



**Hardy Fern Foundation
Quarterly**



Spring 2012

THE HARDY FERN FOUNDATION

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The Hardy Fern Foundation was founded in 1989 to establish a comprehensive collection of the world's hardy ferns for display, testing, evaluation, public education and introduction to the gardening and horticultural community. Many rare and unusual species, hybrids and varieties are being propagated from spores and tested in selected environments for their different degrees of hardiness and ornamental garden value.

The primary fern display and test garden is located at, and in conjunction with, The Rhododendron Species Botanical Garden at the Weyerhaeuser Corporate Headquarters, in Federal Way, Washington.

Satellite fern gardens are at the Birmingham Botanical Gardens, Birmingham, Alabama, California State University at Sacramento, California, Coastal Maine Botanical Garden, Boothbay, Maine. Dallas Arboretum, Dallas, Texas, Denver Botanic Gardens, Denver, Colorado, Georgeson Botanical Garden, University of Alaska, Fairbanks, Alaska, Harry P. Leu Garden, Orlando, Florida, Inniswood Metro Gardens, Columbus, Ohio, New York Botanical Garden, Bronx, New York, and Strybing Arboretum, San Francisco, California.

The fern display gardens are at Bainbridge Island Library, Bainbridge Island, WA, Bellevue Botanical Garden, Bellevue, WA, Lakewold, Tacoma, Washington, Lotusland, Santa Barbara, California, Les Jardins de Metis, Quebec, Canada, Rotary Gardens, Janesville, WI, and Whitehall Historic Home and Garden, Louisville, KY.

Hardy Fern Foundation members participate in a spore exchange, receive a quarterly newsletter and have first access to ferns as they are ready for distribution.

Cover design by Willanna Bradner

HARDY FERN FOUNDATION QUARTERLY

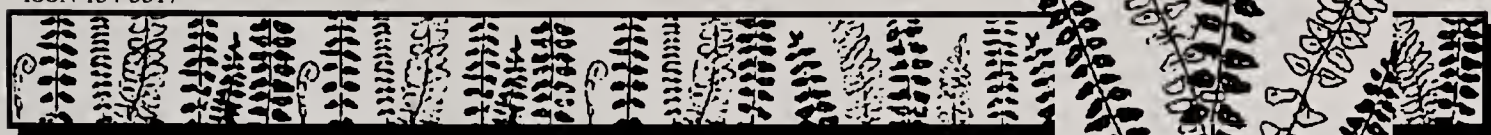
THE HARDY FERN FOUNDATION QUARTERLY

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President's Message ~ Spring 2012

Greetings everyone,

Imagine the chagrin looking out of the window to snow on St. Patrick's Day! Is white the new green? But alas, our Pacific Northwest snow is not "hardy" and requires winter protection. I guess nature really is in charge.

We are pleased to announce the addition of two new members to our Affiliate Garden program. The University of California Botanical Garden at Berkeley and The Georgia Perimeter College Native Plant Garden, Atlanta, Georgia, are two premier facilities located on opposite coasts and will be valuable partners in the evaluation of ferns in somewhat diverse climates and conditions. Considered to be two of the finest and most prestigious gardens in the United States, we are very fortunate to have them with us.

The Hardy Fern Foundation educational display booth at The Pacific Northwest Flower and Garden Show in Seattle, Washington, February, 2012, was a great success. Many thanks to Michelle Bundy and Jo Laskowski for their artistic design of an attractive display board with accompanying planters featuring the genus *Polystichum*. One of the most interesting features was use of mounted magnifying glasses allowing close inspection of the distinguishing features identifying members of the genus. Mounted fronds of some of the different species, added to the educational experience.

We held our March Board of Directors meeting at The Bellevue Botanical Garden followed by a short work party to groom the ferns. Afterward, Nancy Kartes, garden manager, treated us to an update and tour of the "Ravine Experience". When completed, a 150 foot suspension bridge will span a ravine, allowing visitors to "observe unique topography, native under-story, wild life and soaring conifers without disturbing the forest floor". The Hardy Fern Foundation has been invited to participate by providing and planting a selection of native ferns. The sword fern (*Polystichum munitum*), is plentiful in large numbers and should be easily transplanted to the desired location. We will also add deer fern (*Blechnum spicant*), maidenhair (*Adiantum aleuticum*), *Polypodium scouleri* and *Woodwardia fimbriata*. We all look forward to the opening of this unique project in mid May, 2012.

It is rewarding to see the growing enthusiasm for the use of ferns in the gardening community and reaffirms our commitment to keeping our environment "green".

Chief Seattle once said "we do not inherit the earth from our ancestors; we borrow it from our children". The Hardy Fern Foundation and its affiliates should be proud of the dedication to protection of our vital resource, the environment.

Happy spring (when it arrives)

Pat Kennar

George Sanko, Director of the Georgia Perimeter Botanical Garden to speak at the 2012 Hardy Fern Foundation Fern Festival



George Sanko
Photo courtesy of Sue Olsen

Mr. Sanko has been with Georgia Perimeter College for the past 40 years where he taught Botany, Biology, and Plant ID. While at the college he started the College Herbarium which eventually housed more than 5000 species of native plants collected throughout the United States. As a teacher, he received 12 outstanding teacher awards while at Georgia Perimeter College. In 1990 he started the GPC Botanical Garden which has more than 2000 native plants, making it one of the largest native plant collections in the Southeastern United States. The garden also houses some 75 rare and endangered plants. In 2003 he developed the Ferns of the World Garden which has more than 448 taxa of hardy ferns making it one of the top zone 7 collections in the world. The fern collection continues to grow and should reach an astronomical 700 taxa in the next two years. He is currently researching growing xeric ferns in full sun rock gardens.

