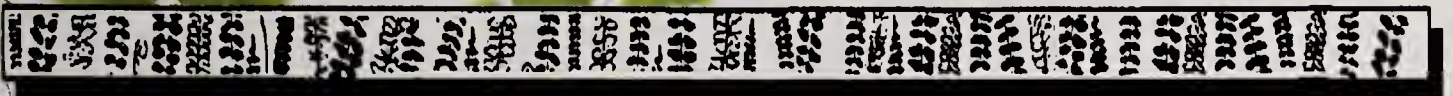




**Hardy Fern Foundation
Quarterly**



Fall 2007

THE HARDY FERN FOUNDATION

P.O. Box 3797

Federal Way, WA 98063-3797

Web site: www.hardyferns.org

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 Stephen Austin Arboretum, Nacogdoches, Texas, Birmingham Botanical Gardens, Birmingham, Alabama, California State University at Sacramento, 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, Lakewold, Tacoma, Washington, Les Jardins de Metis, Quebec, Canada, Rotary Gardens, Janesville, WI, University of Northern Colorado, Greeley, Colorado, 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.

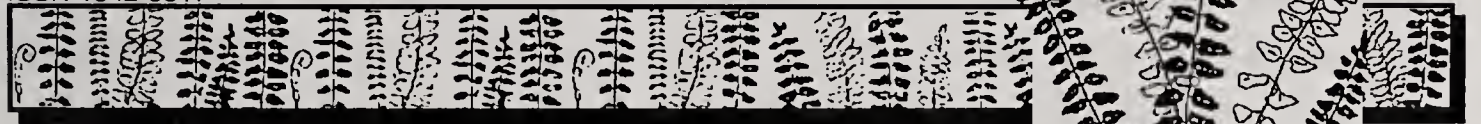
Cover Design by Willanna Bradner

HARDY FERN FOUNDATION QUARTERLY

THE HARDY FERN FOUNDATION QUARTERLY

Volume 17 No. 4 Editor-Sue Olsen

ISSN 1542-5517



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The Spore Exchange Needs You!

Please send your spores to our Spore Exchange Director:

Katie Burki
501 S. 54th St.
Tacoma, WA 98408

President's Message

The first day of autumn has just passed and the sun already is hanging low in the sky. Fall color is creeping in on a few maples and my extremely frilly *Athyrium* cultivars are dangerously close to a full collapse into winter dormancy. Even though everything in the garden is ready for the season's end I cannot let it go. I have already attended several fall plant sales and have several new and choice acquisitions for the yard. I hope this will spur on the creation of the new fern bed I have been thinking about all summer. I hope that many of our members will enjoy their recent purchases from our fern distribution program. I was particularly excited to see the beautiful sterile hybrid *Polystichum x dycei* offered for sale. I will find a featured spot in the new bed for this fine fern.

While I plot my own garden expansion I would also like to congratulate the Bellevue Botanic Garden, in Bellevue, Washington, for their own garden development. The BBG has been revisiting their master plan and will be redeveloping a woodland site into a rhododendron and fern glen. This will create an opportunity to show good landscape practices with ferns and feature appropriate ferns for the region. To assist in the redevelopment the HFF board has approved a \$5,000 distribution from a gift bestowed to the foundation by the late Harriet Shorts toward this project. We are looking forward to the progress and planting of this garden.

Unfortunately, Bors Vesterby has resigned from the board due to an excessive work load. Bors has served for several years and was noted for his expertise in identification of Washington native ferns and his superb skill in photography. Bors will be missed, but I hope we can still count on him to join us in a hike or two in the future. Thank you Bors, for all the help over the years!

A thank you must be given to Jerry Hudgens as well. He has volunteered to create an index for all the back issues of the Fern Quarterlies. We have been in sore need of this for quite some time and are grateful this time consuming job will finally be tackled.

I hope all of us receive a late frost and a mild winter and all of your fall plant purchases find just the right spot in the garden!

All the best,

Richie Steffen

Whitehall Garden Dedicated to Ralph Archer

On June 23, Whitehall House and Gardens in Louisville, Kentucky named their woodland garden for Ralph Archer. Ralph has been active at Whitehall since 1998, with the bulk of his volunteer work done since the fall of 2002 when the Whitehall fern garden was designated a Hardy Fern Foundation Display Garden.

In the beginning, Ralph found good soil but dense *Euonymus* groundcover on the woodland site. Archer and Whitehall's part-time gardener experimented with ways to eliminate the *Euonymus*. Some was physically removed with spades and hard labor. Other attempts injured the *Euonymus* with string trimmers followed with the application of Round-Up. In the end, they discovered that the simplest technique was to cover the ground cover with cardboard and a foot or more of wood chips which slowly suffocated the ground cover. A year later the beds could be planted with ferns and other woodland plants in the decayed chips and cardboard.

Ralph turned a second problem into an advantage. Fallen tree trunks and limbs became a backdrop for ferns, creating one of the first stumperies in the U.S.

Today, there are more than 150 species, sub-species, or named cultivars in the garden. Recently, Ralph added 30 named Victorian cultivars. In a short amount of time, Ralph's contribution of plants and knowledge built the Whitehall woodland garden into the best fern garden between Birmingham and Chicago.

