OMPHALINA

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Newsletter of FORAY NEWFOUNDLAND AND LABRADOR

Vol. III, No 9
Sep 15, 2012

FORAY NEWFOUNDLAND AND LABRADOR

is an amateur, volunteer-run, community, not-for-profit organization with a mission to organize enjoyable and informative amateur mushroom forays in Newfoundland and Labrador and disseminate the knowledge gained.

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OMPHALINA *is the lackadaisical newsletter of Foray Newfoundland & Labrador. There is no schedule of publications, no promise to appear again. Its primary purpose is to serve as a conduit of information to registrants of the upcoming foray and secondarily as a communications tool with members.*

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seened AT gmail DOT com,

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COVER

Wood rot—good rot, fiber art portrait of a cut rotting balsam fir stump by Maria Voitk. The small cubes represent Carbon building blocks released back to the triosphere. Page 4 offers the choice of the same cover with Maria's photo, for readers unable to relate to artsy visible Carbon building blocks.

Demarcated territories occupied by different fungi are readily seen. Read the lead article to learn what this picture tells us.

Every mushroom that you pick from the ground or elsewhere arises from a similar fungus in its own space, associated with other organisms either helping or threatening it. The scale and the relationships may differ, but the concept is the same for all fungi, even if it is not always as demonstrably visible, as it is for those living in wood.

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Message from the Editor

Welcome to our rot issue. Of course, the good reader of OMPHALINA has encountered rot before, in every issue, we daresay. If 90% of all organic matter is decomposed by fungi, then any publication devoted to fungi will discuss rotters over and over. That said, it is still good to devote an issue to the subject formally, in order to bring it to focus. Henceforth the good reader will recognize rot when she sees it.

Rot allows us to bring out of hiding many weird and wonderful fungi that we often overlook. Some for obvious reason. A rotters' gallery toward the end is topped off by a contribution from an author unfamiliar with the world of fungi. He did the story in a few hours on a challenge by the Editor, just to show that anybody could write about mushrooms—something obvious to every reader of OMPHALINA. Ergo, any reader could work up a contribution (please do so to make this journal more colourful). And Glynn Bishop captures a gallery rotter in water colour. We close the issue with a familiar example of rotters of the unrottable. Everything rots: if we knew more about them, we should write about the fungi decomposing CDs.

The date of publication is as close as we can manage to the autumnal equinox, ringing in an end to summer. September 15 is Felt Hat Day, the day gentlemen exchanged their lighter and cooler summer headgear for chapeaux made of felt, getting ready for winter. This is a joyful time for mycophiles, because autumn is peak season for the mushrooms we enjoy. Within a week of autumn's beginning, our foray starts.

For us, toiling away at the cramped editorial suites of OMPHALINA, September 15 has a personal connection. It is the birthday of James Fenimore Cooper. As a child we were enthralled by his Leatherstocking Tales; The Last Mohican lives within us yet. Looking back, there is no doubt that these romantic tales of the wilderness made a huge contribution toward our own interest in the outdoors. Perhaps all the worry about getting children interested in nature could be quelled by letting them read and then giving them unstructured free time to act out their imagination in the outdoors on their own?

MEMBERSHIP

With the beginning of our foray, the memberships of those of you not joining us this time come to an end. Should you wish to continue your membership, please download and fill out a Membership Form from our website, and send in with payment. Then you'll get FUNGI without interruption. We pay for FUNGI once a year, right after the foray, so if that is your wish, please make sure your payment arrives to our Treasurer before October 15. If you are parting ways, it has been a pleasure travelling with you, we thank you for the company and wish you a good journey wherever your new path takes you. You can still download OMPHALINA for free from our website, but it will no longer be sent to your e-mail address.

Happy mushrooming!

