The Great Fern Mistery

To mist or not to mist, that is a question many fern growers ask. Probably the greatest need for good fern growth is high humidity. Most house ferns come from the moist tropics and require humidity of 60% or more, although a handful of ferns can withstand lower levels. How to supply the humidity to the plants in the home is the big question. Some people use humidifiers or place the plants on a bed of moist gravel, while others put the smaller ferns in a terrarium. A great many people faithfully mist their ferns once or twice a day. We have serious doubts, however, that misting does much good for the plants. In some cases it might, such as when the humidity is just on the borderline of being adequate for the plants and when the air is quiet enough not to quickly remove the added moisture. In many cases, though, it seems that misting would be of no help. When the air is extremely dry or very warm or there is a breeze, the effects of misting would be dissipated in just a few minutes, whereas the plants need the higher humidity on a constant basis.

These are our thoughts on the matter, unsubstantiated by any hard data, but it should be easy enough to test. The essential matter is how long the humidity is raised by the misting. Anyone with a small humidity-testing device should be able to run this simple experiment. First, measure the humidity of the room and the humidity among the plants. Mist the plants and again record the humidity of the room and among the plants. Check the humidity again periodically (every ten or twenty minutes) until the humidity has dropped to its previous level. Note also the temperature of the room, exposure to the sun, and any drafts. Repeat the experiment several times. We would be interested to hear the results.—John Michel and Barbara Joe Nishizaki

The Marantaceae Newsletter

A new publication, The Marantaceae Newsletter, has been created by a group of growers, botanists, and hobbyists interested in plants of the family Marantaceae—Calathea, Maranta, etc. (Prayer Plants and relatives). The purpose of this publication is to exchange ideas, information, and experiences among people whose various approaches to the Marantaceae include classification, botanist research, breeding and hybridization, collection and introduction of exotic species, commercial production, and the enjoyment and satisfaction of cultivation of these plants by the hobbyist.

The first issue of the quarterly newsletter will appear in the Fall of 1978 and will contain the proceedings of the Marantaceae Conference held at Fairchild Tropical Garden, Miami, Florida, in June 1978.

Subscriptions are $2.00 per year, payable to THE MARANTACEAE NEWSLETTER, and mailed to Robert T. Hirano at the Harold L. Lyon Arboretum, 3860 Manoa Road, Honolulu, Hawaii 96822.

George R. Proctor Awarded Honorary Doctorate

Florida International University, Miami, conferred an honorary doctorate to its recent commencement exercises on George R. Proctor, of Kingston, Jamaica.

Proctor has been a mainstay at the Institute of Jamaica, where he has been the Curator of the Herbarium for the past 27 years. He has built the herbarium up from a few hundred specimens to over 100,000 sheets, has built a field station in an environmental preserve in the Blue Mountains behind Kingston, and has served as the Head of the Natural History Division of the Institute's museum in Kingston for the past five years.

He is well known for his publications on Antillean ferns, the most recent and important of which is "The Flora of the Lesser Antilles, vol. 2, Pteridophytes," which is a complete and highly detailed account of the ferns and fern-allies of that region. Proctor's valuable achievements in the past were too well known to be surpassed; he has completed a Flora of the Cayman Islands and his book on the ferns of Jamaica will be published soon.

How to Make Your Mark with Fernery

Lightweight cardboard or heavy paper can be used for background. On a strip 1" x 7" (or any size), glue dry, pressed material with small spots of Elmer's glue to keep the material from moving around or falling off. Cut two strips of clear contact paper, obtainable at Woolworth's, a little wider and longer than the background. Separate the sticky part from the backing and place it on the bookmark. Put the second piece on the reverse side. Trim the bookmark with scissors to the edges of the bookmark.

Make a hole with a punch near the top, and thread through strands of wool or cord to make a tassel.

When You're Having More than One Slug

Slugs in the garden are a threat to many succulent, broad-leaved ferns like Ceratopteris, Ophioglossum, and Phyllitis. This is especially true in greenhouses or terraria where tiny snails can also devour the growing points of Selaginella or Lycopodium. These molluscs pests can be drowned in jar of lard or beer placed in the soil of the garden at nightfall or be lured to tasty food like potato slices or wilted lettuce. Once attracted to the bait, the pests can be dispatched by the gardener who checks the bait early in the morning.