In appreciation of his volunteer work, the board of directors of Whitehall House and Gardens voted unanimously to name the site "The Ralph Archer Woodland Garden at Whitehall, a Hardy Fern Foundation Display Garden," dedicating a bronze plaque on the day the fern author Sue Olsen spoke at Whitehall's Fern Festival.

The profits from the Fern Festival were re-invested into the garden with the construction of a 6' x 6' eastern red cedar tool house which provides a home for Ralph's equipment on site.

The rapid growth of the fern woodland garden exceeded everyone's expectations. With the help of five volunteers who have joined Ralph's team, the garden will become even larger and more beautiful.

Michael Hayman

Whitehall board member

Chairman of the Garden Committee

September 24, 2007

*Ralph and Jean Archer in the
Archer Garden at Whitehall.*

Photo by Mike Hayman.



Cavity Wall for Growing Rock Ferns

Alastair C. Wardlaw

Glasgow, Scotland

Sue Olsen visited here last August and thought that my set-up for growing ferns in cavity-walls might interest readers of this *Quarterly*, so here goes. The structure to be described (of which I have made three) was developed particularly for *Pellaea*, *Cheilanthes* and *Asplenium* species that grow naturally in rock crevices and in man-made walls of stone or brick. My previous attempts to grow some of these ferns in rock-garden beds had frequently ended in failures, due I suspected, to 'excessive winter wet'.

I did not want to have these species of fern in pots indefinitely requiring frequent attention. So I needed an arrangement that would allow outdoor planting while keeping the crowns dry, and the roots moist but well drained and aerated. Figures 1 and 2 provide what I hope, with their legends, are self-explanatory diagrams and pictures.

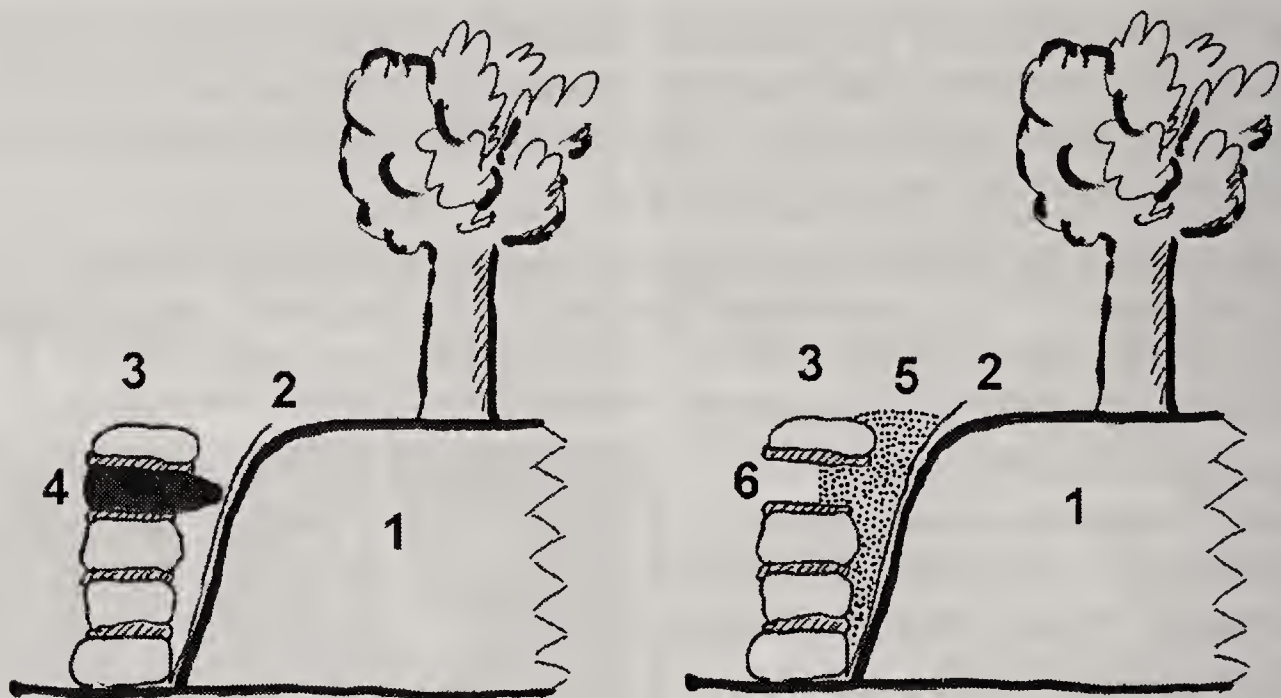


Figure 1. Diagrammatic cross-section of a cavity-wall for growing rock ferns

Left: 1, bank, about 3 feet high, with trees and shrubs (and root-filled soil); 2, sheet of weed-suppressing (but water-permeable) fabric to minimize tree-root penetration into the fern-growth zone; 3, free-standing, cemented stone wall; 4, water-filled, 1-litre plastic soft-drinks' bottle (one of several) cemented into the wall structure. The cementing around the sides of the bottles and the surfaces of the stones was done sparingly, except for the front and top of the wall, to allow unrestricted growth of fern roots throughout the back of the structure.

