SPORE PRINTS

BULLETIN OF THE PUGET SOUND MYCOLOGICAL SOCIETY

Number 255 October 1989

HISTORY OF THE SHIITAKE

John O'Brien

[*Fungi Analecta*, Texas Mycological Society]

The shiitake, originally an Asian mushroom, has been savored for centuries. The Chinese call it Dong, while for Koreans it is Huang Skin. Shiitake is the mushroom's Japanese name. Its scientific name is *Lentinus edodes*. The Western world tends to think of it as "the Japanese mushroom" because Japan was the first country to produce and export it in large quantities. The Japanese name means, reasonably enough, "mushroom of the shiia tree," because the fungus was commonly found on fallen logs of that tree. The shiia is related to the oak.

The first recorded reference to shiitake appears in the 1600s, though no doubt the mushroom was eaten long before that. Throughout history it has been prized both as gourmet fare and as folk medicine. Traditionally the shiitake was thought to possess the medicinal qualities of ginseng and was used as a remedy for ailments associated with old age. It was also, and conceivably still is, considered an aphrodisiac by some people. At one time in Japan the mushroom was so highly valued that samurai who knew the location of productive logs would threaten others to keep them away. As time passed it was discovered that if fertile logs were placed in courtyards where conditions matched those of the forest, the logs would continue to bear mushrooms. It was also learned that uncolonized logs placed near "bed" logs would eventually produce mushrooms. It was even known that cutting or gashing the new bark here and there would encourage fruiting, though exactly why still remains a mystery.

The shiitake was grown in courtyards for a long time, and while this method worked, it was clearly haphazard. Then in 1942 an agriculture student at Kyoto University successfully cultivated shiitake spawn in wood fiber and went on to develop the present process of inoculation. The inoculation method was taken up with enthusiasm in Japan, and by 1978 shiitake mushrooms earned about $1.1 billion and became Japan's largest agricultural export.

The mushroom's use in America was slight until the mid-1970s. In 1974, though, Dr. Fred Howard and R.M. Hoffman established the Mushroom Research Institute, in California, with the intention of domesticating shiitake indoors. A year later Dr. Byong Yoo inoculated a cord of oak logs in a woodlot outside Washington, D.C. Two years later Dr. Yoo's logs produced 110 lb of mushrooms. Shiitake had officially made its appearance in America.

Shiitake mushrooms are exquisite table fare, either fresh or dried and rehydrated. They are easy to dry and are far easier to keep than, say, potatoes. You can grow them in a woodlot or in a shady back yard at little expense and with no special equipment. The trees in your woodlot are safe because shiitake cannot colonize live wood.

The mushrooms are a fine source of protein and B-complex vitamins, and when dried and exposed to ultraviolet light, they're also a good source of vitamin D. Early but encouraging research has shown that eritodenin, a substance found in shiitake, reduces cholesterol, and there is evidence indicating the presence of antiviral and antitumor agents in the mushrooms.

FUNGUS ZAPS GYPSY MOTHS

David L. Chandler

Boston Globe

After a delay of 79 years, a seemingly failed attempt to control the scourge of gypsy moths in their tree-killing predation throughout the Northeast seems finally to be working.

The lethal weapon in the war against the marauders is *Entomophaga maimaiga*, a natural enemy of the gypsy moth caterpillar. It was imported from Japan in 1909 and released a year later in several Boston suburbs. The experiment was thought to be a failure, but it now appears that the fungus has been spreading unnoticed ever since. This year, perhaps spurred on by an unusually cool, wet spring, it finally delivered its knockout punch.

Gypsy moths follow a 3- to 4-year cycle during which their populations expand and then crash. In Connecticut, the moths should have expanded this year, but instead underwent a mysterious decline. *Entomophaga maimaiga* was first found inside dead gypsy moths in Connecticut on June 19. Anne Hajek, an entomologist with the Agriculture Department in Ithaca, N.Y., found that the fungus had spread throughout Massachusetts and into parts of New Hampshire, Vermont, New York, Pennsylvania, and New Jersey.

The fungus does its dirty work by invading the caterpillar's skin and then multiplying furiously, devouring the caterpillar from the inside. In Europe and Japan, where different varieties of the fungus occur naturally, scientist Richard Soper of the Agriculture Department says gypsy moths were never a real problem as they are in the United States.

"I wouldn't make any claim that this is going to solve the gypsy-moth problem" Soper said, "but it certainly could be a method for curbing it."

