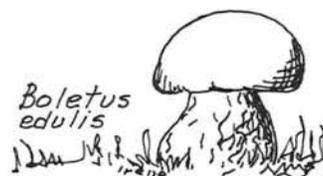


SPORE PRINTS

BULLETIN OF THE PUGET SOUND MYCOLOGICAL SOCIETY
200 Second Avenue North, Seattle, Washington, 98109
May 1977

Number 132



FIELD TRIPS

Dick Sieger

May 14 & 15 Crystal Springs Forest Camp, elevation 2,400'
Drive east on Interstate 90. Take exit #62 (to Stampede Pass). Turn to the right and follow the mushroom signs.
Mushrooms anticipated: all spring varieties.
Among the edibles: Morels, Gyromitra Gigas, Puffballs, and possibly Boletus edulis.

May 28, 29 & 30 Silver Falls Forest Camp, elevation 2,400'
Drive to Entiat. Take the Entiat Valley Road 317 (the large highway sign at this intersection of highway #97 and road 317 says Ardenvoir) The camp is located 31 miles N.W. of Entiat. Nearby was a large burn last summer, and we hope that the timing of the field trip is right to collect the morels which should be there in abundance.

June 4 & 5 Clear Lake Forest Camp, elevation 3,100'
The camp is located about 7 miles east of White Pass on highway #12; the turnoff to Clear Lake is clearly marked.
This is a large campground so you will have to follow the mushroom signs to find the "base". All of the spring mushrooms are anticipated. There is no shelter here, but by this time of year the weather usually cooperates.

COMMITTEE ASSIGNMENTS FOR 1977

Jack Orth

IF you see a blank space next to a committee name, that means we still need a chairman. Either volunteer or nominate a fellow member (after getting his/her approval)

Programs for Meetings: Jennie Schmitt
Education: Earl Harrison; Milton Grout; Scott Chilton.
Membership: Ronna Randall-Brown; Marlene Friend.
Bulletin Editor: Hildegard & Monte Hendrickson.
Annual Exhibit: _____; Winston Hufford.
Annual Banquet: Louise Rautenberg.
Field Trips: Dick Sieger; Martin Hansen; Dave Schmitt.
House: Buzz Walters.
Photography: Ed Cantelon.
Publicity: Marlene Friend; Jerry Cone.
Arts & Crafts: _____
Publications: Earl Harrison; Monte Hendrickson.
Mailing: Virginia and Charles Kessner.
Book Sales: Helen Wasson.
Historian: Carl Hermanson.
Planning: Howard Melsen.
"Key" Committee: Kit Scates.
Morel Committee: Margaret Dilley; Morrie Gathcomb.

NEW IDEAS WANTED FOR THE ANNUAL EXHIBIT

An invitation is extended to ALL OF US to suggest new, different, original, workable, and interesting ideas that would make the Annual Show even more attractive and professional in the future. If you have ideas call the Board.

CISPUS III EDUCATIONAL FORAY

Scott Chilton

The third CISPUS Foray will be held on October 21, 22 & 23, 1977 at the Cispus Environmental Learning Center, south of Randle, Washington (South of Highway #12 - White Pass Highway).

A program of educational lectures on mushrooms by professional mycologists is planned, as well as smaller group sessions on beginning mushroom identification, beginning microscopy in mushroom taxonomy, advanced microscopy, photographic equipment and techniques, and mushroom cultivation. Professional mycologists who will be present include Prof. Daniel Stuntz, University of Washington, Prof. Harry Thiers, San Francisco State University, and Prof. Gaston Guzman, Polytechnic Institute of Mexico. Others will be invited. For the eager collector the Cispus Center will be open to attendees at 9 am, Friday, October 21. Lunch and dinner will be available at the Cispus Center for those who register for it.

CISPUS - Registrar, Jennie Schmitt, is accepting reservations from PSMS members now at \$8.00 per person. Send your checks made out to Jennie Schmitt - CISPUS III to her at 2100 Lake Washington Blvd., #70, Renton, WA. 98055.

You may pay for your meals (and cot space for your sleeping bag) now, or when you arrive. The price for meals (and lodging) is \$18 if you take meals Friday, Saturday and Sunday, or \$12 if you take meals Saturday and Sunday only.

