



New Jersey  
Mycological Assn.

NJMA NEWS MARCH, 1978  
Volume VIII No. 3

President: Robert Peabody

Editor: Dorothy Smullen

Circulation: Bill Rokicki

**MEETING NOTES**

Over 40 members of NJMA, ranging from beginners in mycology and microscopy to those advanced in both, were presented with an excellent program on mushroom spores by Dr. Leo Tanghe of Rochester, N.Y. The slides and tape cassette were prepared by Dr. Tanghe for the NAMA slide program. A second run-through of the slides for a question period was most rewarding. Thanks to Virginia Peterson and Vic Gambino for some tasty treats.

The roster will be coming soon. New members keep coming in, adding to an enrollment of almost 160.

Committee heads were announced for 1978:

- |                      |                      |                    |
|----------------------|----------------------|--------------------|
| Mycophagy.....       | Grete Turchick       | and Paul Meyer 2   |
| Foray .....          | Bill Rokicki         | and Neal Macdonald |
| Taxonomy .....       | Dorothy Smullen      | and Vic Gambino    |
| Education .....      | Jim Richards         |                    |
| Toxicology .....     | Gary Lincoff         | and Stan Siegler   |
| Slide Library .....  | Al Leyenberger       |                    |
| Library .....        | Hiram Korn           |                    |
| Mycο-aesthetics..... | Gertrude Espenschied |                    |

Publicity and Hospitality committees still have to be filled. Both of these duties can be shared between two and three people each. Please come forward. We need you!

If you are interested in obtaining a discount on the purchase of Gary Lincoff's new book, Toxic and Hallucinogenic Mushroom Poisoning, please notify editor. A minimum order of 12 is necessary. List price is 16.95.

Is there anyone interested in starting a cultivation group within the club? Many of the west coast societies have such groups and info. could be obtained from them. The editor would like to see a Sat. field trip to Pennsylvania for a tour of commercial mushroom growing. A leader is needed to organize the details. --Where to go? When is it possible? etc. This would be a great family foray.

**MARCH 12 — DR. CLARK ROGERSON**

Many of you heard Dr. Rogerson speak last year on Mushrooms of the Northeast. He is an excellent speaker, and we are pleased to welcome him again. His subject will be fungal parasites. Dr. Rogerson is senior curator of the New York Botanical Garden and the managing editor of Mycologia. 1:30 at SCEEC.

Directions: Take 287 to exit 26-A (Basking Ridge). Make a right turn from exit ramp onto N. Maple Ave. (Near New A T & T). Follow through blinking light. At center of town veer left onto South Maple Ave. Take S. Maple (passing Lord Stirling Riding Stables on left) to Lord Stirling Rd. (airport) Turn left on Lord Stirling Rd. and follow one mile to center. Those coming locally can hook up onto River Rd. out of Summit, N.J. which continues as Long Hill Rd. after Chatham. Follow Long Hill Rd. to the blinking light in Millington at church. Go straight, now the road is called Basking Ridge Rd. Follow road over the Passaic River. Here it changes name to S. Maple. Turn right after the airport onto Lord Stirling Rd. - one mile to Center.

Mark your calendars for April 9th-DR. SAM RISTICH will give an illustrated lecture on ascomycetes. Also mark May 7, the date for our first 78 foray at Jenny Jump State Forest. soon it will be morel time! This winter has been too snowy too long. The foray schedule will be in next month's newsletter.

The info below is repeated from last month. If you haven't already notified Gertrude about your contribution or help, please do so now. Thank you.

## EXHIBITION

The first major exhibit of the NJMA will take place April 1 to April 28, 1978 at SCEEC. Our new Myco-aesthetics chairman, Gertrude Espenscheid will coordinate the event. The exhibit will include notebook drawings, field sketches, finished drawings and photographs. Each submitted work should be identified-plus a brief description if possible. If not mounted and ready to hang please supply plastic to cover the work. Do not ship glass. Artistic talent is not necessary. Photographs should be ready to hang and a minimum size of 5 x 7". Everything will be used space permitting. The deadline for receiving material will be March 27. Send return postage, list value of work and whether work is for sale (no commission will be asked by club). A list of the contents of the exhibit and value will be sent to the center's insurance underwriters.