Fern Fest 2012

Friday, June, 1st - Plant Sale from 12:00 pm to 6:30 pm

Annual Meeting - 6:30 pm

Lecture by George Sanko at 7:00 pm

Saturday, June 2nd -Plant Sale from 10:00 am to 2:00



In the Beginning ~ A History of the Fern Fest

Sue Olsen

Bellevue, WA

It was 1973 and a dark and stormy January day when the phone rang. Dorothy Brauss (a founding member of the Friends of the Arboretum which subsequently evolved into the Northwest Horticultural Society) was on the line. "What" she asked, "would you think of having a fern sale this spring"? "Sounds interesting", I replied. "Good" said Dorothy, in her traditional let there be no questions asked manner "then we'll have you be chairman"! I believe I said something intelligent such as "Huh"?

And so it was. There was very little in the way of available fern material in those days. We ordered and potted up natives from an East Coast nursery, (I'm afraid to ask) gathered what we could (also primarily natives) from local growers and optimistically announced the sale. It was held in a lovely setting on a woodland path at Seattle's Washington Park Arboretum. Our tables for this inaugural occasion were 4x8 slabs of plywood set on saw horses. This arrangement, so to speak, involved carrying everything down from an arboretum storage area which was at least two stories up into nowhere..... I was younger in those days☺....and let it also be noted that at the end of our efforts, this "display material" had to be returned to its original storage site which by then was at least four stories up!

Spring of 1973 was notable for the gas crisis with long waiting lines at gas stations and little motivation to drive any farther than necessary. So (the theory goes) folks tended to stay home and find joy in their gardens. Whatever the reason, our sale drew a good crowd and we were sold out by noon of our 10:00 – 2:00 event. We were thrilled. The public was not....particularly those arriving in early afternoon. Even the predominate supply of sword ferns (*Polystichum munitum*) was gone.

However, we were all encouraged and we carried on. The following year our "now famous" event even attracted an anonymous donor who arrived nearby and quickly dumped a pickup load of totally tattered freshly dug lady ferns (*Athyrium filix-femina*) -presumably to help our cause. Such joy! Perhaps just as well, we never did learn who was personally responsible for this generosity, and ended up passing the "donation" on to the arboretum's compost pile where it at least did some sort of good! And the public, apparently forgiving, showed up with great support to produce an even better sale that we enthusiastically oversupplied so that it stayed open for the promised hours.

About this time, Seattle's senior fern enthusiast, Neill Hall, became the curator of the spore exchange for the American Fern Society. I had joined in 1972 as had fellow plant propagator, Mareen Kruckeberg so we welcomed the opportunity to avail ourselves of spores from then unknown species.....some of which even came true! However, sarcasm aside, it did give us some much needed material to continually add welcome diversity to the fern fest.

This tale now is approaching 1976 and a US bicentennial celebration which among other Seattle events included a celebration of horticulture. Chaired by Seattle's energetic and visionary plant specialist Betty Miller, who was ever devoted to promoting horticulture, this involved multi day major displays in downtown Seattle by many of the local specialty gardening groups. We were of course involved and had a select site by the public library. Enter now too a wholesale grower, George Anex of West Seattle's Anex Greenhouses who had fortuitously taken an interest in ferns. He brightened our offerings (quite literally) with beautiful plants of the then rare *Dryopteris erythrosora* (autumn fern) that were in their prime and waved their come hither rosy fronds to would be buyers. It was a good year.

We had left the Arboretum and because of the construction of the new visitor center,

the Arboretum had also left us. We scratched for a new location and ended up hosting the following year's sale at a covered pavilion in the suburbs in what was then a modest, but friendly, Bellevue Square shopping center. At this time we also decided that based on the long setting up and taking down tasks our efforts warranted having the sale extend for two days. Thus committed we also needed night time security which was provided by Phil Aaron the brother (and a night person) of one of our Northwest Horticulture Society's board members. Little did we know that thanks to Phil, who was quite the talker, there would be some unexpected (by all) substantial post-midnight sales when some happy fellows emerged from the nearby restaurant/bar in good cheer and having stumbled onto the sale decided that it would be a GREAT idea to bring something home to "the wife". No word on whether they became fern fans!

We were disrupted again by construction this time of what is now the Bellevue Square stereotypical mall. So I tried to make arrangements at yet another Bellevue mall only to be denied by the manager of a hardware store tenet who sold some token plants and wanted no competition! When I asked what fern species they carried he replied, "Both of them"!

Thus rejected I tried and succeeded in securing us space and whatever we needed at the user friendly Crossroads mall likewise in Bellevue and just incidentally with a branch of the same hardware store that refused us elsewhere. This worked well for us and that particular year the sale was featured in Sunset magazine bringing in eager shoppers from Portland, OR, Vancouver, BC and Spokane as well as a now regular local following. It was another good year.

Our purchasing options had also expanded by then. Henry Mollgaard then owner of Mollgaard Floral north of Seattle retired from his operation but was not ready to "really retire". He purchased a modest glass greenhouse in Seattle, transported it and reassembled it piece by piece on property neighboring his former business. His purpose was to grow ferns which he did most successfully and thus began what is now Henry's Plant Farm.

The sale was now well into its second decade and well secured. Still actively sponsored by the Northwest Horticultural Society we mailed out preview announcements listing the presumably tantalizing and now greatly varied availability for the current year's sale. This served as a splendid advertisement and we delighted in seeing customers coming into the sale with well-marked lists. We self-imposed a requirement that there should be a minimum of 10 plants of anything listed available when the sale opened. Bring on the grand opening!

The most significant "grand opening" and significant it was, however, was the construction and dedication of the Center for Urban Horticulture at the University of Washington in Seattle. With the purpose as the name implies for ... "the advancement and enhancement of horticulture"... this structure has become the center, literally, of horticultural activities in the greater Seattle area. It features an outstanding library, meeting rooms, herbarium and offices for research scholars and has indeed turned into an

appropriate site that we are very pleased to call home. Thus welcomed and comfortable, we started having an evening lecture so our now traditional festival combo features a speaker as well as the plant sale with the “expert” giving a lecture on the opening evening of our two day event. It has worked well and we have hosted some outstanding guests. Our first and very welcome speaker was Dr. Chris Page of the UK. He charmed as well as informed our local enthusiasts with his knowledge and led the way for what is now our tradition of informative and entertaining speakers.

