Next Meeting April 12th, 2004

SPORESAfield

The newsletter of the Colorado Mycological Society **April 2004**

The President's Corner
CONGRATULATIONS!

The door prize for the first CMS meeting was an Organic Shitake growing kit and was won by Adele Mikelevicius! The door prize for the next meeting will be The Nameko Mushroom Kit (Pholiota nameko), which is Japan's second most popular cultivated mushroom (Shiitake is the most popular). This mushroom has a strong flavor, faintly reminiscent of cashews. Typically, one to two pounds of mushrooms can be harvested from this kit. Be sure to show up for a chance to win!

The first 2004 CMS monthly meeting was one of the best that I have seen. Seven speakers talked for roughly 10 minutes each about their favorite mushroom. The speakers' presentations ranged from a very scientific description of their mushroom to reminiscing of picking mushrooms in their youth. Each talk was followed by questions and answers and kept the crowd entertained. It was very informative and enjoyable – good job everyone!

Our new suggestion box was also a hit! We had three suggestions: a recommendation for a particular speaker, to hold a class in mushroom cultivation and a request for a particular type of library book. I hope everyone will continue to use the suggestion box, since there is limited time to disuss these things during the meetings.

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Speakers for the April meeting:
Mike Schomaker & Jason Salzman

"Getting to Know Colorado Trees and Using Them to Find Mushrooms"

Learn how to identify Colorado trees from a true expert, long time member, Mike Schomaker. It will be a real treat to see Mike. Due to his tight schedule and the drive from Ft. Collins, he doesn't often make it to our meetings. He and Jason Salzman, publicity chair of CMS, will talk about the symbiotic relationship between trees and mushrooms. This information is invaluable in your hunt for Colorado's sometimes illusive fungi.

Mike and Jason will make a joint presentation. Mike will introduce or tune-up members with methods to identify Colorado's native tree species. He will cover the more common native trees and their habitats from the plains in the east to the mesas and valleys in the west. Some specimens will be available to handle before and after the talk. Jason will alternate with Mike and highlight a few specialty mushrooms associated with each tree species. Mike will also bring handouts to help with tree identification and Colorado Tree Coalition posters of the champion trees of Colorado for distribution to members.

Mike has two degrees from Colorado State University, a Bachelor of Science (1969) and a Master of Science in Mycology (1972). In June of 1972, after receiving his Masters, he began work for the Colorado State Forest Service (CSFS) at Colorado State University. He retired in 2003 after 31 years

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of Service with the CSFS. He was the President of the Colorado Mycological Society in 1986 and currently works on a six month contract with the University of Las Vegas Nevada as the Forest Inventory and Analysis (FIA) Crown Condition Indicator advisor. He specializes in mushroom identification, Dutch elm disease control, disease diagnosis, hazard tree evaluation, community forestry, forest inventory and forest health monitoring (FHM). His responsibilities with the CSFS included:

Dutch elm disease laboratory technician - 1972-1978

Dutch elm disease project leader - Federal technical assistance and public outreach program - 1978-1981

Assistant staff forester - 1981-retirement
Forest Biology/Pathologist - 1981-1991

Forest Health Monitoring (FHM) Coordinator - 1991- 2003

National FHM and FIA Indicator advisor for Crown Condition Classification - 1996-present

He has presented guest lectures at Colorado State University in Arboriculture, Forest Pathology, Dendropathology, Plant Pathology, Dendrology, Community Forestry Management and other classes. He also conducts Basic Arboriculture, Disease, Plant Diagnosis, Defective Tree Evaluation and Basic Mushroom Identification workshops for Community colleges, International Society of Arboriculture, CSFS, municipalities and various publics throughout Colorado and adjacent states.

Jason is a partner in Cause Communications. The son of Manny and Joanne Salzman, he has been studying mushrooms from the time he could crawl. He has traveled world-wide with Fungophile, Inc. in search of fungi, and takes part every year in the Telluride Mushroom Festival.

