OMPHALINA

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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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Please address comments, complaints and contributions to Andrus Voitk, self-appointed Editor:

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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.

***Webpage:* www.nlmushrooms.ca**

The Editor eagerly invites contributions to OMPHALINA*, dealing with any aspect even remotely related to mushrooms. Authors are guaranteed instant fame—fortune to follow. Authors retain copyright to published material, and submission indicates permission to publish, subject to the usual editorial decisions. Issues are freely available to the public on the FNL website. Because content is protected by copyright, editors of other publications wishing to use any material, should ask first.*

COVER

Bog Rosemary, by Judith Blakeley, from the Wildflower Society of Newfoundland and Labrador's Christmas Slide Show.

The delicate pink-mauve colour is given the leaves by the rust fungus *Exobasidium karstenii*. As Judith's picture shows, the leaves are swollen and widened. Stems also get deformed, not unlike the blueberry witch's broom caused by the rust *Pucciniastrum goeppertianum*, which grows on several species of *Vaccinia*. *P. goeppertianum* is quite democratic, whereas many rusts are so particular about their hosts that species can be identified by the host. You'll note on Judith's picture that bog rosemary, as so often is the case, cohabits with leatherleaf. Exactly the same colour rust on the leaves of leatherleaf is caused by *Exobasidium savilei*.

No doubt you noticed that all of these are named for somebody: Petter Adolf Karsten (a very big name in Finnish and European mycology, 1834-1917), Johann Heinrich Robert Göppert (German doctor, botanist, palaeontologist, 1800-1884), Douglas Barton Osborne Savile (Canadian mycologist, 1909-2000). If you think that this exposition was cleverly dragged out in a jingoistic effort to include a Canadian, albeit born in Ireland, into the story, think again. The wider view was provided in the public interest to divulge one secret of longevity: have a mushroom named after you. The average age of these gentlemen is 86, increasing as we near the here and now. Therefore, get one named after you now and breaking 100 is a fair bet. Add green and chaga tea, a good diet, some outings in the woods, nuts and blueberries, and lots of red wine, and you may land a contract with the good people of Eveready, giving the incumbent lagomorph a run for his money.

CONTENTS

Oh, yeah, this time we numbered the pages.

Message from the Editor

Welcome to 2011, the International Year of Forests and Chemistry!

Fungi are the backbone of the forest. Through mycorrhizal activity, they contribute to the growth of trees (those are those pesky things that often obscure a good view of the forest). Without mycorrhizal mushrooms there would be no forest, so celebrating forests is really just another way of celebrating mushrooms. As saprobes they decompose organic matter, returning the Carbon building blocks back to the system to build more trees, thus more forests. Mushrooms drive the Carbon cycle, which is no doubt why C, the symbol for Carbon, was selected as the Chemistry year logo. The atomic weight of Carbon is 12.011, not 2011. The UN logo has a typo.

Winter is finally here: mycelia lie dormant, resting up for next spring and a new flurry of activity, culminating in a new mushroom crop. During thaws there is a lot of activity among the cold-tolerant wood rotters, so collecting need not stop in the winter. Here on the west coast, Henry Mann is already making plans for a Winter Foray along the trails of Pasadena Ski Club in March. More of that in our next issue.

The purpose of this early winter issue of OMPHALINA is purely to draw your attention to a pleasant winter mushrooming activity, the collection of chaga, so that you can enjoy it this winter. In 2006 we organized a Chaga Foray and people are still asking when we plan the next one. Now that it is all down on paper—you organize one and invite us instead!

Declaration of conflict We have used chaga regularly for the better part of a decade. **CHAGA ON THE ROCK** is a venture to harvest, prepare and sell chaga, set up by our son and grandson. We refer to the budding business in the article to make you aware of a local resource, should you not wish to harvest and process your own. Not to promote the family business. Not at all. My Heavens, that would be unethical! To our knowledge **CHAGA ON THE ROCK** is the only such enterprise in the province. Mark Wilson in St. John's used to harvest and sell chaga, but is now busy singing with the Idlers instead. You can find many other sources on the internet. Not all claims there rest on known factual basis. Reliable information can be found in Greg Marley's book, another resource mentioned in the article. Although Greg will give hands-on workshops at our **Forest Foray**, ethics also forbid us to promote his book in return.

Judith Blakeley's picture of *Exobasidium karstenii* in the Wildflower Society's Christmas Slide Show gave us an opportunity to make public the nefarious ways some rusts make a living. We add pictures of some other rusts found in our province. This should give a small insight into the diversity of the fungal kingdom and its chemical activity in our forests. The Wildflower Society's Christmas Slide Show is gorgeous, alone well worth the huge $10.00 membership fee. The Society's 2011 Field Trip is planned in the Terra Nova area, where we plan our **Forest Foray**, so we hope to join in and see what mushrooms we can collect in the same region a month or so earlier. The Wildflower crowd is quite liberal, democratic and tolerant, and has put up with our mushroom bent, even pointing some out to us during past outings.