Send to Gertrude Espenscheid

There will also be display tables of mycological specimens set up by the taxonomy group. Come on down to help Gertrude and others .... set-up dates are March 30 and 31 ....take-down dates are April 29 and 30.

The hours of center are weekdays 9:00 am to 5:00 pm  
Saturdays 10:00 am to 4:00 pm  
Sundays 1:00 pm to 5:00 pm

Phone: \_\_\_\_\_  
Closed Holidays and  
Holiday weekends

## POLYPORE PAGE

The page on polypores is reprinted from the Jan. 78 issue of Mycena News, the newsletter of the Mycological Society of San Francisco. It is full of good information.

The last page on TRUFFLES was prepared by your editor with certain items contributed by John Durkota, Jim Richards and Vic Gambino. Drawings and diagrams of truffles can be found in Rinaldi and Tyndalo, 1974; Lange and Hora, 1963 and Watling, 1973. Photos are in Color Treasury of Mushrooms and Toadstools, 1972.

According to Miller and Farr, 1975, the Tuberales of N.A. are classified into 3 families:

- |                     |                     |
|---------------------|---------------------|
| 1. Elaphomycetaceae | 3. Tuberaceae       |
| <u>Elaphomyces</u>  | <u>Hydnotrya</u>    |
| 2. Terfeziaceae     | <u>Pachyphloeus</u> |
| <u>Terfezia</u>     | <u>Tuber</u>        |

Enjoy your reading!

## TAXONOMY GROUP

The herbarium cataloguing is well underway. Two already verified specimens are Amanita phalloides and Collybia iocephala. This means that aside from being identified by the collector, the specimens have also been identified by a mycologist.

Does anyone have a metal cabinet with shelves to donate to the club? The herbarium being used at SCEEC is only available for a temporary period.

## WELCOME NEW MEMBERS

Mr. & Mrs. Romano Borgobella Greenbrook  
Mr. David Picconi Boonton  
Paul Hulvey Whitehorse Station  
Mr. & Mrs. Henry Uchno South River

Mr. & Mrs. Arthur Schilling North Plainfield  
Mr. & Mrs. Kurt Roth Somerset  
Mr. & Mrs. Frank Vaccaro East Brunswick  
Mrs. Emily Greenberger Brookside

Did you know that colors from various mushrooms can be used as dyes for wool and painting. Various solvents or the mushroom juice alone can be used. A book by Miriam Rice (1974) called "Let's Try Mushrooms for Color" is printed by Thrush Publications, 443 Sebastopol Ave. Santa Rosa, Cal. 95401.

Polypores are a large group of fungi too often ignored by the amateur. They are difficult to identify, many are not colorful, and few are edible. When we try to identify species, we run into another problem, namely the many different generic names for the same taxon. This is due to numerous different classification systems, more numerous perhaps than in any other group of fungi. Neither is there universal acceptance for any one system, for they are all based on a limited tempo- rate flora, and each using different characters in deli- niating genera. This perhaps is one of the reasons why many mycologists have preferred to stick close to the Friesian treatment of the genera. These are few in number and can readily be recognised in the field by their macroscopic features. They are often called "form genera" and consist of the following:

- POLYPORUS - annual and fleshy
- POLYSTICTUS - annual and leathery (coriaceous)
- PORIA - annual or perennial. Resupinate
- FOMES - perennial and pileate
- LENZITES - annual with lamellate hymeniophore
- DAEDALEA - annual with labyrinthine hymenium
- TRAMETES - annual with tubes of unequal length

This system is used by the "conservatives" such as Overholts. "Radicals" believe the form genera to be too broad, not reflecting true evolutionary affinity, and therefore difficult to use in description of spp. Murrill together with such Europeans as Quelet and Patouillard belong to this last group. They erected numerous small genera, a trend which still continues in the present day. To illustrate this problem, let us consider the common Fomes annosus. Brefeld in 1888 described the genus Heterobasidium with F. annosus as type and only species. He justified the new genus on the basis of a special type of hypha found in annosus. Since then F. annosus has been variously placed in 15 genera e.g. Poria, Fomitopsis, Trametes, etc. (Donk 1960, 1974)

The example points out the difficulty, especially for amateur mycologists trying to use professional monographs (fieldguides rarely cover polyporous fungi in depth). In the following paragraphs I will try to give some details and features used in identification of polypores and I have added a short bibliography for those interested in further reading.