The commercial products, Slugit and Slug-bait, contain metaldehyde and are effective when used according to manufacturer's directions. Usually, these products cause little or no damage to farm foliage or root systems, and are highly recommended.
Like lemmings to the sea, the Fern Freaks came to Blacksburg, Va. The occasion: The American Fern Society's Annual Foray, a preliminary activity to the Plant Sciences Conference under the auspices of the Virginia Polytechnic Institute and State University.

Under the leadership of the Pied Piper of Ann Arbor (Herb Wagner, Dean of AFS Forays), who discarded his pipes for a bull horn with a seductive blepber, the Fern Freaks assembled, seventy-six strong. At 8:00 a.m. Thursday morning under the influence of Wagnerian blare, they disappeared into a couple of VTU buses and headed for the rolling meadows in the vicinity of New River, out of the buses they poured into a furiously congested line in search of Ophioglossum engelmannii. Under seventy-six pairs of Fern-focusing eyeglasses, O. engelmannii swiftly gave up the struggle to maintain obscurity; the tiny leaves were soon found and examined in the lime-stone outcropping. After a slight but unsuccessful detour in search of speckling salamanders, the conga line disappeared once more into the buses.

Now re-enforced with a class of eager embryonic teridiologists that brought the caravan to more than a hundred, the Fern Followers proceeded to the Goodwin Forry cliffs along the New River. Here the Pied Piper led them on another abandoned railroad tunnel. Fern Freaks who had been in darkness for years, now saw the light at the end of this Tunnel of Love not of Three Oranges, but of Three Asplenium - resiliens, ruti-marina and trichomanes (Black-stemmed, Wall-run, and Maidenhair Spleenwort) and this was further enhanced on the cliff-side railroad-cut with Pollea streptopus and glabella (Purple and Smooth Cliffbrakes) within the shade of each other. Camptosorus rhizophyllus (Walking fern) and Woodia obruna (Shunt-lodged Woodia) added some figurative persely to this delectable dish.

The next stop, about a mile north of Newport, presented something of a challenge to the less agile where on a wooded limestone hillside the three Asplenium once more were on hand, together with the Walking fern and Ebony Spleenwort, and a hunt for Scott's Spleenwort, the rare hybrid between these two species, was soon in full cry. This proved to be more difficult than the Adder's-tongue search but this bare hybrid was eventually discovered, although the specimens were not exactly of prototype status.

By this time appetites were whetted from ferns to food and the shade of an old covered bridge provided sun-shelter for lunch. On the central side of the buses huge cartons of box lunches were made to appear and were, in short order, made to disappear.

The afternoon provided exercises for the lean who, with flashlight and long arm, were able to extract Vittaria and trichomanes gStrange from the rock crevices that studded the rock ledges along the swift running Craig Creek. In some cases teridiologists disappeared until only the soles of their shoes were visible but they re-emerged with specimens for lens scrutiny. No sporophyte plants of either genus were found. Plants of trichomanes wisconsinum are known from Virginia, but sporophytes of the Appalachian Vittaria have never been found anywhere.

An elder boy, revisited after many years, disclosed that the club mosses, once abundant, were now fighting for their existence through the intrusion of the alder. There were numerous plants of the Bog Clubmoss (Lycopodium inundatum) and a small population of the Smokey Clubmoss, possibly a hybrid between J. inundatum and L. alopecuroides (The Foxtail Clubmoss). To the accompaniment of much mastication and slurping of mud-rocketed beverages, considerable alder-ations were made with the hope of enhancing the chances of the following ferns.

In a nearby swamp Dryopteris cristata and D. spinulosa were found with their hybrid, D. x uliginosa, and on retreating to higher ground the Running Cedar (Lycopodium flabelliforme) and L. x habarrti the hybrid with L. tri-stachyum were found, although the latter was no longer present.

