LONG ISLAND MYCOLOGICAL CLUB

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MUSHROOM DAY 2012
PLANTING FIELDS ARBORETUM

OCT. 21 1PM—4 PM

This annual event is a tradition of over 20 years standing, in some ways the highlight of the collecting year, and serves to introduce the public to our activities and the importance of fungi in the environment. We ask all members to pitch in and help to collect samples for exhibition and to assist in setting up the display tables.

Volunteers should arrive at 12 noon in order to have the exhibits in place and labeled by the 1 PM opening. Search your favorite spots for interesting and colorful examples for this public display and for the enjoyment of our members as well.

We particularly invite all new members, as well as those who do not often attend our forays, to join us on this special day.

If you inform the booth attendant that you are here to help with the mushroom exhibit, a fee will not be charged.

NEMF 2012 SAMUEL RISTICH FORAY

Our arrival at East Stroudsberg University was preceded by welcome rains in the month previous and by some additional rain during the foray as well, unfortunately accompanied by temperatures hovering around 90. By the foray's end, the species count stood at 348 taxa, (including lichens and slime molds), with 32 species new to the master list, a respectable but not outstanding total. What stood out was the high quality of the faculty and their lectures, as well as the general conviviality, highlighted by well attended (and well watered) evening social gatherings. Another pleasant surprise was the air conditioned, wifi equipped buses, a welcome upgrade from the standard rickety school buses. It was good to see Alan and Arleen Bessette back on the circuit and to learn from him that their new book, "Tricholomas of North America" (with Bill Roody & Steve Trudell), the first comprehensive N.A. guide to that genus, will soon be published and can be ordered in advance from the Amazon website.

Roy Halling expounds at the collection tables

Many were the new developments, name changes and reshuffling, recent ecological findings, and exiting proposals presented to us, mainly in the evening postprandial lectures. Gary Lincoff's address, "Mushrooms, Wildflowers and Blueberries- the Crucial but Unseen Connection", dealt with surprising discoveries showing that species previously considered saprobes have been demonstrated to be mycorrhizal, (e.g., *Stereum , Mycena, Thelephora* and some *Pezizaceae)* with various wildflowers. Orchids in particular require a fungal partner in order to survive during their earliest stages. For example, the Pink Lady Slipper is partnered with one of the fetid Russulas, *R. laurocerasi*- beauty and the beast! The interconnectedness of what has been called the "wood-wide-web" could not be more dramatically demonstrated.

Dr. Else Vellinga's evening address dealt with the process and history of naming mushrooms, i.e., identification, taxonomy

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PRESIDENT'S MESSAGE

Recently we have had a nice amount of rain in our area in comparison with other parts of Long Island and the results are popping up all over .. …..mushrooms. Last week we had, among other things, *Leccinum aurantiacum* and *Tricholoma colossus,* the latter not described in any American mushroom books. We tried it sliced thin in butter and it was quite tasty. Yesterday I found a truly beautiful drive-by *Laetiporus sulphureus* that was so large and pristine that it begged to be picked. I quickly braked and did. This week, Russulas and Honey mushrooms are having their days. Things are indeed picking up.

Our mushroom Day at Planting Fields will be on Sunday, October 21. There are other events planned for that day so we don't know where exactly we will be located yet. If you get there and can't find us, call Joel at 631-681-3229. (As usual, we will collect specimens the day before.)

Please keep Sunday, November 18th open so that you can attend the annual LIMC luncheon. We have a new venue this year: The Bonwit Inn in Commack. (Thank you, Tony.) I encourage all of you to attend and enjoy the food, friends and our free raffle. We always have fun. (If anyone wants to donate a mushroom related item, please get in touch with me.)

The weather is cooling down now and it is time to gather those good things that show up in abundance in Autumn-to eat or study– or perhaps both. To those who haven't joined us on a foray, why not try one? The least you will get in return is a nice walk in the autumn woods. If you can't make it, just get out there on your own!

See you along the trails.

EDITOR'S NOTE

Citizen science is going strong this century, with amateur astronomers discovering comets, birders documenting rarities, butterfly fanciers tagging Monarchs, amateur meteorologists chasing tornados, and so on. And what about amateur mycologists? Until now there has been no structure in place for us to submit our findings (or inquiries) to the attention of the professionals, so it was left to individuals to importune them on a case-by-case basis in the hope of eliciting some critical attention. Sometimes this worked, sometimes not, and as a result, important data may have been lost.

