which clones are hardiest. So I continue my program of systematic abuse."

This is where, as promised above, I will assert my prerogative, as editor and interrupt Dick's remarks. To those of you who will participate in the proposed breeding project, I want to emphasize that you should use the best accepted horticultural practices when growing your plants. Unless your tests are especially designed to select plants for their ability to withstand transplanting, the best transplanting techniques should be employed, possibly including using a Subdue dip. Likewise unless your tests are designed to select plants which will grow in your heavy clay, adobe, or even alkaline soil, you should use a soil mix suitable for optimum PCN growth. And even if you are testing to see whether plants will survive in your poor soil, you might want to keep some of your plants in a good soil mix while testing others or their seedlings in your gumbo. The importance of this type of procedure is exemplified in the upcoming remarks by Tomas Tamberg where he has found it necessary to keep his PCN stock plants in a greenhouse until he develops clones which will withstand his Berlin winters. All the above does not mean that the Richard Richards Give-Em-Hell techniques, to which we now return, aren't ideally suited to his, and eventually to our, goals.

"I have ordered few, if any, new introductions in the past few years, mostly working my own lines of seedlings. I know I need to include more new genetic material since the advancement in Pacificas has been so tremendous in recent years. I have had some luck with the material that Portable Acres sends out since it is in soil when it arrives. I have good luck, at least initially, with regularly planted material until my brutal treatment establishes its hardiness in this hot inland area. And speaking of heat, the Pacificas have suffered terribly in our recent hot spell. The temperature hit

around 100 for several days while I was gone, and we had more than our share of French-fried iris blossoms. But there are more buds coming.

"Another thing I have been working for is length of bloom season. I have several clones that bloom in January in the San Diego garden (actually, La Mesa, slightly east of San Diego) though I have not tried them out yet here in Corona. In San Diego my bloom starts in late January and may last into June, off and on of course, with a heavy concentration from mid-March until mid-April. I do like a long bloom season, but doubt that other people can get this kind of range of time without the virtually frost-free conditions I work under. My material is getting sufficient testing in cold weather at Little Rock, where Bob Ward treats them more kindly, but the weather does not.

"The above treatment is not very scientific, but my approach expresses my personality, which is idiosyncratic at best. If you listen to the beat of my distant drummer, you can only conclude that one of his legs is considerable shorter than the other. And speaking of eccentricity, you and Adele are being pretty gutsy with your plans to study the crown-rot complex by cultivating it in your garden!"

Tomas Tamberg

From Dick Richard's interesting trials we go to the work of Tomas Tamberg at the Berlin Technical University in Berlin, Germany. A couple of years ago I sent him seed from some of my *munzii*-derived hybrids and he begins his letter with a paragraph about their poor performance for him.

"I was quite successful germinating the seeds you sent. About 25 seedlings were planted into containers. Four of them were even survivors of a colchicine treatment. During the last two winters the containers were kept in a frost-free greenhouse of Berlin Technical University where my other PCIs (mainly Ghio cultivars) are successfully cultivated during this part of the year. I have to report, however, that the *munzii*-hybrids, after a good growth period in my very hot greenhouse in summer, died away plant after plant. Last spring I finally had one plant in flower. It was a beautiful light blue colour, but the shape was far away from being satisfactory. Just now another seedling

starts to produce a blue bud, but this one together with a non-flowering colchicine survivor are the last two plants alive. It seems to me that this type of hybrid suffers from the cool and wet periods and low input of solar energy in our country.

"Since we met in Seattle I have bought quite a number of cultivars from Mr. Ghio, and together with some plants sent by Francesca Thoolen, now have a good stock of advanced hybrids to serve as pollen sources for interserial crosses such as Calsibes, etc. However, to keep them alive, the containers with the plants are transported to the greenhouse each fall and brought back when they start flowering. This is, of course, not a continuous type of culture and it can only be justified as a start for a new breeding program which later on does not need the pure PCIs any more.

"I have also germinated a lot of Mr. Ghio's seeds and have done colchicine treatments. As it seems to me, I have now three pure PCI plants which are at least partially tetraploid (sectorial chimaeras). The tetraploid sections of the flowers were selfed and this year I will have a first flower of one of these selfings. I have also used the tetraploid PCI pollen on third generation tetraploid Calsibes and have got some seed, which has just started to germinate. This is so far the only proof that there is any tetraploid pollen.

"For diploid Calsibe crosses I have used pollen sent by Francesca with a small rate of success. All the seedlings were treated with colchicine and were grown to the flowering stage. Three of them showed some pollen formation and this pollen was used on other Tetracalsibes. A first seedling from such a cross could perhaps flower this year.

"Much more diploid Calsibe seed was produced with PCI pollen from the plants sent by Francesca and Mr. Ghio. This pollen was stored in the refrigerator for some weeks and then used. We have treated hundreds of seedlings, but the first ones will start to flower only this year. We hope to enlarge the gene pool for Tetracalsibes, which in the moment contains only seven different conversions.

"The modern PCI hybrids normally do not survive our winters in the open

garden. In my unheated greenhouse the plants will survive, but not flower. The only PCI plant that has survived in our garden without any winter cover for nearly 15 years is a light blue *I. douglasiana*. We suspect that special forms of *Iris tenax*, collected at high altitudes in Washington state, would be hardy, too. This was the reason why I was very interested to see the slides (shown at the Seattle meeting) of very advanced cultivars based on *I. tenax*.

"As a last item I would like to mention a number of PCI cultivars which I like most among my little collection: RUNNING WILD, BIG MONEY, ROARING CAMP, ZAYANTE CREEK, LA MADRONA, MONTARA, CANYON SNOW, and RINCON."

