NEW TITLE FOR NEWSLETTER

With this issue of the newsletter of the American Fern Society we are changing the name from NEWS AND VIEWS to FIDDLEHEAD FORUM. We are indebted to Ed Paulson, President of the New York Chapter, for the art work in the masthead. Gordon Foster has asked to be relieved of his editorial responsibilities for the newsletter, and we thank him for his work over the past three years in getting the newsletter started and developed into its present form. We will remain in charge of the question box and any questions can be addressed either to him (P.O. Box 136, Sparta, NJ 07871) or to the editor. FIDDLEHEAD FORUM will be edited by John Nickell and will be printed and mailed from the Bronx.

We plan for FIDDLEHEAD FORUM to appear six times this year. Please don't be bashful about sending in news or notes. The newsletter was intended as a communication device for the membership and to relieve some of the strain from the JOURNAL. Informality is the name of the game; so send in your tidbits of horticultural hints or fern forays. Line drawings or sketches would be especially welcome. Since a picture is worth a thousand words, think of the space we can save.

We would like to apologize to all our members for the irregular appearance of the JOURNAL and NEWS AND VIEWS in the past year. The printing company had internal difficulties and finally went out of business late in the year. The December issue of the JOURNAL is appearing now, and we hope to get back on schedule soon. We ask for your continued patience.

LAST SUMMER'S WYOMING FORAY

The Fern Society sponsored a foray in Wyoming and Colorado on August 1-5, 1973, prior to the First International Congress of Systematic and Evolutionary Biology. The turnout was small with only four participants but the weather was excellent after an unusually moist summer. There was a short discussion and slides on the Rocky Mountain plant communities on the evening of August 2nd and during the next two days 17 native species were seen within 40 miles of Laramie, Wyoming. There are only 43 species known from the entire state. Those seen were Aquilegia arvensis, E. caesia, E. bolanderi, Botrychium lunaria, Asplenium septentrionale, A. trichomanes, Cheilanthes fasciata, Cryptograma cripsa, Cystopteris fragilis, Dryopteris flietii-mas, Notholaena fendleri, Pella sp., Polypodium vulgare, Woodwardia erecta, S. scopulorum, Salpiglossis densa, and S. umbrosa.

On the third day we visited the forage garden of Mr. Ray Radebaugh in Boulder, Colorado, where we saw many Japanese ferns, an Australian tree fern, and some American ferns. A short trip near Boulder yielded only the same species we saw in Wyoming.—Robert D. Dorn

Mr. Radebaugh adds that the Dorns did a very fine job in preparing for the trip, and we want to thank them for their efforts in leading this foray.

ANNUAL MEETING

The annual meeting of the Society this year will be held at Arizona State University in Tempe, June 16-21. There will be a full day of papers and a luncheon in addition to the foray which is described below. For further information on the meetings and for registration forms, contact the AIBS Meetings Department, 3900 Wisconsin Ave., N.W., Washington, D.C. 20016. For information on the foray, contact Dr. Hevly.

SOUTHWEST FIELD TRIP

There will be an American Fern Society Field Trip on Friday, Saturday and Sunday, June 14-16, prior to the AIBS meetings at Tempe, Arizona.

Only tentative reservations have been made at the motel you must write them and reserve space, specifying yourself a participant in the American Fern Society Field Trip, before April 1.

Please notify Richard H. Hevly, Department of Biological Sciences, Northern Arizona University, Flagstaff, Arizona 86001, of your intention to attend so that final arrangements for the field trip can be made.

Tentative Schedule:
June 14
Orientation Meeting & Tour
Museum of N. Arizona
7PM Transp. by M.N.U.

June 15:
Breakfast
Town & Country Hotel
7AM Transp. by M.N.U.

West Fork of Oak Creek
Canyon; hike several miles
Box Lunch in Canyon
12N

West Fork of Oak Creek
Canyon; hike several miles
Dinner and Program
12N

June 16:
Breakfast
Town & Country Hotel
7AM Transp. by M.N.U.

San Francisco Peaks
Box Lunch
12N

Travel to Tempe, Arizona, for IBS meetings
2PM
LESSONS IN PTERIDOLOGY. IV. STEM ANATOMY.

With spring coming shortly we are beginning to think about going on field trips and seeing the new crosiers emerging from the ground. With anticipation we take out our fern guides and review the characters that help us to identify the forms of our area. Some of the characters are from the vegetative parts of the plant, such as the habit of the rhizome, or the cutting of the leaves, but most of the time we need to have the fertile leaves to see the position and shape of the spore. Especially in the early part of the summer we run into sterile leaves, which often leave us perplexed and frustrated in our attempts at identification. Therefore, we are glad to find useful vegetative characters that will help us come closer to identification, making us that much less dependent on the fertile leaves.