Now this may change with the advent of the North American Mycoflora Project, a nationwide effort to enlist amateurs and professionals in a joint project to document the macrofungi of the continent. Visit their website to inform yourself about this endeavor and think about the ways that you might contribute. (Links may be found on page 3 of the online edition.)

How well this work in practice remains to be seen, and the kinks which are sure to develop will have to be worked out. Even if successfully designed, it will be many years in the making. But it is an exiting development, and everyone has an opportunity to contribute to its success.

MATERIAL FOR THE WINTER, 2012 EDITION SHOULD REACH THE EDITOR BY DECEMBER 1

(Submissions may be forwarded by email in any format or typed.)

 (All unsigned articles authored by editor.)

LONG ISLAND MYCOLOGICAL CLUB

President: Peggy Horman
Treasurer & Membership Secretary: Peggy Horman
(631) 744-4965 e-mail: owls2@optonline.net
Recording Secretary: Cathy Cresko
Foray Chairman: Jacques Brochard
Species Recorder: Bruce Eberle
Webmaster: Dale Robins
Science Adviser: Benjamin Wolfe, PhD

Sporeprint Editor: Joel Horman
11Ramblewood Rd., Ridge, NY 11961
Tel: (631) 744-4965
e-mail: jlhorman@optonline.net
Editorial Ass't: Peggy Horman
Board Members: Bob Cresko,
Tony Mish, Roger Eklund

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and phylogeny as it has been and is now practiced. Rather than try to summarize this lucid and enlightening presentation, we will reprint her article "How the Mushroom got its Name", previously published in the April 2011 edition of the Mycena News in the next edition.

We were privileged to hear two lectures on Boletes: Roy Halling, who dealt with them from a tropical and Southern hemisphere perspective; and Alan Bessette, author of the Boletes of NA, who discussed the evolving concept of the Bolete family, emphasizing mostly North American species. From the former we learned how exploration in remote habitats have uncovered novelties that challenge our north temperate bias of taxonomic concepts. For example, *Boletus (Tylopilus) eximius,* thought to be a Northeastern US species, has now been documented on five continents and on the basis of molecular analysis assigned to a newly erected genus, *Sutorius*. So named to honor the original author, the amateur mycologist C.C. Frost, who was a shoemaker, the meaning of the Latin term "sutorius". Other revelations were of the existence in Australia of at least a dozen genera of Truffles closely related to, i.e. evolved from Boletes.

From Alan Bessette we learned that many of our closely held species concepts relative to edibility may be misplaced. For example, all members of the genus Leccinum are not necessarily harmless. There have been documented cases of severe gastrointestinal distress apparently caused by members of the Leccinum insigne/scabrum group. Conversely, while the rule of thumb has been to avoid all red-pored boletes aside from *Boletus frostii,* there are now some accounts of the consumption of *Boletus subvelutipes* with no untoward reaction. However, knowing the wide range of individual reactions to mushroom ingestion, caution remains warranted. There have been several name changes and corrections. E.g., the western Bolete in the Edulis group formerly referred to as *B. aereus* has been renamed *B. regineus,* the former being strictly a European species. *Boletus lignicola,* which we found last year for the first time, has been moved to a new genus due to its saprobic life style, atypical of boletes, and must now be referred to by the unwieldy name of *Buchwaldoboletus lignicola.*

Christine Rodrigues Caycedo lectures

Mention should be made of the focus of this foray on the current effort to update the 100 year old Flora of North America, now the North American Mycoflora Project, an attempt to produce a comprehensive checklist of the macrofungi of NA, with online keys, accurate distribution maps, images and more. This is an ambitious undertaking which will take many years and require the devoted participation of both amateur and professional. For further information, access http://www.northamericanmycoflora.org/ or the related site http://mycoportal.org/portal/index.php

Apart from these major evening addresses, classroom lectures were many and varied, from a technical study of the cellular development of the Amanita veil presented by Cristina Rodriguez-Caycedo, Rod Tulloss' assistant, to a workshop explaining how to make decorative paper from mushrooms. Renee LeBouef, of the Quebec club presented a program on the "Common Mycenas of Northeastern NA" and distributed her field key whereby over 50 species may be identified without microscopic features. If you are interested in obtaining a copy, contact the editor and if there is sufficient demand, we will make it available on our website.

