



Fiddlehead Forum

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Annual Meeting and Foray

The annual meeting of the American Fern Society will be held this year in conjunction with other biological societies (AIBS meetings) at the University of North Dakota in Grand Forks, ND, August 7-11.

The annual fern foray, held each year just before the annual meeting, will take place August 5-7 at Itasca State Park, Clearwater County, Minnesota. (The site of the AIBS meetings, Grand Forks, North Dakota, is in a prairie region, which is poor in ferns.) The Lake Itasca area is rich in ferns with boreal forest, deciduous forest, and prairie all well-represented. Numerous lakes, ponds, bogs, and streams provide additional habitat diversity. The fern species here are typical of northeastern North America. *Botrychium*, *Equisetum*, and *Lycopodium* are especially well-represented.

For additional foray information and reservations, contact Dr. Tim Reeves, Division of Science & Math, University of Minnesota, Morris, Minnesota. Reservations should be made by July 25, 1983.

Looks at BOOKS

FERN FINDER, by Anne C. Hallowell and Barbara G. Hallowell, Nature Study Guild (Box 972, Berkeley, CA 94701), 1981; 64 pages; \$1.50. This pocket-sized (4x6"), soft-covered book is one of the most delightful fern identification books I have seen - delightful in that it is concise, well-illustrated, and quite accurate. After an initial 8 pages of illustrating important characters, the remainder of the book is essentially a highly illustrated key to the species of ferns of northeastern and central North America. The key is so self-explanatory and so well-illustrated that the usual agonies of using keys are happily lacking. The reader is carefully led along with each character figured along the way, and finally each species has its frond drawing, habitat and dimensions, and range map.

The fern allies are not covered, but the fern species coverage is nearly complete (lacking only *Asplenium septentrionale* and *Cystopteris protrusa* and the *Marsilea* and *Azolla* species-names are not mentioned). The terminology is easy to understand, and that together with the illustrations make identification fairly certain. Some difficulty may be encountered in *Dryopteris* (to no one's surprise) in that the most useful character for some species, the presence or absence of glands, is not used. This is a relatively small matter, though, since most people have difficulty seeing the glands anyway. The book is highly recommended.

Eth Williams Merry Stems Growing Tips for Horticulturists

YOUNG HARDY FERNS carried over in my greenhouse have done well for the last three years at temperatures varying from near freezing to a few degrees above 50 degrees. Last year at 43 degrees, root growth was excellent. This year the temperature was dropped a few degrees (to 38-40) to see the effect. Dormancy was more pronounced and root growth was slowed. Some ferns browned-off completely while the growing tips stayed firm and green. The evergreen ferns stayed green and strong and gave off some cheer. Fewer non-hardy ferns and non-ferns survived; everything went deeper into dormancy and naturally took longer to respond when the thermostat was turned up to 50 degrees in February, earlier than last year.

The conclusion is that the temperature range from 43 to 50 degrees gave the hardy plants the needed cold spell, and anything below that, down to 32 degrees has the disadvantage of severely limiting the other plants. The effect of such a cold greenhouse on me was also noticeable. On cloudy days the greenhouse with the browned-off ferns was so cheerless that it took an effort for me to remember to go down there--just more winter, this time at close range instead of the customary brightness. Of course, every degree of temperature drop below 50 degrees means a noticeable drop in the fuel bill, but one has to consider the unconscious backlash of a depressed grower! Next year, 50 degrees!

TERRARIUM FERN GROWTH (in the house) was unusually lush this past winter, and at one point the fecundity extended to black fern aphids as well. Insecticidal Soap is effective, Pest Strips (with care) work, but trying to get an effective spray out of a container held almost upside down in a 20" high terrarium with one's elbow banging into the glass walls told me, not for the first time, that there must be a better way.

A simple, effective way to control aphids, slugs, and tiny snails is to sprinkle Diazinon Granules under the affected plants. The light-colored granules are not too slightly, but it doesn't take them long to work, and then they can be covered up with a dusting of potting soil. One can be selective about where the granules land, and if some fall on leaves, they are easily dislodged with a shake of the plant.

Diazinon, made by ORTHO DIVISION OF CHEVRON CHEMICAL CO., is highly biodegradable; it starts to break down

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The Selective Culture of Fern Variations

by Judith I. Jones of

FANCY FRONDS (Hardy Fern Nursery) 1191 4th Ave., W., Seattle, WA 98119

The discipline of selective culture as applied to fern propagation is as little practiced in the United States as it is understood. Until recently, all departures from the normal specific form were regarded by botanists as more or less monstrous, and to that extent unworthy of study. Varietal types were generally termed 'garden forms,' quite ignoring the fact that many of them were found under indisputably wild conditions and were purely natural sports or mutations. Fern varieties originating in this way and the progeny raised from these have been fully accredited by botanist and horticulturist alike in England. However, in the United States the difficulty of obtaining clearly written works on the subject, rash guess-work by growers who perpetuate their errors as fact, and a stubbornness to accept the fine analytical work done by English horticulturists over the last one hundred years have kept the art of the selective culture of fern variations in a miasma of confusion. In the process of delving into this field I have been fortunate to receive tutoring from many knowledgeable English enthusiasts, professional and amateur alike. It is now time that I pass my findings on to others so that they may initiate or improve upon their own course of fern propagation and selective culture. (footnote 1)

We find that if we, as fern hunters, carefully examine a large number of plants in their natural environment, departures from the normal specific type are by no means infrequent. These departures are mostly of a minor type, but every now and again examples of a very marked character present themselves and the peculiarity pervades the entire plant, including the reproductive system. As a result of this, not only is the individual markedly modified, but its progeny are similarly or even more markedly affected, which of course presents the selective cultivator his opportunity. Some species we find to be more constant to the normal type than others. With Adiantum trichomanes, the maidenhair spleenwort, for instance, we may examine hundreds without finding any appreciable departure, while where it is abundant, Athyrium filix-femina, the lady fern, will show so much variation in dissection, habit, and general detail that it is difficult to match the fronds of any two individuals.

Once a plant has 'sported,' its seeds or spores are apt to vary in two directions: reversion or approach to the normal or further development of the 'sport' characteristic. It is clear that by selection, wild types could be improved or enhanced in their varietal features. Inasmuch as this faculty arose in the original find under natural conditions, as in the majority of our temperate fern variations, it is also clear that the eventual developments were not due to 'culture.' Even the secondary results of selection are not properly termed 'garden' forms, which implies that they have necessarily arisen by garden influence. Yet quality variations, when found, should be removed from the natural site to the protection of a well-cared garden because they are generally less able to compete with their normal counterparts. Variations such as tasselling or congesting are usually at the expense of height and perhaps even of normal growing vigor. This implies a certain handicap to competitive survival in the natural environment. However, caution should be exercised in removing naturally occurring variations so that you are not tampering with a variant of a recognized rare or endangered species. Be conversant with regional fern publications and know the normal variability of the material thoroughly.