Dick Kiyomoto

We will end with a short note from Dick Kiyomoto who will be running cold-tolerance tests for our project. "I am doing a literature search on tests for freezing tolerance as these have been developed for winter cereals. I have already ordered seed from various sources and now await seed from the other source you mentioned.

"The small plantings of PCNs I made last fall were made from seed I obtained from SIGNA. Nine of the 12 accessions produced no survivors. Three accessions had about fifty percent of the seedlings surviving. 86K132 (blue hybrid 1/4 *morzini*), 86K132 (Agnes James x Valley Banner o.p.), and 86K145 (Creamy Custard). This was not a great test as the seedlings I planted were very small, but does indicate that some PCNs will survive the winter here. I mentioned before that I have a few large clumps I grew from seed three years ago. They are producing new growth, but I have yet to see them bloom. For this next season, I have started large populations from seed I ordered from Ghio and Lorena Reid. I hope to get some good numbers on survival and a larger number of plants to work with."

We have offers from two test gardens to test our irises after they are developed. One is the Elmohr Iris Society's new test garden in the Pike's Peak area in Colorado, situated at an elevation close to 7000 feet. The other is from the world-famous Presby Memorial Iris Gardens in Montclair, New Jer-

sey. The offer is somewhat tongue in cheek, I'll have to admit, but I am a firm believer that we should never be too serious, especially about ourselves.

Here are the two pertinent paragraphs from the letter written by Ellen Robertson, Curator of the garden: "Presby Memorial Iris Gardens would be interested in testing some seedlings that have parentage with resistance to 90 degree summers and minus 20 degree winters. (Ha!) But, seriously, I'm sure you'll find the borders can be extended as irisarians plant seed from plants that survive in "borderline" areas.

"I'd like to try species - not from seed, please. If you know of anyone willing to ship here, we'll pay for handling costs. They won't receive special treatment other than a mulch in the winter. Summer rainfall is unpredictable. Last summer was so wet that the bearded iris had rot. We never have rot!"

*Best of luck!
Ellen Robertson
Curator*

I can't think of a better way to end this section. Let's see if we can't rise to the challenge!

PART 6 GETTING STARTED

As stated in the introduction, our first task will be collecting and disseminating seed. For this first year I would like everything to go through me so that adequate records can be obtained. Seed collectors should mail their seed to me; in that way anyone who wants to try planting seed can request it from a single source.

Seed packets sent to me should include the following information:

Pod Parent: (Species, cultivar, seedling)

Pollen Parent: (If known)

Where collected:

Suggested use or value:

Collector's name:

Anyone wishing to receive seeds should send their name and address, approximately how many seedlings they could take care of, and enough about their climate or facilities so that I can make an intelligent choice. Anyone wanting to try some specific seed should also let me know and I will try to oblige.

CORRECTION

In the Fall 1987 issue of the ALMANAC, page 18, paragraph two: Caroline Spiller, Dora Sparrow, and

Lee Lenz "planted seed in potting mix and put the containers in a freezer..." This should have been "refrigerator" instead of "freezer".

COMING IN THE FALL ALMANAC

An article by Louis Fry in which he describes his explorations in search of Pacifica species in the wild. He follows trails blazed long years before by Victor A. Cohen in 'A Guide to the Pacific Coast Irises' and Dr. Lee Lenz in 'A Revision of Pacific Coast Irises', published in 1959.

The use of PCNs in the garden landscape is another subject to be included.

Contributions from readers who could augment our information on these two subjects would be much appreciated.

TREASURER'S REPORT

November 16, 1987 to December 31, 1987

Balance on hand Nov. 16, 1987 \$851.20

RECEIPTS

Dues collected	\$79.00
Sales of Cohens	7.00
Interest	5.66
	<u>\$91.66</u>

DISBURSEMENTS

ALMANAC Fall '87	\$299.78
Sec.-Treas. Exp.	8.48
	<u>\$308.26</u>

Balance on hand Dec 31, 1987 \$634.60

AMENDMENTS TO THE BY-LAWS

In order to obtain tax-exempt status for SPCNI, it is necessary to add amendments to our By-laws. The Executive Committee has approved addition of the following Articles. These Articles will become part of our By-laws three months after publication in this issue unless five members in good standing notify the President of the Society that they wish to bring the proposal to a vote. If brought to a vote it will be ratified by a majority of the votes cast.

ARTICLE X: EARNINGS

No part of the net earnings of this Association shall ever inure to or for the benefit of or be distributable to its members, trustees, officers, or other private persons, except that the Society shall be empowered to pay reasonable compensation for services rendered and to make payments and distributions in furtherance of the exempt purposes for which it was formed.

ARTICLE XI: ACTIVITY LIMITATIONS

Notwithstanding any other pro-

visions of these articles, the Association shall not carry on any other activities not permitted to be carried on by an Association exempt from Federal Income Tax under Section 501(c)(3) of the Internal Revenue Code of 1954.

ARTICLE XII: DISSOLUTION

In the event of dissolution of this Society for whatever reason, the assets of the Society for Pacific Coast Native Iris will be transferred to the American Iris Society, a non-profit institution incorporated February 2, 1927 in the County of Philadelphia, State of Pennsylvania. Moneys and/or assets will be transferred to the American Iris Society through the Treasurer in office at the time of the dissolution. In the event that the American Iris Society is not in existence at the time of dissolution, assets will be distributed to an organization that is described and has established tax exempt status under 501(c)(3).

NEW MEMBERS

JANUARY TO JUNE 1988

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