

LONG ISLAND BOTANICAL SOCIETY NEWSLETTER

July - August 1994 Vol. 4, No. 4

In This Issue

This issue is in a way a continuation of the May issue (the fern atlas). As with that issue we are dedicating this issue to **Joe Beitel**.

Carol Johnston has written an introduction to ferns, "Fascinating Ferns and their allies".

Barbara Conolly, Carol Johnston and **Steven Clemants** have send in memories of Joe.

We have added information about the NY chapter of the **American Fern Society** for those who would like more information about ferns.

It was hoped that we would have a schedule for placing the memorial plaque in honor of Joe but there has been a hitch in the schedule (see Society News).



Joseph M. Beitel
1952-1991

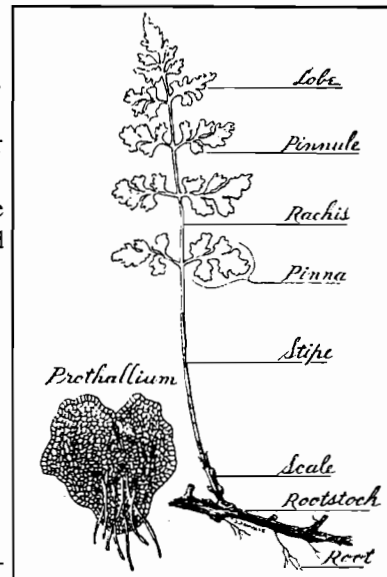
PROGRAMS

There are no programs for July & August

Fascinating Ferns & Their Allies

As ferns and fern allies were the focus of the last newsletter with the publication of a preliminary fern atlas, this seems a good time to look more closely at these fascinating non-flowering plants.

Ferns have been growing on the earth for millions of years. On the evolutionary scale they came after algae, mosses, liverworts, and before the much more advanced flowering plants. In fact, about 300 million years ago ferns were the dominant life form on our planet. In the Carboniferous Period (about 240 million years ago) ancestors of our modern horse-tails, clubmosses,



Fern Plant

ferns and cone-bearing trees grew together in vast swamps along with the now extinct seed ferns. Many of them attained the size of forest trees; fossil records indicate their vastness and stature. Their remains accumulated to form thick mats of plant debris. These were covered and compressed by sediments, and with pressure changed into the coal beds of today.

In medieval times mysticism, fear and superstition surrounded ferns. People knew that without flowers ferns could have no seeds; they questioned how such plants could reproduce. As knowledge increased, scientists discovered that the "seedless" ferns were the most prolific producers of all plants: ferns shed their dust-like spores by the millions. For a long time though, the mystery of germinating from something so small still seemed supernatural. They believed ferns had magic

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powers to cast spells of good and evil.

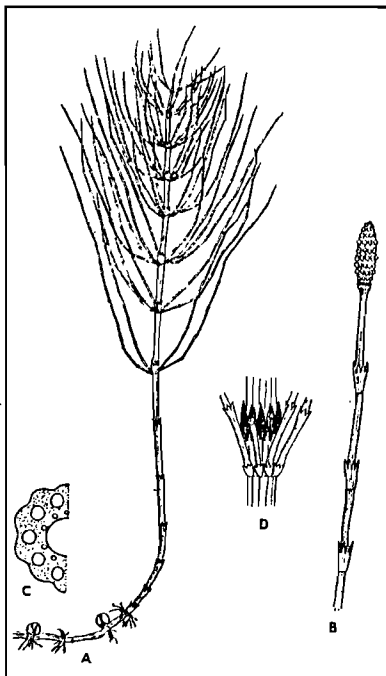
Today we group ferns and fern allies (clubmosses, horsetails, quillworts, spikemosses) together; not because they are closely related but because they are all spore-bearing vascular plants, called collectively Pteridophytes. Over 12,000 species are known, mostly in the tropics. Some think the fern allies were experiments in the evolution of vascular plants that have probably not led to other groups of plants. Ferns, on the other hand, gave rise to seed ferns from which the flowering plants possibly evolved.