Amid all the diverse leaf variations in the plant world we find one rare type of variation that all species of ferns seem capable of, namely, that of forming tassels at the tips of the fronds and their subdivisions. This eccentricity is the more remarkable as no species shows it as a normal character, though it must be assumed to occur sporadically on most species world-wide. Of the almost fifty species of ferns in England, only a dozen or so have failed to yield examples of crested forms. This faculty would appear to be correlated with the apical development of the frond and its subdivisions, that is, cellular growth is engendered at the extreme tip.

If we were to examine the incipient bud on a tree, we would find it consists of a compact bundle of young leaves, which emerge, grow and expand in all directions so that the outline alters but little except as regards size. A fern frond at the same stage is a small fleshy knob, devoid of any indication of its foliar structure. It is, in fact, only a rudimentary stalk, tipped with a mass of incipient cells. By means of these cells the stalk lengthens, and an incurved tip is formed. Within this a process of division and redivision proceeds to the extent determined by the form of the frond, simple or divided, until, if divided, all the parts of the frond in a small and delicate form may be found to exist in the still curled up terminal at the top of the now long stalk. After this, growth is uniform, leaf fashion; the coil unrolls, the parts straighten themselves, and before long we see the flat frond full size and mature. Obviously this mode of development is more compatible with tasselling at the tips than that of a leaf of a flowering plant.

In many instances the tendency to split is developed erratically in the form of irregularly branched and tasselled fronds. In others it so predominates over the normal tendency to produce a flat frond, that the whole fern is a bunch of tassels so closely set as to resemble a ball of moss. Here, then, is a whole range of frond forms which have no counterpart in flowering plant leaf forms. There is an organized system for qualifying and naming these variations, based on historical precedence and years of study, awaiting publication in England. This outline works on the same principle as an identification-key. While not providing all the answers, it definitely guides the selective cultivator to a clearer understanding of types of variation and their proper denomination. (2)

When a fern has yielded a 'sport,' the spores, as a rule, inherit the peculiarity. However, experienced selective cultivators recognize that the peculiarity may appear in different grades in the progeny, being more emphasized in some and less in others. Thus, when spores of a supposedly 'constant sport' are sown, they reproduce the new type, but they very often do so in different degrees, some reverting more or less to normal, while others show the new character on still more marked lines. There are no absolutes in this process, and while you may expect a certain number of carbon copies of the parent, do not expect each and every sporeling to be that exact variation. There is no guarantee that every sporeling will be like the varietal parent and must not be blindly labeled as such until the plant has matured and been carefully identified. Here is where a knowledge of many variations and some years of propagating experience become essential.

One sowing of Athyrium filix-femina 'Corymbiferum'

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Fern Sources in the United States

Compiled by Will Morrissey

The 1979 list contained 550 species and varieties; the 1981 list had 525. This year our fern growers have set a new record: 662 kinds of ferns and 'fern allies' are now available.

Nurseries are listed in alphabetical order by state, with a letter code preceding each name. Please note whether the nursery charges for its catalogue; this will save you the bother of extra correspondence. Fern nomenclature, that perennial problem, shows itself again, and

cultivars listed by nurseries may sometimes perplex even the experts. The ones we are not sure of have been listed after the names of the other species in their genus.

Many nurseries use obsolete nomenclature and some misidentify plants (as do we all). Furthermore, we cannot vouch for the quality or value of the plants. We are not promoting the listed dealers but merely listing what we have found to be available. Caveat emptor! There is no Pteridophile Protection Agency.

Fern Sources

ALFHF	Fern Hill Farm Route 3, Box 305 Greenville, AL 36037 \$1	MeCGC	Conley's Garden Center Boothbay Harbor, ME 04538 \$1.50	OhCHG	Country Hills Greenhouse Rte 1, Dept F Corning, OH 43730 \$2.50
CaPS	The Plant Shop's Botanical Garden 18007 Topham Street Reseda, CA 91335	MsAEA	Arthur Eames Allgrove North Wilmington, MA 01887	OhF	Fronds P.O. Box 20026 Cincinnati, OH 45220
CnLG	Logee's Greenhouse 55 North Street Danielson, CT 06239	MsBG	Blackthorne Gardens 48 Quincy Street Holbrook, MA 02343	OrS	Siskiyou Rare Plant Nursery 2825 Cummings Road Medford, OR 97501 \$1
CnWFF	White Flower Farm Litchfield, CT 06759 \$5	NjEG	Edelweiss Gardens P.O. Box 66 Robbinsville, NJ 08691 50 cents	PaVW	Vick's Wildgardens, Inc. Box 115 Gladwyne, PA 19035 50 cents
FLFS	Mrs. Frank Skula 130 N.W. 192 Street Miami, FL 33167 SASE	NcGBR	Gardens of the Blue Ridge P.O. Box 10 Pineola, NC 28662 \$2	TnSWG	Savage Wildflower Gardens P.O. Box 163 McMinnville, TN 37110
FLJH	Jerry Horne 10195 S.W. 70th Street Miami, FL 33173 SASE	NcTL	The Three Laurels W.W. Cahagan, Owner Madison County Marshall, NC 28753	VtP	Putney Nursery Putney, VT 05346
FLRO	Robert Oman 3011 N.W. 18th Terrace Miami, FL 33125 SASE	NyJS	John Scheepers, Inc. 63 Wall Street New York, NY 10005	WaFF	Fancy Fronds Judith I. Jones 1911 4th Avenue West Seattle, WA 98119 SASE + 50 cents
ILIG	Illini Gardens P.O. Box 125 Oakford, IL 62673	NyVB	Van Bourgondien 245 Farmingdale Road P.O. Box A Babylon, NY 11702		