Right: After the cement had set, each water bottle was punctured, drained and pulled out with pliers. The space 5, behind the wall, and extending into the back half of each bottle cavity, was filled with compost/grit mixture; 6, space for inserting horizontally a well-rooted fern, taken from a 3-inch pot, and leaving a front overhang to keep rain off the fern crown.

Not shown here (but see Figure 2): a) quarter-inch diameter hole drilled above the bottle cavity, for watering-access to fern roots; b) vertical, flat-stone, barrier cemented in front of a planted fern and extending half-way up the entrance, to prevent loss of the growth medium.



Figure 2. Fern wall after planting, and showing the root-watering arrangement.

Left: *Pellaea atropurpurea* in its second year after planting. The white arrow indicates the plug of pinched, quarter-inch, copper pipe which when removed allows a plastic tube to be inserted for gravity-delivery of water down a drilled hole to the back of the fern roots inside the wall.

Right: Watering bottle and tube being used with a juvenile *Asplenium platyneuron* (centre); the white arrow shows the copper plug removed and the watering tube inserted. The other ferns are left: *Asplenium ceterach*, and right: *Asplenium trichomanes*. The wall is north-facing and is partly sheltered from rain by overhead cedar branches. It gets shafts of morning and afternoon sunlight. Not shown are two cheilanthes and several other *Asplenium* species.

The stems of engraved labels sit neatly in holes drilled in the stone.

Some changes I might make if repeating the process are to 1) include more bottles, and therefore planting holes, during construction; 2) choose better-shaped and better-sized stones, so that less cement would be needed to hold the wall together; maybe 3) use lime mortar in place of cement, for lime-loving species; 4) insert the watering holes during the construction (with rubber or plastic tubing that would be pulled out after the cement had set) instead of afterwards having to make holes through stone and cement with a tungsten carbide drill.

Cyrtomium falcatum

Asian holly fern

Japanese holly fern

James Horrocks - Salt Lake City

The name Asian holly fern is probably more proper since it occurs in many localities in the warmer parts of the world other than just Japan. The genus name *Cyrtomium* is from the Greek meaning “arching” in reference to the arching appearance of the netted veins that distinguish this genus from others. It does share features with *Polystichum* including the peltate indusium and the auricles on at least some species of *Cyrtomium*. The differences are rather more striking. The sori are scattered in *Cyrtomium* and the single terminal pinna at the apex is very un-polystichum.

The species name *falcatum* obviously means “falcate” or “sickle-shaped” alluding to the appearance of the pinnae. *C. falcatum* is distinguished from other cyrtomiums for the most part by its glossy fronds. Most other cyrtomiums have a more or less dull finish. In *C. fortunei* and its varieties the pinnae have a dark line down the midrib that is not found in *C. falcatum*.

The habitat of the Asian holly fern is mainly among rocks and epipetric on cliffs. It seems at home in both acid and alkaline soils and will even tolerate clay soils. The range of this fern is interesting. It is found in Japan from southern Hokkaido southward but is mainly found among rocks near the seashore. It is rarely found on inland hills. In Hong Kong it is “found only amongst rocks near the sea, often in very exposed places”.* This may also be true in other parts of China and Korea. It is also native to Taiwan, Malaysia, India, and South Africa. It has escaped in North America, ranging from South Carolina to Florida and Louisiana. A disjunct colony was known in southern California near San Diego. It has also escaped in Hawaii, New Zealand, and Australia. (Perhaps it should be renamed the “Fugitive Fern”.) It is reliably hardy down to Zone 7 but has survived in Zone 6 with protection. The author has grown it in northern Utah and it has survived cold winters here when planted near the foundation of the house. It never grows very large and the one surviving plant I have now has but one frond. Most often it is short-lived here. (Utah is too far from the ocean.)

Cultivars of this species include ‘Butterfieldii’ with serrate margins; the dwarf and somewhat hardier ‘Eco Korean Jade’; the shiny dwarf ‘Maritimum’; ‘Mayi’ with crested pinnae and frond tips; and ‘Rochfordianum’ with fringed glossy pinnae. An interesting hybrid exists between *C. falcatum* and *C. caryotideum* that is hardy in Zone 6.

Description: The rhizome is compact and erect with dense scales. Stipes are tufted with dense ovate to broadly lanceolate dark brown scales near the base. The fronds are dark green and leathery with up to 10 pairs of ovate to narrowly oblong-ovate pinnae.

The pinnae end with an acuminate tip and some sport an auricle. The margins are for the most part smooth although minute teeth may be present. The falcate or sickle-shaped attribute refers to the pinnae curving toward the apex of the frond. A simple apical pinna bearing a single basal lobe is found at the tip. The frond is rounded to broadly cuneate at the base. The entire frond is somewhat ovate in outline. In some plants, the fronds display a somewhat hammered finish while other fronds are smooth. The veins in the pinnae are anastomosing to form several rows of areoles with included veinlets, giving a netted appearance. The sori are numerous and spread uniformly and randomly on the undersurface of the pinnae, a distinguishing feature setting them apart from *Polystichum* which has sori arranged in rows. The indusia are peltate and erose-toothed, quite crowded near the margins. They often detach from older sori. Spores are produced in abundance and this species is apogamous.

