Newsletter of the FRIENDS OF THE FARLOW

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Once You've Seen One You've Seen One, or Not All Scutellinia Species Are The Same

Donald H. Pfister, Curator of the Farlow Library and Herbarium of Cryptogamic Botany

The Farlow has had the pleasure of hosting Young-Joon Choi, a scholar from Korea, since the Fall of 2009. He has undertaken several projects while here but it is his work on *Scutellinia* that brought him to the Farlow as a location for his work. Some of which has focused on studies of the genus *Scutellinia*, a member of the *Pezizales* or operculate discomycetes.

On many a foray we find *Scutellinia* species and there are two reactions to these finds. They may be confidently labeled as *Scutellinia scutellata* and find their way to the display table or the herbarium or they are labeled *Scutellinia* sp. These specimens, often labeled by the most expert of mycologists, may never be displayed, for who wants to know it is "sp.", and when they are accessioned to the herbarium their lack of a proper baptism earns a place in limbo that is among the undetermined specimens. These specimens need to be studied and identified before they can join their fellows in the order of the herbarium. Why is it then that there is this all or nothing outcome in this genus that indeed everyone recognizes?

To answer this question one needs to know a bit about the genus. It might be a surprise to know that there are perhaps 60 described species of Scutellinia. It is because there is great diversity and because there are limited characters

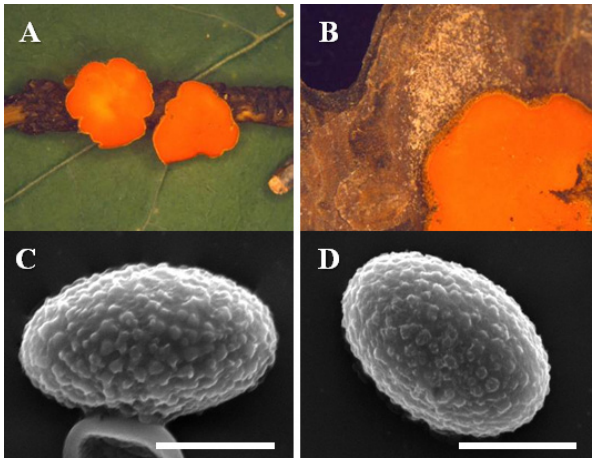

photo courtesy of Y. J. Choi. A-D: *Scutellinia ahmadiopsis*. (Scale bar = 10 μm)

employed in defining species that we become confused or uncertain of identification. *Scutellinia* is characterized by being bright red or orange and having brown multiseptate hairs or

FoF Annual Meeting
Saturday, November 5th. See Page 7.

setae situated on the margins and flanks of their apothecia. Apothecia are cup-shaped structures that carry the spore forming structures, the asci. A common name for the species of the genus is "eye lash fungi" because of the distinctive fringe of hairs around the apothecium something like eye lashes around an eye. The hairs have a distinctive structure in that they are often forked once or many times near the base. Characters used in classification include the color of the disc and its size; the length of the hairs and their degree of forking; substrates on which the apothecia occur; and spore shape, size and surface ornamentation. The determination of species thus requires both macroscopic and microscopic examination and care in collecting to assure that substrates are known. A treatment of the genus worldwide was done by Trond Schumacher and it is based on these characters. That monograph should be consulted by all serious workers on this group.

Even though we have a monograph, determinations have remained problematic and Choi decided to sample broadly across the genus using DNA sequence data. In his large study about 200 specimens from North and South America, Europe and Asia were used to obtain LSU rDNA sequences. These sequences were used to construct a phylogeny. About 50 lineages were found in the analyses and these include at least 30 of the described species. In addition to these species which we could define using morphological characters, a number of lineages were identified of what we might refer to as cryptic species. Cryptic species are those which represent distinct lineages but for which morphological characters are lacking. To further complicate the complicated genus *Scutellinia* there are some lineages in which there are minor morphological distinctions and some phylogenetic structure but insufficient clarity to sort species, even where species have been described. We refer to these groups as species complexes and one of the complexes is the *Scutellinia scutellata* complex.