What then is a fern? Besides being a vascular plant that reproduces by spores, ferns have complex leaves (fronds) with a branching vein system that are dominant parts of the plant. The fern allies have small inconspicuous leaves with a single unbranched vein (a microphyll instead of a megaphyll).

Another distinctive feature of ferns is the manner in which most of them expand their leaves. The fronds mature from the base to the top, gradually unrolling from a fiddlehead (a crozier). This way of uncurling is called circinate vernation and there are only a few exceptions like the grape ferns (*Botrychium*) and Adder's-tongue (*Ophioglossum*).

The reproduction of Pteridophytes is interesting, beginning with a spore rather than a seed. Spores are tiny one-celled bits of protoplasm unlike seeds, which are entire embryo plants with a food supply enclosed in a seed coat.

Spores are usually produced in ferns on the undersides of the fronds in small clusters of spore cases (sporangia) called sori. These brown or black dots are not scale insects! Each sporangium contains many spores. They snap open and release spores by means of a ring of thick-walled cells (annulus) that contracts and springs open when mature. Spores are produced in great quantities, often millions from one plant, because they are so susceptible to the effects of weather. Dust-like, they can enter the jet-stream for long distance dispersal.



Field Horsetail
A. Plant with sterile shoot B. Fertile shoot
C. Half section D. Node

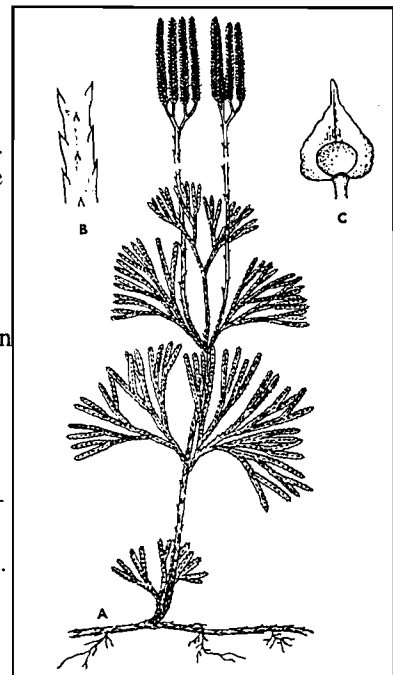
When a spore germinates, it grows into a non-vascular heart-shaped plant called a prothallium. It is small, green and flat. This is often only 1/8" to 1/4" wide and is the part of the fern life-cycle that usually goes unnoticed. In the fern allies such as the clubmosses, the prothallium is often colorless and underground, sometimes looking like a small tan pea. It may exist that way for years before the next, more conspicuous generation appears.

When the prothallium is mature, male and female sex cells develop on the underside. With sufficient moisture the sperm are able to swim to the egg cells. From the fertilized egg the plant that we think of as a fern develops. This half of the life-cycle which produces the familiar plant is called the sporophyte generation. As the young sporophyte grows, it sends roots down into the soil and its first fronds uncoil. Soon the prothallium simply withers away and the fern is on its own!

Horsetails (*Equisetum*) have hollow jointed stems: like a line of drain-pipe with each section fitting into the one below it. At the top of each joint is a papery toothed sheath (actually the reduced leaves). Spores are borne in cone-like spikes.

Clubmosses (*Lycopodium*) have numerous small leaves, which are sometimes scale-like. Their spore cases are borne at or near the tips of the branches. The bright yellow spores contain more than half their bulk in oil and can ignite in a flash. Their colorless underground prothallia must have a mycorrhizal association as they cannot make their own food.