Renee LeBouef at the podium.

As usual, there was no avoiding the conflict between joining one of the many forays or attending lectures, but the high ambient temperatures did heighten the allure of the air conditioned classrooms. The mycophagy session is always a highlight, and the variety and quality of the dishes presented were superb, well worth, as they say, the price of admission. The concluding wrap-up at the collecting tables was conducted by several of the faculty and was well attended, despite everyone's desire to get an early start on their homeward journey.

Next year the 37th Annual NEMF Samuel Ristich Foray will take place at the northernmost point ever, at the University of Québec in the city of Rimouski, about 200 miles northeast of Québec City, on the south side of the St. Lawrence River, from Aug.6-10. Simply getting there will be an adventure!

FINDINGS AFIELD

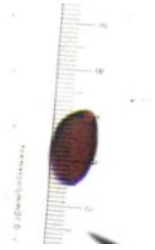
Not too far afield, as these species were found near at hand, growing in the wood mulch of several potted plants on our deck. A fortuitous occurrence in every sense of the word, since this presented me with the opportunity to observe these tiny mushrooms in every stage of their development, indeed multiple times, since they continued to fruit for over a month. Moreover, their appearance differed from one fruiting to the next, so that only by examining them microscopically could I determine their identity. My hat is off to those that find these evanescent organisms in the wild.

C. flocculosus emerging

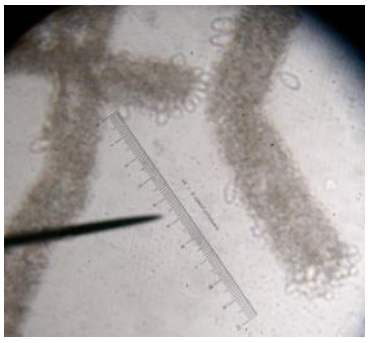
Coprinus is a genus which has undergone a recent revision and been divided into several genera. Moreover, almost all our popular field guides provide little support for identifying more than a handful of the more morphologically distinctive species. Neither has a North American monograph of Coprinus been produced, to my knowledge. So I was forced to turn to the web, as many of us are likely to do these days, and was able to make use of the very detailed information provided by the "Studies in Coprinus" site authored by Kees Uljee, now deceased, but whose site continues to be hosted by the Polish mushroom site: http://www.grzyby.pl/coprinus-site-Kees-Uljee/species/Coprinus.htm Since these studies were European, the question arises as to their applicability here, but that question will not be fully settled until comparative DNA studies are undertaken.

Mature C. flocculosus

The first species that fruited turned out to be *Coprinellus flocculosus,* of which there are documented occurrences in the United States. When first seen it did not appear familiar, i.e., did not resemble closely any of the Coprinus species I had previously encountered. When first emerging, the immature cap is covered by the remains of the veil, (See photo above rt.) which are mealy strands, unlike the glistening particles seen on *Coprinellus micaceus* This presents microscopically as chains of ellipsoid to subglobose cells, consistent with placement in Uljee's subsection *Domestici*. In this section only one (of five) species has spores the size of our specimen and an eccentric germ pore, about 1.5 µm wide. Our spores measured 9-16 X 7 -10. (See photo rt,) Other confirmatory microscopic findings include the large, voluminous cystidea; ours measured up to 100 X 60 µm.



Spore at 1000x



Gill X-section w/cystidea (400x)

One field characteristic, easily overlooked, is the presence of a slight collar, a veil remnant at the base of the stipe, which may just barely be seen in the photograph of the mature specimen. The cap was 1-2 cm wide, and while usually a pale tan to cream color, one fruiting was rather gray, but the microscopic findings were identical. Gills were initially white but became gray and then deliquesced. About 60 reached the stipe, and minor forking could be seen.

The Uljee site describes them as being rare but wide- spread in Europe. I tend to believe that they are easily overlooked everywhere. *Coprinellus flocculosus* will now be added to our LIMC checklist.

Wondrously, two other species of Coprinus made their appearance following closely upon the heels of *C. flocculosus,* but these are somewhat problematic, with no records as yet in the Mycoportal web site, which has the capability to search collections in a dozen major institutions including the NY Botanical Gardens and Chicago's Field Museum. We will address those– *Parasola schroeteri* and *Coprinus cortinatus*– in a future issue.