This takes us back to the beginning. Not every red, long-haired *Scutellinia* species on wood is *S. scutellata*. There are several species that we find that fit this general description but in fact are outside the complex. Still many of the collections we find fall within the *S. scutellata* complex. This perhaps is a good reminder that even with technology we still have mysteries to solve that might go beyond the string of base pairs to considerations of other, perhaps unknown factors in the origin and evolution of species. But, because of Choi's work we can, with greater clarity, continue to study this interesting and very special genus.

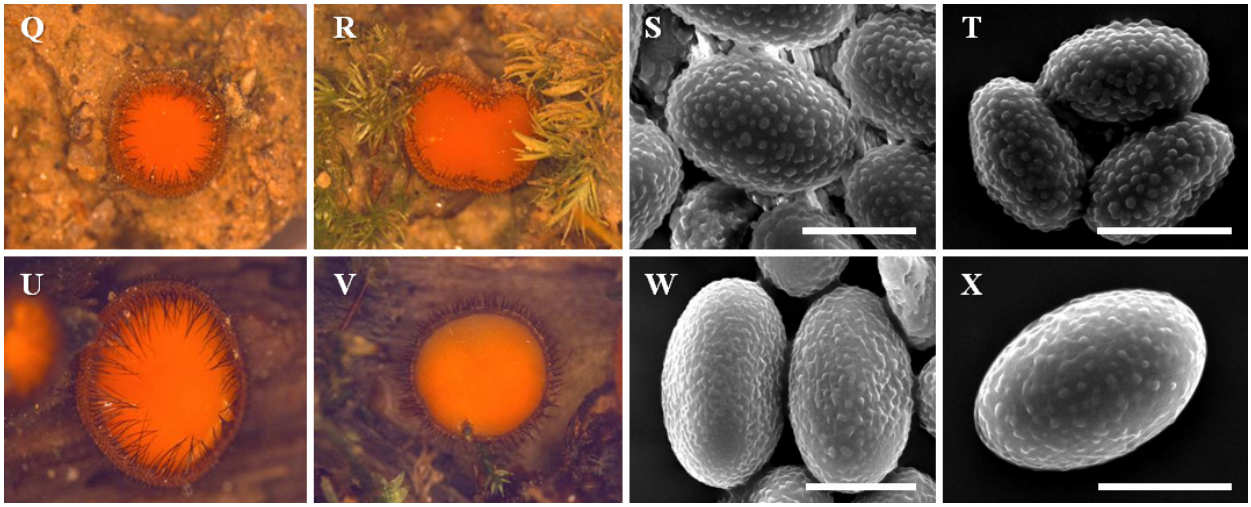

photo courtesy of Y. J. Choi. Q-T: *Scutellinia* aff. *patagonica*. U-X *Scutellinia scutellata*. (Scale bar = 10 μm)

I should point-out that in addition to this large scale phylogeny which he will publish, we have found one group of species that will be named as a new genus and another that will require further study. Choi has also produced a treatment of the genus *Scutellinia* in Korea with two new species.

photo courtesy of Y. J. Choi. M: *Scutellinia olivascens*.

Next time you collect one of these beauties look at it closely and realize that it might be *Scutellinia scutellata* but it might also be one of the 60 or so other species.

Spring Survey Summary

In response to the **survey** sent out in the spring we had 17 responses out of the 66 members polled. The summary shows that the FoF will not add any added social networking (Facebook or Twitter) at this time. The resounding newsletter format reply is to keep the print newsletter, though an additional digital copy would also be enjoyed. We are **keeping the print newsletter** and will also continue to have a digital copy on our website.

Some Farlow Trivia

Did you know that the New England Botanical Club held its organizational meeting at William G. Farlow's home in Cambridge? On December 9th 1896 Farlow invited a small group of men who were interested in botany to his home on Quincy Street in Cambridge to discuss the formation of a club dedicated to the study the local flora and to socialize. His house is gone, replaced by the Carpenter Center, but the New England Botanical Club is still active. Farlow was the Club's first president.