Saturday morning, again bright and clear, saw the caravan buses climbing the hills into the Mountain Lake Resort Region where in a heavily wooded hillside Goldie's Giant Wood Fern (Dryopteris goldiana) together with the Mountain Wood Fern, (Dryopteris complanata) grew in profusion. The Pied Piper, who actually wasn't pined at all but was more in tune with Ethan Allen's Mountain Boys, first briefed his entourage on the quarry to be run down, namely the hybrid cuniplyoptera x marginalis and cuniplyoptera x intermedia both of whose parents were well represented. Furbish specimens drew counsel from the experts and the mountains were soon ringing with calls for authoritative judgment. Both hybrids were found by score-eyed foragers. This is the only known locality for the cuniplyoptera x marginalis hybrid.

Mission accomplished, the 'friques fougeres' were reassembled with bull horn impreccations, but not without a shutter-bug rally caused by the discovery of some lovely specimens of the Purple Fringed Orchis (Rabewaria fimbriata). Flowering plants were a major distraction at the next locality, where, in addition to Botrychium oneidense, the rare ginseng and gaudy displays of the Fire Pink (Silene virginiana) and New Axle-bone (Rhododenran calycinaeum) were a colorful exhibit. The next stop, an abandoned farm orchard, was to discover the small grapeforme - Botrychium lancoletum, matricariifolium, and especially the tiny simplex. With the field of view roughly outlined, the low scrub was soon colorfully dotted with a hundred or more up-ended backside, whose owners, on all-fours sought the elusive simplex. Two lovely specimens were eventually discovered and immediately surrounded by an army of lens-bearers.

(Continued on page 4)
Collecting, Pressing and Mounting Fern Specimens
by Charles Neidorf

The procedures described here are reasonably standard and to some seem altogether simple, straightforward and logical. There is certainly nothing sacred about any of them, however, and undoubtedly all sorts of variations in technique must be in use by different collectors. Descriptions of alternative procedures would undoubtedly be helpful to our readers and would be welcomed by the editor.

Equipment

For collecting herbarium specimens the basic item of equipment is the vacuumum, a container made of medium gauge sheet aluminum, approximately 16 inches in length, oval in cross section, with a hinged door about 15 inches by five inches on one side, fastening with a catch. This item, available from a number of biological supply houses, really has no substitute.

In practice what I do is to start out by lining the inside of the vacuumum with a layer of damp newspaper; I simply place a sheet of folded newspaper under the tap, wet it completely and allow the excess water to drain off. Then I put a second sheet of damp newspaper in the vacuumum to serve as a cover on top of the collected specimeis. In addition, during the course of the field trip I sprinkle some water over the specimens several times, if at all possible, all with the intention of preventing the specimens from withering. Such precautions are by no means excessive, especially if one has to walk any long distance while exposed to the hot summer sun. Under such conditions the aluminum pan that the outside of the vacuumum would help to reflect some of the heat but that alone would not be sufficient; extra moisture would be very much in order.

Collecting

As for the actual collecting procedure, it goes without saying that any fern student worth his salt would be expected to be acutely aware of the need for exercising discretion in what he selects. There are circumstances when no collecting at all is permissible; for example, when visiting state parks, plant sanctuaries and arboretas. Even when collecting on one's own in other areas, where there are lots of ferns, one would hope that care would be taken not to exterminate rare or scarce species. But where a species is common it surely would do no harm to carefully remove a single frond from a plant that has six or seven fronds on it. Apart from this, I might add that one should take care not to select damaged specimens or atypical-looking ones--unless, of course, one is interested in collecting variations from the norm, which is very often the case, after one has collected enough typical-looking specimens, over a period of time.

When?

Ideally fern specimens should be collected at a stage just short of the peak of maturity, when the indusia, which are very often of considerable importance in the identification process, are in perfect condition. In many instances the indusia are extremely fragile, evanescent structures, lasting no more than two weeks during the entire year, so that it is best not to wait too long, when the indusia have withered and fallen off. Likewise, immature specimens should be avoided, because they are hard to identify. In the case of dimorphic species, both the fertile and sterile fronds should be collected.

Recording Data

It is also important, when collecting specimen, to assemble adequate pertinent data about them, including exact location, type of habitat, character of plant, date of collection, name of collector and any special notes useful for purposes of identification or for the record.