Spikemosses (*Selaginella*) and Quillworts (*Isoetes*) are in the same line of evolution as

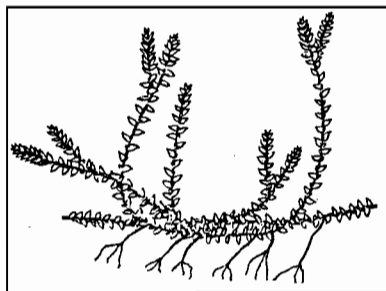


Crowfoot Clubmoss
A. Plant B. Underside of branchlet
C. Sporophyll

Clubmosses. Quillworts are small aquatic plants: a rosette of quill-like leaves rise from a corm buried in the mud of shallow water. Spikemosses resemble mosses but have a vascular system. Both of these allies have a unique difference: unlike ferns they bear 2 sexes of spores borne in sporangia embedded in wide leaf bases. The prothallia grows right in the broken-open megaspore

after fertilization from sperm of the microspore.

Most of us are attracted to flowering plants but when you begin to focus on ferns you begin to be fascinated by their uniqueness. Shades of green can be as beguiling as gaudy colors!--Carol Johnston



Meadow Spike-Moss

Joe Beitel 1952 - 1991 A Look Back

Joe Beitel was an integral part of the Long Island Botanical Society from the word go. His boundless enthusiasm and his love of plants were qualities we'll never forget. A look through the past minutes reminded me of some of the things he did for us in his tenure as Vice President.

On August 3, 1986 he led the first of his famous orchid forays - starting in Moore's Woods at Greenport and leap-frogging over Shelter Island to the south fork.

In 1987 he gave us a lecture on the status of ferns and fern allies on Long Island on January 13th.

February 10th he talked to us about his fern-collecting expeditions in the Guyana Highlands of Venezuela. Amazingly, in spite of 20-foot anacondas, scorpions, inch-long stinging ants and five species of fer-de-lance, he found 150 species there.

Another orchid foray to the south fork - this time with Bob Zarembo - took place on August 1.

September 12-13 he conducted a 2-day fern workshop in 3rd House at Montauk which, despite the two days of incessant rain, was a fabulous success. He had ten microscopes set up in the cellar of 3rd House and had mounted lycopods to see and duplicated handouts to take for all 22 participants. He then led us to Big Reed Pond, wading through wet Goldenrod and surging through soggy woods to show us a fine stand of Massachusetts Ferns. After lunch, pedal to the metal to Quogue to see the *Ophioglossum* there, and then to Riverhead, where we were shown *Azolla* and *Wolffia* in the Peconic River. There was even one more stop at Manorville to look for a lycopod which turned out to be the same hybrid we'd already seen.

And then on November 14th, he met Betty Lotowycz and myself (the only attendees) for a field trip

to Smith Point Park on the coldest say south of the Pole. After a brief attempt to face the gale (20° and wind chill factor of 20 below), Joe actually backed off and decided the mainland would be better, so we checked on *Botrychium oneidense* at South Haven Park, said "hello" to the *Juniperus communis* and *Lycopodium obscurum* v. *isophyllum* at Cathedral Park west, and wound up in Bellport to look for *Agalinis acuta* seed and to check out *Vaccinium brittonii*.

In 1988, we went orchiding with Joe on July 30. This was a joint trip with the American Fern Society, and turned up *Tipularia discolor* in Moore's woods, Greenport, and then four *Platanthera*'s, *cristata*, *ciliaris*, *blephariglotta*, and *clavellata* near Easthampton. Then at Little Northwest Creek salt marsh, Joe pointed out *Lilaeopsis* and *Vernonia noveboracensis*. Joe's announcement of this trip stated, with typical Beitel verve: "It will be a long day; bring lunch and plan on wet feet, sun, mosquitoes and ticks." We had it all!