Species Available

ACTINIOPTERIS	OhF, OrS, PaVW, TnSWG	tenerum 'Farleyense' CaPS, OhCHG
australis CaPS	'Imbricatum' CaPS	'Fergusonii' CnLG, OhCHG
ADIANTUM	'Subpinnatum' OrS	'Fishtail' OhCHG
anceps OhCHG	pendactylon CaPS	'Marsha's Pride' OhCHG
bausei OhCHG	peruvianum CaPS, OhCHG	trapeziforme CaPS, OhCHG
bellum OhCHG	pulverulentum CnLG	venustum OrS, WaFF
capillus-veneris ALFHF, OhCHG, OrS	raddianum CaPS	villosum OhCHG
'Fimbriatum' OhCHG	'Cardoza Gardens' OhChg	wagneri 'Magnifica' OhCHG
'Imbricatum' OhCHG	'Cluster Glory' OhCHG	'Bi-Color' NjEG
'Scintilla' OhCHG	'Fritz-Luthii' NjEG, OhCHG	'Sea Foam' CnLG
caudatum CaPS, OhCHG	'Genevieve' CaPS	'Tinctum' CnLG
concinnum OhCHG	'Gracilimum' CaPS	'Wrightii' CnLG, NjEG
formosum CaPS	'Lady Geneva' CnLG	sp. (Thailand) CaPS
hispidulum CaPS, CnLG, NjEG, OhCHG	'Ocean Spray' CaPS, OhCHG	AGLAOMORPHA
'Leatherman' CaPS	'Pacific Maid' CaPS, CnLG, OhCHG	brooksii FLFS, FLJH, FLRO, OhCHG
'New Zealand' CaPS	'Splendens' OhCHG	coronans CaPS, FLFS, FLRO
jordanii OhCHG, WaFF	'Thread Leaf' OhCHG	'Pseudo-drynaria' FLRO
macrophyllum OhCHG	'Tuffy Tips' OhCHG	heraclea OhCHG
'Variegatum' OhCHG	'Variegated Tesselate' OhCHG	meyeniana CaPS, CnLG, FLFS, FLRO,
microphyllum CnLG, OhCHG	'Variegatum' CnLG, OhCHG	NjEG, OhCHG
pedatum CnWFF, ILIG, MeCGC, MsAEA,	rosum CaPS	morbilosa FLFS, FLRO, OhCHG
MsBG, NcGBR, NcTL, NyVB, NyJS,	seemanii OhCHG	pilosa FLRO, OhCHG

splendens FlFS, FlJH, FlRO, OhCHG
 superba FlFS, FlRO, OhCHG
 'Roberts' CaPS
 sp. FlRO, OhCHG
 sp. (New Guinea) CaPS
ANEMIA
 oregana CaPS
 phyllitidis OhCHG
ARACHNOIDES
 aristata OhCHG
 ___ 'Variegata' CaPS, OhCHG, WaFF
ARAIOSTEGIA
 hymenophylloides OhCHG
ARTHROPTERIS
 articulata OhCHG
ASPLENIUM
 antiquum FlRO, OhCHG
ASPLENOSORUS
 ebenoides CnLG, OrS, WaFF
ATHYRIUM
 distentifolium OrS
 filix-femina ALFHF, CnWFF, IIIG,
 MeCGC, MsBG, NcGBR, NcTL, NyJS
 NyVB, OhF, PaVW, VtP
 belangeri CaPS, OhCHG
 bulbiferum CnLG, NjEG, OhCHG
 cymbidifolium OhCHG
 daucifolium OhCHG
 longissimum FlRO, OhCHG
 marinum OhCHG
 mayi OhCHG
 nidus CaPS, NjEG, OhCHG
 ___ 'Avis' CnLG
 ___ 'Crispum' OhCHG
 ___ 'Scolopendrioides' FlRO
 platyneuron ALFHF, MeCGC, MsAEA,
 MsBG, NcGBR, NcTL, OhF, OrS,
 PaVW, TnSWG, VtP
 simplicifrons OhCHG
 trichomanes IIIG, MeCGC, MsAEA,
 OrS, PaVW, VtP
 ___ 'Incisum' OrS
 viviparum CnLG
 sp. (Thailand) CaPS
 ___ f. rubellum OhG, TnSWG
 ___ 'Congestum Grandiceps' OrS
 ___ 'Congestum Cristatum' WaFF
 ___ 'Corymbiferum' OhF
 ___ 'Craigii' OhF
 ___ 'Cristato-Confluens' WaFF
 ___ 'Cristato-Setigerum' OhF
 ___ 'Cristatum' OhF, OrS, WaFF
 ___ 'Deficiens Caudatum' OhG
 ___ 'Fieldii' OhF, OrS, WaFF
 ___ 'Frizelliae' OhF
 ___ 'Minutissima' OrS, WaFF
 ___ 'Plumosum' OhF
 ___ 'Victoriae' OhF
 niponicum CnWFF, OhCHG, OhF, OrS,
 WaFF
 pycnocarpon IIIG, NcTL, NyVB
 thelypteroides CnWFF, IIIG, MeCGC
 MsBG, NyVB, VtP
AZOLLA
 filiculoides OhCHG
BELVISIA
 califolia OhCHG
 mucronata OhCHG
 platyrinchos OhCHG
 revoluta OhCHG
BLECHNUM
 brasiliense CaPS
 gibbum CnLG
 ___ 'Moorei' CnLG, OhCHG
 occidentale CaPS, CnLG, OhCHG
 orientale CaPS
 penna-marina OrS, WaFF
 spicant OrS, WaFF
 ___ 'Minutissimum Hall' OhF
BOLBITIS
 heteroclita OhCHG