- Fig. I shows fruitbody shapes that might be encountered. Examples of these are:
- RESUPINATE - Tyromyces and Poria species
  - DIMIDIATE - Coriolus (Polyporus) versicolor
  - UNGULATE - Phellinus (Fomes) igniarius
  - STIPIATE - Coltricia (Polyporus) perennis

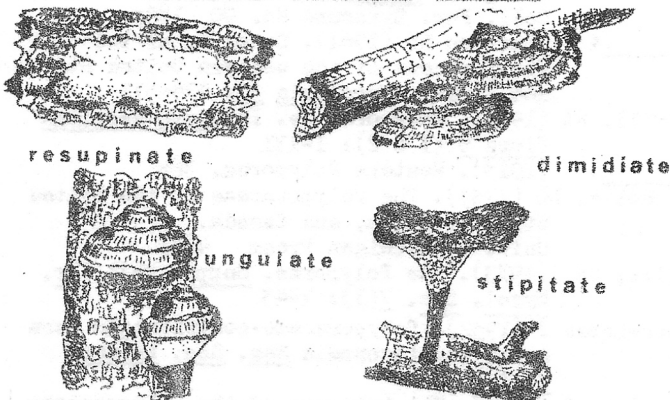
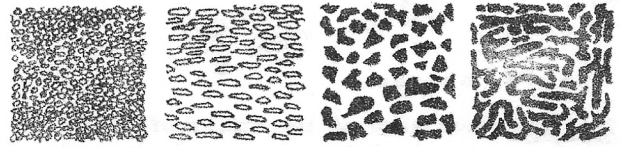


FIG. 1 Fruitbody shapes

Often we encounter in-between shapes, for instance some species of Tyromyces can be substipitate. There can also be variations between specimens of the same taxon, depending on locale, host, and weather conditions; one of the reasons why microscopic analysis of the fruitbody becomes so important.



regular elongated angular daedaloid

FIG. 2 Pore shapes

Fig. II shows some of the pore shapes, which can readily be observed in the field. Examples are:

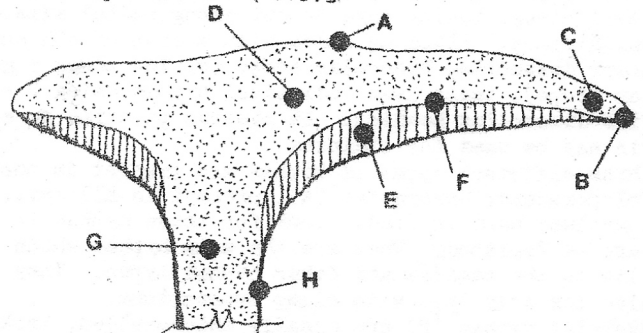
- REGULAR - Coriolus versicolor, Fomes fomentarius
- ELONGATED - Daedaleopsis (Daedalea) confragosa
- ANGULAR - Grifola frondosa, Hapalopilus nidulans
- DAEDALOID - Daedalea quercina

Pore shapes are a good field characteristic, and so are their sizes. These are measured by counting the number of pores per square millimeter, which can then be checked in the descriptions of the species.

Other macroscopic features to look for are the color of the spores. Sometimes this can be seen from spore deposits on the pileus of other carpophores or the tree below. Example of this: the brown spores of Ganoderma spp. Surface of the fruitbodies should also be noted, as well as their context (color and consistency). Ganoderma usually has a shiny pileus, whereas the pileus of Fomes is never shiny. It should be noted whether or not the pores are united or separated; free tubes are a characteristic of the genus Fistulina. Sometimes a volva-like structure is present, like in Polyporus volvatus

MICROSCOPIC EXAMINATION

Correct determination of microscopic structures requires adequate and precise methods. Fresh specimens are preferred since dried material does not revive certain structures, for instance clamp connections. Using precise methods means systematically checking certain parts of the fruitbody. Teixeira (1962) recommends that the following always be checked [also used by Domański (1973)]:



Parts of fruitbody to be examined (per Teixeira)

A mature tissue of the flesh; B growing margin of pileus - place where hyphae and other structures originate; C intermediate area, showing the transition between 'A' and 'B'; D surface structure; E dissepiments showing hymenial or extrahymenial structures that may be present; F context immediately above tubes, often more compact, with or without setae; G probably same as 'A', sometimes with unique binding processes; H stem structure, often same as 'D', but sometimes entirely different.