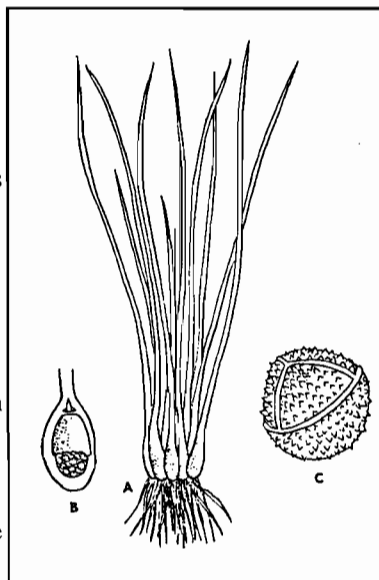
On October 15th of that year, Joe and Eric Lamont led a field trip on 'Oaks and Asters,' and on December 13th, Joe's programmed talk on Botanical Ramblings in China had to be postponed due to an inopportune snowstorm. This was rescheduled to March 14, 1989 and was enthusiastically presented and received.

On June 3rd, Joe led a search for *Arethusa bulbosa* at Wertheim Refuge, and on July 29th he

led an orchid foray to the South Fork with Eric Lamont.

On Saturday, September 16, Betty Lotowycz and I drove down to the NJ Pine Barrens to join Joe and 18 people slogging around in the bogs after a hard rain. Joe bounced from place to place, utterly irrepressible. Curly Grass Fern, Bog Asphodel gone to seed, Pine Barrens Gentian, Bog Aster, Bog Goldenrod and *Corema conrattii* were a few of the treats he had in store for us.

In 1990, a final orchid foray was scheduled for August. Whether or not it took place I'm not sure. But that fall, Joe's illness became increasingly evident, and he died on February 22, 1991, beloved and mourned by us all.--Barbara Conolly



Spiny-Spored Quillwort

A. Plant, B. Sporangium in leaf-base
C. Megaspore

Remembering Joe

One of my most vivid memories of Joe Beitel was on my first field trip to the Nissequogue River (now Caleb Smith State Park) in 1972. It was a hot summer's day, and following Joe's lead, we waded right in and walked (squelched!) down the center of this beautiful trout stream, exploring any little tributary that we came across. Betty Lotowicz and Joann Knapp, also Planting Fields Staff were with me. Joann, as the Arboretum Photographer, had expensive camera equipment in what looked like a brief case: this she held high over her head, looking like a misplaced commuter! By this mode of travel Joe led us right to Boott's Wood fern (*Dryopteris x boottii*) and both of its parents. Unforgettable fun un finding surprising ferns and clubmosses!--

Carol Johnston

I first met Joe during a fern course at Itasca Biological Field Station in northern Minnesota. The course was taught by Dr. W. H. Wagner, Jr., who was Joe's mentor at the University of Michigan.

What I remember most about that time was how engaging and knowledgeable Joe was and how he had time to spend with everyone and anyone who was interested in ferns (or any other plants for that matter).

Joe was not part of the class but was assisting in teaching the class and spending the rest of the time working on Lycopodium species for his doctoral dissertation. He spent many hours showing me the differences between the various Lycopodium species in northern Minnesota. A time I will never forget.--**Steven Clemants**

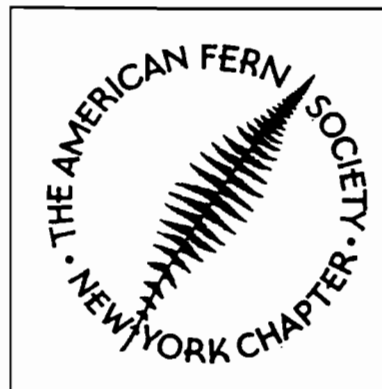
Fern Field Guides

Carol Johnston recommends the following field guides to ferns as the easiest to use.

A Field Guide to the Ferns and their Related Families.
by **Boughton Cobb** (Peterson Field Guide).

The Fern Guide by **Edgar T. Wherry** (Doubleday Nature Guide) (Hard to find!).

American Fern Society



Because of the great interest in ferns in the New York area, the American Fern Society has established a New York Chapter to enable those members to get together regularly to participate in a diversity of activities centering around ferns. The main object is to increase our knowledge of ferns and increase communication between those interested in this group of plants, stressing both the botanical and horticultural aspects of ferns study.