And so it was that not only did we have a home, but the interest, curiosity and enthusiasm for ferns and fern knowledge had expanded immensely since our humble beginnings in the 1970's - so much so that a core group of Seattle's devoted fern enthusiasts enlisted the support of colleagues from throughout the country to help us establish in 1989 what is now the Hardy Fern Foundation - your organization. The goal then as now was “to establish a comprehensive collection of the world's hardy ferns for display, testing, evaluation, public education and introduction to the gardening and horticultural community”. The response over the years has been very rewarding and we're delighted that the membership has grown from what was at that time both modest and ambitious in outlook to what is now international in scope and interest.

Shortly after our beginnings and of great benefit to our organization and the fern world in general Naud Burnett offered his enthusiastic support to help us reach our goals. Naud is the owner of Casa Flora a magnificent Texas facility that is the country's largest wholesale fern producer. Leaders in tissue culture they bring over eighteen million ferns from the best of the traditional garden worthy species to promising new introductions annually to the world's markets. We have been very fortunate and are most grateful to Naud for sharing these with us as well as for being a wonderful friend.

As for the Fern Fest we turned our support to continuing the NHS sale and lecture event to our mutual benefit. However as our organization grew and with much appreciated help from Sylvia Duryee, Michelle Bundy, Karin Kravitz and crew we gradually transitioned into a joint venture and eventually the Fern Fest became the provenance of the Hardy Fern Foundation. (I might add that after ~30 years as chairman it was also a “pleasure” to turn the responsibilities over to some capable and freshly energetic organizers!)

It has been a successful festival at the CUH, our happy home now for some time. We annually fill it to capacity with ferns and shady companions on the first Friday and Saturday in June. And we are looking at the 2012 sale with enthusiasm and a reminder from your writer that this (to my amazement and delight) will be the 40th sale. Long may it continue, be educational and enjoyed by many present and future “fernatics” as well as newcomers to the wonders and the beauty of our shady delights. And as a final note and tribute my (our) hat's off to Dorothy Brauss and her pseudo innocent phone call of long ago. Wish she were here to share in the legacy, but the inspiration lives on.....well done Dorothy!

Lifting the Veil

Jo Laskowski, Seattle, WA

Ever wonder what goes on behind the scenes of a major garden show? Or of a certain educational booth that makes an annual appearance at such a venue? Read on, and I'll show you the delights of creativity, angst, euphoria, completion.

The Northwest Flower and Garden Show is an annual event in Seattle, WA. It happens over a five-day period each February. It's held in a convention center that was constructed with the knowledge that tons of soil, landscape stone, plant material, and hardscape and water features would someday come together there in magical display gardens. And along with them, dozens of individual booths set up to present or sell all and anything remotely related to gardening.

Booths seem loosely categorized into two areas. One is a kind of "soft" sell area—non-profits, educational, plants—and here is found the Hardy Fern Foundation. The other is more a "hard" sell area, inhabited by commercial vendors of garden-related goods and services, with a satisfying mix of artistic expressions of all things plant. The display gardens are collected at the entry to the show, for immediate consumption.

Booth spaces are arranged back-to-back in long rows to form aisles, on either side of an eight-foot hanging curtain. The spaces are separated from their neighbors by three-foot stanchions and hanging curtains. So the canvas provided for our yearly display is a 10' x 10' area, its location arbitrarily assigned by the powers that be, with the backdrop curtain color as arbitrarily selected. Arriving each year can be quite a shock, since both booth neighbors and curtain color can either harmonize or clash horrifically. Mustard yellow, anyone?

HFF staff consists of two of us, each working two days a week. Just the two of us who are responsible for the website, the membership, all events organization and execution, maintenance of the considerable display gardens and Stumpery. And the 2,700 sq. ft. hoop, nursery for sporelings, home for growing on ferns for plant sales and installation in the garden, and sometimes source of much-needed inspiration for the Flower and Garden Show.

Anxiety over coming up with an idea for the "ed" booth usually starts in October of the preceding year. If live, deciduous ferns are to be used in the display, we need to make arrangements to house them in a heated greenhouse, to force them to be gorgeous at such an atypical time. Props may need to be constructed—our themes usually seem to require some involved construction. One year it was the creation of a volcano for the display that emphasized the antiquity of the fern lineage, complete with an eight-foot tall cardboard *Tyrannosaurus rex* that roared when it was motion activated. Oh yeah, it was activated a lot by the constant foot traffic. One year saw us scrambling to create images that would suggest the correct, or less-well-known, growing environments for the ferns we'd group around each station. A stylized, beaming sun for the drought tolerant—yes. Dimensional conifers casting a shadow for the shade tolerant—yes, yes. Clouds and raindrops for the ones that like wet feet? Now how the heck do we make these? We imagined and brought into being a fern table. The tabletop morphed into a miniature, ferny landscape, with precisely placed rocks and sinuous pieces of wood creating planting pockets. Chair to

match, of course. Clever, but it required four straining adults to lift the final product.

For the 2012 show we settled on a display about the *Polystichum* genus. We'd focus on the key identification characteristics that send a fern down the path to "Polystichum-dom," in combination with a presentation of species to show their many, widely varied appearances. During this process you try to think of all the details, suss out anything that would make the information be muddy in any way. You need to disassociate yourself from your own level of knowledge to see with new eyes. It's a fine line between being so simplistic and basic as to be insulting, or being so breezily technical that the audience is lost. But this is a garden show, and while there are always novices, the underlying assumption is a degree of horticultural knowledge.