andrus

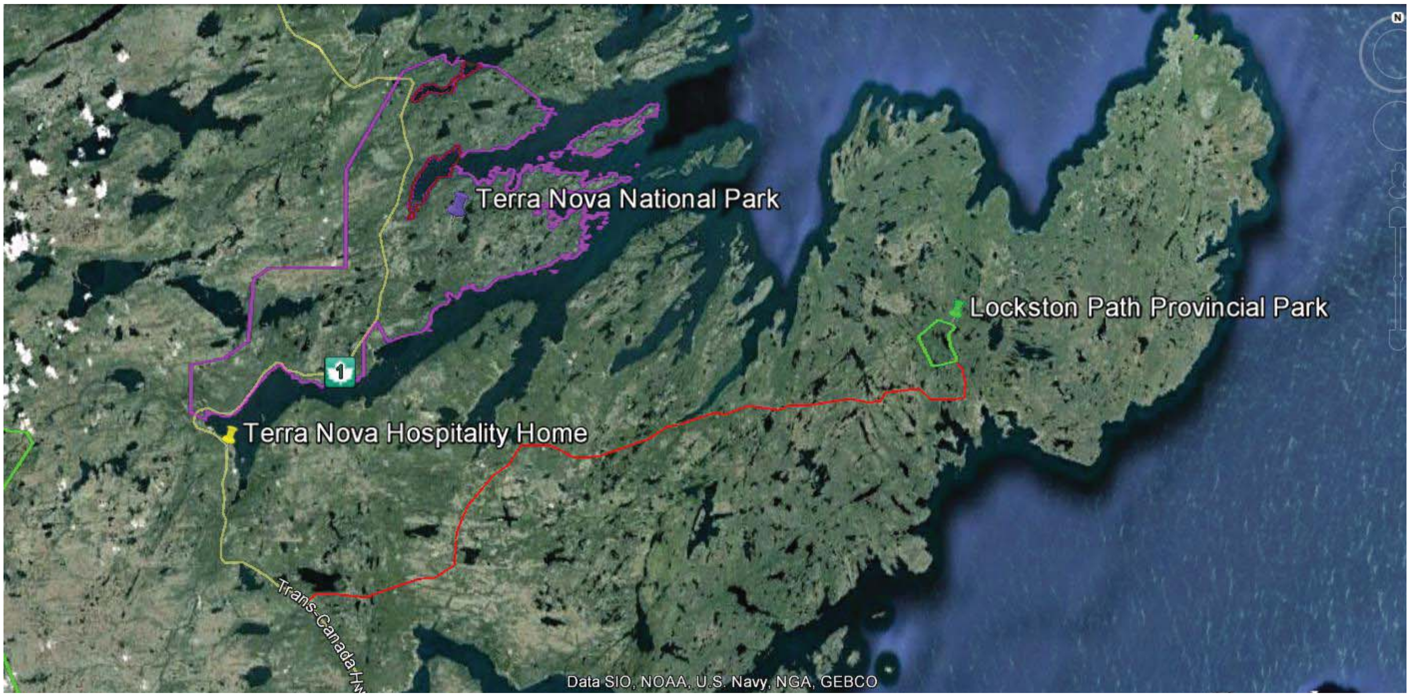
FORAY MATTERS…

The 2012 foray is fully subscribed. Registrations are closed and a few names are on the waiting list. Thank you for your interest and support, and sincere apologies to the few latecomers we could not accommodate this year.

This is our fourth year with a waiting list—the message is clear—but the first time we have actually had to turn people away. It is a very uncomfortable thing to do.

FRIDAY MYCOBLITZ. This year's foray begins with a mycoblitz of Stockton Path Provincial Park (map below). Be at the Administrative Building before 12:00 noon, Friday, September 28, 2012, when teams disperse. If you come later, everybody will be gone. Bring your own drink and lunch to eat on the trail, because there are no stores nearby. If you cannot make it, we'll see you at the reception at Terra Nova Hospitality Home after 4:00 PM! Should you arrive earlier, please be patient—the Registrars are at the Lockston Park Mycoblitz.

INFORMATION. Please make sure that you read all the pertinent information about the Foray, both general and specific, on our website.



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ROTTEN ART or ROT IN ART?

Andrus Voitk

You can enjoy the spectacular cover for its dramatic effect, pleasing colour harmony, disturbing symmetry, or for any number of other appealing features. One of the things that increases enjoyment for art lovers, is finding overtones of complexity in art, in addition to the aesthetic attributes of colour and form. If you recognize the subject of the cover picture, you begin to search for symbolism and "meaning". Immediately obvious is the remarkable amount of rot in the wood, covered up by apparently normal bark. No doubt this will lead some to make a connection with the adage, "beauty is skin deep".

Not so, of course, for those of us, who heard Tom Volk's talk, "Wood decay—good decay" at the 2009 foray. Tom enlightened us about the error of equating rot with lack of beauty. Only the unenlightened, who do not understand, relegate rot to the evil forces of the dark side.

Forests are nature's carbon bank, but the account is neither static, nor for only making deposits. Nature's banking is forever in flux, with steady deposits and withdrawals, and rot is nature's way to withdraw carbon building blocks, so that new organisms can be regenerated forever. Followers of Volk recognize the beauty of this system bared for our view by the sawyer. This first contemplative step leads naturally to further reflection, unraveling increasing layers of meaning, like going from annual ring to annual ring, right to the pith of the tree.