The membership is quite varied in background and interests. It is composed largely of amateurs, although there are also a few professional botanists in the group. No expertise is required to join, only an interest in learning about ferns. Membership in the New York Chapter consists of those members of the American Fern Society residing in the general New York area who have expressed an interest in the Chapter activities. Membership in the American Fern Society can be obtained by making out a check for \$8.00 annual dues to **The American Fern Society, Inc.**, and sending it to Dr. John Mickel, **New York Botanical Garden, Bronx, NY 10458**. There are additional dues of \$2 for the local chapter.

Meetings are usually the first Saturday of each month. From November to May the meetings are held indoors at the New York Botanical Garden, 10 am to 2 pm, with varied programs to meet the desires of the membership. These include discussion and workshops on fern cultivation, propagation, collecting, identification, and life history, slide shows, show-and-tell, and a raffle of living plants. Meetings from June through October are in the form of field trips in the general area. The Chapter has cooperative projects with the New York Botanical Garden and the Brooklyn Botanic Garden in the development of their tropical and native fern collections.

For more information contact Dr. John Mickel at the above address or phone (718) 817-8705.

Society News

May 10 Meetings

Peter Whan, Director of Preserves for the South Fork Chapter of the Nature Conservancy, spoke on his experiences as a director of the Appalachian Preserve System in southern Ohio (Adams County), at the edge of the Appalachian Mountains. He told about fascinating coral outcroppings in the hills which were packed with prairie plants and which eventually seeded the abandoned farms in the valleys with prairie wildflowers. His slides of the flowers whetted everyone's appetite.

Skip Blanchard & Carol Johnston reported finding Cut-leaved Toothwort, *Cardamine concatenata* in Big Reed Pond Park on April 25. This is new for the Long Island list. **Eric Lamont** had seen it in Queens, but doubted it was native. **Skip** also reported finding May Apple on Whitney Lane nr the Post Campus, but he doubts it is native.

Sal Battaglia found a reference to Goldie's fern (*Dryopteris goldiana*) in one of George Peter's books. It is thought this may be one of the Goldie hybrids. He also reported Wild Leek in West Babylon

Bob Laskowski mentioned Quillworts (*Isoetes*) in a deep lake in Suffolk County. He also said that Large-toothed Aspen was full of seed this year after several fruitless years.

Steve Young called about the very rare *Trillium sessile* which was been reported from Oakland Lake, Queens. **Eric Lamont** and **Art Scopek** went to see it and found it to be a smaller plant, *T. viride*, now called *T. cuneatum*.

Larry Penny is requesting volunteers to help in a forest inventory at Easthampton. Contact **Lucy Miller** at 324-0496 if interested.

Steve Young anything about the commercial exportation of Sea Lavender from Long Island. Since Rhode Island has declared collecting it illegal, the market has apparently swung to Long Island. **Eric** said he had seed lots of it for sale at vegetable stands our East. **Skip** added that he had told Steve that the Salt Marsh Skipper Butterfly nectars on Sea Lavender.

Joe Beitel Memorial Plaque

The situation with the Joe Beitel Memorial Plaque is on hold because **Michael Frank**, newly appointed assistant to **Edwin Wankel**, Commissioner of Suffolk Co. Dept. of Parks, is concerned about setting a precedent and he also feels it is inappropriate. **Eric** explained that we had a verbal agreement with John

Turner and have collected the funds for the plaque. We would like to erect it this summer, so **Eric** has written a letter to Mr. Frank.

Skip Blanchard led a group to Big Reed Park on April 25 and narrowed down the choice of rocks to 2 or 3. **Barbara Conolly's** pictures of two of the rocks were passed around at the May 10 meeting.

Executive Board Meeting

We will put notes in about this meeting in the next issue.