rhizophylla OhCHG
 sp. 'Wara-no-o' OhCHG
BOTRYCHIUM
 virginianum IIIG, MeCGC, NcGBR
CAMPTOSORUS
 rhizophyllus MeCGC, MsAEA, MsBG,
 NyJS, OrS, PaVW, TnSWG, VtP
CHEILANTHES
 californica CaPS
 fendleri OrS
 gracillima OrS
 lanosa OrS
 siliquosa OrS
 tomentosa WaFF
CHRISTELLA
 cyclosorus 'Dentata' CaPS
CHRISTIOPTERIS
 varians 'Dwarf' CaPS
CIBOTIUM
 schiedelii CaPS
CIONIDIUM
 moorei CaPS
COLYSIS
 ampla OhCHG
 elliptica FlRO
 hemionitoides OhCHG
 membranifolia OhCHG
 pothifolia OhCHG
 wrightii FlRO
CONIOGRAMMA
 japonica 'Variegata' FlRO, OhCHG
CRYPTOGRAMMA
 crispa OrS
CYATHEA
 rebecca FlJH
CYRTOMIUM
 caryotideum OhCHG
 falcatum CaPS, CnLG, NjEG
 ___ 'Butterfieldii' WaFF
 ___ 'Cristatum' OhCHG
 ___ 'Rochefordianum' CaPS, OhCHG
 fortunei OhF
 macrophyllum OhCHG
CYSTOPTERIS
 bulbifera MeCGC, MsBG, NcGBR, NyJS,
 NyVB, VtP
 fragilis IIIG, NcTL, NyJS, OrS, VtP
DAVALLIA
 brooksii OhCHG
 bullata OhCHG
 canariensis ('portugal') NjEG, OhCHG
 denticulata FlFS, FlRO, OhCHG
 divaricata FlFS, FlRO, OhCHG
 ___ 'Mayi' OhCHG
 dimerpha OhCHG
 embolstegia OhCHG
 epiphylla CaPS, FlFS, FlRO, OhCHG
 fejeensis CaPS, FlRO, OhCHG
 ___ 'False Plumosa' OhCHG
 ___ 'Major' CaPS, FlFS, OhCHG
 ___ 'Minor' FlFS, FlRO, OhCHG
 ___ 'Plumosa' CnLG, OhCHG
 griffithiana MjEG, OhCHG
 japonica FlFS, FlRO, OhCHG
 mariesii ('bullata') CaPS, FlFS,
 OhCHG
 ___ 'Stenolepis' OhCHG
 pentaphylla (see Scyphularia)
 pyxidata OhCHG
 solida CnLG, FlFS, FlRO, OhCHG
 ___ 'Major' OhCHG
 ___ 'Philippines Ornata' OhCHG
 ___ 'Ruffled Ornata' OhCHG
 tenuifolia CnLG
 trichomanoides OhCHG
 ___ 'Barbata' OhCHG
 ___ 'Lorrainii' FlFS, OhCHG
 ___ 'Minor' OhCHG
 'Bongo Bongo' FlRO
 'Penang Hill' FlRO

'Portugal' FlRO
 'Red Toes' FlRO
 sp. (Borneo) CaPS
DAVALLODES
 hirsutum FlFS, FlRO, OhCHG
DENNSTAEDTIA
 punctilobula CnWFF, IIIG, MeCGC,
 MsAEA, MsBG, NcGBR, NcTL,
 NyJS, NyVB, PaVW, VtP
DIDYMOCHLAENA
 truncatula CaPS, OhCHG
DIPLAZIUM
 tomentosum CaPS
DOODIA
 blechnoides OhCHG
 caudata OhCHG
 media ('aspera') CnLG, OhCHG
 sp. CnLG
DORYOPTERIS
 pedata 'Palmata' CaPS
DRYMOGLOSSUM
 piloselloides CaPS, OhCHG
DRYNARIA
 bonetii FlJH, FlRO, OhCHG
 descensa FlRO, OhCHG
 membranacea FlFS
 quercifolia CaPS, FlRO, OhCHG
 rigidula FlRO, OhCHG
 ___ 'Whitei' OhCHG
 sparsisora FlRO, OhCHG
 sp. (Malaysia) FlRO
 sp. (Philippines) FlJH, OhCHG
 sp. (Thailand) CaPS
DRYOPTERIS
 affinis OhF
 ___ 'Cristata' CaPS, WaFF
 arguta OrS
 atrata OhF, OrS
 campyloptera MeCGC
 carthusiana ('spinulosa') CnWff,
 IIIG, MeCGC, NcGBR, NcTL,
 NyJS, NyVB, OhF
 cristata CnWFF, IIIG, MeCGC, MsBG,
 NyJS, NyVB, VtP
 dilatata 'Lepidota Cristata' OrS,
 WaFF
 ___ 'Recurvata' OrS, WaFF
 erythrosora OhF, OrS, VtP
 expansa WaFF
 extensa NjEG
 filix-mas OhF
 ___ 'Barnesii' OhG, WaFF
 ___ 'Cristata' OrS, WaFF
 ___ 'Cristata Martindale' WaFF
 ___ 'Grandiceps' OhF
 ___ 'Linearis Polydactyla' OrS, WaFF
 ___ 'Undulata Robusta' OrS, WaFF
 goldiana CnWFF, MeCGC, MsAEA, MsBG,
 NcGBR, NcTL, NyJS, NyVB, OhF, VtP
 intermedia VtP
 marginalis CnWFF, IIIG, MeCGC,
 MsAEA, MsBG, NcGBR, NcTL, NyJS,
 NyVB, OhF, PaVW, VtP
ELAPHOGLOSSUM
 crinitum FlJH
 spp. (several) OhCHG
GYMNOCARPIUM
 dryopteris MeCGC, MsAEA, NyVB, OrS,
 VtP
 ___ 'Plumosum' OrS, WaFF
 robertianum OrS
HEMIONITIS
 arifolia CnLG, OhCHG
 palmata CaPS
HUMATA
 angustata OhCHG
 griffithiana OhCHG
 heterophylla FlFS, FlRO, OhCHG
 repens OhCHG
 tyermannii CnLG, FlFS, OhCHG

___ 'Major' OhCHG
 ___ 'Silver Toes' CaPS
 vestita FLJH
 sp. (Taiwan) FIRO
HYPOLEPIS
 punctata OhCHG
LEMMAPHYLLUM
 accedens OhCHG
 microphyllum CaPS, OhCHG
 ___ 'Obovatum' OhCHG
 pyriforme FIRO, OhCHG
LLAVEA
 cordifolia CaPS
LOXOGRAMME
 involuta CaPS
LYGODIUM
 japonicum CaPS, CnLG, OhCHG
 palmatum MsBG, VtP
 reticulatum CaPS
MARSILEA
 minuta CaPS
 mutica CaPS
 quadrifolia OhCHG
 vestita OhCHG
 sp. CaPS
MATTEUCIA
 struthiopteris ('Pteretis nodulosa')
 CnWFF, IIIG, MeCGC, MsAEA, MsBG,
 NcGBR, NcTL, NyVB, OhF, PaVW, VtP
MERINTHOSORUS
 drynarioides FLJH, FIRO, OhCHG
MICROLEPIA
 speluncae ('pyramidalis') OhCHG
 ___ 'Corymbifera' CaPS
 strigosa CaPS
MICROSORIUM
 congregitifolia FIRO
 longifolia FIRO
 longissimum FIRO, OhCHG
 membranaceum FIRO
 punctatum FIRO
 scolopendrium OhCHG
 vieilliardii 'Mt. Elgon' OhCHG
NEPHROLEPIS
 acutifolia FIRO, OhCHG
 biserrata CaPS
 ___ 'Furcans' CaPS, OhCHG
 cordata CaPS
 cordifolia CnLG
 ___ 'Duffii' CnLG, OhCHG
 ___ 'Floral Fantasy' OhCHG
 ___ 'Foxtail' OhCHG
 ___ 'Plumosa' CnLG, OhCHG
 ___ 'Plumosa Cristata' OhCHG
 ___ 'Silver Bells' OhCHG
 ___ 'Skeleton' OhCHG
 ___ 'Tesselata' OhCHG
 exaltata OhCHG
 ___ 'Angel Hair' OhCHG
 ___ 'Aurea' OhCHG
 ___ 'Black Petticoat' OhCHG
 ___ 'Bostoniensis' CnLG, OhCHG
 ___ 'Bostoniensis Compacta' CnLG
 ___ 'Childsii' CaPS
 ___ 'Compacta' OhCHG
 ___ 'Craigii' OhCHG
 ___ 'Fluffy Ruffles' CaPS, OhCHG
 ___ 'Fringed Vase' OhCHG
 ___ 'Hawaiian Dwarf' OhCHG
 ___ 'Hillii' CnLG, OhCHG
 ___ 'Hubbardii' OhCHG
 ___ 'Marshallii' CnLG
 ___ 'Ming' OhCHG
 ___ 'Neubertii' OhCHG
 ___ 'Petticoat' OhCHG
 ___ 'Paterii' OhCHG
 ___ 'Rooseveltii' CaPS
 ___ 'Rooseveltii Plumosa' OhCHG
 ___ 'Smithii' CaPS, OhCHG
 ___ 'Splendid' CaPS
 ___ 'Tri-Tiki' OhCHG