WELCOME, NEW MEMBERS

Pat Capon & Leslie J Falcone

M. Curreli & Shawn Gaffney

Mellisa Schwartz & Andrew Rockwell

Rozaliya & Vladimir Vernikov

■ **THE END OF COAL:** 300 million years ago, the Carboniferous age ended with the cessation of coal production on Earth. This event coincided with the origin of the basidiomyte fungi capable of degrading lignin, according to an international team led by Clark University biologist David Hibbett. As a result, these "white-rot fungi" as we now know them, completely broke down dead plant matter. Instead of accumulating as peat and eventually being transformed into coal by geologic forces, the plant biomass decayed and was released as carbon dioxide. Enzymes discovered by this study, which involved the comparative analysis of 31 fungal genomes, could be useful industrially in producing biofuels and other products from plant waste biomass. (*Science News, June 28, 2012-14:07)*

■ **ADVANCE OF THE FUNGI:** Yet another arboreal fungal disease seems to be working its way eastward from the West Coast. *Geosmithia morbid,* known as Thousand Cankers Disease, has emerged in three East Coast states– Tennessee, Virginia, and Pennsylvania– where it infects the Eastern Black Walnut (*Juglans nigra).* In the west, where it has been extensively introduced, it serves as a rootstock for the commercial production of English walnut. The disease was first noticed in California where it is spread by the walnut twig beetle, where its range continues to expand. Counties in the Eastern states where it has been observed are under quarantine, which prevents the movement of wood, but which may not stop the spread of spores by the beetle. Both the fungus and the beetle are native to the West, where their progress continues to be closely monitored. *(Western Farm Press, Sept. 24, 2012)*

■ **POISON OR PANACEA?** Many substances can be toxic or healing, depending upon the dosage, and it now seems that the deadly poison, amanitin, derived from the Deathcap, *Amanita phalloides,* may be one of them. The German Cancer Research Institute has been able to bind the amanitin molecule to antibody which attaches to a cell surface protein called EpCAM, produced profusely by cancer cells. In mice that bore transplanted human pancreatic cancer, one dosage arrested tumor growth and two effected complete regression in 90% of the animals..The researcher now intend to expand their results to other types of cancers such as leukemias and lymphomas. (*Science Daily, April 2, 2012)*

■ **OF MAKING MANY GENERA, THERE IS NO END:** A series of papers in the journal Mycotaxon has split off a large number of Lactarius species (about 40) and placed them in the newly erected species Lactifluus, based on DNA evidence. The study shows that both *Lactarius* and *Russula* are not supported as monophyletic clades, which means that each of them does not have a common ancestor, and that there is a small group where they are mixed, which has been christened *Multifurca.* With those removed the remaining Russulas are a clade, and retain their historic name. However, Lactarius divides into two clades, and it is the smaller group, mostly tropical, that would take the new name. However, we in the Northeast will not remain unscathed, and will have to deal with such new combinations as *Lactifluus deceptivus* and *Lactifluus gerardii. (Mycotaxon, vol 119, pp.483-485 & vol 118 pp 447-453)*

■ **SPORES ALIVE:** To assess the longevity of ectomycorrhizal (symbiotic) spores, researchers collected forest soils in California and tested for sporal viability by "baiting" the fungi with Bishop Pine seedlings after 6 years. Three of the seven species present in the first year were also found in year six: *Rhizopogon vulgaris, Suillus brevipes,* and the ascomycete *Wilcoxina mikolae. Laccaria proxima,* absent in year one, was found in year 6, which was attributed to its possible ability to survive multiple years in the soil. (*Stayin' alive: survival of mycorrhizal fungal propagules from 6 yr old forest soil. Fungal Ecology 5, 2012)*

■ **RAISING MATSUTAKE?** *Tricholoma matsutake,* a widely harvested, commercially valuable edible, is thought to be mycorrhizal with conifers. This study demonstrated that this is actually the case, but that in addition *T. matsutake* also has the potential to behave as a saprotroph *in vitro,* where mycelial growth was observed in various substrates. It is posited that the mycelia can degrade cellulose or that associated litter decay fungi could provide a source of carbon. The authors do not speculate whether commercial cultivation is a possibility. (*The ectomycorrhizal fungus Tricholoma Matsutake is a facultative saprotroph in vitro. Mycorrhiza, Vol 22, no. 6, Aug. 2012)*

(Compiled and annotated by editor from above-cited sources.)