One character that is rarely mentioned in fern guides is the anatomy of the leaf (leaf stalk, petiole). As you are aware, the leaves contain a vein system for conducting food, water, and minerals through the plant. This system runs through the stem and into the leaf. In the lower part of the stem the conducting bundles often have distinctive numbers or names. These are large enough to be seen with the naked eye (or with a hand lens it is even better). The cells that make up the conducting bundles are mostly thick-walled cells (xylem) for conducting the water and minerals upward to the leaf blade where food is manufactured in photosynthesis. The food is then carried downward to the stem and roots in thin-walled cells (phloem) that surround the xylem. Often there are special strengthening cells surrounding the entire bundle. Since these bundles are tougher than the cortex around them, they can sometimes be pulled out of the stem for broader examination. They are so tough in certain kinds of ferns that in some parts of the world they are used in weaving baskets.

Although you cannot usually identify individual species or even genera by the stipe bundles, they are helpful in distinguishing groups of genera, and thereby greatly narrow the list of possibilities.

Generally the more primitive groups of ferns have but a single bundle in the stipe, the more specialized groups have two or several. Those having one bundle include Gymnodium, Dennstaedtia, Anemia, Dryopteris, Schizaea, and most of the chelanthoid ferns (Chelisites, Pellaea, Rhodosites, Pteris, Anthom). The bundle will be in the shape of a U or V. In larger species in the tropics, the bundle may be more convoluted, probably to provide greater support for the leaf. In some groups, individual species can be distinguished, as in the Costa Rican species of Dennstaedtia (see Keating, Trends of specialization in the stipe anatomy of Dennstaedtia and related genera. Fern Jour. 58:126, 1968).

Genera having two strap-shaped bundles in the lower stipe include Thelypteris, Cystopteris, Gymnosporangium, and rarely some chelanthoids.

A modification of the two bundles is seen in Asplenium. Here the two bundles have become so bowed in the middle that they have coalesced to form an X, which is distinctive for this genus.

Several bundles are found in such groups as Polystichum, Dryopteris, Nephrolepis, Davallia, and Blechnum.

Of our native ferns the bracken (Pteridium) has the most stipe bundles, and at first glance it appears to be a random mess of bundles. On looking more closely and knowing the patterns of its close relatives, such as Hypolepis, we can see it has the same basic pattern of a U or V gutter.

The true ferns have very intricate patterns because of their great size. The dicksoniaoid tree ferns (Dicksonia, Ochotemia) can be distinguished from the cyatheoids (Cycas, Anomophea, etc.) on the basis of their stipe anatomy. The dicksoniaoids have a single continuous corrugated bundle whereas the cyatheoids have many distinct bundles.

Thus the stipe bundles are useful in distinguishing the broader groups of ferns and occasionally help in solving individual problems. In the northeastern states, for example, the lady fern (Athyrium) and the hay-scented fern (Dennstaedtia) are easily confused in the sterile condition, but a look at the stipe will show Athyrium to have two bundles, Dennstaedtia one. The species of Thelypteris used to be included in Dryopteris, and some have difficulty distinguishing the two genera. The stipe shows Thelypteris to have two bundles, Dryopteris several. One fern guide that does stress the use of stipe anatomy is Farida Wiley's "Ferns of Northeastern United States," Audubon Soc., 1948.

The stipe bundles are most easily seen in fresh material, but careful cutting with a razor blade in dried material will show the bundles also. One word of caution: be sure you use the base of the stipe and not the upper part because as the bundles proceed upwards they may fuse or split and are of less taxonomic value. This spring try examining the stipe anatomy of your ferns. It will help in identification as well as show you very interesting patterns.

BOOK FOR SALE

At the end of 1973, membership in the American Fern Society stands at 756, a substantial increase from the 670 members in 1972. Included in the membership are 32 life members. In addition to every state in the union, members are found in Australia, Canada, Canary Islands, Chile, Taiwan, Colombia, Costa Rica, Czecho-lovakia, Denmark, Ecuador, Finland, France, Germany, India, Italy, Jamaica, Japan, Malaya, Netherlands, New Zealand, Nigeria, Panama, Philippines, Puerto Rico, Switzerland, United Kingdom, Venezuela, Virgin Islands, and the West Indies.