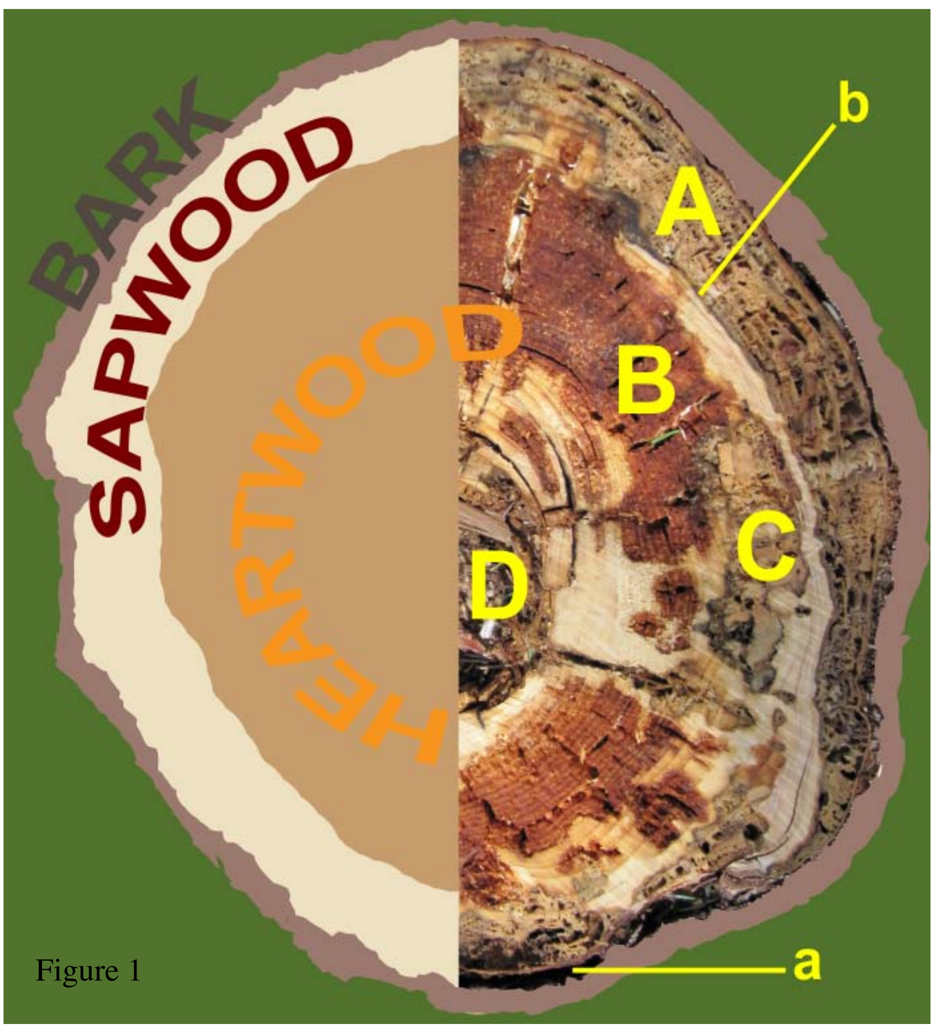


Figure 1

To understand what the picture tells us, we need to review the components of a tree in cross section. It has three parts, each with its own function: bark, sapwood and heartwood, the middle of which is the pith. Like our skin, the bark envelops the tree, protects it against invasive hostile agents and prevents evaporation of inner juices. The sapwood is the active, live part of the tree, filled with vascular channels, through which water and nutrients travel from and to other sections of the tree. Its size varies with the rate of growth and its health determines the vigour and health of the tree. As the name might suggest, a sapling or young tree, is almost entirely made up of sapwood. The inner core, the heartwood, is made up of cells that die after attaining their structure and rigidity, giving the trunk strength to hold up the crown and remain upright in wind. These three parts are shown on the left side of Figure 1.

The major chemical components of wood are cellulose and lignin. Cellulose is a white stringy substance, made up of long polymerized molecules, arranged along the longitudinal axis of the trunk, limb, or root. Lignin is brown matter that binds the white, and is therefore also arranged in a transverse manner. Some fungi digest one, some the other, some both and some neither. Wood rotters that digest cellulose leave the brown lignin behind. Such weakened wood we call brown rot, or cubical brown rot, because the transverse connections allow the lignin to crumble into cubes. Wood rotters that digest lignin, leave the long, stringy cellulose behind. Such weakened wood we call white rot. Figure 2 shows both well, the stringy white rot at the top, and the cubical brown rot in the heart. Figure 3 provides a longitudinal view of cubical brown heart rot.

Now that we recognize the different wood components on cross section, the dramatic rot of Figure 1 begins to speak to us. The holes (a) at the bottom are made by beetles. All the other action is by fungi. The first thing that we notice is that there seem to be several different fungi present. Indeed, fungi usually carve out a niche for themselves and wall it off, so that as a rule it is not invaded by others. Fungus (A) has eaten most of the sapwood. Fungus (A) is most likely *Trichaptum abietinum*, which was found in large profusion on the felled trunk and which is a known agent of white rot in sapwood. This has very serious consequences for the tree. First, as we learned, the sapwood is the living part that transports water, raw materials and nutrients. When it dies, vascular flow ceases and the tree dies of starvation. Secondly, although the sapwood makes up a relatively small portion of the diameter, physics determines that outer cylindrical tissue is far stronger than central, so losing sapwood weakens the tree disproportionately. Once vascular transport stops, of course, it is no longer important that the trunk stay upright and intact.

With a little experience you will recognize that the rot in the sapwood left by fungus (A) has the appearance of white rot on cross section. You can also notice that this fungus marks off its territory with a distinct black band (b). Gary Warren studied *Panellus violaceofulvus*, a decayer of balsam fir sapwood, and found that when it broke down lignin, so much sugar was produced that metabolism stopped.[1] It needed a scavenger fungus, most commonly *Kirschteiniella thujina*, to come and "mop up" the sugar, so that vital processes could continue. *K. thujina* characteristically left a black band at the border, where the two organisms interacted to their mutual benefit.

Figure 2

The most striking pattern is that of red-brown areas in the heartwood (B). Closer examination should convince you that it is cubical brown rot. Although many fungi could be responsible, in this case the felled tree bore a luxuriant growth of *Fomitopsis pinicola*, a well known cause of brown rot, the most likely agent here. Near the top is an area, where it seems to extend into the sapwood. This is probably caused by mycelium seeking the outside to form a fruit body. In addition, there seems to be a different fungus (C) in the heartwood, seemingly causing white rot, also walled off with a darker band, which may or may not signal the involvement of other organisms. Lastly, we see that the very central core, the pith (D), is totally destroyed. It is not easy to tell, but it seems to be a combination of brown and white rot. At least one organism, and possibly several, has been involved.