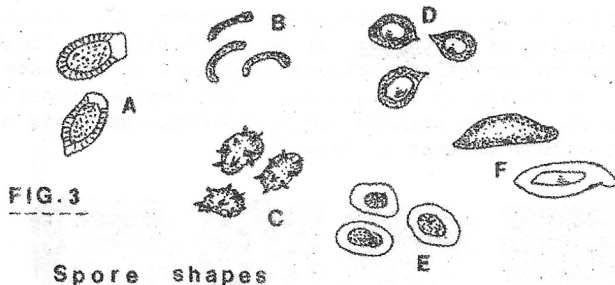


FIG. III shows some of the spores of polypores  
A - *Ganoderma*; B - *Daedaleopsis*; C - *Bondarzewia*; D -  
*Meripilus*; E - *Inonotus*; F - *Polyporus squamosus*.

Spore sizes vary substantially between genera, from 3  $\mu$  long [*Incrustoporia*] to 23  $\mu$  long [*Fomes*]. In *Ganoderma* spp., we find what appears to be a double wall, the brown spiny inner wall visible through a hyaline smooth outer wall. Spores are sometimes used as a basis to separate genus and family.

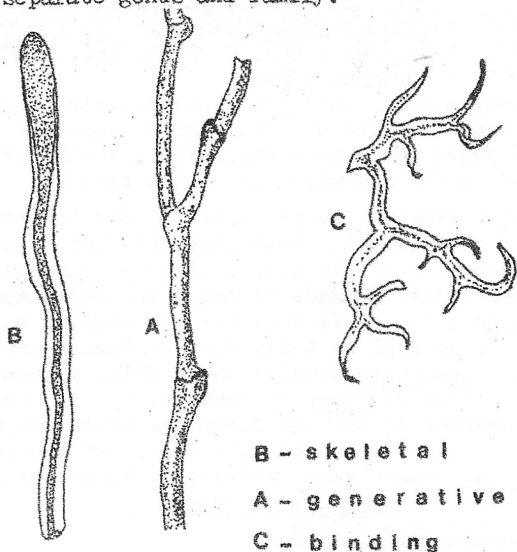


FIG. 4 Hyphae of Polypores

Fig. IV hyphae play a very important role in the identification of polypores, and are also the most difficult to study. Pegler (1973) recommends the following: Dried material - First soften the part of context to be examined (5% KOH solution), and remove a small piece, taking care to cut along radial axis of basidiocarp. Place on slide with a drop of KOH and, under dissecting binocular scope (or low power regular scope), tease away individual hyphae using 2 very fine dissecting needles. 1% aqueous phloxine or eosin may be used for staining.

Three different types of hyphae are present in the Polyporaceae: Generative (A), present in all spp., but sometimes hard to find. Look for these hyphae in 'B' part of fruitbody. They are the main hyphae which give rise to the basidia and other hyphal types. They are also the only type with clamp connections. Skeletal hyphae (B) are usually thick-walled, lack primary septation and are never branched. Their function is to strengthen the fruitbody. Binding hyphae (C) are of limited growth, and function to weave the other hyphae together.

When only type 'A' hyphae are present it is called monomitic. A combination of 'A' and 'B' or 'A' and 'C' type hyphae is called dimitic. If all three are present it is called trimitic.

Samples of monomitic: the genera *Tyromyces* & *Grifola*  
dimitic: *Laetiporus sulphureus*  
trimitic: *Coriolus versicolor*, *Ganoderma applanatum*.  
Hyphae should also be tested with Melzer's reagent for amyloid reactions.