The annual meeting of the society was held at the University of Massachusetts in Amherst, on June 18-19 as part of the meeting of the American Institute of Biological Sciences. Preceding the meeting was a foray foray in western Massachusetts and Vermont during June 16-17. Forty-four fern enthusiasts were capably led by David Harrington, a Harvard graduate student in botany. Those who led the group to selected fern areas or who led evening programs during the foray included Gordon Foster, Mrs. Calvin Skinner, Alice Tryon, George Peters, and Howard Bain. Despite some rain, the foray was most successful, with over 50 species being observed.

At the annual meeting, contributed papers at the morning session were presented by Mark D. Schedler (with Colla Cates and Peter Dell), D.A. Hildersack (with T.L. Jane and J.R. Fonseca), G.P. Hordland (with E.L. Boyd), Leslie G. Hicsch, W.H. Wagner Jr. (with D.R. Farrar), John T. Micheli, Michael R. Mealer, James G. Bruce, Robert L. Helwig, and Alice J. Belling. During the afternoon session, papers were presented by Dean P. Wittier, Donald R. Kaplan (with Ann M. Hitches), James D. Caponetti, Gordon Morris (with James D. Caponetti), Mark D. Schedler, Raymond L. Petersen (with David E. Fairbrothers), Leslie G. Hicsch, Lenette R. Atkinson, Edward J. Kiepowsky Jr., and Terry R. Webster.

Between morning and afternoon sessions, a fine lunch was served. The local representative in charge of arrangements for the meeting was the American Fern Society also participated in a day-long symposium, "Evolution of Systematic Characters in Ferns." This symposium was held jointly with the Paleobotany and Pteridology sections of the Botanical Society of America. Society members participating in the symposium included Benton L. Stadl, Donald W. Britton, Robert M. Lloyd, Warren H. Wagner Jr., John W. Hall, David E. Ginns, Edward J. Kiepowsky Jr., David W. Bierhorst, Richard A. White, and John T. Micheli. The Council of the American Fern Society also met on June 18 at Amherst, Massachusetts. Among items discussed were the replacement of Richard L. Naucke who retired as secretary to accept a Fulbright Lectureship in Jordan, by Terry R. Webster; progress of development of local chapters including the recently established New York area chapter, as well as possible development of chapters in the Southeast, Northwest, Upper Ohio Valley, and the Great Lakes area; nominations of Gordon Foster and William T. Reichstein for honorary membership in the society; and development of a Kodachrome slide collection for loan to garden clubs and other interested groups.

The next annual meeting of the American Fern Society will be held at Arizona State University in Tempe, in conjunction with the meeting of the American Institute of Biological Sciences, June 16-21. All members of the Society are urged to attend the activities, which will include a foray, luncheon, and paper sessions.

Gerald J. Gaytony, Department of Botany, Indiana University, has been appointed to the editorial board of the American Fern Journal. The vacancy on the board was created by the resignation of Rolla M. Tryon, who has served as an editor since 1961.

I wish to thank my predecessor, Richard L. Naucke, and the other officers of the society for helping to acquaint me with the duties of Secretary, as well as for handling some of the activities during my sabatical leave from The University of Connecticut.

Respectfully submitted,
Terry R. Webster
Secretary

NEW DIRECTORY OF PTERIDOLIGISTS

The British Pteridological Society has just published "An International Directory of Pteridologists," compiled by Joyce H. Holman and A. Clive Jermy. The Directory is based on questionnaires sent out by the British Pteridological Society and the American Fern Society in 1971 and 1972. The names, addresses, specialties and areas of geographical interest for 377 pteridologists are included, and the last two are cross-indexed. The Directory is available from Dr. A. Clive Jermy, Department of Botany, British Museum (Nat. Hist.), London, SWP 5ED, ENGLAND. It costs $2.00 postage paid to members of the American Fern Society and $3.00 postage paid to others.

THE QUESTION BOX

1. John E. Schwenn, Fontana, Wisconsin, has been raising Dryopteris Goldiana, Gymnocarpium Dryopteris, Polystichum Acrostichides, and Matteuccia struthiopteris from spores, and Cystopteris bulbifera from bulbils. He asks how to get them from a warm house to his outside garden in the spring. I would suggest keeping them as cool as possible during the winter to restrict rapid growth. Put the potted plants in your cold frame after all danger of frost is past and gradually expose to cool, daytime air. Do not allow the sun to strike the young tender leaves.