Thus, from mere observation, you get an idea of the many players involved in this rotten drama, acting independently and interdependently in concert to release Carbon building blocks back to the triosphere. As you see, it is even possible to guess the identities of some of these players. You know, of course, that many wood rotters are very specific about the trees they rot. Some may accept all kinds of trees, some only conifers, some deciduous trees. Others limit their activities to a subgroup of either, some to a genus and some to a species. For example, some fungi rot one of our alder species, but not the other.

Contemplating our stump shows you that wood rotters are also very specific about the component of wood they elect to rot. This choice is not at all random. Just as most fungi are limited to species of tree, so most are limited to the wood component that they inhabit and digest. *Panellus violaceofulvus* always grows in sapwood, and *Fomitopsis pinicola* gets its start in heartwood. Most books tell you which trees wood rotters grow on, many tell you whether they digest lignin or cellulose (cause white rot or brown rot), but very few tell you which component of the tree they digest.

Yet, this is a characteristic that helps you identify them as much as he others, and it also tells you more about their behaviour then the others.

Heartwood is dead. Therefore, fungi that digest heartwood might be expected to be primarily saprobes, decayers of dead organic matter. How does that fit with their observed behaviour? *Fomitopsis pinicola* usually fruits on dead wood, whether upright or fallen. On occasion we may encounter fruit bodies on live trees. If such trees are felled, brown rot is limited to heartwood. Extension into sapwood occurs only after the sapwood has died, except for passage through to either gain entry or produce a fruiting body. Only in the case of wood already dead, but not previously inoculated with *F. pinicola*, will it begin near the surface in the sapwood area, and move toward the heart. As a true saprobe, it needs no connection to live wood, and is unable to infect live tissue. Many other large conks behave similarly. For example, *Fomes fomentarius*, which differs by infesting birch and causing white rot, is very similar in the choice of dead wood for digestion. *F. fomentarius* is occasionally found on live trees, where it produces heartrot only, but in dead trees it can move afield to rot all the wood. Similarly, *Ganoderma applanatum* is found primarily on dead wood, but occasionally on living trees, where it is generally limited to the heartwood until the tree dies.

Some of these large conks are described as weak parasites, even though they reside in and decompose dead components of the tree only. Because a tree is structured so that its dead heartwood makes a significant contribution to its strength, these fungi clearly have a deleterious effect on the structural integrity of their living host, and in that way are "parasitic", even if they do not directly attack living cells of its host. Interestingly, heartwood contains antifungal chemicals, yet these fungi have no difficulty dealing with dead heartwood, but are repelled by living tissue, which repulsion disappears once the sapwood is dead.

Decayers of sapwood seem to behave differently. *Panellus violaceofulvus*, mentioned above, resides exclusively in sapwood, yet fruits only on dead branches. This suggests that it is a necrotrophic parasite, requiring an obligatory connection to living wood to fruit. However, once established, it may continue to fruit on severed dead branches, so it seems to be able to behave as both an obligatory parasite and saprobe, the latter seemingly after getting a good start with a sapwood connection. Its hardwood relative, *Panellus ringens*, is more strict about the need to be connected to living tissue: it does not continue to fruit for very long if the connection with living tissue is interrupted. At the other end of the spectrum, *Trichaptum abietinum* is the first to appear after a tree dies, yet lives exclusively in sapwood. Why in the living sapwood, if it only appears after the tree is dead? Was it there all along, being an eater of living cells, enabling the fruit bodes to appear so soon after death of the tree? Or is it an eater of dead wood, but is repelled by the antifungal compounds typically found in heartwood?

Good art begins with aesthetic qualities, to which each viewer brings her own experience. If the art makes something in that experience resonate, enjoyment of the artistic experience is markedly enhanced. What do people do, who have no mycological background to bring to the cover picture? Well, first, they still can enjoy the artistic merits inherent in the picture at a visceral or emotional level Secondly, the image may evoke other associations from their own perspectives. Either way, good art that commands attention is an excellent vehicle for sharing insights into the complex fungal mini-ecosystem that left the pattern within our fir, thereby adding a layer of marvel to the viewer already admiring its aesthetic qualities.

Reference

1. Voitk A, Warren G: Mycenas of the treetops. Osprey 42(1):12-13. 2011. (It is probably easier to download the article from our website under "Publications" than to try to access it from Nature Newfoundland and Labrador's Osprey website.)

Figure 3

Photo: Maria Voitk

Jim Cornish

Dacrymyces crysospermus

Whenever I walk on woodland trails after a prolonged spell of wet weather, I often find jelly fungus oozing from decaying tree branches, trunks and stumps strewn across the forest floor. I am always struck by their conspicuously bright colours, gelatinous context and convoluted shapes. It wasn't until this past year when I took a closer look at these fungi that I began to appreciate their variety and their true nature. Sometimes hard to identify and generally atypical in the myco-world, these fungi are much more than they appear to be, which make them both intriguing and one of my favourite groups of fungi.

Foray Newfoundland and Labrador has identified 16 species of jelly fungus in this province. World-wide, there are over 500 species, most of which are tropical. Because of our predominantly coniferous forest, the most common representative is the softwood rotter *Dacrymyces chrysospermus* Berk. & M.A. Curtis, (*Dacrymyces palmatus* in older field guides), found on coniferous wood only. Dacrymyces is derived from two Greek words; dacron which means tears and myces meaning fungus. The specific epithet chrysospermus is derived from two other Greek word; chrysos meaning golden and spermus meaning seeds.