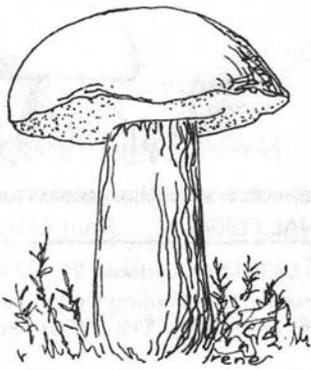
Limit: 175 registrants; First-come, first-served.

PROGRAMS FOR YOUR MUSHROOM, GARDEN CLUBS.

N.A.M.A. (The North American Mycological Association) has available several recorded slide-tape lectures and programs on mushrooms made by N.A.M.A. members and by professional mycologists. Programs range from 20 - 50 min. You will need a 35 mm projector and an ordinary cassette tape player with sufficient volume to be heard by your audience. Titles available now are: The Range and Diversity of Fungi by Coleman Leuthy (50 min., 100 slides, for novice, rental \$25); The Gilled Fungi by Dr. David Hosford and Kit Scates (2 parts, 40 min. each, systematic taxonomy, may be used with a class, rental \$25 each); and Best-edible Mushrooms and Poisonous Look-alikes by Michael Beug (8 parts, 20 min. each, in use by college students, may be viewed in any order, rental \$10 each). Send orders with titles dates required, and check payable to NAMA, to Mr. Coleman Leuthy, NAMA Slide-Tape, 2455 Lake Washington Blvd., Seattle, WA., 98112.

EXCERPTS FROM THE 1971 FIELD TRIP REPORT TO THE ENTIAT VALLEY (WHEN THERE WAS A FOREST FIRE)

... I estimate 9,000 pounds of morels went through our camp, and probably as many more that I did not see... about 250 people, no potluck, 26 outfits camped at a gravel dump with 30 more scattered up and down the creek, because the forest camps were still snowed in... for the first time we found white morels (taken to Dr. Stuntz by Bill Pollard)... several Calbovistia subsculpta, two Calvatia gigantea were found...



P.
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Spore
Prints

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John T. Mudge, Treasurer (682-1962)
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Fred VanDeBogart (362-2397); Buzz Walters
(243-3758); Milton Grout (immed. past pres.)

ALTERNATES Carl Hermanson (723-5127); Paul Jones
(772-5024); Paul Anson (282-2238).

SCIENTIFIC ADVISER Dr. Daniel E. Stuntz

Calendar

- May 9 Monday, Membership Meeting, 8:00 pm
May 14 & 15 Field Trip to Crystal Springs Forest Camp
May 23 Monday, Board Meeting
May 27 Deadline for Spore Print Material, Send all articles
art work, and photos, to the Editor,
4029 East Madison, Seattle, Wa., 98102
May 28, 29 & 30 Field Trip to Silver Falls Forest Camp
June 4 & 5 Field Trip to Clear Lake Forest Camp
June 13 Monday, Membership Meeting, 8:00 pm

IMPORTANT NOTICE ABOUT FIELD TRIPS M.M.H.

Since the weather in the spring is hard to predict, PSMS has found a way to cancel or change fieldtrips if there is belief that the anticipated mushrooms have already fruited or have not shown yet, whatever the case may be. During the week prior to a scheduled field trip all members of PSMS should read the PERSONAL column of the Seattle Post Intelligencer and the Seattle Times, because if a previously scheduled field trip has to be cancelled or changed, an appropriate message will appear on Wednesday, Thursday and Friday. If the field trip will be held as scheduled, NO NOTICE will appear in the papers. If you are still in doubt you may call one of the officers or board members.

Membership Meeting

Monday, May 9, 1977, 8:00 pm., Eames Theater,
The Pacific Science Center.

Program: Margaret Dilly will give a progress report on the work of the morel committee.

And in addition, she will cover the Spring Mushrooms which we can expect to find in the next month or so.

Ella Cantelon will give us a presentation about Dyeing (= coloring) with Mushrooms.

Let's not miss this meeting which will offer such a varied program.

MARCH BOARD NEWS

H.R.H.

The Board convened just two days after the successful spring banquet to carry on the business of our Society. President Orth reported that the Society had made a donation of \$1,000 to the Pacific Science Center and the check was presented to the director, Mr. Helmuth Naumur at the banquet. Also, the Board approved a scholarship fund of \$600 for next year and a tax fund for \$533.79. In addition the Society is contemplating taking out liability insurance. President Orth is soliciting suggestions for new ideas to be incorporated in the Annual Exhibit. If you have any, call him and tell him about them.

The new committee assignments were made and they appear in another section of this issue and in your roster.