2. Wayne R. Reifcluth, Valdosta State College, Georgia, asks how to restore a Bird's-nest fern, Asplenium nidus, which has become old and leggy. Remove all of the old soil from the roots and, if needed, use a slightly larger pot for repotting. The plant can be lowered in the pot for appearance and greater support. Since the plant is essentially epiphytic, use a potting medium composed of humus, peat moss, chopped fir bark, and perlite. Keep moist at all times and feed monthly with emulsified fish oil.

3. J. Viesser would like to exchange both Eastern and Western Canadian ferns and cultivars. His address is 4612 Brander Road, Brainer, B.C. Vox 110, Canada.

4. Virginia Holomy, Massillon, Ohio, bought a Boston fern last January. By September after consistent care, which had proved very fruitful throughout the season, the fronds turned brown and died and the leaves fell off. She used Hypoxem plant food as needed. From the symptoms described I question whether the fern had sufficient water. Larger ferns are more difficult to water thoroughly, and it is best to soak them in a pan of water for about an hour and then drain. This procedure should be followed for each watering. Spraying the leaves with water each day is very beneficial. Regarding a fertilizer, I prefer to use emulsified fish oil when needed.
Dr. Ira L. Wiggins has asked to be relieved of his editorial duties at the close of 1973, concluding a period of 33 years of continuous service to JOURNAL readers and writers, the longest tenure of any person on the Editorial Board. Dr. Wiggins was an Associate Editor during the years 1941 to 1961 and 1965 through 1973. He was Editor-in-Chief from 1961 to 1966. Dr. Wiggins is a co-author of the new "Flora of the Galapagos Islands" and has been a steady contributor to the JOURNAL. His beautiful line-drawings of ferns and fern-allies will long be remembered by our readers.

Dr. David W. Bierhorst, of the Department of Botany, University of Massachusetts, has been appointed by the Council as Associate Editor of the JOURNAL, effective January 1, 1974. Dr. Bierhorst specializes in the morphology and anatomy of pteridophytes. Recently he published a text and reference work principally on pteridophytes entitled "Morphology of Vascular Plants". The Editorial Board of the JOURNAL will be greatly strengthened by his special knowledge.

UPPER OHIO VALLEY CHAPTER BOUNDARIES

Dr. Carl Chuey, Executive Secretary of the Upper Ohio Valley Chapter, has called to our attention their geographical limits:

all of the State of Ohio, all of the State of West Virginia except Morgan, Berkeley, and Jefferson Counties; the Counties of Garrett and Allegany in the State of Maryland; and the eastern part of the Commonwealth of Pennsylvania as limited by the Counties of Bedford, Blair, Clearfield, Cameron, and McKean.

This overlaps somewhat with the Great Lakes Chapter, which includes Minnesota, Wisconsin, Michigan, western Ontario, Illinois, Indiana, and Ohio. It is good to know the coverage of each chapter, but they should not be exclusive. Those who can effectively belong to more than one chapter should feel welcome to do so.

NEW OFFICERS

Election Results:

**President**
- Rollie M. Tryon, Jr. 183
- David W. Bierhorst 1
- David B. Lollinger 1
- Robert G. Stolze 1
- Alice F. Tryon 1
- Richard A. White 1

**Vice-President**
- David W. Bierhorst 180
- Robert G. Stolze 1
- H. E. W. Nicholas Sturm 1
- Terry R. Webster 1

**Treasurer**
- Dean F. Whitlach 181
- Terry W. Luceksony 1

**Honorary Memberships**
- F. Gordon Root 182
- Dr. W. T. Reichstein 184

Donald G. Huttleston
Judge of Elections

In addition to the newly elected officers, we have a change in secretary as well. Dr. Richard Hauke has resigned while he goes on sabbatical leave from the Univ. of Rhode Island for one year as a Fulbright lecturer at the Univ. of Jordan. (He reports having found three pteridophytes in Jordan - *Equisetum ramosissimum*, *Adiantum capillus-veneris*, and *Cheilanthus farinacea*, the latter in the ruins of a Roman amphitheater.)

In his place the Council has appointed Dr. Terry R. Webster (Biological Sciences Group, Univ. of Conn., Storrs, Conn. 06268) to complete the term of office. Terry's specialty in developmental morphology, much of his work having been done on *Selaginella* and its rhizophores.

WANTED TO BUY: Pressed specimens of North American ferns and fern allies from any part of North America. Correspondence solicited from people interested. L. Henry Potter, R.F.D. #1, West Rutland, Vermont 05777.