The common names applied to *Dacrymyces chrysospermus* and other jelly fungi are often confusing, reason enough by all accounts to stick with the scientific binomials, even if some of them are tongue twisters. In some guides tear fungus, golden jelly, orange jelly, witch's butter or brain fungus are commonly used for *D. chrysospermus*, while in other guides "witch's butter" is reserved for the look-a-likes *Tremella mesenterica* and *Tremella aurantia*.

The gelatinous mass that forms *Dacrymyces chrysospermus* is yellow or orangery-yellow and either lobed, cushion-shaped, fan-shaped, or stoutly stemmed. These shapes often coalesce to form an erect, convoluted brain-shaped mass up to 6 cm across. This mass is attached to the substrate by a white, tough rooting base.

Jelly fungi are well adapted to changing moisture conditions. They typically appear after prolonged wet spells and will shrivel to a brittle inconspicuous form when the weather turns dry. When the wet weather returns, they re-hydrate, assume their original shape and sporulate. The wet mushroom is usually slippery but not slimy. When dry, it tends to be rubbery.

Dacrymyces chrysospermus looks so appetizing, you might be tempted to bring a spoon and sample the mushroom straight from the substrate. You would be disappointed. Although edible, it lacks taste and is used mainly to add colour to salads.

In Asia, jelly fungi have long been used to improve breathing and circulation, to treat allergies and diabetes, and to extend longevity. More recent investigations have revealed that they contain compounds known to stimulate the immune system, reduce inflammation and lower cholesterol.

Jelly fungi highlight the growing importance of microscopy (and the growing importance of molecular analysis) in mushroom identification. For casual amateurs like myself, the lesson is that unless a mushroom has some unmistakable tell-tale feature, a positive field identification to species is risky if not downright impossible. Nowadays, whenever I look at a mushroom, more and more of their names are to the genus often preceded by "could be a" or "might be a." Maybe that's progress from just a plain "I don't know" a few years ago.

Illustrations. Bottom, previous and this page, variable appearance of the beautiful *Dacrymyces chrysospermus*. Top, this page, white base of fruit bodies.* Middle, this page, gelatinous "root" going into the wood.*

* Photos courtesy of Gary Emberger.

Fungi on polypores

Who rots the rotters?

Leif Ryvarden

A polypore is an energy source and as such susceptible to attack from other organisms wanting to exploit it for their own good. However, polypores (as all other fungi) have evolved a defence including antibiotics against bacteria, and a variable set of more or less toxic chemicals. This seems to work fairly well as long as the polypore is living, but as soon it dies, the "first come first served" principle comes into effect.

If you start to look carefully at old dead, still attached polypores, especially the perennial or long-lived ones, you will find that there often are other fungi present on the pore surface. Examples are numerous small fungi imperfecti, ascomycetes, corticoid species and even other polypores.

Ascomycetes

A prominent example among the ascomycetes is *Hypocrea pulvinata* (below), which occurs exclusively on dead basidiocarps of *Piptoporus betulinus* and *Fomitopsis pinicola*. Both hosts produce cubical brown rot, indicating that they are related. The late Swedish professor A. Nannfeldt once said: "Fungi are very good taxonomists" and that is true here. The title banner shows unidentified ascomycetes on *Fomitopsis ochracea*.

Photo: Roger Smith

Corticoids

The corticoid fungi living on dead polypores are a mixed group of species; microscopic work is always necessary to arrive at a reliable determination. One of the most common is *Sistotrema octosporum* which is recognized by having up to 8 sterigmata (reflected in the specific epithet) on the basidium and slightly allantoid spores. Those interested to pursue this further are referred to Besl et al.[1]

Polypores

When it comes to polypores on polypores, we are confronted with a peculiar phenomenon: certain polypores are restricted to specific hosts. This has been studied among others by Prof. T. Niemelä and his students at Helsinki University in Finland.[2] The table is based on European spe-

POLYPORES DECAYING POLYPORES	
ROTTER	**ROTTER ROTTER**
Fomes fomentarius	*Antrodiella pallescens*
Fomitopsis pinicola	*Antrodiella cintrinella*
Hymenochaete spp.	*Antrodiella americana*
Inonotus obliquus	*Gloeoporus dichrous*
Inonotus radiatus	*Antrodiella serpula* (=*A. hoehnelii*)
Phellinus chrysoloma	*Skeletocutis chrysella*
Phellinus ferrugineofuscus	*Junghuhnia collabens*
	Skeletocutis brevispora
Phellinus spp.	*Antrodiella faginea*
Trichaptum spp.	*Antrodiella parasitica*
	Skeletocutis kuehneri

cies, but should be similar in North America.

These specific connections raise some interesting questions as to what underlies the selectivity between the species, and when did it start. Is it a purely saprotrophic relationship, indicating only that the later polypore has a superb ability to infect the dead host by neutralizing its chemical defences while these are still almost intact?

To my knowledge no one has investigated whether the late arriving polypores live exclusively on and of the dead host, or whether they also degrade the wood, using the polypore host only as a support for their fruitbody. Do both fungi live side by side inside the tree, having infected it independently of each other? If so, was the species growing on the other polypore suppressed by it until the latter died? Alternately, perhaps this is a parasitic relationship, where in the end the parasite kills the host and then uses its basidiocarp for spore dispersal.