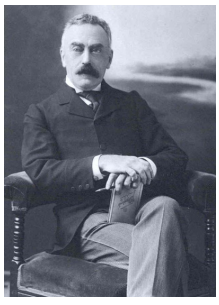

photo courtesy of the Archives of the Farlow Library and Herbarium of Cryptogamic Botany

Walden Pond Walk Recap

by Jason Karakehian

An enthusiastic crew of Friends of the Farlow members met this past May for the Clara Cummings walk at Walden Pond in Concord, MA. We convened at the replica of Henry David Thoreau's cabin where park ranger Peter Davenport described the events in the writer's life which led him to pursue his experiment in simple living.

Clara Cummings Walk attendees listening to Peter Davenport.
photo by: G. Lewis-Gentry

We walked along the perimeter of the pond to the site where Thoreau's original cabin once stood, observing trees, mosses, lichens, birds, amphibians and fungi. This author's particular interest is fungi and we found some beautiful specimens of *Peziza*, *Gyromitra gigas*, and a minuscule species of *Arachnopeziza* in the woods along the trail.

Arachnopeziza at Walden Pond.
photo by J. Karakehian

From the landmark noting the original location of Thoreau's cabin, we parted ways with Peter and continued on the Emerson's Cliff Trail, a side trail away from the pond's edge. At Emerson's Cliff we ate lunch and the author was delighted to find a rare fungus, *Glonium stellatum* on a decorticated oak log. Next, walking slowly down a hill slippery

Glonium stellatum at Walden Pond photo by: J. Karakehian

with fallen leaves and pine duff, we walked through Haywood's Meadow which is not a meadow at all but a wetland bordered by giant white pines and oaks. Here we found *Mitrula elegans* and lichen species *Psilolechia lucida, Lasallia papulosa*, and others that one might expect to find in a suburban Massachusetts woodland. The walk concluded with a tour of the Gropius House. The weather was fantastic and everyone had an excellent time!

Some Clara Cummings Walk attendants with Thoreau reenactor Richard Smith. photo by: G. Lewis-Gentry

Exciting Collections News

Professor Donald Pfister is among the collaborators on a National Science Foundation (NSF) funded project titled **North American Lichens and Bryophytes: Sensitive Indicators of Environmental Quality and Change**.

Lichens and bryophytes (mosses and their relatives) are sensitive indicators of environmental change, and are dominant organisms in arctic-alpine and desert habitats, where the effects of climate change are well-documented. This project will image about 2.3 million North American lichen and bryophyte specimens from more than 60 collections to address questions of how species distributions change after major environmental events, both in the past and projected into the future. Large-scale distribution mapping will help identify regions where such changes are likely, fostering programs designed to protect these organisms. The project includes a plan to build and enhance a national volunteer community, and provide online seminars, extensive online training materials, and local workshops and field trips.

The NSF made this award, of $315,000 in July 2011, as part of its Advancing Digitization of Biological Collections program. It will involve scanning and data retrieval on specimens in the Farlow collection.

FoF Graduate Fellows

The FoF has supported two graduate fellows this fall. **Jessie Uehling**, a student at Humboldt State University, spent a week in September examining collections of clavarioid fungi. She wrote upon her return to California, [The Farlow] is such a wonderful resource and I'm honored to have had the opportunity to utilize it." Jessie studied collections of tropical members of the genus *Clavulina*. She found many and was able to examine a number of type specimens, particularly those in the herbarium of N. Patouillard.

In October **Melissa Jaeger** from the Universidade Federal de Santa Catarina, Brazil was a fellow studying Brazilian collections of *Russulaceae*. The Farlow has a series of collections of fungi made by Johann Rick. Rick, a priest from Austria, who worked in Brazil from 1905 to 1946. Several of his expeditions where sponsored by Harvard and thus collections, mostly from the state of Rio Grande do Sul, have been preserved at Harvard. Melissa has found much that is pertinent to her studies on the *Russulaceae*.