CALIFORNIA FORAY

North Coast '89 - November 24-26, 1989, Marin Headlands Center just north of San Francisco. Speakers include Dr. Sam Ristich of Maine, Dr. Nancy Smith Weber of Oregon, and Rod Tulose of New Jersey. For reservations or information contact Jerome Rainey, c/o MSSF, 1830B Page Street, San Francisco, CA 94117 (415) 387-3108.

Spore Prints

is published monthly, September through June, by the

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Calendar

Oct. 7	Lake Wenatchee State Park field trip
Oct. 9	Beginners' class, 7:00 p.m., CUH
Oct. 10	Membership meeting, 7:00 p.m., CUH
Oct. 14	The Dalles field trip PSMS/Mountaineers foray
Oct. 16	Beginners' class, 7:00 p.m., CUH Board meeting, 7:30 p.m., CUH
Oct. 20	*Spore Prints* deadline
Oct. 21,22	PSMS ANNUAL EXHIBIT, CUH
Oct. 23	Beginners' class, 7:00 p.m., CUH
Oct. 28	Masonic Park field trip
Oct. 30	Beginners' class, 7:00 p.m., CUH
Nov. 4	Deception Pass field trip
Nov. 5	Cultivation Group meeting
Nov. 6	Beginners' class, 7:00 p.m., CUH
Nov. 11	Twanoh State Park field trip

BOARD NEWS

Agnes Sieger

Marie Guillas has volunteered to take over the *Spore Prints* mailing from Margaret Holzbauer. We still need hosts for field trips. We also need workers for the exhibit, especially to handle parking and security. One of the rooms we had planned on using for the exhibit is no longer available, and we are negotiating for extra space elsewhere. Erin Moore has taken a job in Hawaii and will be unable to teach the beginner's classes. Coleman Leuthy is arranging the necessary adjustments. We are considering moving the orientation classes away from the main meeting area to avoid conflict with people arriving early for the membership meetings.

Membership Meeting

Tuesday, October 10, at 7:30 P.M. in the Center for Urban Horticulture, 3501 N.E. 41st Street, Seattle.

Two past presidents, George Rafanelli and Margaret Dilly, will talk about collecting mushrooms for the annual exhibit. George will tell where to look and what equipment to take. Margaret will tell how to care for the catch.

ANNUAL EXHIBIT

Coleman Leuthy

The exhibit is almost here, and we still need help. Two committees that particularly need help this year are Construction and Parking and Security. Construction involves no great skill, just general hammering, moving, setting up, hauling the exhibit tables to and from the curling club, etc. Parking and security are especially critical this year because the exhibit will be spread out over several buildings and parking will have to be coordinated over several lots. This means we will need many more people than usual. So come to the October meeting prepared to put your name down on one of the committee lists. WE NEED YOU.

CULTIVATION GROUP

Lynn Phillips

The Cultivation Group had their first fall meeting at Mark Jarand's house last month. We shared delicious potluck goodies as well as mushroom cultures and prepared bags of *Pleurotus* and morels. Mark has also started a lot of *Stropharia rugosaannulata* bags to sell at the exhibit to help raise money for cultivation equipment and supplies. There will be no Cultivation Group meeting in October. We are all going to help at the cultivation table during the exhibit instead. We are planning to share space with two commercial cultivators, Paul Stamets of Fungi Perfecti and *The Mushroom Cultivator* fame and Laszlo Sandor who operates Mushrooms Unlimited, an oyster mushroom farm in Oregon. Call Mark to sign up for a 2-hour shift at the exhibit and come mingle with the pros. Our next meeting will be on Sunday, November 5, at Ingeborg McGuire's property on Hood Canal near Twanoh State Park. We will get started around 9 a.m. and are going to cut down trees and inoculate them with shiitake spawn. If anyone can bring rope, chain saws, shiitake plugs, etc., call Mark at 828-0648. He or Ingeborg can also help you find the site.