Sometimes those species usually found on dead polypores are also found on dead wood without any trace of their fungal host. This suggests that they have a wood degrading ability after all. Or, is this a parallel of the life strategy of Tremellales (jelly fungi), all parasitic on other fungi? Often you find the parasite fruiting on the dead host, such as *Stereum* species, but sometimes there is no visible trace of a host. In such case presumably the parasite exploits the hyphae of the host inside the wood, so that it is not able to accumulate enough energy to produce a basidiocarp of its own.

Antrodiella citrinella. Although no *Fomitopsis pinicola* can be seen, you can bet that the wood is rotted with it, because this species grows only on brown rot caused by the latter, presumably including the latter's mycelia.
Photo: Tuomo Niemelä, Finland.

Antrodiella pallescens fruiting on and around *Fomes fomentarius*.
Photo: Tuomo Niemelä, Finland.

References

1. Besl H, Helfer W, Luschka N: Basidiomyceten auf alten Porlingsfruchtkörpern. Berichte Bayer. Bot. Ges. 60:133-145. 1989.
2. Niemelä T, Renvall P, Penttilä R: Interactions of fungi at late stages of wood decomposition. Ann. Bot. Fennici 32:141-153. 1995.

A rotters' gallery

Andrus Voitk

Fungi are our main decomposers: 90% of organic matter is decomposed by fungi. Without their services we should long since have ceased to exist. First, there is the threat of being buried under a sea of detritus: old dead bodies of our dear departed ancestors and pets, the excrement of these same pets on our lawns and elsewhere (not to mention that of our progenitors), fallen leaves, fallen trees, last year's plants and mushrooms, and those of thousands of years before, and more. You get the picture. While drowning on the one end, we should be under attack by starvation on the other. All the Carbon and Nitrogen and other good things of which organic matter is made up would forever be trapped in those old carcasses. Soon their supplies would be depleted and no new plants could be made (assuming there were a way to get them to sunlight above the miles of dead stuff covering the Earth). Sans plants, no food for us animals. Sure, we could eat other animals, but those eat plants, so they would die out as well. What an ugly horror-movie planet this mushroomless Earth would be!

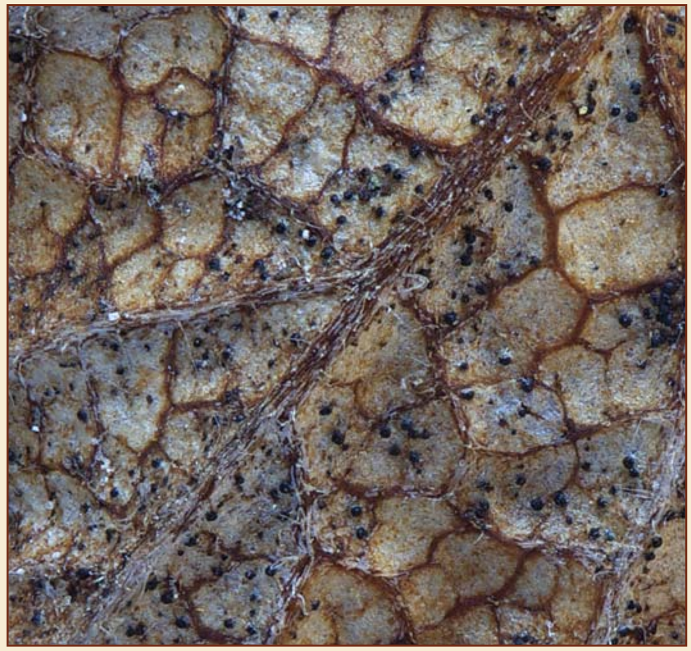
This is a picture gallery of some of our mushroom decomposers. Not the usual run of the mill rotters, but those on the periphery, doing their job without much notice. To them nothing is sacred, not even our icons. Look at them and see how many you can hunt up in their very specific habitats during the rest of the season. Please let me know of any interesting finds.

Stropharia alcis

Since its introduction to Newfoundland about a century ago, moose "sign" (or "spoor", as the really woodsy folk say) has become an icon of our woods. With the densest moose population in the world, it is no wonder that we sell chocolate and other mementos in its image. To prevent us from drowning under iconic mounds, various fungi, including the slimy *Stropharia alcis*, are busy returning the contents to the forest air and soil. Cleverly, it places its spores on moose fodder, so that they can germinate in the forming excrement, ready to grow on release.

Gnomoniopsis chamaemori

Another of our icons is the golden orange bakeapple that graces our bogs, pies and toast. While we take care of the berries, who prevents the old leaves from piling up to the sky? Look at last year's leaves with a loop, and discover a whole world of little black dots. These are species of pyrenomycetes. Prime among them, as identified by pyrenomycete expert Adrian Carter, is the iconoclast *Gnomoniopsis chamaemori*. Exactly similar species do the same for other hosts, but DNA analysis has shown that each host has its own cryptic species. Thus, by their hosts shall ye know them—although without examination, how do we know that all the black dots are the same fungus?



Mitrula elegans

In the same bogs in the spring of the year, at about the time the bakeapple begins to bloom, you may find troops of the elegant *Mitrula elegans*, busily decomposing the myriads of last year's dead grasses. A bit of a generalist, but the looks are so distinct that identification is not overly challenging. It likes to keep its feet wet and is usually found in water or very wet places.