Culture: It should be mentioned that some cultivars of *C. falcatum* are hardier than the type. 'Eco Korean Jade' has survived in Zone 6. Other varieties would need protection to exist at all but are probably better left in Zone 7 or 8. As this species is apogamous, it can be propagated readily with plenty of specimens for experimental trials. The cultivars all come true from spore. *C. falcatum* x *caryotideum* is hardy in Zone 6 and possibly Zone 5 with protection while the two parent species are not guaranteed. The arching fronds can attain a length of up to 30 inches with a width of 6 to 8 inches and in some rare instances there may be as many as 18 pairs of pinnae. This is found in only very favorable locations. Eighteen inches or less is more the norm. The holly-like look of this fern contrasts well with more dainty ferns. Average garden soil is suitable and light to medium shade is best as it will burn with too much sun. *C. falcatum* is tolerant of drier soil once established and is also an excellent indoor plant, although it is susceptible to scale insects. In its natural habitat it is more often found near the ocean and not so much further inland and this may be a factor in its failure at higher altitudes. The Asian holly fern is well worth a try with its deep green glossy fronds and can be striking in large mass plantings. For those of us in colder climes where *C. falcatum* would be a poor choice, *C. fortunei* and its varieties are hardy to at least Zone 5. 'Clivicola' and 'Intermedium' are good for height and a variety from Ullong Island off Korea has a slight sheen to it and is very attractive.

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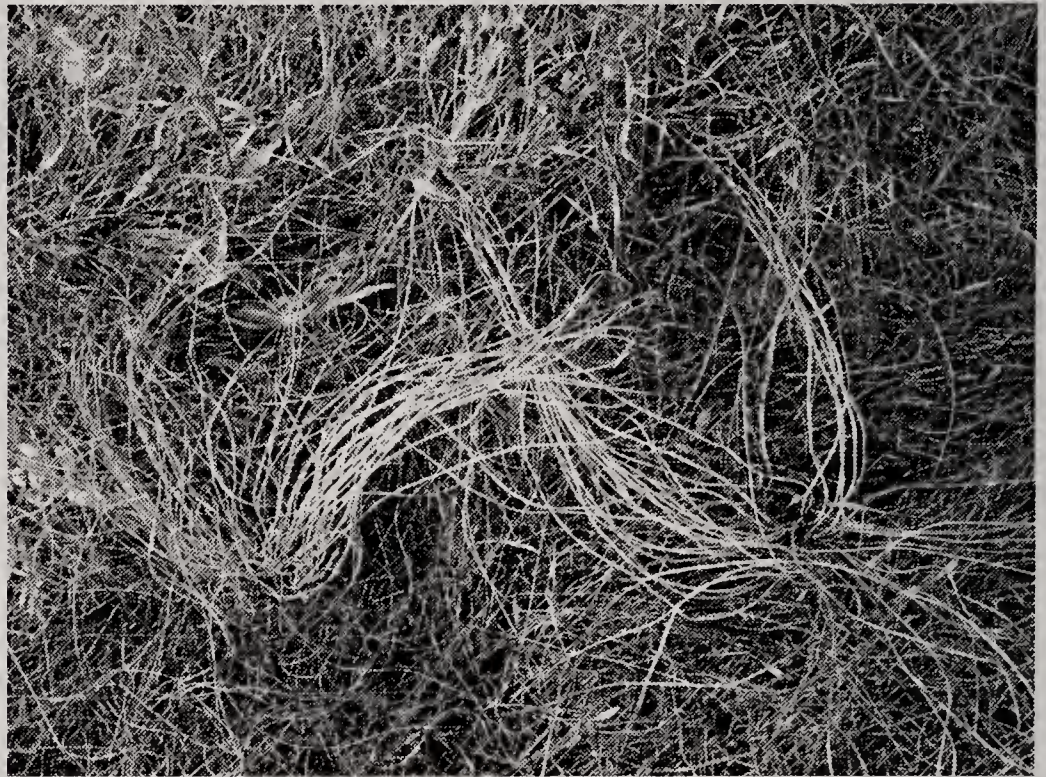
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Ferns in Indiana and Illinois

2007 American Fern Society Fern Foray

Sue Hollis, Kansas City, MO

A greater than usual number of avid pteridologists climbed aboard the bus on Saturday, July 7, because of the joint congress of the Botanical Society of America and the American Society of Plant Biologists in Chicago. The two days of fern field trips were organized by Carl Taylor, George Yatskievych and Michael Homoya, excellent organizers and botanists, not to mention downright nice guys.



Isoetes butleri. Photo by Jerry Taylor

Our destination was Indiana Dunes Lakeshore National Park, which is just southeast of Chicago on Lake Michigan. Our first stop was the Dorothy Buell Memorial Visitor's Center where naturalist Ted Winterfeld provided a short film and some information about the geologic history of the area. Then we were off with Ted to visit Pinhook Bog, a quaking bog that is restricted to visitors because it is so fragile. Ted gave some additional information about the bog, warned about the poison sumac, advised us to eat the ripe blueberries and threatened our well being if we stepped off the floating path or caused the slightest amount of damage. The bog is home to a number of regionally rare plant species.