___ Verona' CnLG
 ___ 'Verona Lace' OhCHG
 ___ 'Wanamaker' OhCHG
 ___ 'Whitmanii' CnLG, NjEG
 ___ 'Wicherii' OhCHG
 hirsutula CaPS
 lauterbachii CaPS
 pendula CaPS
 'King Fern' FIRO
 sp. CaPS
NOTHOLAENA
 sinuata CaPS
ONOCLEA
 sensibilis CnWFF, IIIG, MeCGC, MsBG,
 NcGBR, NcTL, NyVB, OhF, PaVW
OPHIOGLOSSUM
 pendulum FLJH
OSMUNDA
 cinnamomea CnWFF, IIIG, MeCGC,
 MsAEA, MsBG, McGBR, NcTL, NyVB,
 OhF, PaVW, VtP
 claytoniana CnWFF, IIIG, MeCGC,
 MsAEA, MsBG, NcGBR, NcTL, NyJS,
 NyVB, OhF, PaVW, VtP
 regalis CnWFF, IIIG, MeCGC, MsBG,
 NcGBR, NyVB, PaVW, VtP
PELLAEA
 adiantoides CaPS, NjEG
 andromedifolia OrS
 atropurpurea OrS
 brachyptera OrS
 falcata OhCHG
 mucronata OrS
 rotundifolia CaPS, CnLG, NjEG, OhCHG
 ternifolia var. wrightiana WaFF
 viridis NjEG, OhCHG
PHYLLOIDES
 scolopendrium CaPS, CnLG, NjEG,
 OhCHG, OrS
 ___ 'Cristatum' CaPS, OhCHG, OrS,
 WaFF
 ___ 'Laceratum Kaye' WaFF
 ___ 'Marginatum' OrS
 ___ 'Marginatum Irregulare' WaFF
 ___ 'Muricatum' OrS
 ___ 'Plicatum' NjEG
 ___ 'Ramo-Marginata' CaPS
 ___ 'Selected Crest' CaPS
 ___ 'Undulatum' OhCHG
PHOTINOPTERIS
 speciosa OhCHG
PHYMATODES
 nigrescens FIRO
 sinuosa FLJH, FIRO, OhCHG
 sp. (Africa) FIRO
 sp. (Malaysia) FLJH, OhCHG
 sp. (New Guinea) FIRO, OhCHG
 sp. (Philippines) OhCHG
PITYROGRAMMA
 argentea CnLG
 triangularis OrS
PLATYCERIUM
 andinum CaPS, FIFS, FLJH, FIRO
 angolense FIFS, FLJH, FIRO
 bifurcatum CaPS, CnLG, FLJH, FIRO
 ___ 'Dwarf' FLJH
 ___ 'Florida' FLJH
 ___ 'Forgii' FIRO
 ___ 'La Reunion' FIRO
 ___ 'Leatherman' CaPS
 ___ 'Majus' CaPS, FIFS
 ___ 'Netherlands' CaPS, OhCHG
 ___ 'San Diego' CaPS
 ___ 'Ziesenne' CaPS
 coronarium FIRO
 diversifolium FIRO
 ellisii FIFS, FLJH, FIRO
 grande FIRO, NjEG
 hillii CaPS, FIFS, FLJH, FIRO, NjEG
 ___ 'Bloomii' FIFS, FLJH, FIRO
 ___ 'Drummond' FLJH

___ Pumile' CaPS, FLJH, FIRO
 holttumii FIFS, FIRO
 lemoinei CaPS, FLJH
 madagascarensis CaPS
 quadridichotomum CaPS, FLJH
 stemaria ('aethiopicum') CaPS,
 FIFS, FLJH, FIRO
 ___ 'Hawks Variety' FIRO
 superbum CaPS, OhCHG
 vassei ('alcicornis') FIFS, FLJH,
 NjEG, OhCHG
 ___ 'Bifurcatum' FIRO
 ___ 'Madagascar A' FLJH
 ___ 'Madagascar B' FLJH
 ___ 'Majus' FIRO
 ___ 'Wilhelmina Regina' FIRO
 veitchii FIFS, FLJH, FIRO, OhCHG
 ___ 'Hula Hands' FIFS
 wandae FIRO
 willinckii ('sumbawense') CaPS,
 FLJH, FIRO, OhCHG
 ___ 'Jimmie' CaPS
 ___ 'Lemonei' FIFS, FIRO
 ___ 'Longwood Gardens' FIRO
 ___ 'Minnie Bell' CaPS
 ___ 'Payton' OhCHG
 'Appley' FIFS, FIRO
 'Blue Boy' FLJH
 'Broad Leaf' CaPS
 'Cass Hybrid #1' FIFS, FIRO
 'Cass Hybrid #3' FIFS, FIRO
 'Epstein' CaPS
 'Excellence' FLJH
 'Guam' FLJH
 'Madagascar' FIRO
 'Magnificent' FIFS
 'Omanii' FIRO
 'Panama' CaPS, FLJH, FIRO
 'Skula's Mrs. D' FIFS
 'South Seas' FIFS, FIRO
 'Tomett' FIRO
 Hybrid (Europe) FIRO
 Hybrid (Germany) FIRO
POLYPODIUM
 angustifolium OhCHG
 ___ 'Corkscrew' OhCHG
 ___ 'Fimbriatum' OhCHG
 ___ 'Narrow' OhCHG
 aureum CaPS, NjEG, OhCHG
 ___ 'Areolatum' OhCHG
 ___ 'Areolatum Cristata' OhCHG
 ___ 'Coronans' NjEG
 ___ 'Cristata' NjEG
 ___ 'Ekstrandii' OhCHG
 ___ 'Grandiceps' NjEG
 ___ 'Mandianum' CaPS, NjEG
 ___ 'Mexican Tassel' CaPS
 ___ 'Samoa' OhCHG
 ___ 'Tasselata Grande' CaPS
 caespitosum FIRO
 cambricola CaPS
 ciliatum OhCHG
 colysoides OhCHG
 crassifolium OhCHG
 ___ 'Monstrosum' OhCHG
 cuspidulum OhCHG
 decumanum CaPS, OhCHG
 ___ 'Giant' CaPS
 diversifolium OhCHG
 formosanum CaPS, CnLG, NjEG, OhCHG
 ___ 'Cristata' CaPS, NjEG, OhCHG
 fraxinifolium CaPS, OhCHG
 glaucophyllum 'Villa Tenaril' OhCHG
 glycyrrhiza OrS, WaFF
 hemionitideum FIRO, OhCHG
 heterophyllum OhCHG
 hirsutissimum OhCHG
 integrifolium FIRO
 ___ 'Cristatum' OhCHG
 ___ 'Serrulatum' OhCHG
 lanceolatum X thysanolepis OhCHG