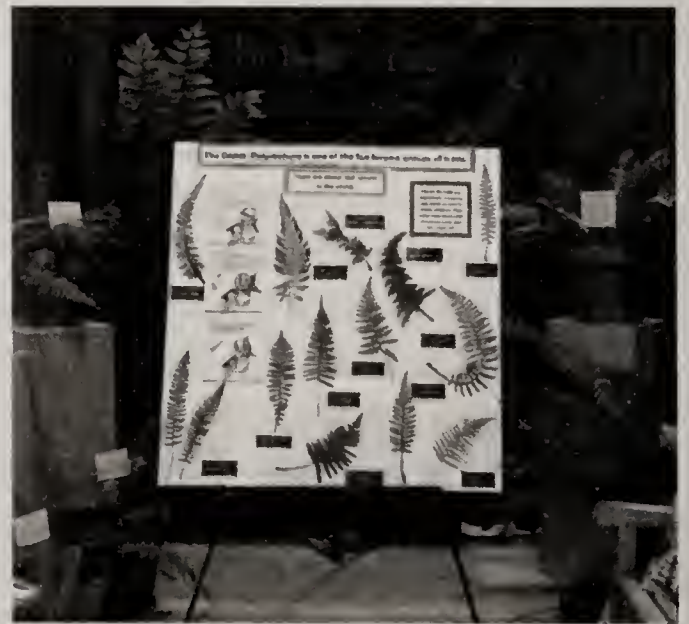
Polystichums are so identified by basal pinnae and peltate indusia. The pinna is alternately termed an *auricle*, a Latin derivative that means "ear." Good—we'd mention that to maybe reach someone familiar with the word from other applications. An arborist, for instance, would be familiar with the term as a descriptor of the shape of a leaf at its base where it joins the stem. The architectural, heavy-limbed pedunculate, or English, oak (*Quercus robur*) bears such a leaf with diagnostic auricles.

The terms are easy enough to describe, but the shape of the indusium can be difficult to see on a fresh specimen (understatement). How to make it crystal clear? Could we laminate fronds to preserve that detail? I recalled the fern taxonomy class I'd taken. The information was fabulous, the instruction sublime, but I have to tell you—the fondest memory I brought away from that experience—mea culpa, mea máxima culpa, Robbie—was of the amazing herbarium specimens. The instructor, the aforementioned Robbin Moran, brought them from the New York Botanical Garden collection. Many were well over 100 years old, and the detail was every bit as crisp as the day they were pressed and mounted. They were a godsend for that class, by the way, as we struggled to differentiate hybrids created by the randy genus *Dryopteris*, so common in eastern North America.

Well then, we'd need fronds to press. Out into the garden we went. After our considerable 2011 winter we had a tough time finding fronds that hadn't been ravaged. Eventually we came back with *Polystichum neolobatum*, *P. munitum*, *P. tsus-simense*, *P. polyblepharum*, *P. setiferum*, *P. aculeatum*, *P. setiferum* Divisilobum Group, *P. x dycei*, *P. setiferum* Plumoso-multilobum Group, *P. makinoi*, *P. setiferum* Rotundatum Cristatum Group, *P. setiferum* 'Bevis'. The fronds were all cleaned and put into the plant presses.

How about line drawings? Great for precise focus on the area of interest. Oh! And wouldn't it be cool to use a magnifier over a pressed frond so people could see the line drawing, then look at the sample and make the connection? We're rolling now!

For a change we decided we wanted a presentation that could be created from materials on hand. If they had known, our "construction crew" would have been mightily



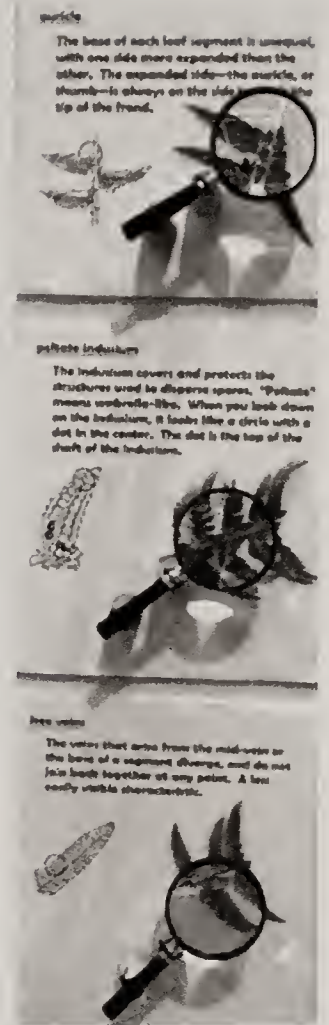
Polystichum display board
Photo courtesy of Pat Kennar

pleased. We unearthed an easel, and that suggested a board to mount our information. Since so many polystichums are evergreen, we'd pot some up some mature ones out of the display garden to flesh out the space. Risers to put the ferns on. A bench for the volunteers who would man the booth, boxes for literature, a watering can and paper towels—perfect.

Time passed. We acquired the 4' x 5' foam board to set on the easel. We pressed and mounted our fern samples to it. We added our descriptive text and line drawings. We argued over and ultimately rejected using one of those cute little paper cocktail umbrellas to demonstrate the attachment of an indusia. On to the magnifiers, and then how to mount them? Exhaustive sweeps through craft stores turned up round-lensed, black-handled magnifiers, exactly like you'd imagine a Victorian detective would carry under his hound's-tooth greatcoat. Do we simply tie a string on and attach it to the side of the board? Well, there was the possibility someone might walk off with it—then what? We ultimately wanted a magnifier to sit a couple inches above each sample, and be mounted on the board so that you could walk up to and look through them without having to contort.

And so it was that I found myself on the last day we had for assembly sewing the magnifier handles onto corks and mounting the cork bases on the foam board. The night before I had found five of the SIX corks that I needed at a hardware store. When fevered searching at other stores taught me I had five wine corks, the solution was simple.

Opening day 2012 revealed our booth strategically located at the end of an aisle, where foot traffic would be great. We were opposite the Northwest Stone Sculpture Association. Besides their on-going demonstrations, there were sumptuous, elegant carvings on display—magnets for attracting foot traffic, too. Our live ferns were exuberant, flirty, frothy. The curtain was NOT mustard yellow, our adjoining neighbor was the excellent Arboretum Foundation. And don't you just wonder how many people could instantly, accurately—and from considerable distance!—identify the origin of those little corks?