Then we were off to the bog. From the bus, we could see the common scouring rush (*Equisetum hyemale*) and field horsetail (*E. arvense*) along the railroad tracks.

The bog is sort of a magical place. There were lots of interesting plants, including a shrubby chokecherry with lovely red berries, several orchids not in bloom, cotton grass, and a trio of carnivorous pitcher plants, sundews and hornworts. And there were ferns, not huge numbers but many just peeking out among the other plants. First was water horsetail (*E. fluviatile*) in branching form. Other ferns were marsh fern (*Thelypteris palustris*), Virginia chain fern (*Woodwardia virginica*), royal fern (*Osmunda regalis*), cinnamon fern (*O. cinnamomea*), northern bog clubmoss (*Lycopodiella inundata*) and sensitive fern (*Onoclea sensibilis*). We were loath to leave the enchantment of the plants, water and dragonflies but our leaders whipped us on.

We stopped for lunch at the Calumet Dune Interpretive Center and explored the wildflower garden adjacent, where we found interrupted fern (*Osmunda claytoniana*) and bracken (*Pteridium aquilinum*).

Refreshed, we were off to the Ambler Flatwoods Nature Preserve, owned by the Shirley Heinze Land Trust, where we were joined by two naturalists who provided information about the area and plants. It is a moist wooded area over hardpan with many woodland species. Here we saw sensitive fern, royal fern, marsh fern next to its cousin, New York fern (*T. noveboracensis*), princess pine (*Lycopodium obscurum*) and the fertile hybrid of *Dryopteris intermedia* and *D. cristata*, spinulose wood fern (*D. carthusiana*). We were also treated to Indian pipes (*Monotropa uniflora*), musclewood, and many other trees, shrubs and herbaceous plants. Just as we were leaving, Carl jumped off the bus and grabbed a few stems of common scouring rush to pass around.

We drove to the other side of Ambler Flatwoods and followed another path to find southern ground cedar (*Diphasiastrum digitatum*), common clubmoss (*Lycopodium clavatum*), northern ground cedar (*D. complanatum*), sensitive fern, royal fern, cinnamon fern and spinulose wood fern. It was very informative to see the ground cedars together for comparison.

Sunday morning saw us back on the bus, headed southwest to see northern Illinois ferns. We were joined by Eric Ulaszek of the Midewin National Tallgrass Prairie and Scott Kobal of DuPage County Forest Preserves. Our first stop was Waterfall Glen Forest Preserve, named not for the two waterfalls but for a Mr. Waterfall who was an early president of the Chicago Park District's Board of Commissioners. The area had been a quarry, providing a high quality limestone used widely in building. The preserve is roughly a doughnut shape, surrounding the Argonne National Laboratory.

Our leaders had visited the area a couple of months before and collected some *Cystopteris* fronds from the glen walls. Subsequent examination suggested that there were multiple species and hybrids there, so we were given information on discerning the differences among this confusing fern group and set loose to find as many different kinds as we could. Two clear finds were bulblet fern (*Cystopteris bulbifera*) and fragile fern (*C. fragilis*). Mackay's fragile fern (*C. tenuis*), *C. fragilis* x *C. tenuis* and *C. protrusa* were other possibilities. Several fronds were collected for closer examination with positive identification to come later in the day. We also saw smooth cliff brake (*Pellaea glabella*).

After leaving the glen, we went to a nearby oak savanna where we found rattlesnake fern (*Botrychium virginianum*), lady fern (*Athyrium filix-femina*) and the hybrid of *Equisetum hyemale* and *E. laevigatum*, intermediate scouring rush, (*E. x ferrisii*).

A short visit to nearby Midewin National Tallgrass Prairie located the quillwort *Isoetes butleri*. At first, it looked like we wouldn't find it at all but lots of crawling around with noses to the ground did turn up brown tissues which proved to be the dried quillwort, some with megaspores and some with microspores attached. Carl immediately began making sounds very similar to some I once heard through the walls in a cheap motel.

We stopped nearby for lunch and then continued to Braidwood Dunes and Savanna Nature Preserve. This preserve is known for its sand prairie and sand savanna but is actually a

Continued on page 80

Réunion Part 2

Alan Ogden - Alvechurch, England

January 2007

24th. October, Le Grand Étang, the big lake.

Today we took the road which traverses the island over the Plaine des Palmistes (Plain of palms) past the shrine and statue of Saint Expédit one of the island's most popular, if controversial, saints.

This was the only wet day we had and we donned our waterproofs at the carpark near the lake, about 3 km. from the main road. The lake was formed when a volcanic flow blocked one of the steep sided valleys and it is lushly carpeted with ferns which also cover the trunks of the trees with a coat of epiphytes. We squelched along the rough track which runs round the lake, meeting a working party of locals who were clearing the brushwood..

As we turned the corner in the valley we could see, through the mist, two cascades falling in straight lines from a tremendous height. The land immediately around the lake was a meadow of ferns, *Cyclosorus interruptus*. The path deteriorated and we crossed a riverbed climbing up then down over slippery rocks until we reached a pool and the Bras d'Annette cascades at the head of the valley.