The next step, after bringing the specimens home, is to put them into a plant press. I might mention that there are some presses made to be taken along and used in the field, but these are necessarily smaller and lighter than full-sized presses and have a limited capacity. Inside the press are groups of felt driers separated by corrugated paper ventilators, with exterior covers that are made up of a sort of lattice work of riveted strips of hardwood, or else of metal with lots of open spaces, all intended to facilitate the circulation of air through the press. Fern specimens are placed between folded sheets of newspaper, which are then placed between the felt driers. Contnuing it until either all of the specimens have been taken care of or else until the press is full, after which pressure is applied by means of two heavy cotton web straps, at either end of the press.

Pressing

The actual procedure for pressing fern specimens is simplicity itself--provided that one is not unhy discharge the old-time admonition that the specimen must always remain intact, regardless of how much overlapping or folding this may entail. In this regard I quote from "Ferns of Michigan", by Cecil Billington, published in 1952: "If a plant is too long for the sheet it should never be cut but should be made to fit by folding or bending. An old rule in pressing plants is that one may make all the M's, N's or W's that may be necessary but never an X. In other words, the plants may be doubled into any form necessary to get them onto the sheet but may not be cut. In the case of large tropical ferns, of course, this rule cannot be followed...."

My own feeling is that specimens with crowded sections are definitely unsightly and therefore more objectionable than specimens out apart and arranged in an pleasing a manner as possible on the herbarium sheets. I can understand the rational behind objecting to having specimens cut up conceivably parts from different specimens might be combined in error on a single sheet. But from a practical standpoint I am certain I can safely say that this has never been a real danger. Besides, why use a technique that can only leave one irritated or frustrated? After all, it is the collector who has to feel satisfied with the results of his efforts or else it's not much fun.

After leaving the fern specimens in the plant press for a few days, preferably in a spot where air can circulate around it freely, the tension on the straps should be released and, most likely, the straps should be tightened. After about a week the specimens are dry enough to be removed and either to be stored away mounted or else mounted on herbarium sheets, which come in a standard size of 11 1/2 by 16 1/2 inches.

(Continued on page 4)
Annual Foray (Continued from page 2)

it was found that the fern allies were running ‘place’ and ‘show’ to the fast growing underbrush. More branch removal was undertaken in the interests of sterility.

And so to bread -

This life susstenance was brought to light - momentarily - on the borders of a small lake at the 'campus' of the University of Virginia’s Mountain Lake Biological Station and here, after pleasant re-fueling, Isoetes angolensis was discovered and unwstered from the shallows for examination. The research laboratories were given a brief inspection inside, while outside, a diversion was provided by a pair of kestrals swooping to outstretched hands.

The buses were given a respite while the foragers scrambled down a steep wooded mountain side (Goldiana Gulch) where Dryopteris goldiana was in great profusion and its hybrids with D. intermedia and D. marginalis were found.

With the mountain road looping around, the buses were gratefully boarded below and the last visit of the day was a Waggonerian tour de force. At a locality near Waiteville, W.Va. ten years previously, David Emory, a long-time member of the Fern Society, had discovered a small patch of Asplenium septentrionale on one hundred miles east of its nearest outpost in the Black Hills. Access to the spot was most convenient by fording a shallow stream and following its banks to where the water deepened before a cliff-face of impurc shear. Here, the Pied Piper plunged in up to his hips in the cooling waters and guided the eager but faint of heart into favorable spots. Cameras clicked as one by one the Freak Fern was inspected by the Fern Freaks. And the Dean of Fern Forays uttering fervent incantations in a psalms-baptism ceremony guided his flock in safety back to the buses.

The Sunday morning excursion was to another unique locality in the only known site for Gymnopus x nigripus which is the hybrid between the Interrupted Fern and the Royal fern. The plants are truly handsome, and it is hoped that someday it will be more readily available, such as through tissue culture. In addition to this spectacular hybrid, two plants of the Lobed Splenwort (Asplenenum pinnatifidum), which is the hybrid between the Walking Fern and the Mountain Splenwort, were discovered. A fitting climax and finale to an outstanding foray.

Actually, an addendum foray was held the following Tuesday afternoon when 20 hardy souls braved 95° heat (but escaped the meetings) to scale the cliffs of Buffalo Mountain, about 40 miles southeast of Blackburg. In the moxibus, Dryopteris papyracea with its long extended rhizome, was found while on the exposed rocks the Rock Splenwort (Salaganella rupestris) Rusty Woodlair (Woodia ilvensis) and Mountain Splenwort (Asplenium montanum) were rather common. The real treat was scaling extensive stands of the Fir Club moss (Lycopodium selago) and its hybrid with the Etrhine Club moss (L. lucidulum). The enormous vertical cliffs (complete with raven’s nests), long drop-offs, and sliding talus rocks underfoot added to the excitement of the place.