Jennie Schmitt suggested the reinstating of an educational session at each membership meeting to help new members. Jack is still working with the Pacific Science Center so that we get the Eames Theater on a regular basis for our meetings.

APRIL BOARD NEWS

H.R.H.

The Board accepted the minutes of the previous meeting as distributed, except that Louise Rautenberg's banquet report was preliminary, rather than final. President Orth read a letter of thanks from the director of the Pacific Science Center for the continued support provided by our Society. PSMS has received a request from David Swanstrom to show mushroom growing kits of four varieties (Auricularia, Agaricus bisporus, Pleurotus ostreatus, and Flammulina velutipes).

The education committee will start the revision of our educational pamphlet since the supply is rapidly dwindling and it will have to be reprinted.

The Central Washington Mycological Society has asked to exchange bulletins with PSMS.

PSMS has acquired a new microphone and hopefully, it will work better than the last one.

A lengthy discussion about the spring field trips ensued. It sure would be nice if we could forecast the weather with better accuracy.

PSMS has obtained liability insurance to be covered in case a law suit might result from illness or wrong or misused information rendered by PSMS.

Several board members came out in support of including a brief educational part in every membership meeting program which will be especially beneficial to new members.



MEMBERSHIP NEWS

Ronna Randall-Brown

Marlene Friend (new phone number 632-5149) is helping Ronna as Assistant Membership Chairman.

REPORT ON THE ROCKPORT FIELD TRIP

HELD APRIL 2 & 3, 1977

Dick & Agnes Sieger

Our field trip to the Steelhead County Park started with cool, cloudy weather, but a very warm reception from the ranger, Jock Davis. Since the Skagit River was closed to steelhead fishing, there was plenty of room in the park. It was nice to see some new members who had their first experience gathering spring mushrooms. Verpo were hiding under the leaves and most of us found reasonable quantities of them. Some fortunate people found Gyromitra gigas, and Frank Rentz brought in more than a hundred aluminum beer cans (empty, of course). Jennie Schmitt identified 30 species altogether, including the deadly Galerina autumnalis (which we think survived through our mild winter). Seventy people enjoyed the potluck where your host identified thirty-three dishes, all edible and choice.

TOLT RIVER FIELD TRIP REPORT

H.R.H.

The first surprise after arriving at the Tolt River County Campground was finding out that the "old" portion of the park is now reserved for overnight camping, since it is the only of 105 King County Parks which has overnight facilities. Visitors who come to picnic, hunt Verpo, etc. are directed to the Day Use Area which you enter via N.E. 40th Street (from the main highway, #203). The ranger, Mr. Reed, told us that new signs clearly marking the Day Use Area are being made. The Day Use parking lot is located right by the new suspension bridge built across the Snoqualmie River which provides access to the larger west-side of the County Park. The base for the field trip was set up in the large, South Shelter. By noon, about 31 eager mushroomers had arrived and gone to the various places where Verpos had been found in past years. In the slightly higher elevations they still were prime, while lower they had passed their peak. Besides Verpos, about five other varieties of fungi were found. Shortly after lunch, Roy Dormer suffered a heart attack in the parking lot. But through the assistance of the ranger, the aid unit was there in the shortest possible time, attended to Roy and took him to Northgate Hospital where he arrived in stable condition. Sally Ann Hansen drove the Dormer car to Seattle since Violet Dormer does not drive. I talked to Violet the next day, and she wants to thank all the participants, and especially Sally Ann, and her husband Eric, who administered first aid until the aid unit arrived.

Since a larger part of the Tolt River Park is now accessible, and has beautiful, large shelters, it would be possible to hold a two-day field trip there in the future.

THE NEW MEMBERSHIP ROSTERS ARE READY

R.R.-B.

The new 1977 membership roster is ready. Please pick it up at the May and/or June membership meeting. We want to distribute as many rosters as possible at these meetings so that we will have to mail only the out-of-town ones. This saves a lot of work and postage.

By the way, if you took out the two innermost sheets and turn them over and restaple the roster, you will have all the pages in perfect order. (The collator goofed.)

LETTERS TO THE PRESIDENT

Both recipients of Scholarship Awards from PSMS, Gustavo Escobar and Susan Libonoti sent a letter of thanks to our president and said that they would apply the money toward their expenses for attending the Second International Mycological Congress which will be held at the University of South Florida, Tampa, from August 27 - September 3, 1977.