The rain abated and we ate our lunch by the pool. Edmond crossed the water and brought back fronds of several unusual ferns which grew there. *Asplenium unilaterale* is a very attractive fern in which the main vein runs along the edge of the pinna giving a one-sided appearance. *Ctenitis borbonica* and *Diplazium proliferum* were the other finds.

The towering sides of the valley were sheer and it was difficult to imagine what geological forces had been involved in its formation. The isolation, the mist and the cascades gave the place an almost magical quality. Growing in rocky clefts was the small hairy *Elaphoglossum spatulatum*, another little gem.

Slowly we made our way back to the car-park which was enhanced by many tree ferns and then made a short journey to a rather special site, an extremely boggy area where *Os-munda regalis* grew (disputed by Martin) in company with *Gleichenia*, *Sticherus*, *Lycopodiella cernua* and a dwarf *Pandanus* - a very strange collection of plants to find in a marsh.

Dinner back at the hotel followed the usual pattern but someone had discovered an Internet cafe in the next block, full of cigarette smoke and noisy music but useful to be able to send news to friends. A shop nearby sold some really good postcards.

25th. October - Cilaos.

We didn't realise, on our first trip when we gazed down into that huge crater, that we would be visiting the town which had developed in such an unlikely place! It was a long drive up an incredibly tortuous road with some spectacular views. We stopped to take

photographs where the road widened and were introduced to *Pityrogramma calomelanos* var. *aureoflava* which was growing out of a cleft in the cliff. Sad to say, this was another alien which has escaped into the wild.

We approached the town through a tunnel carved in the rock - a tight fit for large vehicles and everything the town needs has to come up this road! Cilaos has a hot spring and enjoyed some popularity as a spa but now the water is also bottled for drinking and very pleasant it is too. There are also vineyards which produce reasonable wines. The local lace and embroidery is very attractive and popular with the tourists.

We were allowed a short break for refreshment and a brief look at the shops in this very pleasant little town. The main street is dominated by the steeple of the church which is painted white and blue. All too soon we were off on another trek almost immediately descending another interminable flight of irregular steps accompanied by the little stream which flows from the thermal springs. There were many alien flowers and ferns, escapes from the town gardens and a small roofed shrine which housed some impressive spiders.

Soon we were into the forest and the path continued remorselessly downwards towards the Cascade de Bras Rouge. The ferns here were very different from what we had seen before and there were some real gems, including *Adiantum reniforme* and *A. thalictroides*. Martin found an *Asplenium* with beautiful filamentous pinnae. *Dryopteris pentheri* growing by the path had a more familiar appearance.

Down in this valley the town was invisible except for the steeple of the church standing out from the trees. I was reminded that what goes down must come back up so I decided to make my way back into town using the road instead of the steps, a bit further but easier on the knees!

It was a very hot day and the Salon de Thé on the main street was a welcome haven as everyone slowly drifted back from the valley. The drive back to St. Pierre was into the setting sun again down the very sinuous road. Just before dinner we had a reminder that this island had its dangers. John had gone out for a short walk round the hotel and was mugged by two youths who relieved him of 30 Euros, fortunately all he was carrying. He was very shaken and had a superficial head wound but was otherwise all right.

26th. October - La Forêt de Bébou-Bélouve.

We took the road which traversed the centre of the island, up into the central hills. Once over the ridge the clouds descended again but we stopped for a short walk at 1,300 metres. Edmond explained the different zones of the island it being drier on the west side and very wet in the east which has the prevailing wind. Here there were three species of *Cyathea* - *excelsa* and *borbonica* which we had met before and *C. glauca*. Possibly there were also hybrids, a nightmare for the taxonomists.

One of the results of the high rainfall was the luxuriant growth of epiphytes and Pat showed us one tree on which he had counted 17 fern species! In addition there were many orchids, mosses and lichens.

Continued on page 76

Réunion Part 2 *continued from pg. 75*

We joined a footpath, Le Sentier de la rivière, which was very muddy in some places and rocky in others. The path had been “improved” by logs placed crossways in the mud. The woods were silent but for a few small birds and amazingly there were no mosquitoes!

This place was a botanist’s dream with unfamiliar species every few metres. The path began to zig-zag downwards with many irregular steps and an occasional ladder until we came to a boulder strewn river bed. Stonechats were hunting the few insects and a swiftlet swooped above. There was little water in the river but it was not difficult to imagine what a torrent it would become with the heavy rain which occurs here, up to four metres in a year!

A large fern *Blotiella pubescens* which had hairy fronds and a trunk caught my attention and it was striking the way in which the tree ferns towered above the forest canopy in contrast to the usual habit in other lands.

We stopped for lunch in the Forêt de Bélouve and after lunch explored a steep slope above a car-park. Trees have been introduced to Réunion for timber; one is *Cryptomeria* from Japan which grows tall, straight and quickly. We visited a plantation of these trees and it was interesting to see what would grow beneath them.

27th. October - La Forêt de la Vallée Heureuse.

Before our main trip of the day we went to look at a stone wall in the town where *Actiniopteris australis* grew - not very impressive and looking a bit like grass I thought. On this day, after collecting our bread, we headed east along the coast road, a long way past St. Joseph before turning left to climb a steep rocky track which led to a small kiosk at 800 metres on the southern flanks of the volcano. Here there was a *Cryptomeria* forest planted in 1966 on a lava flow which was 400 years old.