In all, 63 kinds of fern and fern allies, many of which are quite rare, were inspected. Seeing these plants, the rare, the interesting, and the just plain beautiful—helps to appreciate this group of plants and better realize the problems of species endangerment and conservation.

In concluding this report it must be stated that the success of this memorable foray was unquestionably due to the splendid organization and leadership of the Wagoners, both Florence and Herb, and all participants were free in expressing their appreciation and thanks.

Fern Specimens (Continued from page 3)

Mounting

The first requirement for mounting is some sort of surface on which the glue can be spread out. It so happens that I use what I am known as a ferrotyping tin (actually a sheet of chrome-plated brass), which is normally used to put a glossy surface on photographic prints. But any smooth, impervious, washable surface can be used, whether it is a sheet of glass or metal or plastic. For me, using a discarded ferrotyping tin that has become too scratched for its original purpose is quite natural, but I would hardly recommend that any one else go out and buy one specifically for mounting herbarium specimens.

The method I use is to squeeze out some Elmer's glue onto the surface of the plate, add a few drops of water to thin it, and then spread it out over the entire surface, using a finger-painting technique. Obviously, this is a little messy and I've experimented briefly with using a short, stiff brush for spreading out the glue but haven't found this satisfactory. One has to judge by the feel of the glue whether it is sufficiently spread out but not too tacky. That would only destroy the herbarium specimen.

Arranging & Labeling

Another item that is needed is a discarded or messed-up sheet of herbarium mounting paper with a space in the lower left-hand corner ruled off, equal in size to the herbarium label. I use this first to work out the preferred arrangement of the herbarium specimen. Then I drop the specimen (or its component parts) onto the layer of glue, pick each piece up at one end with a pair of forceps, place it down glued side up on the messed-up sheet of herbarium paper, arrange it carefully the way I want it to appear in its finished state, place a clean sheet of herbarium paper down on it, and press down. Then I usually place each herbarium sheet between layers of photographic blotters and put a weight on top.

When the specimen is completely dry and flattened—which doesn’t take very long—it is usually necessary to secure the thick strips of the fern specimen to the herbarium sheet by means of strips of Donnison’s gummed cloth mounting tape. Finally a label with all pertinent data is typed and pasted down in the lower right-hand corner and the finished specimen is stored in a manilla genus cover.

FERN FORAYS

"The name may be Fern, wise guy, but the species isn’t Fragile!"
Receipts from all sources in 1977 were $19,515.43, and the year ended with $1,281.24 in my checking account and $4,692.83 in Dr. Judith Skog's savings account. The savings accounts earned $619.13 and the Growth Savings Certificate is currently worth $7,133.66. The Spore Exchange earned $664.23 in 1976 and $667.89 in 1977 for a total of $1,332.12. As you may recall, the earnings for 1976 were recorded in 1977. There were six life memberships in 1977. Receipts from Memberships and Subscriptions were $13,924.31, which is quite a bit higher than last year.

The Society ended 1977 in very good financial condition. Journal printing costs were higher in 1976 than in 1976 due mostly to one extra large issue, but costs were generally higher in 1977 for normal individual issues and will probably be higher in 1978. Spore Exchange expenses have increased greatly because of increased number of issues, pages, and press runs with the necessity of using metal plates. Note also that this year we have Fern Foray expenses. The foray organizers were notified that these funds were available.

I wish to thank Dr. Judith Skog for her excellent cooperation in maintaining the treasury and we both thank Dr. David Lellinger for his help in making our jobs easier.