A Note on FoF Leadership and Volunteerism

from Donald Pfister

At the last annual meeting George Davis was elected to serve as President of our organization. Our officers now include George as President, Toby Feibelman as vice president, Michaela Schmull as secretary. Donald Pfister and Judith Warnement serve on the executive committee as ex officio members. Our treasurer of long standing, Phillip May, resigned last November. We are looking to fill this slot and would welcome volunteers.

Kitty Griffith has served as newsletter editor for the past 15 newsletters since Spring 2004 and has decided to step down. Genevieve Lewis-Gentry of the Farlow Herbarium staff stepped-in to see that this current newsletter hits the streets. We thank her. But Kitty deserves our thanks particularly. She nursed along the newsletter admirably by soliciting articles that drew us all into science, history and sometimes just interesting asides. She took the job seriously but she also had one of the most pleasant ways that one can imagine of urging us on toward deadlines. My personal guilt about holding up the show was always gracefully assuaged by Kitty's kind and forgiving attitude.

At some point I discovered that it was taking literally days for our bulky but trusty oversized printer to turnout the newsletter and that the printing produced a squeak along with the slow grinding of the mechanism. Perhaps it would be better to have the printer at the Farlow rather than at her home? Of course my suggestion was countered with, "but it is not a problem."

We hope Kitty leaves this task with a sense of accomplishment. She did indeed make the newsletter into a finely polished production and we thank her for the time spent with the cranky printer. Kitty set the bar very high and we hope we can live up to the standard she set.

Exhibits in the Farlow

Please stop by the Farlow Library and Herbarium to see the current exhibit **The Botany of Dyeing** by herbaria staff Steph Zabel and Genevieve Lewis-Gentry. The exhibit will be featured through the 15th of November 2011 and has examples of plant, mushroom, and lichen dying.

Usnea dyed yarn. photo courtesy of Tessa Updike

In December the classic "**Festive Fungi"** exhibit will be installed in the Farlow cabinets showcasing how some of our favorite Fungi are represented in the holidays. It includes many *Amanita muscaria* themed ornaments, Pysanky eggs featuring the charismatic mushrooms as well as Saint Nicholas, and many other fun finds. This exhibit is put together by Lisa Decesare of the Botany Libraries.

Pysanky egg Santa with *Amanitas.* photo courtesy of Holly Clark.

News from the Farlow

Don Pfister received the MSA Fellows Award at the annual MSA meeting which was held in Fairbanks, Alaska August 2-5, 2011. He also presented a poster with lab post-doc **Young Joon Choi entitled** "Revisiting the genus and species concepts of the genus *Scutellinia* based on morphology and phylogenetic analysis."

News continued

Michaela Schmull of the Farlow Herbarium and **Judy Jacob**, Senior Conservator for the National Park Service (NY), taught a course at Eagle Hill entitled "Lichens and Gravestones" July 17-23, 2011.

Students hard at work. photo courtesy of M. Schmull

Young Joon Choi, a post doc who was with us from September 30, 2009 until August 26, 2011, returned to South Korea where he stayed until September. He has now taken up a post doc position at the Biodiversity and Climate Research Center in Frankfurt, Germany. While in the Farlow Herbarium he worked extensively on the genus *Scutellinia*.

We had the pleasure of having **Bin Liu** as a Visiting Scholar from March 9, 2011 thru September when he returned to the Guangxi University in Nanning, China. While with us he worked on the *Orbiliaceae*.

The crew at the Farlow wishing Young Joon Choi and Bin Liu safe travels. Pictured L-R: Kathy LoBuglio, Young Joon Choi, Ingrid McDonough, Don Pfister, Michaela Schmull, Genevieve Lewis-Gentry, and Bin Lui. photo courtesy of Bin Liu.