Magnifiers
Photo courtesy of
Pat Kennar

Welcome New Members!



- Clarice Clark
- John Malterner
- Daryl & Sara Nichols
- David Perasso
- Dolores Ranhofer
- Dawn Robnett
- Louise Schultz





**Magnolia Plantation
Gardens at Drayton**

**Charleston,
South Carolina**

Photo left courtesy of
John Acock



**Atlanta Botanical
Garden Conservatory**

Photo right courtesy of
Sue Olsen



***Hymenophyllum
ruizianum***

Photo left courtesy of
Martin Rickard



***Adiantum
capillus-veneris*
'Falling Waters'**

Photo right courtesy of
Richie Steffen



Cyathea caracasana

Photo left courtesy of
Martin Rickard



Arachniodes standishii

Photo right courtesy of Sue Olsen



Blechnum loxense

Photo left courtesy of
Martin Rickard



**Fern wall in
Charleston,
South Carolina**

Photo right courtesy of
Sue Olsen

Andean Flora of Ecuador.....conclusion

Martin Rickard

Tenbury Wells, England

The next Day we flew very early back to Quito and by mid-morning were climbing the pass of Papillacta to the east of Quito. Our first stop was at 3200 metres. The others saw condors in the distance. I didn't! I did not see any exciting ferns either! As we drove ever upwards the flora improved rapidly. At about 3600 metres I was fascinated by a superb little polystichum with upright fronds (like so many American polystichums). I've identified this as *P. orbiculatum*. This species continued to the col's summit at just over 4000 metres – or did it!? At higher altitudes the fronds were narrower and more upright; could there be a species complex here? In banks at around 3600 metres I also saw *Asplenium peruvianum* and *Cystopteris fragilis*, not looking like UK material! The real highlight for me was *Jamesonia alstonii* growing on a roadside bank at the summit of the pass at 4080 metres. (Fascinating to think I had been reading Alston's handwriting on my Jones Nature Prints only a few weeks before!). These banks were covered with ferns. *Elaphoglossum* spp. in particular, *Grammitis moniliformis*, *G. heteromorpha* and another as yet unidentified *Jamesonia* sp. and numerous lycopods too, including *Huperzia crassa* and *H. hypogaea*. Curious how most of the ferns and lycophytes had erect fronds/stems in this environment. While still at the col, Gustavo drew my attention to a large bog (at 4120 metres) where he believed *Isoetes* spp. grew. Could this be the site where Carl Taylor found *I. andina* in 2001 – as reported by Joan Gottlieb in the Hardy Fern Foundation Quarterly in 2002? Unfortunately, we did not find any. We did, however, see more *Jamesonia alstonii* and lots more huperzias including the lovely pink *H. crassa*.

What a fabulous place! It was a wrench to leave but we had to hurry off to our hotel nearby on the outskirts Papillacta village at 3330 metres. This was a treat! As usual we had our own chalets with en suite. Perhaps a little rustic but perfect in the circumstances. Better still the hotel was built on top of thermal springs; steaming hot water seemed to be running in channels everywhere! It did not take us long to get into one of the many pools, some were almost too hot to bear – but we managed!

The next morning we climbed into the minibus to travel only 1 or 2 miles up a track behind the hotel to a cabin at 3730 metres. The idea was to walk down at a leisurely pace looking at birds and orchids. Unfortunately I was distracted by yet another fern paradise! Behind the cabin in a relatively tall forest I found a very tall blechnum. My suspicion that it might be *B. buchtienii*, has been confirmed by Robbin Moran, albeit under the more modern name of *Blechnum auratum*. The trunk was about 7 or 8 feet tall and 8 inches in diameter. Fronds were about 6 feet long. All around the trees were festooned with filmy ferns, polypods, grammitids and of course elaphoglossum. Wandering back out onto the track in a more open area there was a huge stand of a different blechnum. It looked like *B. loxense*, since confirmed by Robbin Moran. (see photo page 35.) It was a beauty with

a tendency to produce a trunk. The leaves, especially the rachis, were covered with scales giving the whole plant a silvery appearance. At this altitude this could well be hardy in the UK, if only I could have collected material...! Steep grassy banks by the side of the track were populated by many elaphoglossums, huperzias, *Grammitis heteromorpha*, *Pteris muricata*, *Lophosoria quadripinnata*, other blechnums, *Polystichum orbiculatum* etc. etc. Climbing up along a steep stream bed in very thick undergrowth I was surprised to find another species of *Jamesonia*. This deep shade habitat was very different from the open grassy paramo where I'd spotted the other two species the day before. Going 'off piste' elsewhere I found myself in pristine jungle. Wonderful! Over a stream there were curtains of *Hymenophyllum*.

So that took us to lunchtime! After nourishment we climbed part of the way back up towards the Papillacta pass to examine a large lava flow (3400m). Many exciting orchids occurred here. If I can digress briefly *Telepogon sp.* was particularly stunning and sought after by collectors. Our guide Gustavo was worried it would be collected in the near future. The lava flow was treacherous underfoot but most goodies could be seen from the various paths and tracks. Mainly the same genera of ferns were represented here, but of greatest interest to me was to see again the beautiful neat tree fern, *Blechnum auratum* subsp. *auratum* we'd seen a few days earlier at Cerro Toledo in southern Ecuador. It too had its trunk covered with what looked like the same species of small *Hymenophyllum sp.*, plus other epiphytes. Quite a lot of tree-like blechnums here and I suspect some were species other than *B. auratum*. Returning to the hotel we stopped at 3177 metres so I could admire a splendid grove of *Cyathea caracasana* (or something very similar) with trunks perhaps 12 feet tall. This species is very distinctive with white coin-spotting on the trunk, particularly near the top. Rather like *C. cooperi* but more spectacular. Old fronds seem to be shed almost immediately. Shortly after we were all in the hot baths again! Amusingly another guest was reading in the pool, and then dropped her book, it was a write off and she was halfway through it. I shouldn't laugh but I did –so did she!