lepidopteris CnLG
 leucosporum 'Costa Rica' OhCHG
 lobatum OhCHG
 longissimum OhCHG
 lycopodioides OhCHG
 malahatense OrS
 mandianum CnLG
 maritimum OhCHG
 megalophyllum OhCHG
 X mertensii OhCHG
 musifolium FIRO, OhCHG
 nigrescens OhCHG
 novo-zealandica OhCHG
 palmeri OhCHG
 pattoni CaPS
 percussum OhCHG
 phyllitidis CaPS, OhCHG
 piloselloides OhCHG
 polycarpon OhCHG
 ___ 'Dwarf' FIRO
 ___ 'Elegans' FIRO
 ___ 'Grandiceps' FLJH, FIRO, OhCHG
 ___ 'Grandiceps Compactum' CaPS, OhCHG
 ___ 'Grandiceps Dwarf' CaPS
 ___ 'Serrulatum' FLJH, FIRO
 polypodioides ALFHF
 ptilorhizon OhCHG
 punctatum OhCHG
 ___ 'Cristatum' OhCHG
 pyrrolepis OhCHG
 sanctae-rosae OhCHG, CaPS
 scandens ('pustulatum') FIRO, OhCHG
 X scheideri OhCHG
 scolopendria CaPS, CnLG, NjEG
 ___ 'India' CaPS
 scouleri OrS, WaFF
 sphenodes OhCHG
 squamiferum FIRO, OhCHG
 squamulosum CaPS, OhCHG
 subauriculatum OhCHG
 ___ 'Knightiae' FIRO, CaPS
 tectum OhCHG
 triseriale OhCHG
 ___ 'Cambricooides' OhCHG
 vacciniifolium CaPS, FIRO, NjEG,
 OhCHG
 vulgare 'Bifidum' OrS
 ___ 'Cornubiense' OrS, WaFF
 ___ 'Ramosum' WaFF
 xalapense OhCHG
 'Mt. Elgon' FIRO
 'Shaw #2' FIRO
 'Trisedale' FIRO
 'Vitiense' FIRO
 sp. (India) CaPS
POLYSTICHUM
 acrostichoides ALFHF, CnLG, CnWFF,
 ILIG, MeCGC, MsAEA, MsBG, NcGBR,
 NcTL, NyJS, NyVB, OhF, PaVW,
 TnSWG, VtP
 aculeatum CnLG
 ___ 'Proliferum' CnLG
 braunii MeCGC, MsAEA, MsBG, OhF, VtP
 'capense' (see Rumohra adiantiformis)
 lepidocaulon OhCHG
 munitum WaFF
 ___ 'Imbricans' OrS
 proliferum OhCHG
 setiferum ('angulare') OhCHG
 ___ 'Divisilobum' OrS, WaFF
 ___ 'Plumosum-Divisilobum' OrS, WaFF
 ___ 'Rotundatum-Cristatum' OrS, WaFF
 tsus-simense CaPS, CnLG, NjEG,
 OhCHG, OhF
PSEUDODRYNARIA
 coronans OhCHG
PTERIDIUM
 aquilinum ILIG, MsBG, NcGBR
PTERIS
 argyraea NjEG

cretica NjEG
 ___ 'Albo-lineata' NjEG
 ___ 'Childsii' CaPS
 ___ 'Rivertoniana' CaPS, NjEG
 ___ 'Wilsonii' NjEG
 ryukensis CaPS
 serrulata CaPS
PYRROSIA
 adnascens OhCHG
 angustata FIFS, FIRO, OhCHG
 ___ 'Australia' OhCHG
 angustifolia FIRO
 beddomeana OhCHG
 heteractis OhCHG
 lingua CaPS, FIFS, FIRO, OhCHG
 ___ 'Cristata' FLJH, OhCHG
 ___ 'Dactyloopsis' CaPS
 ___ 'Kinshi' OhCHG
 ___ 'Laciniata' CaPS
 ___ 'Monstrifera' FIFS, FLJH, OhCHG
 ___ 'Nankin-Shishi' FLJH, OhCHG
 ___ 'Nokogiri Ba' FIFS, FLJH, FIRO,
 OhCHG
 ___ 'Numulariifolia' FIFS, OhCHG
 ___ 'Oba' CaPS, FIFS, FIRO
 ___ 'Obovata' FIFS
 ___ 'Porte Crested' CaPS
 ___ 'Variegata' FIFS, FLJH, FIRO, OhCHG
 longifolia FIFS, FIRO, OhCHG
 ___ 'Angustifolia' OhCHG
 ___ 'Eberhardtii' OhCHG
 ___ 'Glasshouse Works' OhCHG
 macrocarpa FLJH, FIRO
 piloselloides FIFS
 polydactylis FIFS, FLJH, FIRO, OhCHG
 rupestris FLJH, OhCHG
 samarensis FIFS, FLJH, FIRO, OhCHG
 stigmosa FIFS
 subfurfuracea FIRO
 varia CaPS, FIRO, OhCHG
 ___ 'Winkleri' OhCHG
 'Cockscomb' CaPS, FIRO
 'Cuspidata' FIFS
 'Lecepedat' FIRO
 'Peacock' FIFS
 'Splendens' FIFS, FIRO
 'Varia' FIFS
 sp. (Australia) FIRO, FIFS
 sp. (Java) FIFS
 sp. (New Guinea) FIFS, FLJH
QUERCIFILIX
 zeilana CaPS, CnLG, OhCHG
RACHIDOSORUS
 mesosorus 'Ching' OhF
RUMOHRA
 adiantiformis ('Polystichum capense')
 OhCHG
SALVINIA
 minima ('rotundifolia') OhCHG
SCYPHULARIA
 pentaphylla CnLG, FIFS, FIRO, OhCHG
 simplifrons FIFS, FIRO, OhCHG
SELLIGUEA
 lima FIRO
STENOCHLAENA
 milnii FIRO
 tenuifolia ('palustris') CaPS, OhCHG
TECTARIA
 cicutaria CaPS
 decurrens OhCHG
 sircum CnLG
THAYERIA
 cornucopia OhCHG
THELYPTERIS
 decursiva OhCHG
 gigantea OhCHG
 hexagonoptera ALFHF, MeCGC, MsAEA,
 McGBR, NcTL, PaVW
 noveboracensis MeCGC, MsAEA, NcGBR,
 NcTL, NyVB, PaVW, VtP