Death Claims Another Valued Member

We are sad to report that former long-time member, Ken Noteman, passed away in Cottonwood, Arizona, on February 21, 2004.

Ken was very active in CMS, leading forays and helping educate newer members. He was a delightful fellow and enthusiastically contributed so much energy and knowledge not only to CMS, but to a number of other worthwhile organizations as well. Among those organizations were Roxborough State Park in Colorado, and Red Rock State Park, in Arizona, where he spent winters while he was active in CMS.

A memorial service was held Sunday, March 7 at Roxborough State Park. Memorial contributions can be made to Friends of Roxborough or the Denver Zoo.

Ken's grandson, Dan Rosenberger, whom we grew to know as a little tyke, tagging along at his grandfather's side is joining CMS and promises that we will see a lot of him at meetings from now on.

Spores Afield

Spores Afield is published from March through October by the Colorado Mycological Society. CMS dues are $23 for the first year and $20 thereafter. Send membership dues to CMS Membership Chair, Box 9621, Denver, CO 80209. All CMS members receive *Spores Afield* as part of their membership.

CMS is an affiliated member of the North American Mycological Association.

CMS website: http://www.cmsweb.org

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The board will review these suggestions and we will do our best to meet your needs.

We also had a couple people volunteer to bring refreshments – thank you! There are still a few openings so if you can, please sign up and bring refreshments for one meeting. I will pass around the sign up list during the next meeting. You will need to bring drinks and snacks for about 50-60 people. You will be reimbursed for your expenses.

I'm still looking for someone who would be willing to take over the CMS library. We have approximately 170 books. The new librarian would have to attend the monthly meetings and bring in 10-20 books for people to check out of the library. This is a great opportunity to have access to a wealth of mycology information at your fingertips. I would be glad to transport them with my truck if you are interested!

Truffles

According to a brief item in the Rocky Mountain, News Nov. 6, 2003:
The cost for a pound of white truffles is $2800, due to a record heat wave in Europe last summer, which adversely affected the crop. Black winter truffles will be only $400 per pound.
Source: Corfini Gourmet.

Authors, Artists, and Poets

The editor of *SporesAfield* needs your help. Please consider submitting an article, line drawing, digital photographs, a poem, editorial, comic, report on mushroom sightings, news items, announcements of upcoming events, or any other contributions to your newsletter. This is your chance to share with your fellow members. Send items by the 15th of each month to:

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This is your last issue of *SporesAfield* if you have not paid your membership for 2004.

If you have any questions as to the accuracy of the expiration date on the label or change of address, please contact:

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The following essay won the first place prize of $20,000 in the Shell-Economist essay contest, the theme of which was "Do We Need Nature?" (The fungus' answer was the title of his recent book, "Do We Need Mankind?")

INTERVIEW WITH A FUNGUS

By Diane Brooks Pteninger
NAMA member in Anchorage, Alaska

D.P. Good evening, viewers. Our guest this evening is *Pilobolus crystallinus*, author of the award winning best seller, "Do We Need Mankind? A Fungal Perspective". Mr. Pilobolus is a member of the kingdom *Fungi*, class *Zygomycetes*. He is a scholar, lecturer, dung-dweller and author of numerous scientific articles and papers as well as several books for popular audiences. Welcome, Mr. Pilobolus.

P.c. Thank you, Diane. Good to be here.

D.P. Mr. Pilobolus, your most recent work raises tantalizing questions about the future of the biosphere and the role that you and other inhabitants of this planet will play in it. Tell us how you came to write this book.

P.c. The book resulted from a series of symposia I attended over the past two centuries under the sponsorship of the World Federation of Fungi, on the topic, "What Does Nature Need?" The Academy of the WFF is constituted of one delegate from each family of fungi. I was fortunate to represent the *Pilobolaceae*. Conferences were held decadally in many different parts of the world. Matters particular to the host locale were given close consideration, but the global perspective of the Academy was never eclipsed.

D.P. The 19th, 20th and 21st centuries have been a revolutionary period in the biosphere. How have fungi been affected by the events of modem history?