Library Tour

Attendees of the 17th annual meeting of the **American Society of Botanical Artists (ASBA)** were treated to an exhibit of botanical art from the Botany Libraries archives in the Farlow Library Reading Room on Friday, October 28, 2011. Sketches, paintings, and other illustrations by Caroline Coventry Hayes, Eliza B. Blackford, Roland Thaxter, Charles E. Faxon, Carolyn Dorcas Smith Murdoch, Blanche Ames, Joseph Bridgham, L.C.C. Krieger, and the artists for the first United States Exploring Expedition (1838-1942) Alfred Agate and Joseph Drayton were featured. *(See the Fall 2008 newsletter on page 7 for more on the artwork of Caroline Coventry Hayes.)*

Selected New Books

by Gretchen Wade

The genera of hyphomycetes. By Seifert, Keith [et al.] Utrecht, The Netherlands : CBS-KNAW Fungal Biodiversity Centre, 2011.

The diatom world. By Seckbach, Joseph and J. Patrick Kociolek.

Panarctic checklist : lichens and lichenicolous fungi. By Hörður Kristinsson [et al.] Akureyri, Iceland : CAFF, 2010.

Riisikad : the genus Lactarius in Estonia. By Kalamees, K. (Kuulo). Tartu : Tartu Ülikooli Loodusmuuseum, 2011.

Rhodophyta and Phaeophyceae. By Eloranta, Pertti. Süsswasserflora von Mitteleuropa ; Bd. 7 Heidelberg : Spektrum Akademischer Verlag, 2011.

Atlas of invertebrate-pathogenic fungi of Thailand. vol. 3. By Luangsa-ard, Janet Jennifer [et al.] Pathum Thani, Thailand : National Center for Genetic Engineering and Biotechnology ; National Science and Technology Development Agency, 2010.

FoF Annual Meeting

The FoF Annual Meeting will be held on Saturday, November 5th beginning at 3:45 p.m. with a business meeting.

At 4 p.m. our distinguished speaker, **Dr. Dennis Desjardin**, Professor and Director of the Harry D. Thiers Herbarium at San Francisco State University, will deliver a talk entitled **"Illuminating Fungi."** Dennis, along with former Farlow graduate student Brian Perry, D. Jean Lodge, Cassius V. Stevani, and Eiji Nagasawa published a paper titled "Luminescent *Mycena*: new and noteworthy species" on this topic. See, Mycologia 102(2): 459-477. 2010, for more on their new species.

Image of *Mycena silvaelucens* courtesy of Brian Perry

In addition to his work with fungi that glow, Dennis Desjardin has invented many unusual names for the fungi he has found and described. For example, when working on the fungi of Hawaii he created specific epithets that were derived from native Hawaii language roots. Thus, *Marasmiellus hapuuarum* was born. This refers to the hapu`u tree fern. A name that has caught the fancy of the popular press is *Spongiforma squarepantsii*. This mushroom from Borneo resembles a sea sponge. The name, with its reference to the cartoon character Sponge Bob Square Pants, has brought attention to fungi and to the need to collect more intensely around the tropical world. There are but two species of *Spongiforma* known the other from Thailand and also described by Desjardin.

We hope that you can join us for the meeting this year. The reception will follow in the Farlow Library Reading Room.

Parking for Annual Meeting

If you plan to park in the 52 Oxford Street Garage for the Annual Meeting, and you need assistance in obtaining a one-day Visitor Parking Permit, please contact Ingrid McDonough. She will walk you through the procedure you'll need to follow to get one.

e-mail: imcdonou@oeb.harvard.edu
phone: 617-496-3023

Walking Directions to the Herbaria from Harvard Square

Walk into Harvard Yard through Johnson Gate (as you do so you will be facing the statue of John Harvard directly across the quad) and take the walkway that goes off diagonally to your left. Follow this walkway to another gate at the north end of the yard. As you go through this gate you will be facing the Science Center; Memorial Hall will be to your right. Look beyond Memorial Hall for a tall, white building at the corner of Divinity Avenue and Kirkland Street. Walk up Divinity Avenue to the end. The Herbaria will be facing you. Walking time from the subway is about 10 minutes.

Join us!

Receive the FOF Newsletter, notification of the annual book sale, discount on Farlow publications and services, invitations to the annual meeting and other events, and a special welcome when visiting the Farlow.

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