Respectfully submitted,

James D. Capenetti
Treasurer

American Fern Journal
Vol. 66, No. 4........  $1,507.35
Vol. 67, No. 1........  $1,652.99
Vol. 67, No. 2........  $1,133.66
Vol. 67, No. 3........  $1,775.29
Total................ $6,643.72

Brown Envelopes and Mailing......  $111.73
Printing-Stationary, Envelopes,
Invoices, Due Notices..............  $44.27
Application Blanks...................  $521.95
Reprints and Postage................  $83.72
Traveller's Expenses.................  $288.25
Records Treasurer's Expenses........  $472.03
Secretary's Expenses................  $84.78
Editor's Expenses....................  $113.76
Fern Foray Expenses.................  $0
Society's Ad in Los Angeles
Fern Publication....................  $0
A.I.B.S. Dues.........................  $50.00
Shipping and Handling
Back Issues.........................  $473.50
Fiddlehead Forum Expenses...........  $2,704.82
Savings and Investments..............  $0
Reprinting Back Issues
of Journal.........................  $0
Refunds............................  $49.00
Bank Charges.........................  $49.00
Bad Checks.........................  $0
Total Disbursements............... $2,125.13

Cash on Hand, January 1, 1978
Treasurer.........................  $1,281.24
Records Treasurer.................  $4,692.83
GRAND TOTAL....................... $5,974.07

Statement, December 31, 1977

Assets
Cash in Treasurer's Checking Account........ $1,281.24
Cash in Records Treasurer's Savings Account......  $4,692.83
Cash in Union National Bank..................  $6,212.30
Cash in Greenwood Savings Bank..............  $6,212.30
Bissell Herbarium Fund....................  $1,634.74
Life Membership Fund....................  $4,998.01
Growth Savings Certificate in Mellon Bank......  $7,133.66
Accounts Receivable (Reprints & Back Issues)...  $155.28
Inventory, Journal (26,132 @ $0.50)........  $13,066.50
Library................................  $396.00
Total................................ $39,660.56

Liabilities
Advance Memberships.................... $251.60
Advance Subscriptions..................  $225.50
FUND BALANCES
Scannax Fund........................  $251.60
Bissell Herbarium Fund ..........  $1,634.74
Life Membership Fund.............  $4,998.01
Growth Savings Certificate.......  $7,133.66
General Fund........................  $20,104.75
Total............................... $39,660.56

REPORT OF THE AUDITOR

I hereby certify that I have seen the books and the accounts of James D. Capenetti, Treasurer of the American Fern Society, Inc., and have obtained confirmation of the correctness of the Society's balance on hand as set forth in detail in the accompanying report of the Treasurer.

Irene Herb
Broker
Fern Fun
Pteridological Trivia

Fern fare for word digesting pteridologists with some double entendres, anagrams, and puns for full meals. Numbers in parentheses indicate the length of the words. (Two numbers, two words). If there’s a suggestion of things being out of order it could be an anagram — and look for those why-are-they-in-there words.

**ACROSS**

1. A fern for all seasons? No — only one (9)
7. Strobile (4)
8. Sperm meets ova — now what do they do? (5)
* 9. George is brought down to earth (3)
10. Bent at the tip (4)
11. A subspecies or race especially adapted to its environment (7)
* 14. Usually done on the light fantastic toe (4,2)
15. Indigenous (6)
17. Hang-outs for spores (7)
21. If you rue it, it’s a fern (4)
* 22. Can a chicken with its head off be wise? (3)
23. The Victorians had one for ferns (5)
24. Nothing corny about it — just combining golden ears (4) (pair)
25. Bernhardt gave this name to a genus (9)

**DOWN**

1. American pteridologist — and author (5)
2. A root root (5)
3. A spore could never look like this (5)
* 4. It has an even greater attraction than ferns (6)
5. There’s a rush in searching for this one (8)
* 6. Nothing doing — or is there? (8)
12. A Lycopodium (8)
13. A multiple chromosome number (8)
16. There’s a fern in the beginning of the end, but the glossy finish is out of order (6)
18. A habitat to cradle scopolina (5)
* 19. You do if you’re angry (5)
20. If it’s hay, it’s D. punctillobiata (5)

* devoid of any botanical association

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**Answers**

ACROSS
1. A fern for all seasons? No — only one (9)
7. Strobile (4)
8. Sperm meets ova — now what do they do? (5)
* 9. George is brought down to earth (3)
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* devoid of any botanical association

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Dr. John T. Nickel
New York Botanical Garden
Bronx, New York 10458

September – October 1978
Volume 5 – Number 5