P.c. The modern history of the fungi, which I date from about 400m years ago, has been a remarkable success story. The fungi occupy two vital niches in nature whose importance has never been challenged. In one niche, we are drivers of the carbon cycle, elite teams of detritivores whose mission is to digest organic matter and return the component parts to the ecological system. Without our work, life on earth would long since have ground to a halt for lack of raw materials. In another niche, we act in partnership with the roots of plants to extend their reach into the soil environment and enhance their uptake of water and nutrients. These partnerships are called mycorrhizas — *myco* for the fungus, *rhiza* for the root. Animals in turn feed on plants and benefit from this arrangement. So the fungi play two very distinct roles worldwide, and both roles are critical to maintaining the biosphere in good working order.

D.P. Where does mankind come into your history?

P.c. Mankind comes into our history about 20,000 years ago, at the time they discovered the uses of alcoholic fermentation. We credit the genus *Saccharomyces* with this development. Ancestral spores of that yeast settled in a pot of gruel prepared by a group of hominids whose existence up to that point was best described as nasty, brutish and short. This began what we call the honeymoon period in the relationship of man and fungus. Unfortunately, the honeymoon didn't last very long.

D.P. What happened to end it?

P.c. Two things happened. Agriculture was one. Mono-cropping and animal husbandry led to concentrations of plant and animal populations that were vulnerable to certain of our members, particularly the smuts, rusts, mildews and blights. Some crops and herds proved to be sensitive to basic fungal metabolites. For instance, my colleague *Claviceps purpurea* produces the biochemical ergot. Ergot causes gangrene, madness and death in certain animals, among them humans.

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However, there is no credible scientific evidence that ergot evolved in *C. purpurea* with harm to megafauna in mind. The same may be said of *Aspergillus flavus*, which occurs on nuts and grains in the field and in storage. The aflatoxins produced by *A. flavus* are among the most powerful poisons and carcinogens on earth. Introduced into human environments, they are nothing less than weapons of mass destruction. To *A. flavus*, they are merely metabolic by-products, with perhaps a touch of self-defence function as well.

The other change for the worse resulted from transportation. The rapid movement of species around the globe allowed no time for immunities to develop in local populations. Many fungal species have been vilified for causing mass exterminations of elms, chestnuts, potatoes and other plants. This mirrors the unhappy experience of animal and viral microorganisms implicated in plagues and epidemics. The real culprits, of course, are the humans who transport exotics from continent to continent without considering the consequences.

D.P. As you see it, what has been the human purpose during recent centuries?

P.c. With the advantage of hindsight, I think we can summarize it as a failed experiment in individualism. The idea of the individual — and there is no fungal equivalent — arose during a period of rapid change in human society. In the abstract, individualism looked defensible, even appealing. The ideal individual was to be educated and enlightened, someone we'd all like to know. However, as a practical matter, the culture of enlightened individualism reformed itself after a brief period into a cult of personal freedom.

Over the next several centuries, unbridled personal freedom and chance distributions of natural resources led to the creation of certain wealthy and isolated colonies of humans. Their prosperity excited envy and the rest of the world did what they could to emulate them. Large populations of humans moved from a very simple experience of the natural world to the expectation of a lifestyle similar to what the exploiters were enjoying. This clamor for plenitude — for meat in daily diets, for manufactured goods, for personal comfort, for leisure activities —put enormous stress on the biosphere.

D.P. As we know, humans failed to reverse this trend. Can you explain their failure to act?

P.c It certainly wasn't for want of trying. If you visit the media archives of mankind— and we fungi are able to do so freely in spite of their efforts to exclude us —you will see that environmental issues were at the forefront of concern in all the wealthier nations for the past century and a half. Treaties, regulations, protocols and public opinion were all used to stem the tide of harmful practices. But events outstripped them. Chief among these events was population growth. Population growth outpaced the effectiveness of trade boycotts. The offenders were able to simply form trade blocks of their own. Population growth outran the ability of the media to cultivate public awareness of environmental issues. And of course, population growth added to the pressure on the biosphere as more and more people demanded higher standards of living.