FORAY RESULTS SUMMARY

June 23, Southaven & June 30, Muttontown Equestrian: Cancelled due to lack of fruiting

July 7, Heckscher SP: Results were fair, with 33 species, and a good variety of Amanitas, Russulas and Lactarius. Some Chanterelles, both red and yellow, were collected, as well as a handful of Boletes.

July 14, West Hills S. & July 21, Bethpage SP: Cancelled due to little rain and few 'shrooms.

July 28, Muttontown N: Continuing improvement, with 39 species collected, although edibles were few. No single genus dominated, with a seasonal mix of Amanita, Collybia, Inocybe, Lactarius, Russula, etc. We did come up with several new ones for our checklist: *Gymnopilus liquirtiae,* a large, dark orange species and *Tomentella cinarescens,* a resupinate species, gray with a white border, binding together leaves and twigs.

August 12, Prosser & Cathedral Pines: An astonishing 90 species was a record total for this combined foray. There were over 20 species of Russula and Lactarius, 16 in the Bolete family (including all 3 Strobilomyces), a dozen Amanita, 3 species of Chanterelles. A single specimen of the rare parasitic *Squamanita umbonata* was collected by Roger; found only once previously by LIMC. Another star was *Gerronema strombodes,* new to our list, and identified on sight by Aaron. Unusual was a *Gymnopus subnudus* on a White Pine cone, the usual domain of Baeospora.

Squamanita umbonata

Gerronema strombodes

August 19, Brookhaven SP: Another grand total: 90 species with the same dominance by the Russulaceae, with good numbers of the edible R. variata and R. flavida. Other edibles in good number were Black Trumpets and 4 species of Chanterelles. Boletes, most edible, amounted to 22 species. We found *Bothia castanellus*, previously Suillus, and renamed in honor of Ernst Both. New to the list was *Cortinarius distans,* with its dull coloration and widely spaced gills.

August 25, Blydenburg CP: 70 species was nothing to sneer at, and still above the usual numbers. We continued to collect Black Trumpets, Chanterelles, and now good amounts of edible Lactarius such as hygrophoroides, volemus, gerardii and corrugis. Boletes were fewer but Russulas continued to please.

Cortinarius distans

September 8, Prosser & Cathedral Pines: We returned here as the scheduled area was not as productive and collected 89 species, with only about one-third of them being in common with the previous month's collection. Of the 89 only 13 were found in both Prosser and Cathedral, the remainder mostly divided between those that favored Oaks and those associated with White Pine. The latter included hordes of the blackening Russula (*R. dissimulans*) being parasitized by *Asterophora lycoperdoides,* and myriads of *Lepiota atrodisca.* New to our list were *Geastrum sessile, Physarium viride (*a slime mold), and *Russula viridioculuta.*

September 15, Bethpage SP: Although our annual picnic was a success, collecting was slow, with only 30 species and only one new, common but overlooked species, the polypore *Fomitopsis spraguei,* identified by Aaron by its green staining edge.

Physarum viride (40X)

September 22, Edgewood: Roger reported only about a dozen species, but with a good amount of *Leccinum aurantiacum.*

September 29, Rocky Pt. NRA: Forty-four species was an improvement, and collecting continued despite the drizzle-not something to discourage mushroomers! Boletes were limited to two species, B.projectellus and B. longicurvipes. But *Leccinum aurantiacum* was everywhere, enough in fact to draw a pair of non-affiliated gatherers. With mushrooming becoming more popular, we can no longer count on having the field all to ourselves, but there is usually enough for all. Interesting species were the European *Tricholoma colossus,* rare even in Europe, and two others new to the list: *Sarcodon underwoodii,* with a farinaceous odor and extremely bitter taste, and *Russula farinipes,* a European mushroom.