Welcome to the following new members:

Rick Dewitt, 14708 N.E. 40th St., #106, Bellevue, WA 98007 883-7197

Alex Jancewicz, 1414 E. Union St., Seattle, WA 98122 325-6542

Karen Lee, 8530 Mary Ave. N.W., #A-204, Seattle, WA 98117 781-0187

Lyle Mercer, 747 - 21st Ave. E., Seattle, WA 98112 324-9258

Gary Takahashi, 9600 Ninth Ave. N.W., #206, Seattle, WA 98117 781-9241

Ronald and Lily West, 3735 S. 239th St., Kent, WA 98032 878-8718

UPCOMING FIELD TRIPS

Lynn Phillips

I don't know where the fall rains are, but the mushrooms are popping up anyway. We'll be holding field trips up until Thanksgiving if the weather, the mushrooms, and the hosts hold up. Fresh chanterelle soup, matsutake-stuffed turkey -- yes, it's all possible, so come to the field trips. And remember, it's never too late to volunteer to co-host. We always need hosts. I'm pleased at the number of people who have volunteered to host for the first time, and we need more of you to do the same. Don't depend on others to take on the responsibility. Everyone who attends field trips should volunteer to host at least once a year. Even if you don't attend meetings, even if you don't live in town, even if you can't get to the site early, or if you can't stay late, we can coordinate all of that. Just let me know. There are sign-up sheets at meetings and at field trips, and you can always call me, day or evening, at 524-2950.

In other notes, hunting season is upon us. The main season runs from October 14 to the 30th. So make yourself visible. This is a particularly great year for the fashion conscious among us, since bright colors are "in." If you don't already have a colorful hunting outfit, get yourself a "hot pink" vest, a "day-glo orange" cap, or a "neon-red" rain poncho and be chic, and more safe, in the woods.

One last note, the Lake Wenatchee field trip date is also the second weekend of the Autumn Leaf Festival in Leavenworth, so be prepared for more traffic over Stevens Pass Highway as well as beautiful fall foliage. And if you haven't been to Leavenworth, you may want to stay over and go on down the next day for the festivities. I forgot to mention last month, so I'll tell you now, that for updates on any field trip, call the PSMS recording, 522-6031.

Oct. 7 **Lake Wenatchee State Park**
(elev. 1,900 ft, 105 miles NE of Seattle)
From north of Seattle, drive east over State Highway #2. About 20 miles east of Stevens Pass, turn left on Route 207. Go to the shelter in the park's day use area.

Oct. 14 **The Dalles Forest Camp**
(elev. 2,200 ft, 70 miles SE of Seattle)
From Enumclaw, SE of Seattle, continue east on State Highway 410. About 25 miles beyond Enumclaw, turn right into camp. Day use only. There is no water or garbage service.

Oct. 28 **Masonic Park**
(elev. 400 ft, 45 miles NE of Seattle)
From Snohomish, take state highway #9 north to State Highway #92. Follow that east through Granite Falls. Four miles east of Granite Falls, turn left at the sign for the park. This is a private park for Masons and their guests (that's us). There is a $3 fee per carload, and the park is available for day use only, from 8:30 a.m. to 6:00 p.m.

Nov. 4 **Deception Pass State Park**
(elev. low, 80 miles N of Seattle)
Drive north on I-5 to exit 226 at Mt. Vernon. Drive west on State Highway #536, which joins State Highway #20. Continue west to Whidbey Island, not up to Anacortes. Cross the Deception Pass bridge to the park and follow PSMS direction signs to the shelter.

Nov. 11 **Twanoh State Park**
(elev. low, 20 miles SW of Seattle, by ferry)
Take the downtown Seattle-to-Bremerton ferry. From Bremerton, drive south on State Highway #304 to Highway #3. Continue south on #3 past Belfair, then bear left onto #106 and continue another 7 miles to the park. Alternate routes involve driving south on I-5 to Tacoma and the Tacoma Narrows bridge or driving farther south through Olympia and Shelton. This will add 60 to 80 miles to the drive. Twanoh State Park is located on the south side of Hood Canal between Belfair and Union.

SQUIRE CREEK FIELD TRIP

Vera Miles, Inga Wilcox
Harold and Beth Schnarre

Early morning showers and sun by noontime greeted members who attended the first field trip of the fall season. Twenty arrived between 9:00 and 9:30 a.m. for hot coffee, signing in, and any word about possible hunting areas around Darrington. Despite a report of cut chanterelle stems near Lake Cavanaugh to the west, many people found mushrooms -- in all stages, from mature and dried to small buttons -- to be generally available from Oso east to Darrington. Forty-seven had signed in by day's end.

Identifier Brian Luther reported 63 species (most categorized into good, dangerous, and indifferent by colored cards) with chanterelles abundant. Good edibles included *Boletus edulis*, *Boletus mirabilis*, *Hericium abietis* (coral hydnum), *Leccinum aurantiacum*, *Dentinum repandum*, and *Rozites caperata*.