The next morning we returned to the lava flow but did not see much new, after a couple of hours we started the drive east down towards Amazonia stopping en route at Guando Lodge where we ate lunch and were refreshed with tea and coffee. This place was set up for humming birds. Even I was impressed with the one with a very narrow needle-like bill as long as the rest of its body (about 7 cm long). I did wonder how it got affectionate with its partner! Not being a birder I wandered off and saw many wonderful ferns. We were lower here (2700 metres) and more tropical species were common in the woodland by the river. *Huperzia curvifolia* was new to me with rather spindly pendant branches. An unknown species of *Vittaria* amazed my non-ferny companions with its narrow, pendant string-like fronds. Similarly the newly flushing pink fronds of *Blechnum binervatum* subsp. *fragile* were almost admired! Another blechnum caught the eye here. I thought it might be *B. proliferum*, the fronds were bulbiferous, narrow and very long trailing across the ground for three feet or more. Robbin Moran has since identified it as *B. sprucei*. Some nice filmy ferns included *Trichomanes polypodioides*. There were several more magnificent plants of *Cyathea aff. caracasana* too. There were of course many non-ferns but I will pick out just one – gunnera with 3 or 4 foot trunks, splendid!

Following afternoon refreshments we made our way further east right to the

fringe of Amazonia. Our stopover for two nights was going to be Cabanas San Isidro near Cosanga at about 2000 metres - a marvellous place. Hummingbird feeders were everywhere and I guess most visitors here are birders – but do they know what they are missing!?! This was yet another fern paradise! By now *Cyathea caracasana*, (see photo page 35) or something very like it, was becoming an old friend and a beautiful group of them outside our chalet window was just perfect. While the others went birding as the light was fading I set about trying to identify some more cyatheas. I think I succeeded with one - *Cyathea quinduensis*.

The next morning we set off to a mountain pass from where we had a good view of the flat Amazon forest disappearing into the distance – fabulous, but give me the mountains any time! Our viewpoint was at 2260 metres. Along the roadside here were many ferns new to me. Most remain unidentified, unfortunately. A pretty passiflora was admired, *Passiflora mixta*. Disgustingly mucilaginous croziers of a blechnum were common. Although it seems different from the earlier sample we found, Robbin Moran thinks this too is *Blechnum cordatum*. On the roadside banks a strange hymenophyllum was common. The fronds, about 9 inches long, stuck out at right angles to the bank. The frond rachis was thick for a hymenophyllum at 1 to 2 mm, and arched downwards, as did all the pinnae. This plant was totally exposed to the sun and wind yet still managed to look in pristine condition. I've since keyed it out as *H. ruizianum* (see photo page 34.). Orchids were a major distraction here. We also saw a large flowered *Pinguicularia* sp. high on a roadside cliff where moisture flowed over the roots. We returned to the Cabanas for lunch stopping briefly by the river bridge in Cosanga where a spiny tree fern defeated my efforts at identification. Subsequently Robbin Moran has suggested the name *Cyathea* cf. *bicrenata* for it.

After lunch I wandered off on my own exploring around San Isidro. It was fabulous. In a boggy spot I found a few plants of a large fronded fern with virtually no trunk that looked like a *Cibotium* or *Culcita*, but everything else was wrong. I eventually realised it was a *Cyathea*, *C. gracilis*, a real beauty. By the main track another tree-fern keyed out at *Cyathea heliophila*. *Lophosoria quadripinnata* was frequent. An interesting mistletoe, perhaps *Phoradendron* caught my eye – as did so much else. I only had walking boots, not wellies, so my reluctance to get wet feet deterred me from exploring seriously boggy areas. There was much else to explore! Continuing to explore along the main track/road I eventually stumbled across a possible footpath into non-boggy woodland. I entered and a paradise opened up before me! Bulbiferous *Diplazium* with 3 foot trunks were everywhere. What I tend to classify rather unsympathetically as ‘thelypteroids’ were also everywhere (Prof. Holttum would be turning in his grave at my indifference!). *Elaphoglossum*, *Asplenium*, *Polystichum*, *Hymenophyllum* etc. were abundant. How great it would have been to have Alan Smith or Robbin Moran along for a brain picking session! So much has so far gone unidentified, I do have many photos but no specimens (collecting was discouraged) but I still hope to eventually identify more material. I did manage to work out *Dennstaedtia dissecta* and *Marattia laevis*. Time was running out so I hurried back to our chalet just before dusk. Weeks later Robbin Moran tentatively identified a species of *Megalastrum* from my photographs, I should have realised this for myself after seeing several *Megalastrum* in Chile in the past. He also named a smallish

blechnum as *B. divergens*.

That evening, before supper, Gustavo very patiently identified the bulk of my orchid photos for me – pity about the fern pics! A few glasses of wine helped the determinations....

The next day, our last in the forests, saw us explore as a group very near where I had been the previous evening. Being near the centre we were able to cut back for a mid-morning coffee break before following another trail to a waterfall. Again much the same pteridophyte/lycophyte flora was seen apart from an elegant slender tree fern identified by Robbin Moran as *Cyathea xenoxyla* and, at the last moment amongst the cabins, I noticed a plant of osmunda, apparently collected locally. This is nothing like the osmunda in Europe – or North America. It seems to be recorded as *Osmunda regalis*, but to me it's something else. Incidentally the '*O. regalis*' in Reunion looked just like this form.

After lunch we headed back to Quito in time for a late afternoon tour of the city centre, then after a farewell dinner it was off to bed ready for our departure the next day – except our flight was delayed by bad weather – but that's another story!!!