Once we had passed through the cryptomerias we came into native forest where there was a rough track following a pipe which brought water from a source high in the hills

down to the community on the coast so our walk was accompanied by occasional gurgling.

Once again the trees were loaded with epiphytes and I was delighted to meet *Trichomanes meifolium*, the most unusual filmy fern I have ever seen. The whole frond is crisped and three-dimensional so that it resembles a bottle brush. I was impressed to see huperzias growing on the trunks and branches of trees.



*Pat Acock in mossy headdress.
Photo by Alan Ogden.*

There were big pteris and marattias which are always impressive. Higher up where the trees began to thin out we found *Blechnum tabulare*. Some of these were huge with trunks about two metres high, Martin was delighted with them. Some had fallen and then begun to grow upwards again so the total length of the trunks was much longer than two metres.

We had lunch in a dry river bed and were amused to find a discarded two litre Coca-Cola bottle - they get everywhere!

On the way back we found a beautiful fern growing by the side of the track, *Sphenomeris chinensis* which is indigenous despite its name!

Our van delivered Edmond back to his home in St. Pierre where we met his delightful wife Marie-Françoise who invited us in for a drink! The garden was fascinating as one might expect with some huge staghorn ferns and many trees draped in Spanish Moss. Marie-Françoise enthusiastically harvested some for us which we draped on Patrick as it matched his beard very well!

Much time was spent looking at the curios our hosts had collected and drinking Edmond's stock of beer so we arrived back rather late for dinner. No matter, it was karaoke night again!

28th. October. Sightseeing and the Botanical Gardens.

We were allowed the morning off to go sightseeing and shopping for presents and souvenirs. The top shops are in the Rue des Bons Enfants, two blocks back from the seafront. There are some famous names and many jewelry shops. I found a pendant which my wife has been wanting for some time - what luck - but a better place for souvenirs was the covered market. This was an Aladdin's cave of spices, carved wood, soft toys and embroidery. I stopped at a bar and discovered "pain d'épice" which goes well with coffee. I also discovered that below the decking around our hotel's swimming pool was a casino and "slots".

After lunch we set off for the west coast and at St-Leu turned inland to Les Colimaçon to find the Conservatoire Botanique National de Mascarin, an attractive garden in the grounds of an unusual Creole mansion built by the Marquis of Chateauvieux in the 1850s. This was laid out in collections of various families of plants, sadly many unlabelled but fascinating to examine. There was a good view of the coast but rain was threatening all the time we were there. There was also a good shop with an excellent range of books.

Back at the hotel we had Edmond and his wife to dinner. We had speeches and presentations by the pool and said our goodbyes. Edmond's knowledge and enthusiasm had added immeasurably to the value of our trip and we will always be grateful to him.

29th. October. We saw the sights on the way back to the airport.

We packed our bags which only just fitted into our transport. The plan was to spend the

Continued on page 78

Réunion Part 2 *continued from pg. 77*

day in completing the circumnavigation of the island, to see the sights and do all those tourist things we had not been able to do during our busy expeditions. We set off at 9:30 and headed east.

Our first stop was at Pointe de Langevin near St. Joseph. The guide book describes the south coast as “tortured volcanic landscapes, secret coves and wave-whipped headlands” and that is what we saw. The waves come rolling in from the Indian Ocean and smash against the lava cliffs sending spectacular fountains of water into the air. The sky was a beautiful blue giving some lovely scenic photograph ops.

Further along the coast we pulled in for a luxury -morning coffee- at a roadside cafe where the staff coped admirably with our large group. Our next stop was where the coast turns north and the recent lava streams from the volcano have reached the sea. These cross the road and it was interesting to see the old road buried beneath the aa type of lava flows which occurred here in 2002. These were already being invaded by plants particularly *nephrolepis*. A crisped variety which we had seen on a wall by the hotel occurred here too along with *Dicranopteris* and *Humata*.

A few hundred metres further up the road there was another flow dated 2004 but this was ropy lava “lava cordée” or “pahoehoe” which again was colonised by ferns including the introduced *Pityrogramma* and *Nephrolepis abrupta*.

Here there were some roadside stalls selling a variety of food and vegetables. We stopped for lunch and I bought a bunch of vanilla pods which smelled divine. This orchid is cultivated in quantity here although the Mexican bee which pollinates it is missing. In 1,841 a 12 year old slave Edmond Albius discovered how to do it and started an industry.

Pressing on, we came to a local beauty spot, Anse des Cascades near Ste-Rose. The clouds moved in and rain threatened but the place was full of activity with picnics and children playing under the trees. We were fascinated by the *Pyrrosia lanceolata* which rambled over the tree trunks and the Papaya trees bearing fruit.

Our final stop was at the Church of Ste-Anne just south of St.Benoit. This flamboyant structure is a big attraction. The facade of the church is covered in elaborate stucco work with depictions of fruit, flowers and angels. Inside, the colourful murals and ceilings are striking rather than tasteful, the Sistine Chapel it ain't. Needless to say our party was interested in the ferns which had colonised the facade - there were four species including *Psilotum nudum*!