Sarcodon underwoodii

Roger's Fun-Goulash (Chicken of the Woods)

by Roger Eklund

2 large onions-sliced thin
4 oz tomato sauce
3 Tablespoons paprika
pinch each of dried oregano, thyme, and basil
3 cloves garlic minced
1 stick unsalted butter
half a cup dry white wine
half cup of dried boletes
1 cauliflower sized chicken mushroom or hen of the woods
half a cup of flour, lightly toasted in an oven(toast in 300 degree oven until light brown)

Heat up a thick bottomed pot and add half of the butter and all of the sliced onions and put a lid on it, over medium heat. Stir with a wooden spoon, after 10 minutes. Place lid back on and keep stirring every 5 minutes until the onions are dark brown and soft. Mix together the dried herbs, paprika, minced garlic and the dried boletes and add it to the onions and cook this for 2 minutes. Add the toasted flour and stir it in, then add the tomato sauce and wine. Lower the heat and add to the pot about 1 and a half quarts of hot water and simmer and stir. As the sauce is simmering, saute the pieces of the chicken or hen mushroom using the rest of the butter. Brown the mushrooms a little bit on each side and season with salt and black pepper. Add the sauteed mushrooms to the pot and keep stirring occasionally and simmer the stew for about a half hour. Adjust flavor with more salt and pepper. Remove the pot from the stove and stir in 1 cup of sour cream(at room temp). Serve over buttered, wide egg noodles.

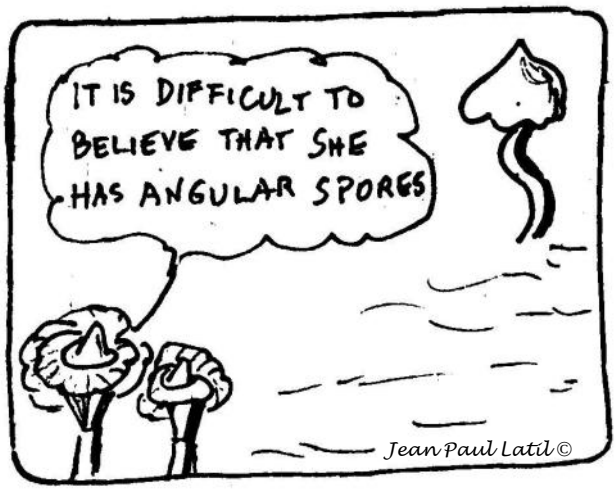
Notable Quotes

Mushrooms are the sex organs of fungi. They are ballistics experts that emerge when the fungus is ready to reproduce, launch spores by the billion, and vanish. Or rather, they puff up and deflate. The sudden appearance of mushrooms on a lawn or under a log, like many illusions, is achieved with extensive advance setup and hydraulics. After a spore germinates, it sends fi laments out underground in all directions in search of food and other fungi. When two fungal colonies—or three or more, as fungi are substantially less constrained than animals—of the same species meet, their cells merge and their DNA combines in the mushroom version of mating. New spores are produced, and the cells of the future mushroom are organized around them. This process occurs at the tips of the filaments, accounting for mushrooms' quirk of appearing in rings. When the conditions are right, water rushes in and pressurizes the assembly, swelling the cells and inflating the mushroom. In many species, that takes only a few hours, the spores are soon released, and the mushroom shrivels by sundown. Others survive a week or more, and some tougher forms may last for months. The environmental conditions that trigger mushroom formation are highly variable and not well understood, and a mushroom colony may spread stealthily underground for acres before fruiting. For those inclined to hunt mushrooms, their unpredictable appearance and short half-life only amplify the thrill of discovery.

By Linnaea Ostroff, from Science vol 335 30March 2012 Book Review sec

Gastronomy & Microbiology

Our science advisor, Benjamin Wolfe, is currently involved in a study of the microbial community inhabiting cheese. This research, in the Harvard FAS Center for Systems Biology, headed by Rachel Dutton was headlined in the NY Times recently. Although the emphasis on cheese is based on developing a model system to study microbial ecology, it has come to the attention of chefs, brewers and gastronomists, who are fascinated to learn the names of the unseen organisms they have been using. For example, the sourdough starter used by 90% of bakers is based on the bacterium *Lactobacillus sanfranciscensis*. These locally abundant microbes can combine a particular mélange of species to create an indigenous flavor, a "microbial terroir". Presently, the researchers are enjoying taste testing of fermented rice, miso and yogurt. Way to go!



IN THIS ISSUE

"The rare moment is not the moment when there is something worth looking at, but the moment when we are capable of seeing."

Joseph Wood Krutch

LONG ISLAND MYCOLOGICAL CLUB
11 RAMBLEWOOD RD.
RIDGE, NY 11961