Footnote; Most determinations in this account are by me and must be treated with some caution. Hopefully the designated genus will always be right but determination at species level is difficult and will surely not always be correct. On the plus side this account will hopefully give a feel for the wonderful fern flora up there in them there hills! I have emailed some images to Robbin Moran who, where possible, has very kindly supplied me with correct identifications. These instances are mentioned in the text. Non-pteridologists might not know that Robbin Moran is the fern specialist at the New York Botanic Garden with a special interest in South America.

“To a Maidenhair Fern

You pretty thing,
Each dainty frond unbending,
Supple unending,
Like pearls on a string -
Your message in sending
A promise of spring.”

From “The complete verse of Noel Coward edited by Barry Day” - Bloomsbury Publishing.

Many thanks to Alan Ogden for the submission.

Arachniodes standishii

Upside-down Fern

James R. Horrocks

Salt Lake City, Utah

Arachniodes is from the Greek meaning “in the form of a spider’s web” or “spider-like” or “displayed as a spider in a web”, usually alluding to the type species *A. aristata*. Another explanation has it that herbarium specimens obtained and studied by Carl Blume, a botanist, were carefully wrapped in cobwebs. Trying to ascertain the true or intended meaning has only led us into a “web of intrigue”.

The species name is assumed to be after John Standish, a British nurseryman in the mid 1800’s. The common name “Upside-down fern” may best be explained by David L. Jones: “...the dense black sori are visible from the upper side, hence the unusual common name.” It could have just as easily been dubbed the “Inside-out fern”. Personally, the author would have preferred a more distinguished name, especially for such a beautiful plant. (see photo page 35.)

Arachniodes standishii is the largest and certainly the most finely divided of the cultivated members of this genus, being up to four times dissected. In the wild in Japan, it could hastily be mistaken for *A. mutica*, another finely cut tripinnate species, but the fronds of *A. standishii* are described as ovate-oblong to elongate-triangular while *A. mutica* is considered simply ovate to even somewhat triangular in outline. Both can attain a nearly three foot length. *A. standishii* is native to Korea, Japan, and possibly southern China, frequenting forests in the mountains and being quite common in some areas. Specimens from Korea are said to be somewhat larger than those in Japan.

Description: The rhizome is short-creeping, even slightly erect, producing a somewhat vase-like arrangement of fronds, at least more so than in other species of the genus. The stipes are pale green to even straw-colored or brownish and grooved. At the base they are densely scaly but further up the stipe the scales are more thinly distributed. The lower lanceolate scales are brown and membranous. The fronds are a vivid green, somewhat dull to almost glossy, and, as has been mentioned, oblong-ovate to elongate-triangular in outline. The texture is softer than other species of *Arachniodes*, described as thinly herbaceous. The fronds are tripinnate-pinnatifid to more rarely quadripinnate. The rachis is rather sparsely scaly. The pinnae are obliquely spreading, numbering from 10 to 18 pairs, and short-petiolate, tapering to a fine somewhat elongated acute apex. Pinnules are oblong-ovate, thinly herbaceous, and acutely toothed - *Polystichum*-like. The innermost lower pinnules of the basal pinnae are enlarged but not so much so as in other *Arachniodes* species. The sori are medial and cover much of the undersurface of the pinnules. They are dark and found in two rows which are visible on the upper surface. The sori are covered with *Dryopteris*-like orbicular-reniform or kidney shaped indusia, which can sometimes be reddish when young (Ohwi). Spores are often sparsely

produced and ripen late in the season. In spore cultures, only a small portion of the spores prove to be viable.

Culture: *Arachniodes standishii* is a quite pleasant and attractive fern with its semi-evergreen, arching, finely cut fronds. It is at its best in a woodsy well-drained moist loamy soil. Medium to light shade is to its liking and a humid environment is a must. It does not do well in dryer climates. As in many *Arachniodes* species, it is slow-growing and may be susceptible to attack from slugs and snails. This has been a problem for the author, not only with this species but also with *A. simplicior* and *A. cavalerii*. Spore culture can be rather disappointing but this is not necessarily indicative of the genus. Both of the afore-mentioned species *A. simplicior* and *A. cavalerii* are quite fertile. At any rate, *A. standishii* is certainly a beautiful addition to any garden if its requirements are met and you're not afraid of "spider ferns".

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International Field Meetings South East USA Tour....conclusion

25 June – Plants Delights Nursery
Martin Rickard

In previous trips to America, mainly the Seattle area, I have seen ferns I've rarely seen in cultivation before or ferns completely new to me. On asking where they came from the usual answer was from Sue Olsen, Judith Jones or Sylvia Duryee. More recently, however, a new name kept cropping up – Tony Avent at Plants Delights Nursery, North Carolina. Hence one of the great attractions of coming on this trip was the chance to meet Tony and see his collection at first hand. None of us were disappointed!

On arrival we were greeted by Tony. Almost immediately we were being led round the large garden, really a private botanic garden with ferns scattered in suitable shady spots throughout, under a canopy of unusual trees and shrubs intermixed with some wonderful herbaceous plants. Fortunately Tony seems to like cultivars as well as species.

Among the cultivars was an early surprise - a stunning crested form of, I believe, *Woodwardia areolata*. The species purists would not like it, I loved it! Another crested wonder, not hardy for me, was *Microlepia strigosa* f. *Crispa* (I would have thought *Cristata* or even *Ramosa* a more appropriate name). Two crested forms of *Coniogramme intermedia*, 'Shishi' and 'Yoroi Musha,' were eye-catching if not the most beautiful forms. It was also a pleasure to see one of the beautiful *Polystichum acrostichoides* cultivars with crispy serrate pinnae. Somewhat similar but nowhere near so attractive was a rather depauperate bipinnatifid form of *Asplenium platyneuron*.

Adiantum capillus-veneris is one of Tony's specialities. He has about 25 different collections from all over the world. Not surprisingly there are considerable morphological differences between collections. My favourite was 'Fan Dance' with pinnules fan-shaped with about a 90° angle at the point of attachment to its stalk. (...but see also the photo page 34...of the lovely 'Falling Waters' a single digit [Fahrenheit] cold hardy cultivar selected by Tony a number of years ago...editor).