The rest of the drive was increasingly urban and finally Roland Garros International Airport offered the chance of a leisurely drink and a snack while the day gradually faded into dusk. There were many bats patrolling the front of the airport, no doubt attracted by the insects coming to the lights. These are the only indigenous mammals on Réunion.

The overnight flight back to France was much less turbulent and we were able to get some sleep. We made our farewells at Charles de Gaulle airport and gave our thanks to Pat and Paul for organising such a wonderful experience. Réunion has 700 indigenous plant species of which around 250 are ferns - you won't find this proportion in too many places!

Notes.

The cemetery at St-Pierre contains the grave of the bandit and sorcerer known as Sitarane. He was executed in 1911 for terrible crimes but his grave is still covertly used for black magic rites.

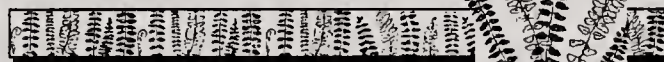
Réunion once had a dodo-like bird called solitaire and giant tortoises but these were polished off by the early settlers.

Saint Expédit may have started as a box of bones, religious relics sent to Paris from Rome with the word "expedito" (expedited) on the lid. This was mistaken for his name and a Chapel was dedicated to the saint who soon began to work wonders and was brought to Réunion in 1931 when the first of many statues was erected. In recent years he has developed voodoo overtones and has also been adopted into the Hindu faith!

Edmond Albius who discovered how to pollinate vanilla (1841) was freed from slavery but died in poverty. Many people profited from his discovery but the industry collapsed when it was found how to make synthetic vanillin from coal. The orchid blooms last only a few hours so the hand-pollinators need to be quick! Coca Cola is the biggest single world buyer.



THE HARDY FERN FOUNDATION QUARTERLY



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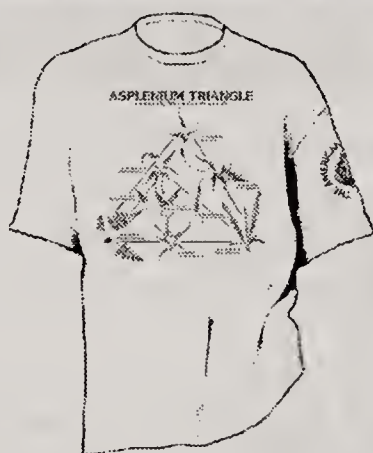
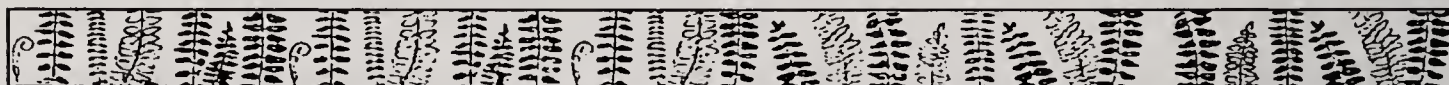


Ferns in Indiana and Illinois *continued from pg. 73*

number of small different habitats in close proximity. A wet ditch by the road yielded royal fern, marsh fern and sensitive fern growing with *Spirea alba*. Just across the ditch was bracken at the prairie edge and into the prairie a bit was northern adder's-tongue (*Ophioglossum pusillum*) and a variety of wildflowers.

Past the prairie, a savanna was floored with a sea of bracken. On one side, it sloped downward to a more moist area with many interesting plants, including all three osmundas very close together. A power line cut through the savanna which was completely open to the sun and had yet another variety of plants but no ferns reported. We did not have time to explore this place as much as we wanted but had plenty of time for each of us to obtain our fair share of ticks.

After a quick stop for ice cream, we headed back to our hotel. Many thanks to our leaders who managed to pack an incredible amount of diversity into our field trips. Their organization was perfect and went off without a hitch. Thanks also to the young men who generously gave an arm to us older folks when needed. We couldn't have made it without you.



AFS T-Shirts Hot Off The Press

We have new t-shirts and they look good!

The new 100% no-shrink gray Beefy T shirt features the *Asplenium* triangle developed by Dr. Herb Wagner and uses illustrations lifted from Carl Taylor's *Ferns of Arkansas*. The AFS logo is shown on the left sleeve.

These treasures are available in sizes Small, Medium, Large and Extra Large for only \$10 each – no tax. You can obtain yours by contacting Sue Hollis, 3311 Gillham Road, Kansas City MO 64109-1749, ferngro@att.net. Mailing will cost an extra \$3.50 for one shirt and \$1.00 for each additional one. Make checks payable to Sue Hollis. Please include your own email address.

New Members

Maryanne Gryboski

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Dorothy Lennard

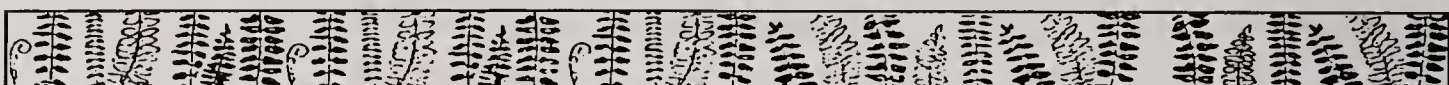
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