A BUYER'S GUIDE TO THE MUSHROOM POISONS

Scott Chilton

All of the chemically well-characterized mushroom poisons are now commercially available. Why would anyone want to buy crystalline toxins? Well, they are all useful research tools in the study of the life processes they disrupt. Amanitin from Amanita phalloides, A. verna, and Galerina autumnalis, inhibits one of the mammalian RNA-transcriptases, enzymes which initiate the process of uncoding the gene. Phalloidin, present in some of these same mushrooms, affects flow of ions through membranes and has important effects on actin, a protein involved in muscle contraction. Muscarine from many Inocybe spp. and Clitocybe spp. is a false neuro-transmitter which mimics acetylcholine. It can be used to study the nervous system outside the brain. Psilocybin, ibotenic acid and muscimol are all neurotransmitters in the brain - they all affect our thinking processes. Besides its recreational use as a hallucinogen, psilocybin has been used at low dosage levels in experimental learning situations and as an aid in psychiatric counseling. Muscimol is currently being used to learn more about the action of the natural neurotransmitter it mimics, gamma-aminobutyric acid, "GABA," and as a tool to locate the site where GABA has its action in the brain. Synthetic muscarine chloride sells for \$6 per 5mg or \$400 per half gram (Sigma Chemical Co., Calbiochem). Natural alpha-amanitin sells for about \$80 per mg. Sigma Chemical Co. requires that you sign a waiver absolving them of responsibility for its lethality. Calbiochem and Henley Co. also sell alpha-amanitin. The beta and gamma isomers are also available in this country from Henley Co. The amanitins are probably all isolated by Boehringer and Sons in Germany from A. phalloides collected in German forests. Natural ibotenic acid (\$65 per 10 mg) and muscimol (\$75 per 10 mg) are available from Bioseorch, Son Rafael, California. They are extracted from Amanita pantherina gathered in Washington State. Psilocin and psilocybin are available only to those who have a license for experimental use from the U.S. Drug Enforcement Agency. Methylhydrazine, the active component of gyromitrin - toxin of Gyromitra esculenta (at least the European and Great Lakes variety) is widely available and used in ton quantities as a rocket fuel. In small quantities it is available from Eastman or Aldrich Chemical Co. at about \$5 per 25 grams. Coprine, which was recently identified as a factor in alcohol intolerance after consumption of Coprinus atramentarius, is not yet commercially available.

EDITORIAL TO NEW PSMS MEMBERS

Many of you joined PSMS at our last Annual Exhibit when you were overwhelmed by the number and variety of mushrooms displayed. But that is the last time we have seen many of you. Through the Bulletin you were notified when our monthly meetings are held and of the interesting topics that are discussed there. You should also by now be aware that some mushrooms grow in the spring and we have scheduled field trips into areas where we think we will find them. This editorial is our personal invitation to YOU NEW MEMBERS to come to the meetings, make yourselves known, and participate in our activities. Until you came you will not know what you have missed. See you at the May meeting! And if you then want to learn even more about fungi, like being able to identify a handful or so, your Society will be holding classes this fall, which will let you accomplish this. And did you know that members bring in mushrooms to every membership meeting, which are then identified by experts, and you could do the same, without waiting till fall.

AN UNDERGROUND BOOST FOR SEEDLINGS

continued from last issue

by Dorothy Bergstrom

Fungi importance

Although the concept of mycorrhizae was advanced as early as 1842, Mycologist Jim Trappe, project leader for research in tree root symbiosis and current director of the Weyerhaeuser study, has found that it is not generally well understood by foresters and others who are responsible for reforestation programs.

Researchers have known for some time that all economically important forest trees and most forage plants need mycorrhizae for survival and satisfactory growth.

The importance of mycorrhizae has been demonstrated by the failure of exotic trees to flourish when planted in distant parts of the world. However, when suitable mycorrhizal fungi have been added to nurseries or planting sites, the survival and growth of these trees have improved dramatically. Similarly, on mining spoils, areas never forested, or those where trees have been absent for a long time, naturally seeded plants usually die unless spores of mycorrhizal fungi carried by air or animals are washed into the soil.

In the forest, mycorrhizae develop when the growing roots of a seedling encounter spores or mycelium of mycorrhizal fungi. The spores germinate and the growing fungi surround the roots. However, if this process is delayed, a seedling's roots may be invaded by harmful fungi. If the seedling survives, it may be stunted. Some seedlings will grow without mycorrhizae in the nursery, provided they are given sufficient nutrients and pathogens are controlled. But, when seedlings are planted in the forest, the mycorrhizae are essential.