palustris ALFHF, ILIG, MeCGC, MsBG,
 NcGBR, NcTL, NyVB
 phegopteris ILIG, MeCGC, MsAEA,
 NyVB, VtP
TRISMERIA
 trifoliata OhCHG
WOODSIA
 ilvensis CnWFF, MeCGC, MsAEA, OrS
 obtusa OhF
 scopulina OrS
WOODWARDIA
 areolata ALFHF
 virginica ILIG, MsAEA, NcGBR

"FERN ALLIES"

EQUISETUM
 diffusum OhCHG
 hyemale OhCHG
 scirpoides CaPS, OhCHG
 variegatum OhCHG
 sp. (Africa) CaPS
LYCOPODIUM
 carinatum OhCHG
 lucidulum MsAEA
 phlegmaria OhCHG
 siamense OhCHG
 squarrosum FLJH, NjEG, OhCHG
SELAGINELLA
 emmeliana CnLG, OhCHG
 erythropus OhCHG
 eurynota OhCHG
 horizontalis OhCHG
 kraussiana CaPS, NjEG, OhCHG, OrS
 ___ 'Aurea' CaPS, CnLG, OhCHG
 ___ 'Brownii' CaPS, CnLG, OhCHG
 ___ 'Chartreuse' OrS
 ___ 'Variegata' CaPS
 like haematodes OhCHG
 lobbii OhCHG
 martensii OhCHG
 ___ 'Variegata' CnLG, OhCHG
 moellendorffii OhCHG
 mollis OhCHG
 oaxacana OhCHG
 opaca OhCHG
 pallescens OhCHG
 plana OhCHG
 porelloides OhCHG
 rupestris 'Scopulorum' OrS
 tamarascina 'Akatsuki' OhCHG
 ___ 'Ginsekai' OhCHG
 ___ 'Hokans' OhCHG
 ___ 'Karabana' OhCHG
 ___ 'Karaori' OhCHG
 ___ 'Kinbotan' OhCHG
 ___ 'Kinginjishi' OhCHG
 ___ 'Kinryu' OhCHG
 ___ 'Kinzan' OhCHG
 ___ 'Kogyokunishiki' OhCHG
 ___ 'Kosame-no-Niskiki' OhCHG
 ___ 'Miyakobeni' OhCHG
 ___ 'Ohgonzuru' OhCHG
 ___ 'Tamaorihime' OhCHG
 ___ 'Tenryuh' OhCHG
 ___ 'Unzen' OhCHG
 umbrosa OhCHG
 uncinata CaPS, CnLG, OhCHG
 victoriae OhCHG
 vogellii OhCHG
 watsonii OrS
 'Polsada #15' OhCHG
 'Plumosa' CnLG, OhCHG
 sp. (Bolivia) OhCHG
 sp. (Borneo) CaPS
 sp. (Brazil) OhCHG
 sp. (Japan) OrS
 sp. (Mauritius) OhCHG



"Fern Variations" (continued from page 14)

spore, obtained from the BPS exchange, produced a range of variations: four very fine 'Caput-Medusae' forms, a few 'Ramoso-cristatum' forms, and several average 'Cristatum' forms. In that sowing not a single legitimate 'Corymbiferum' form occurred. However, thanks to the insight of several dedicated English fern growers, excellent historical data are available on the selective process of many fern variations. The A. f. f. 'Corymbiferum' had yielded similar results in the past. Forewarned, I was prepared to patiently await full development at three years' maturity before making a final determination on varietal names.

Variation naturally assumes all grades, and ranges from comparatively slight departures from the common type, which may be regarded as mere individualities, to such marked and thorough types as form the 'elite,' and represent the materials upon which the expert selective cultivator works. From the spore of these 'elite' have come some of the finest forms in cultivation. The Fox and Jones Polystichum setiferum 'Plumoso-divisilobum' and 'Multilobo-divisilobum' are prime examples of this process of careful selection.

Many thoroughbreds yield progeny so true to their own type that no further variation occurs, but it by no means follows that every season's sowing will yield the same results. When there is a departure from the normal type, it may be accepted as a general rule that variation will occur again. I have sown spore of Athyrium filix-femina 'Congestum cristatum' some six times in eight years and only once has there been a substantial change. But this change is so choice, being a perfect three-inch replica of the parent with the further elaboration of having minute crests to the pinnules, that it now has been named by James Dyce as Athyrium filix-femina 'Percristatum minutum.'

It should be noted, however, that any advances are almost invariably along the same lines, that is the division or variation merely increases in degree. No really new character is introduced, only an enhancement of the same type. Thus, a crested or tasselled form may produce heavier tassels, a dissected one still greater dissection, and so on, though of course the possibility is not excluded of a secondary sport introducing a different character in conjunction with the first. It is this ability to combine different characters of variation that has so confused the American fern fancier when dealing with the innumerable English fern variations.