A couple of analogies can help us visualize what was happening. One is the problem of the universal solvent, if there were such a substance, what would you keep it in? The phenomenon of affluence turned out to be a sort of universal solvent. Nothing could contain it. Affluence was a marker of evolutionary success. Eventually, the cultural and political meanings intersected and in many parts of the world, it became seditious to propose programs regulating or moderating affluence.

More insight is provided by the old canard about bread and circuses, which refers to the stultifying effects of amusement. Poor quality information tends to ferment into low-grade entertainment. Under the sulphurous glare of continuous, worldwide news broadcasts, human institutions — government, military, religious, the culture itself — became subjects of human amusement.

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This unrelenting, self-referential entertainment left a large part of mankind chronically inebriated and fundamentally uneducable. The ideal of public education was a notable casualty. I discuss this phenomenon fully in my chapter, "The Second Fermentation."

D.P. Many times in your book, you mention what in earlier centuries would have been called "values" — altruism, moderation, that sort of thing. How do the fungi define ethical values? Or perhaps you call them spiritual values?

P.c. (Laughs) Much of what others consider spiritual, we call secular. This does not mean we are without a theology, in fact, I have devoted an entire chapter to formal fungal theology.

D.P. Can you tell us briefly about fungal theology?

P.c. There are two major systems of mycotheism in the fungal world. The more recent religion is only about 50m years old, but it has a strong representation among the younger orders. The older religion is more widespread, although it is also more rationalized from the original texts. Overall, 99.4% of fungi are adherents of one or the other faith. But the important thing to note is that there are no tensions, no doctrinal disputes between the two theisms. The core principle of both religions is identical.

D.?. And that principle is...?

P.c. Whereas the root principle of virtually all the religions of mankind is behavior modification, our core religious value is species recognition. The fungi comprise nearly a million and a half species and uncounted millions of mating types. The pressures that result from diversity of this magnitude cannot be overstated. We have long recognized that the best way to maintain order in the system is to encourage institutionalized mycotheism. As a result, we are widely considered to be the polity most capable of reaching consensus amongst ourselves and acting in concert upon that consensus.

D.P. How do you describe the present relationship between nature and mankind? Conflict? Détente? Symbiosis?

P.c. I can only speak for the fungi, who characterize mankind as expendable. My chapter, "Many Keystones, One Arch," explores the uses that mankind has made of the fungi, which range from antibiotics and immunosuppressants to paper making to bread, beer, cheeses and wines and the familiar delights of mycophagy. Our members observed and recorded millions of human-fungus interactions over a period of two centuries. Again, humans cannot escape our observation. We are everywhere: on their skins, in their homes, underground, in the stratosphere. After intensive analysis of these data, the Academy was not able to identify even one indispensable human-fungus transaction. No obligate parasitism, no essential relationships, no *sine qua non.* I ask readers to remember this important fact as they learn the startling outcome of our deliberations.

D.P. Without revealing the ending to your book, can you speak briefly about the last chapter?

P.c. Recently, the Academy convened a plenary forum to review our findings concerning the place of mankind in the world ecosystem. We evaluated the state of the biosphere, giving due weight to mankind's most recent energy policies, bioengineering innovations, developments in agriculture, industry and transportation, the efforts made toward environmental remediation and detoxification of hazardous and radioactive wastes. We considered the question of just how much perturbation of the natural order we should tolerate from human activities. We agreed that the biosphere presently stands at 9.6 on a scale of disturbance ranging from zero to ten. Based upon these findings, the Academy adopted a position statement which we presented to the WFF. I have taken the title of that statement for my last chapter, "The Knot of a Thousand Tyings"

D.P. Can you summarize this position statement for us?

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P.c. I'd like to read from it, if I may.

D.P. Please do.