Fungi development

Researchers have also found that mycorrhizal fungi vary in their environmental requirements. Some tolerate a wide range of conditions; others do not. Mycorrhizal fungi may unite with roots of seedlings growing in nursery beds, but if these fungi are not adapted to the sites where the seedlings are planted, they may not function or may even die. If that happens, the seedlings also die unless they contact mycorrhizal fungi native to the planting site soil.

The ways mycorrhizal fungi reproduce are significant for forest management. Although most mycorrhizal fungi live in the upper few inches of soil, some surface to reproduce. Miniature mushrooms and toadstools are formed underground. At the proper stage of development they suddenly take on water and push their way through the soil surface to expand and discharge their spores. The spores are carried by the wind and washed back into the soil by rain. Other species, such as truffles, reproduce underground. Small animals, attracted by the odor of the truffles, eat the fruiting bodies, but, the spores are not digested and are excreted in their fecal pellets. Squirrels, mice, and voles traveling from forested areas to newly planted clearcuts distribute spores of fungi to the benefit of new seedlings.

Several forest management practices deplete mycorrhizal fungi in the soil, Trappe says. The most important are elimination of host plants and drastic soil disturbance. Heavy timber cutting and slash burning can reduce fungi populations. Some pesticides may also destroy them. Eliminating truffle-eating small animals from newly planted areas is likely to reduce the number of fungal spores available for forming mycorrhizae.

Continued research

Until the ecology of mycorrhizae is better understood, researchers will not be able to recommend changes in forest management practices. However, if seedlings can be supplied

with suitable fungi before they are planted, the depletion of local fungi by management practices will not be of critical importance. Much remains to be learned about mycorrhizae, especially in forestry. The part of the forest ecosystem that exists above ground has been studied in great detail. Much less is known about the underground organisms (roots, animals and the microorganisms), even though their biomass is as great as that above ground and as important. For example, most plants have been adequately classified, but many mycorrhizal fungi have not and cannot even be identified. Trappe believes that classification is vital to research and is now devoting part of his time to this essential task.

The Pacific Northwest Station is one of several public agencies in Corvallis now engaged in mycorrhizae research. Others include the Ornamentals Laboratory of the Agricultural Research Service and the Departments of Botany and Plant Pathology, Horticulture, Soils, and Forestry at Oregon State University. In May 1976, the University, in collaboration with the Pacific Northwest Station, received a grant of \$146,000 from the National Science Foundation for a 2-year study of the role of mycorrhizal fungi in nutrient capture and cycling in Douglas-fir ecosystems.

At present, probably more people are involved in mycorrhizae research in Corvallis than anywhere in the world. "It is important that a sizable portion of forestry research be devoted to figuring out how a forest works," Trappe says, "because such knowledge will lead to better forest management practices."



MUSHROOM SYMPOSIUM, NOV. 4 - 7, 1977

A symposium entitled Mushrooms and Man: An Interdisciplinary Approach to Mycology will be held at Linn-Benton Community College on November 4 - 7, 1977. This symposium will provide an opportunity for experts in several mycology related fields to share knowledge and to establish a common ground of understanding and appreciation for the problems unique to each of these fields, while also providing an opportunity for a wide cross-section of the public and representatives of several professional fields to gain a better understanding of the attractions and dangers common to mycology and of the benefits which may be derived from a knowledge of mushrooms. By taking a problematic view of the history and current applications of the various aspects of mycology, this symposium will provide future generations with information which will be helpful in making responsible resource decisions which may determine the future role of mushrooms and the part that they should play in our society.

This is the first time a symposium is held on an interdisciplinary basis. Usually mycological conferences are technical, scientific treatments of various subjects by mycologists talking to other mycologists. This conference is set up to fulfill the needs of several professions while being presented in non-technical terminology by experts in the various aspects of mycology. Parts of the conference are being approved for continuing education credit for allergists, physicians, pharmacists, nurses, police officers, instructors, foresters, and students in general.

The proceedings of this conference will be published and the lectures will be taped in full, with parts of the programs being videotaped.

The registration fee is \$25. For additional information and all the details contact Mr. Anthony B. Walters, Symposium Chairman/Coordinator, Linn-Benton Community College, 6500 S.W. Pacific Blvd., Albany, Oregon, 97321.