Interesting or unusual species included *Hypomyces luteovirens*, a yellow green parasite on *Russula* species, *Ramaria cystidiophora* var. citronella with a strong fragrant odor of citrus, and two large specimens of the "Golden *Pholiota*," *Phaeolepiota aurea*.

About 10 first-time field-trippers turned out to see the variety and colors of mushrooms on the identification table. The five o'clock potluck found 19 staying for a warm wood stove, good conversation, and fruit desserts aplenty.

SHEEP WRECKS

Seattle Times

London - It's Little Bo Peep's worst nightmare come true. Sheep are eating hallucinogenic mushrooms and causing problems for drivers on the remote Shetland Islands off Scotland, *The Times* reported today. It said psilocybes, or "magic mushrooms," popular with humans as an equivalent to LSD, grow in abundance on the rugged islands and the sheep have taken to nibbling -- and "tripping" -- on them.

"You have to watch the road at night," said one Shetlands resident. "It's as if the sheep are drunk. They fall over and take no notice of the traffic."

WANTED (ALIVE PLEASE): *AGARICUS BISPORUS*

A reward of up to $100 (US), plus costs, is offered for cultures or viable spores of wild collections of *Agaricus bisporus* (= *A. brunnescens*?) and certain related species. For details contact

R.W. Kerrigan
Erindale Botany, University of Toronto
Mississauga, ONT, CANADA L5L 1C6

BOOK REVIEW

J. F. Ammirati

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Mushrooms of Idaho and the Pacific Northwest, Vol. 2, Non-Gilled Hymenomycetes, by Edmund Tylutki, 1987, 232 pp., paperback, $14.95 plus $1.50 shipping from University of Idaho Press, Box 3368, University Station, Moscow, ID 83843.

Don't let the term "Hymenomycetes" stop you! This is a useful publication dealing with the identification of boletes, chanterelles, fairy clubs and coral fungi, spine fungi, and polypores.

It is the second of five volumes by the author on the common, larger fungi of Idaho and the Pacific Northwest. The first volume is a very helpful little book on Discomycetes--cup fungi, morels, etc. There are three volumes in preparation, one each on dark-spored mushrooms, light-spored mushrooms, and puffballs and their relatives. These are to appear one at a time over the next few years.

The present publication and the volume on Discomycetes are written for "mushroom enthusiasts without a mycological background" and for mycologists as well. Experienced mushroomers and so-called mycologists will find them usable and useful. Beginning mushroomers may find them somewhat difficult to use at first.

Now for the "nuts and bolts" of the non-gilled Hymenomycetes. The table of contents leads one directly to the chapters on the boletes, chanterelles, fairy clubs and coral fungi, spine fungi, and polypores. Each chapter is subdivided further for easy access to specific groups, e.g., Key B2 Blue-Staining Boletes.

There is a short introduction with subsections on when and where to collect mushrooms, distinguishing the "mushrooms" from the "toadstools," and mushroom characters and development. The information here is general and not extensive.

Before getting into the main chapters of the book, there is a short but important section on how to use the keys, species lists and descriptions. This is followed by two different but parallel keys to the major groups: a simple field key, which most users will follow, and a more technical key to the Basidiomycetes. Both keys give you the same final results.

The major groups, boletes, etc., are presented in separate chapters. Each includes a brief introduction, a diagnostic description of the group (moderately technical), and an alphabetical listing of the general and species, the latter with authorities.

Keys to the listed species are followed by descriptions of a subset of the more common species. That is to say, not all 354 species listed are fully described in the text. When a species is not described in the text, usually there is sufficient descriptive information in the key for identification.

The keys are of the "dichotomous type" and depend mainly on macroscopic features. For the more difficult species, microscopic features are used as well. The descriptions are thorough, with enough technical information, e.g. microscopic data, to be useful to the more advanced identifier.

The "remarks" following each described species include information on edibility and often compare other similar appearing species. Each chapter has a list of selected references which are for the most part very helpful.

[This was taken from the Spring 1988 *Mushroom, The Journal of Wild Mushrooming*, 861 Harold Street, Moscow ID 83843. Subscriptions to this fine quarterly are $16 per year.]

Died: Our sincerest sympathy to charter member Russ Kurtz on the death of his wife, Shirley.

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U.S. POSTAL SERVICE WA 980 PM OCT 2 1989

November 21, 1789
North Carolina

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ANNUAL EXHIBIT Oct. 21, 12:00 p.m. - 8:00 p.m.
Oct. 22, 10:00 a.m. - 6:00 p.m.