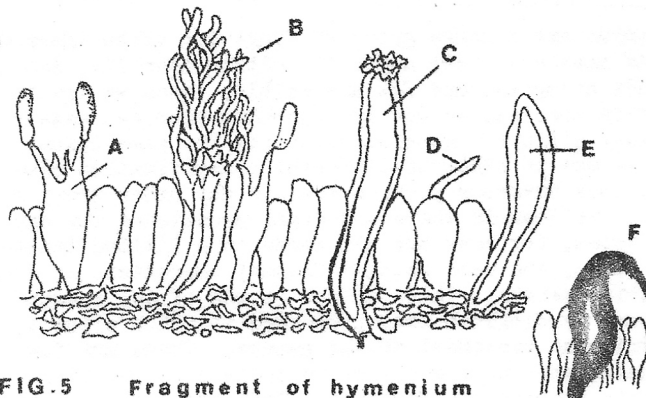


FIG. 5 Fragment of hymenium

Fig. V shows some of the other structures we may find on the hymenial surface:

A - basidium; B - hyphal peg, consisting of conglutinate hyphae. Their function is not known, but they are important aids in identification. Mostly found in spp. of the genera *Trametes* and *Polyporus*; C cystidia with incrustation (formed by calcium oxalate crystals); D - cystidiolate; E - cystidia without incrustation; F - seta, this curious structure may be used for the identification of the genus *Mucronoporus*. Setae can be straight or hooked as shown, they can also be inflated (as shown) or solid.

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## TRUFFLE INFO

Truffles are in the news. Recent newspaper articles have noted that the French Institute of Agronomy has cultivated 20 truffles weighing a kilogram. The scientists injected a special chemical into the roots of hazel bushes and then waited  $3\frac{1}{2}$  years before they got a single truffle. In the wild, it takes 6 years for a truffle to mature. A kilogram (2.2 lbs) of truffles in southwest France would cost \$100 wholesale. In New York's market, 14oz might cost \$200.

Just what is this expensive constituent of Pâté de Foie Gras and other gourmet items? Truffles are subterranean or underground fungi. Finding them has been solved in various ways. In continental Europe, pigs are used to sniff them out, but the pigs are unable to eat them because a ring is placed through their nose. In Dorset, a breed of hound dog is used to find the truffle. A certain species of insect lays its eggs in truffles. If you can find the insect you might be in luck.

The truffle of commerce found in southern Europe is called Tuber melanosporum. Tuber magnatum is said to have even more taste and value than the former. Two other edible species native to Britain are T. aestivum and Hydnoria tulasnei.

Truffles are ascomycetes in the order Tuberales. A tropical family in this order has fruiting bodies resembling Pezizales, but the other families show closed and compact fruiting bodies. When a truffle is cut open, a marbled view of fleshy tubes of various thickness is seen. The tubes broaden into chambers lined with hymenial cells. As the fruiting body matures, pores appear at the tube ends. Spores are disseminated as the truffle collapses or is broken by animals. Mycorrhizal associations are formed between truffles and the roots of such trees as hazel, oak and willow. By the way, mycorrhiza were accidentally discovered at the end of the last century by A.B. Frank who was looking for truffles.

Historically, truffles were regarded as great delicacies even in early Babylonian times. The Romans called truffles 'tubera'. Juvenal's Satires mention that the African truffle was in demand. Pliny distinguished three kinds, which have been identified as follows:

Tuber colore nigro as Tuber brumale and Tuber melanosporum

Tuber colore intus candide as Tuber magnatum

Tuber colore rufum as Tuber rufum

These are the black, white and red truffles. Truffles are not only eaten as such, but also go into some liqueurs. They are used in perfumes and to scent tobacco. For centuries they have also been used as aphrodisiacs.

A non-edible truffle, Elaphomyces granulatus, called the deer, stag or hart truffle was thought to have originated from the spittle of witches during the middle ages. Another version is that its origin was from the 'seed' of the rutting hart. This species is parasitized by two other ascomycetes called the truffle club fungi (Cordyceps ophioglossoides and C. capitata). If you find the parasite, dig deep to find the host.

There are species called False truffles such as Rhizopogon. They are basidiomycetes that can be found in Europe and America.