The fundamental principle of selective culture is to start with spores of the best varieties obtainable, having in view their improvement. Only thoroughbred symmetrical and constant forms, not sub-varieties or defective types, should be used for selective purposes or given varietal names which will leave an impression of value. While spore exchanges are an excellent source of varieties new to you, it is by no means assured that every donor took the care to select only the best or even that the material was properly identified. You can compensate for this when you begin your process of selection among the progeny. Inferior forms should be eliminated and destroyed. The true selector should be devoted only to the improvement, or at least to the production of replicas of the thoroughbred parents. It is painful to have to throw away the efforts of some two to three years' work, but it must be done if we are to bring the quality of varietal fern offerings to the necessary standard of excellence they so deserve. The commercial grower, especially, has to be very careful, or the ease and abundance with which rogue forms assert themselves make them liable to be put forward for sale. Unfortunately, this is already the plight of the varietal fern market in the United States.

(1) I owe a deep debt of gratitude to two very special men for my continuing education in the field of selective culture. Charles Druey I have only met through his prolific writings, but his gifted insight and enthusiasm

have left their indelible imprint upon me. James W. Dyce, longtime secretary and cohesive force of the British Pteridological Society, has furthered this imprint through correspondence, three cherished visits, and access to his various unpublished manuscripts which contain invaluable information unavailable elsewhere.

(2) Mr. Dyce has a book in press on British fern variation and the process of selective culture. We are long overdue for a current definitive work on hardy fern variation, and this will be the beacon for future enthusiasts and professional propagators for many years to come.

EPATHETIC DIFFERNITIONS



heterochrom - varying in color.

"Merry Stems" (continued from page 13)

within 48 hours although some residual effect lasts for two weeks or so. Used on soil surfaces in pots or in terraria, overnight seems to be time enough to get rid of the pests. Just how this works is not clear because it is a contact poison and so every aphid must come in contact with it somehow. Attention should be paid to label cautions.

Commonly used for heavy jobs - it comes in liquid, powder or granule form - such as lawn protection or around house foundations to keep out home-invading pests, Diazinon is not usually thought of for a pest as easy to dispatch as aphids. "Using a hammer instead of a feather," is the way the Extension Institute described it. However, dropping a homeopathic-sized dose of a few granules where you want them can't be beat for ease of application with no observable harmful effects.

JUDITH I. JONES, FANCY FRONDS, 1911 4th Avenue, Seattle, WA 98119, has brought out an expanded 1983 catalogue of interesting ferns, specializing in English variations. The list is available on receipt of a stamped, self-addressed envelope, plus 50 cents to defray printing and mailing costs for new customers.

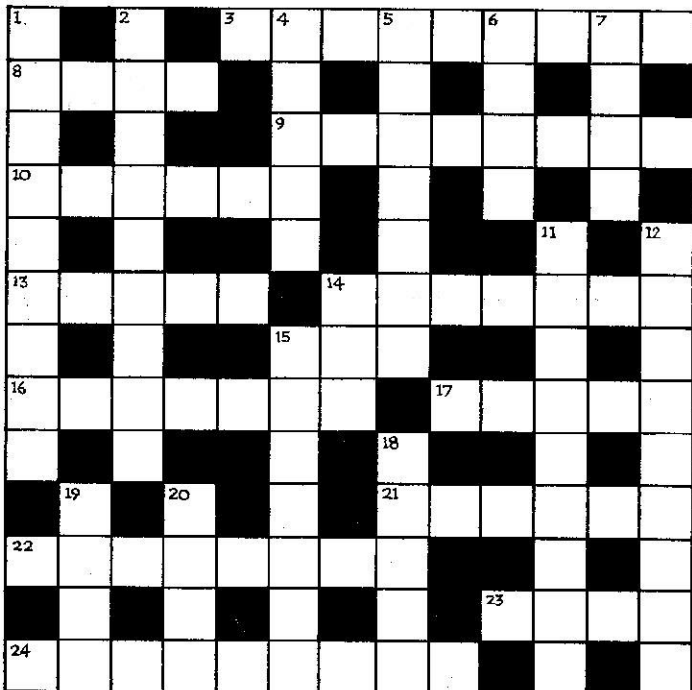
Judith's announcement in the May-June 1982 Fiddlehead Forum unfortunately gave the wrong street address so that inquiries were not received. Please try again; it will be worth your while.

Send in your TIPS, QUESTIONS, OPINIONS to
Eth Williams, 57 Clinton St, White Plains, NY 10603

Fern Fun

Our Potpourri of Pteridological PTrivia

This puzzle isn't too difficult but it has the usual double entendres --- and don't forget to look for those hidden anagrams by counting letters; they're insurance against getting the wrong word. The * denotes 'botanically oriented.'



Down

1. Never gathered by a rolling stone (9) *
2. Last up sir, is a Marsh Fern (9) *
4. A garment that gets around (5)
5. Fly-away-home insect (7)
6. Identify - if you know what I mean (4)
7. Spore-bearing parts of moss capsules (4) *
11. This genus? It marries a close relative - *Pityrogramma* (9) *
12. Not every slope in U.S. grows this *Dryopteris* (9) *
14. Busy or Spelling _____ (3)
15. A ripe dot has the makings of a Greek Fern (7) *
18. The tops for any fern - specially if wavy (5) *
19. Light ring overhead (4)
20. Just the color for a young deer (4)

Across

3. This fern can be found up in Salem (9) *
8. It could lead to Morocco or Mandalay (4)
9. Let the mind tune in on this rhizome protection (8) *
10. A rudimentary seed needs valour to describe its egg-sistence *
13. Develop eggs and/or plots (5) (6)
14. Not the best way to travel but a start for an AFS foray
15. If she's square, she can't get in a round hole (3) (3,4)
16. A letter I wrote showed how fern spores could shape up (7) *
17. Upset rinse will produce the plant exudation (5) *
21. Ring the bell again to have the order rescinded (6)
22. The Garden of Eden - is in the parade (8)
23. A *Cheilanthes* feature - put two and two together for a love-in
24. Those magic *Botrychiums* (9) * (4) *

Knife-blade Solution

(d.e.) = double entendres

Across

(bvaiaq-ya-e) (q'e*) 13' ITBa (q'e*) 13' MOONMOXfa
 10' aLITa (aLITa I) 11' kaZTU 11' kaBaa (q'e*) 11' bvaiaqfa
 10' aLITa (aLITa I) 11' kaZTU 11' kaBaa (q'e*) 11' bvaiaqfa
 3' aabvauTua (na tu avau) 8' kaaq 8' Taaavaa (avaa auv)
 18' aaaa (q'e*) 12' auT 10' auv (q'e*)
 13' aavuaaa (avaa tu a'2') 14' aa 12' baaava (avaa auv)
 2' aaq-aa 8' aa (aa) 1' aa 11' aaavaa (aa aaava)
 1' baavaaa (aa) 1' baaavaa (aa aa) 1' aa (q'e*)

Down

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