Dasyscyphus controversus

This little pink cup can be found in wet spots near the seashore, busily digesting last year's dead and fallen *Phragmites australis* (common reed) trunks. There are many whitish cup-shaped genera that digest plants, but few are specific to common reed and of these only one turns pink with the effort. Again a matter of "By their host shall ye know them."

Psathyrella typhae

This little *Psathyrella* specializes in rotting away last year's dead common cattails (*Typha latifolia*). As the picture shows, it does not mind water, but does like to lift the cap above it, possibly for airborne spore dispersal. If that does not work, with so much substrate below the surface, water distribution should work just as well, and often several caps are indeed below the water's surface.

As with so many of the species featured, you do not have to carry a huge amplitude of mycological baggage to make the correct identification. The substrate is so unique, that if on it you find a small brownish mushroom with dark spores, there are very few opportunities to go wrong if you guess it is this one. And a lot of opportunity to seem smarter than you are…

Marasmius arundinaceus

Last month's competition: Henry Mann also sent a second picture of his find in Nova Scotia. He wrote that it grew on last year's dead stalks of threeway sedge (*Dulichium arundinacium*). I have never seen this mushroom and had no idea what it could be. It occurred to me that there are some *Marasmius* species that grow on leaves or grass with primitive gills, like very shallow folds with cross-veining. This opened an opportunity to test the system we may have seen evolve in the past few pictures. It seems that 1) many rotters are very specific to their substrate, and 2) often they are named after their host. Therefore, look up *Marasmius*, to see if it has species named after either *Dulichium* or *arundinacium*.

Bingo!

I can find no picture or description to confirm it. Clearly, it is not a commonly collected species. This story illustrates that even in mycology it is possible to be too smart. This is an open invitation for anybody who recognizes the species or who is familiar with the taxon to weigh in and tell me I am wrong. No offense, seeing I have had all the fun.

Photo: Henry Mann

Agrocybe arenicola

Sent in by Daniel Abraham from St. Pierre et Miquélon. This, and the above, should also grow in our province—just look for them in their habitat. This one grows near Marram grass (*Ammophila breviligulata*), presumably decomposing some dead parts buried in the sand. It is not as easy to identify with certainty, because there are several small brown species in sand dunes by Marram grass. However, the others do not have a ring, which should help.

Photo: Daniel Abraham

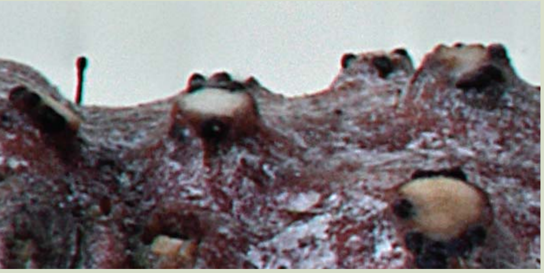
Cystostereum murraii

Another wood rotter, on an old birch log. Active growth seems to be during periods of thaw or just after—note the snow flakes. Definitely not recognizable by host alone! It is featured here to see if you can find another picture of it in this issue. Hint: try the next page.

Collybia tuberosa

Finally, what rots the mushrooms? Left alone, they, too, could bury us under their old sporocarps and sequester within them all the building blocks required for new organisms. The previous article discussed some rotters of polypores. The reader of is also well acquainted with this mushroom rotter from OMPHALINA 3(1):22-23. You might be excused for not recognizing the clump on the right, were it not for the others on the same substrate and for the obvious apple-seed sclerotium. Possibly the swelling is related to active growth just at the time of the rain a few hours earlier. The substrate is *Hydnellum scrobiculatum*, so this is a generalist rotting various mushroom species.

The Bishop's Sketchbook



Ed. comment: Tiny *Stenocybe pullatula*, rarely the object of a photo, is usually discovered on pictures taken for other reasons. Top is the out-of-focal-range edge of a photo of the pyrenomycete *Hypoxylon fuscum*.. Second photo down shows it with *Merismodes fasciculata,* growing on a dead pyrenomycete. On both photos *S. pullatula* is also growing on dead pyrenomycete. Third and fourth down are two photos with the pyrenomycete *Melanconis marginalis*. The last: finally a photo of *S. pullatula* in focus, but by accident, not design. The intimate association with pyrenomycetes could be coincidental; I suspect it is not fortuitous, just not documented or studied.

Letter from the alderbush

Tõnu Naelapea

Allow me to introduce myself. I am a small organism, under 2 mm tall, or you would see me more often on your rambles in almost untouched wilderness. My name is *Stenocybe pullatula*, granted to me by scientists well versed in Greek and Latin. Wish they were equally well versed in taxonomy! They call me a lichen. They define lichens as fungi incorporating algae, cyanobacteria, or both within their structure. Scientists confirm that I do not incorporate algae or cyanobacteria and am quite content totally independent of them. So, they say I'm a nonlichenized lichen!!! A curious organism am I.

I am a narrow-headed and sometimes stubborn saprophyte (so some of them think), feeding—or at least living—on *Alnus*. I can be found on decaying alder branches, and it has been observed that I also enjoy moist locations. I proliferate in Europe and Asia, and in North America home is hard to define: Michigan, Maine, and Ontario are equally pleasant residences. As are the Eastern Seaboard, British Columbia, and believe it or not, at altitudes in Arizona and Southern California. I love temperate and cool mixed deciduous forests, bringing my own form of ecological balance to these places, where everyone has a significant ecological role.