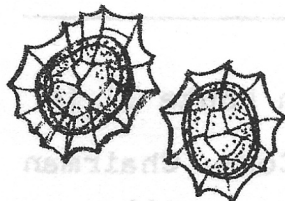
The truffle, Terfezia gigantea, has been found in the Great Smokies and also in Essex Junction, Vermont. The latter find occurred in May 1976. Over 50 specimens ranging in size from a dime to a quarter were found in a compost heap. The taste was nut-like.

The following recipe appeared in the New York Times Mag.  
Nov. 13, 1977

Tramezzino di pane integrale con tartufo (white truffle sandwich)

8 slices bread, preferably homemade yeast bread  
salt to taste  
1/3 cup olive oil  
1 2-oz can white truffle purée

[available at Manganaro's]  
488 Ninth Ave.]



Spores of  
Tuber magnatum

1. Toast bread lightly on both sides under broiler.
2. Sprinkle one side of each piece of toast with salt and brush generously with oil. Smear half the toast with equal amts. of white truffle purée. Cover with remaining toast, oil side down, and serve warm. Yield: Four sandwiches.

Also find truffles at Zabar's Broadway at 80th.

Truffles are in the news. Recent newspaper articles have noted that the French Institute of Agronomy has cultivated 25 truffles weighing a kilogram. The scientists injected a special chemical into the roots of hazel bushes and then waited 20 years before they got a single truffle. In the wild, it takes 6 years for a truffle to mature. A kilogram (2.2 lbs) of truffles in southwest France would cost \$100 wholesale. In New York's market, they might cost \$200.

Just what is this expensive commodity of white or black and other gourmet items? Truffles are subterranean or underground fungi. Finding them has been solved in various ways. In continental Europe, pigs are used to sniff them out, but the pigs are unable to eat them because a ring is placed through their nose. In Britain, a breed ofhound dog is used to find the truffle. A certain species of insect lays its eggs in truffles. If you can find the insect you might be in luck.

The truffle of commerce found in southern Europe is called Hydnum melanosporum. Hydnum is said to have even more taste and value than the former. Two other edible species native to Britain are Hydnum repandum and Hydnum album.

Truffles are associated in the order Boletales. A typical truffle in this order has twisting bodies resembling beehives, but the other truffles show closed and compact trilling bodies. When a truffle is cut open, a network of lines of fleshy tubes of various thickness is seen. The tubes branch into chambers lined with hymenial cells. In the trilling body nature, pores appear at the tube ends. Spores are disseminated as the truffle collapses or is broken by animals. Mycorrhizal associations are formed between truffles and the roots of such trees as hazel, oak and willow. In the way, mycorrhizas were accidentally discovered at the end of the last century by A. B. Frank who was looking for truffles.

Historically, truffles were regarded as great delicacies even in early Babylonian times. The Romans called truffles 'tubera'. Several writers mention that the truffle was in demand. Pliny distinguished three kinds, which have been identified as follows: Tuber colosse nigrum, Tuber pumila and Tuber melanosporum. Other edible truffles include Hydnum repandum, Hydnum album and Hydnum album.

These are the black, white and red truffles. Truffles are not only eaten as such, but also go into some liqueurs. They are used in perfume and to scent tobacco. For connoisseurs they have also been used as spices.

A non-edible truffle, Elaphomyces, is thought to have originated in the middle ages. Another variety is that the truffle is parasitized by two other species.

# DON'T FORGET

## NJMA EDUCATIONAL OFFERINGS

### "INTRODUCTION TO MUSHROOM FIELD IDENTIFICATION"

Sunday March 19th at SCEEC, 1:15 PM to 4:30 PM  
Course leaders: Jim Richards-NJMA Education Committee Chairman  
Bob Peabody-NJMA President

This course, designed for the beginning or intermediate mushroom hunter, is packed with information on sight identification of mushroom Genera. Take home study materials are included. Some of the most beautiful slides ever taken of mushrooms will be used to illustrate the course. Fee: \$5.00

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### "INTRODUCTION TO MYCOPHAGY"

Wednesday March 22nd at Hunterdon Central High School on Route 31 in Flemington, N. J. 8:00 PM  
Course leader: Gertrude Espenscheid-NJMA Mycoesthetics Comm. Chairman

This course, designed for prospective wild mushroom eaters, will very carefully present the "foolproof" edible mushrooms and their poisonous lookalikes. This course will start you on your way to many gourmet delights.