Field Trips

July 9, Sat. Connetquot River State Park. Meet 9:30 AM in entrance parking lot. **Chris Mangels**, will lead this visit to dry uplands and wetlands along the river. Examine noteworthy species of sedges and other rare species in the wetlands. Bring lunch and beverage and be prepared for ticks, wetness and sun. Leave message with Glenn Richard at 369-4922 by June 22, including your name and phone number if you plan to attend.

August 6, - Dave Kunstler will lead a walk at **Pelham Bay Park** in the Bronx starting at 9:30. The walk will go through The Meadow and Hunter Island. Call for details 718-430-7831.

August 6, - Eric Lamont - Montauk, Promised Land - Joint trip with the Philadelphia Botanical Club. Call Eric Lamont (516-722-5542) for more details.

Aug 20, Sat. Joint field trip with Connecticut Botanical Society (CBS) to **Orient Beach State Park** in the morning, coastal plain pond shores near **Calverton** in afternoon. We will meet members of CBS at the Orient Point ferry terminal at 8:45 am. LIBS car poolers are needed, please contact **Eric Lamont** if you can help (516-722-5542).

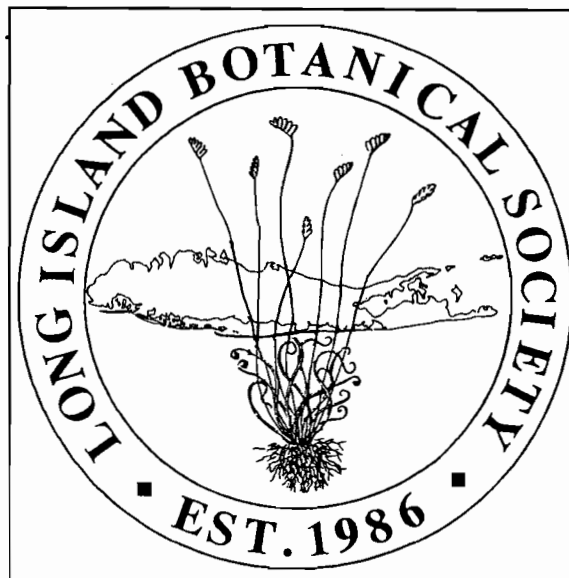
August 27, - Al and Lois Lindberg - Tiffany Creek Preserve including **Flag Meadow** - 9:30 am. In morning, visit oak-hickory and oak slope woodlands. The oak slope includes Saul's oak, chestnut oak and mountain laurel. After lunch, visit **Flag Meadow**, a wet meadow with *Osmunda* ferns, Turk's cap, turtlehead and rare milkweeds. Bring lunch and a beverage and be prepared for wet walking in afternoon. Call Al or Lois at 922-0903 to sign up and get directions.

LONG ISLAND BOTANICAL SOCIETY

Founded: 1986; Incorporated: 1989.

The Long Island Botanical Society is dedicated to the promotion of field botany and a greater understanding of the plants that grow wild on Long Island, New York.

President	Eric Lamont
Vice President	Steven Clemants
Treasurer	Carol Johnston
Recrd Sec'y	Barbara Conolly
Cor'sp Sec'y	Jane Blanchard
Local Flora	Skip Blanchard
Field Trip	Glenn Richard
Membership	Lois Lindberg
Conservation	Louise Harrison
	John Turner
Education	Margaret Conover
	Mary Laura Lamont
Hospitality	Nancy Smith
	Betty Lotowycz
Program	Eric Lamont
Editor	Steven Clemants



Membership

Membership is open to all, and we welcome new members. Annual dues are \$10. For membership, make your check payable to LONG ISLAND BOTANICAL SOCIETY and mail to: Lois Lindberg, Membership Chairperson, 45 Sandy Hill Rd., Oyster Bay, NY 11771-3111

LONG ISLAND BOTANICAL SOCIETY

c/o Muttontown Preserve
Muttontown Lane
East Norwich, NY 11732