As an environmental barometer my presence is significant. Where the air is polluted, I wither, find it hard to grow. Where I thrive, however, I serve as an indicator that the ecological balance that we hope to have in this world is functioning.

I'm not one to boast, or advance a personal agenda. However, if you study the accompanying photographs, I think that you, dear sentient reader, will acknowledge not only my beauty but also my fortitude, my desire to survive in our changing world. If I am not around, chances are that *Homo sapiens* won't be around for much longer, either. Looks like we're in this together, old bean!

Yours truly,

Stenocybe pullatula

Everything rots.

That is the message of this issue. Indeed, Hamlet's observation about the state of Denmark is equally true outside: entropy rules everywhere. Predictably, man, in his wisdom, set out to make unrottable wood. Imbue it with toxins that kill any organism attempting a bite. Hence our pressure treated wood, now banned in many places for environmental reasons.

One place it is not banned is the dining table of *Gloeophyllum sepiarium*. This is an amazing fungus. It can withstand dry spells that would kill most living organisms. It can tolerate constant exposure to sun and extreme cold winters. It grows well on the charred remains after forest fires. And, yes, it loves to eat treated wood. When planks in your bridge (porch) give way, think *G. sepairium*. When outdoor benches made of treated wood crumble, think *G. sepiarium*. When parts of treated wood boardwalks rot, again think *G. sepiarium*.

G. sepiarium causes brown rot of softwood: it eats the cellulose, leaving behind the crumbly

brown lignin. By the time you see a fruiting body, the fungus is well established in the wood and that board is toast. Replace it now, or wait for someone to fall through it and replace it then, while discussing finer points of defense with your lawyer.

This good looking and colourful polypore graces the sides of logs, posts, boards, fences, telephone poles and wooden structures with a half-round or elongated thin brackets. The middle is usually dark brown, with bands of varying rusty tones spreading outwards. There is almost always orange in at least one outer band, and the very edge is yellow to nearly white in periods of active growth. The bands of the top surface are hairy. On the very top of a log it may be perfectly round, a beautiful sight. Unless the log is part of your house, of course. The identifying feature of this species it the sporulating surface, which is not made up of pores, but of long thin wavy gills with ragged edges.

Illustrations

Title banner: Treated wood bench in Barachois Provincial Park. Gloeophyllum sepiarium *fruiting on broken plank. Note evidence of obvious cubical brown rot.*

Centre column: Treated wood boardwalk in Barachois Provincial Park. Again a plank with cubical brown rot with G. sepiarium *fruiting on it.*

This mushroom is very common in all parts of our province: in ten years of forays, we have recorded it every year. We have not recorded any other species of the genus., although there could be as many as three, of which I thought at least one, *Gloeophyllum protractum*, should grow here.

Indeed, a few weeks back I was fortunate to attend the first mushroom foray ever in Goose Bay, and collected several specimens there. A week back we went to scout out foray possibilities in Fogo, and again collected some specimens. *G. protractum* differs from *G. sepiarium* both on top and bottom. On top, the bracket is smooth, not hairy, and yellow-brown in colour without red-orange tones. On the bottom it has pores, not gills. In behaviour the two are similar.

Did I say, "first mushroom foray ever in Goose Bay"? Yes, and you will read more of it in time on the pages of OMPHALINA. Did you also read about a foray in Fogo? Again a yes. Your executive is working hard with the Shorefast Foundation on plans to hold our 2013 foray there. As things evolve, you shall hear more of this, too, on the pages of OMPHALINA. So keep reading.

Illustrations on left

Round (top) and bracket (middle) shapes of G. Sepiarium. *Note gill pattern on underside.*

Bottom: pored underside of Gloeophyllum protractum.

All photos by Maria Voitk, except Michael Burzynski's T-shirt photo. Did I say T-shirt? Yes, even those are in the offing (probably not this design). You read it here first.

OUR PARTNER ORGANIZATIONS

People of Newfoundland and Labrador, through

- Department of Environment and Conservation
  - Parks and Natural Areas Division
  - Wildlife Division
- Department of Natural Resources
  - Center for Forest Science and Innovation

People of Canada, through

- Parks Canada
  - Terra Nova National Park
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Tuckamore Lodge

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Shorefast Foundation

FORAY NEWFOUNDLAND AND LABRADOR

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Headquarters: *Terra Nova Hospitality Home*

September 28-30, 2012

NB: For those able to make it, the Foray starts with a

MYCOBLITZ *of*

LOCKSTON PATH PROVINCIAL PARK

MAP INSIDE. DEPARTS ADMINISTRATION BLDG (SEE PICTURE) 12:00 NOON, SHARP, FRI, SEP 28, 2012.

That was not the mighty ocean, but a small inland pond whipped up by Hurricane Igor. So, if there's a hurricane, wear boots. For inside, of course.

BRING YOUR OWN LUNCH, AS THERE IS NO STORE NEARBY. IF YOU CAN'T MAKE IT, SEE YOU AT THE TN HOSPITALITY HOME FOR THE RECEPTION!

For more information, see our website:
<www.nlmushrooms.ca>

Photo: Lewis Best