Species were very well represented too. Highlights for me were several coniogrammes; *Coniogramme emeiensis*, in particular, was looking perfect. *Cyrtomium chinense* – similar to *C. fortunei*, but a fresher green and *Blechnum amabile* – a very neat species a little like *B. niponicum* with new pinkish fronds. *Cheilanthes eckloniana* and *C. lanosa* were magnificent specimens. Sadly from my point of view there were few polypods. I particularly wanted to see if anyone could cultivate *P. virginianum*;



Plant Delight's Nursery - John Acock left, Pat Acock right.
Photo courtesy of Richie Steffen

it seems not! One *Polypodium* which did grow very well is one Tony has distributed as *Polypodium vulgare* 'Uulong Island'. I would like to know what Asian pteridologists would call this. It surely cannot be a *P. vulgare* form. I would guess it is a species in its own right.

In this account I have only touched on some of the 1200 collections Tony has at the nursery. Needless to say it would take much longer than the time we had at our disposal to do the collection full justice. Another visit would be good! While many of the ferns grown here would be of marginal hardiness in the UK many would be well worth trying.

After a picnic lunch we all poured into the nursery area where many ferns were snapped up, mainly by the American contingent in our group. All the time we were being chivvied by Kent to get onto the bus for the 270 mile drive to Charleston. I should say it was not an easy task to drag us away!

Despite the slight delay at the nursery we arrived at our splendid hotel, the Andrew Pinckney Inn, in downtown Charleston in good time to have a stroll around the city center before an informal supper. A great day!

26 June – Charleston & Magnolia Plantation Gardens, Drayton

Carolyn Doherty am and Pat Acock pm

Sunday morning before the oppressive heat set in our group gathered for a walking tour of historic Charleston led by an excellent local guide. While our guide informed us about Charleston's colorful history, we discovered a number of unexpected ferns growing in crevices, walls, on trees, and in gardens.

Founded in 1670, surviving the worst earthquake on the east coast in 1886, and more recently ravaged by Hurricane Hugo 21 years ago, Charleston is a living history lesson. We learned to identify original 18th Century buildings by the brick patterns, earthquake refitting features added after the earthquake, cobblestone streets created from no-longer-needed ship's ballast, and differences between wrought iron and cast iron on intricate gates, railings, and other decorative details. Stepping into one of the old, original churches, we found some exquisite Tiffany windows. We then continued past cemeteries which held the remains of some signers of our original Constitution where we noticed 'wives' were referred to as 'consort of' and 'widows' were sometimes mentioned as 'relic of.' This city is the epitome of 'Southern Charm,' having preserved its historic past while growing gracefully into the current century.

The beautiful walls, gardens, and parks provided many sites for ferns to grow and thrive. (see photo page 35.) We found *Pleopeltis polypodioides* growing on the decaying mortar on the tops of very old brick walls and on the huge branches of some stately live oak trees. In the home gardens, parks and wall crevices we also noticed *Pteris vittata*, numerous cyrtomiums, *Asplenium platyneuron*, *Pteris multifida*, *Arachniodes simplicior*, *Pteris cretica* 'Albo-lineata', *Adiantum capillus-veneris* as well as *Polystichum polyblepharum*, *Dryopteris ludoviciana*, and *Dryopteris erythrosora*.

Time was too short. We concluded our morning with a stroll along the waterfront park, past the lovely fountains, and then through the famous Public Market to enjoy the intricate woven basketry made famous by the local artisans.

Afterwards we took a short coach ride to the Magnolia Plantation Gardens at Drayton.

The conservatory was a little dull for ferns, with *Asplenium australasicum*, *A. nidus* and *Christella dentata* as highlights, so we went into the wood edging around the salt marsh on a well laid out path. The wood was a little dry despite bounding on the sea however on one of the lakes an alligator was stalking a heron. Beyond this the wood became a little wetter and the common natural ferns were more in evidence of *Thelypteris kunthii*, *Pleopeltis polypodioides*, *Osmundastrum cinnamomeum*, *Polystichum acrostichoides*, *Woodwardia areolata* and *Asplenium platyneuron*. (see photo page 34.)

27 June – Atlanta Botanic Gardens, Georgia

Pat Acock

Most people had early flights to catch or wanted to rest but five of us who had arrived a day before the start of the tour to find the botanic garden was closed took the opportunity to visit it today. There were many native and a few cultivated ferns in this beautifully landscaped garden. The conservatory was also a delight with many tropical ferns and as we found out later the collection of tropical equisetum Chad Husby had used for his research into this group. (see photo page 34.) The staff was very kind allowing us to browse their fern books in the two libraries and later in the afternoon my son John and I were taken around the back nurseries where many of the more exotic ferns and the research collections were kept.

Conclusion

Pat Acock

Becoming familiar with the most common ferns of the Eastern USA by no means diminished the joy of coming across them with some being present in every wild place we visited. To have the possibility of the special Appalachian spleenwort day so nearly ruined by the inclement weather which suddenly lifted, I am sure added to the joy of actually having the afternoon and for some right up until dusk to make sure we saw as many as we could. After we left the next day, tornadoes struck the area and made us appreciate what a narrow window we had.

Our thanks go especially to Naud and Wim Burnett for all their hard work in both preparation and during the tour as well as for conceiving and bringing a marvelous blend of gardens, wild sites and knowledge to the tour. We also thank Kent Kratz for his support role as ‘goffer’ especially when everyone else was tired after the day’s exertions and to Sue Olsen for her constant support and encouragement of these tours. Gus the driver had many tricky maneuvers on narrow roads with a large vehicle and many a long journey while the rest of us were ‘resting’ and for this we are grateful.

My only sadness was that more people did not avail themselves of such a wonderful excursion. We had room for at least another 12 which would have reduced costs substantially from the modest level we were charged; there were only four this year from the UK. If you would like to talk over any details when the next one is announced, I would be only be too happy to spend the time

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