Jim Cornish's article on *Amanita muscaria* proved quite a hit, as expected. You'll be happy to see that Jim has returned with the first of "My favourite mushroom" series. Consider joining him and sending in a description of your favourite. Judging by the mail, the recipes were very popular! We have heard from several correspondents, some not even members, that they have made the pies to great effect. Two more recipes appear in this issue. Although this is such a popular feature, it will only appear if we have contributions. Please send in whatever recipes you have liked. Do not worry about putting it down in any formal way. Maria will be glad to work with you to get it the way you like it.

winter
Happy/\ mushrooming!

andrus

CHAGA

Of mushrooms readily available in Newfoundland and Labrador, *Inonotus obliquus* probably has the greatest potential to become a successful commercial product used to promote "natural" health and well-being.

Andrus Voitk

When my grandmother told me to eat blueberries "because they are good for you", it made no sense. I was in perfect health, so how could anything make me better than perfect? But she meant that I should eat uncontaminated natural foods and adopt a lifestyle that included time in the woods foraging for them. Modern medicine affirms Grandmother's teachings: such lifestyle is "good for you" because it increases your resistance to, or even prevents, illness. This illustrates the distinction between therapeutic and prophylactic medicine. The former, "standard medicine", is interventional to counteract established disease, a transient inconvenience. Usually such treatment carries risk and is unpleasant. The latter is preventional to keep illness away, a permanent way of living, usually pleasant, with no or low risk. The greatest promise of folk medicine is as a low risk and pleasant aid to your defenses.

Recent scientific evaluation has isolated active compounds to explain the benefits claimed for many folk remedies. As a result, an increasing number are becoming incorporated into Western evidence-based medicine. For example, most health care practitioners now advocate using green tea, blueberry juice and other natural products because of their high antioxidant content. Scientific investigation of fungi has identified useful compounds in hundreds of species. At the present, about two dozen mushroom species used in traditional medicine of various cultures have been identified as potentially beneficial and are undergoing closer scientific scrutiny. Of these, around half a dozen seem to confer more benefits than the others, and consequently have been investigated in greater detail. Two of these are common in our province, *Trametes versicolor* and *Inonotus obliquus*. We shall describe *Trametes versicolor* in our next issue.

I. obliquus is a slow-growing parasite of birch, and occasionally other hardwoods. It fruits only once, but the organism grows in its host for years, slowly causing white heart rot that kills its host in 10 or more years. Its mycelia form lumps, some of which break through the bark, causing cankers like the one pictured in the title banner. They grow about 2-3 cm in diameter per year, but may disappear, leaving unsightly wounds.

In Siberia, such cankers were used for a tea called chaga. Because a low cancer incidence was noted in chaga drinkers, it was thought to possess antitumour activity. This was popularized by the Nobel Prize winning dissident Soviet novelist, Aleksandr Solzhenitsyn in his book **CANCER WARD**—a novel drawn from the author's personal experience with cancer, where the protagonist credits his recovery to chaga.

The fungus has been found to contain several potentially beneficial compounds. Some have very strong antioxidant property. In pictorial terms, such compounds prevent cancer by "turning off" biochemical changes that otherwise might lead to cancer development. Other compounds enhance the immune system, strengthening the body's own mechanism to search and destroy altered cells that could lead to cancer. In addition to such prophylactic action,

Chaga's only significant lookalike is a birch burl. Chaga (upper three pictures) is black, spilling out of the wood, cracked. It extends into the wood, breaks off when chopped, and has a brown and yellow interior, seen on the back of removed segments. The burl (lower three pictures) is a black to dark brown growth of the tree, with many small twigs or buds arising from it. It is part of the tree, hard if chopped, and if removed, the back reveals normal wood on the inside, with knots from dormant buds. Large burls are prized as decorative wood.

chaga also contains carcinocidal compounds that kill existing cancer cells, either directly, or by facilitating the body's defences to kill them. As if that were not enough, compounds found in chaga are known to fight infection and produce other beneficial effects. Most of these claims are made because 1) compounds known to have such effects have been identified in chaga, and 2) the effect of chaga has been confirmed with tests on mice or cultures of human malignant cells. To my knowledge chaga has not been used in randomized double-blind cross-over human clinical studies, the gold standard of Western evidence-based medicine. However, while we await such studies, with so much preliminary evidence to back up the effectiveness of chaga, and no reported untoward side-effects, adopting it in our daily lives seems prudent. Extracts of *I. obliquus* are approved in Russia for cancer treatment.