P.c. "Our members do not recoil from the future. We believe that life on earth is embarked on a unique trajectory, one that will not be repeated. We believe that the outward journey has entailed a long and intricate interweaving of the interests of all living things. We believe that the homeward path will entail the systematic unweaving of those threads. We believe we are eminently suited for a role in this process."

D.P. And here, we must encourage our listeners to read your book. "Do We Need Mankind? A Fungal Perspective". *Pilobolus crystallinus*, thank you so much for joining us today.

P.c. Thank you for having me, Diane.

Park Hill Garden Tour

Saturday, June 19, 2004
Rain or Shine 10:00 am until 4:00 pm
Greater Park Hill Community, Inc. [GPHC}
Neighborhood Garden Tour
There will be twelve sites, grouped in clusters of 2 – 4 gardens

Prices: $7 in advance; $10 tour day for adults $3 anytime for seniors 65+
Park Hill is that part of Denver north of Colfax Avenue and east of Colorado Blvd.

The ticket/map identifies all twelve sites and visitors may start at any garden. Tickets will be available at all King Soopers [charging a $1 handling fee]; by phone when prepaid to the GPHC office, and at Park Hill locations identified on flyers available by May 1st.
Please call or e-mail me with your questions.
Many thanks!

Ann K. Long 303-377-6828 or by e-mail at ann.long@gte.net
GPHC Garden Tour Coordinator

GPS – What is it?

By Chris Hardwick

Have you ever been lost in the woods or can't remember where you found those mushrooms last year? Then you need a GPS! Scott Frank introduced me to GPS during a foray two years ago and I decided then and there that I needed one. I ran across some great matsutake and chanterelles the year before and I couldn't remember where I needed to go to find them! You might be asking yourself, 'What is GPS?' GPS stands for 'Global Positioning System'. The system consists of 24 military satellites that hover in space above the earth, their ground stations, and a receiver. The entire system is run by the government (paid for with your tax dollars) and costs over 6 billion dollars! The only thing you need to purchase to utilize this multibillion-dollar system is a receiver (often called a GPS) that is about the size of a cell phone. Entry-level models can be bought for less than $100.00. The best part is that, unlike a cell phone, there are no monthly fees! The GPS system gives every square foot of the planet a unique address. With a receiver (GPS), you can map your location as you move, backtrack your exact path, and mark 'waypoints' or locations anywhere on the planet for future reference. For example, I found an edible mushroom *Coprinus micaceus* in abundance at North 39.77434°, West 105.10002°. If you had a GPS you could simply plug in these numbers and it would show you exactly on the map where this location is and would lead you right to it (some GPS units are accurate to within three meters!). GPS data is a great way to keep a record of all of your favorite spots! A GPS will also give exact elevations, which is valuable information when you want to find a particular species of mushroom that

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only grows at a certain elevations. I purchased a Garmin e-trex Legend (retail is about $149) and it has a button on the front of the GPS that when pushed, puts down a 'flag' on the map at the point where you are standing. It will automatically give it a number or you can give it a name. I like to give all my 'waypoints' specific names to indicate what is located there (like Boletus, etc.). This particular model also has the option of downloading maps from your computer. For an additional cost, you can purchase topographical maps, road maps, points of interest maps, marine maps, etc. and load them into your GPS. Some basic GPS models don't have this option. You can also upload all your waypoints to your computer and see them on a map in full screen view. There are a lot of other functions on my GPS that I have yet to tap into. I'm hoping more people will become interested in using GPS and perhaps we could start a database of our favorite mushroom hunting locations and share favorite spots!

Don't be fooled by all this technology though, you can still get lost with a GPS! I've found that the screen is so small that it takes time to navigate to a waypoint unless you are within a few miles of it. Also, the signal strength to the satellites is very weak. If you walk under trees or into a building, the signal gets cut off (it works through glass and in cars though). Startup is slow and you have to be out in the open or in a car since you have to communicate with at least three satellites to get your location. I've also found that you should have a good topographical map in addition to a GPS. And most of all, bring extra batteries!