Many characteristics make chaga an appealing product to harvest. It is easy to recognize, difficult to confuse with anything and has no obvious toxic lookalikes. Only small burls on birch (solid wood) and some decayed old conks resemble chaga, and close examination will immediately reveal the error. It is reasonably common. We have many large birch forests in Newfoundland, where *I. obliquus* can be found. As opposed to other conks, that have to be collected at specific times, chaga has a good concentration of its active ingredients throughout the year, making it particularly attractive for winter harvesting. Collecting chaga from birch cut for firewood could become a sideline more lucrative than selling the firewood. Preparation is easy for personal use and can be done commercially to any level of sophistication, from raw cankers to powder to tinctures. The following is a description of how **Chaga on the Rock** harvests and prepares it.

Collection. Chaga is hard, covered by a black charred-looking but tough layer, often cracked and fissured. Beneath this is a softer brown mass streaked with yellow lines. Arising from the heartwood, yellowish brown material extends well inside the host tree. A small hatchet or mallet and chisel are required to harvest the canker completely. One advantage of winter harvesting is maximal retrieval because scattered chips are easily visible on the snow. The wound need not be regretted—it does not remove viable tree, but only part of the parasite's energy storage. Chaga should not be collected from hardwood other than birch, because many beneficial compounds are only found in *I. obliquus* growing on birch.

Breaking. Inspect all material and remove debris such as wood chips and birch bark. Traditional usage discarded the black covering, but because it has been shown to contain beneficial compounds, process all fungal material. Although chunks the size of sugar cubes can be used to brew, a finer grind allows shorter steeping time and maximal extraction of beneficial compounds. The first breaking is done manually by pounding, chopping, chiselling or sawing (save the sawdust) it into manageable pieces. These can then be broken down in an old manual meat grinder. Chaga is so hard that will burn out the motor of most domestic food processors.

Drying. Dry it either before or after grinding by leaving it exposed or on screens, or by using a food dehydrator. Fresh material is easier to break, and dry material easier to pulverize. Dry powder can be stored indefinitely in clean jars. Sterilization of the jar or precautions in handling it are not required.

Use. PLEASE NOTE: chaga contains a platelet inhibitor and a hypoglycemic agent. No drug interaction or untoward effects of either have been reported, but in theory chaga could potentiate the effect of anticoagulants and hypoglycemics. If you take warfarin or other anticoagulants, or insulin or oral hypoglycemic agents, first discuss using chaga with your doctor. You may need temporary increased monitoring and adjustment of your medication dose.

Unlike interventional medicine, chaga does not taste bad: even concentrated, what taste it has is pleasant. Available directions for use vary widely. Because most of its beneficial compounds are water soluble and heat stable, steeping ground powder like tea should get most benefit with least fuss. Put 1 tsp. powdered chaga per mug into a teapot. Add required

For more on this and other medicinal mushrooms, read **Mushrooms for health** by Greg Marley (reviewed in FUNGI). It is brief, inexpensive, informative and simple. Unlike many health food gurus, Greg avoids voodoo medicine and hyperbolic snake oil enthusiasm. He limits the discussion to species for which reasonable scientific evidence exists, presented objectively. His instructions are easy to follow.

Greg will conduct Medicinal Mushroom workshops at our 2011 Foray.

1a. Chop and collect chaga.

1b. Use chisel to remove deep parts without injury to tree.

2. Dry—expose to air or use food dehydrator. Remove debris.

3. Break up, then grind into powder; store dry.

4. Finished product.

amount of boiling water and let steep for 10 minutes. A tea sieve will trap most of the residue. If the fine powder bothers you, use a coffee filter. Enjoy a mug of chaga 2-4 times a day. Because it has little taste of its own, it can be added to coffee, green or ordinary tea without significantly altering the taste of the original drink. Or soups, stews and sauces.

Commercial considerations. It is possible to sell chaga in raw chunks, but making dry powder is simple and the powdered form is practical for the end user. A few of its beneficial compounds are not water-soluble and require alcohol extraction. This process is a bit more involved and many amateurs will be content to stop at making tea. For a commercial producer, making a tincture containing both the alcohol and water soluble portions should not be overly complex, and adds real value to the product, justifying the significant additional cost.

Maria, enjoying a rejuvenating mug of chaga.

If you wish to drink chaga, but do not want to make your own, you can order the powder from
Chaga on the Rock
chagaontherock@bellaliant.net
www.wix.com/chagaontherock/chaga

Even if chaga were not healthy, a foray for chaga is—suitable for families, dogs and children, friends and organizations—a particularly fine outing if you have a pet beaver. Here some participants of the Humber Natural History Society's 2006 Chaga Foray stop for a chaga boil-up. Photo credit: I cannot remember who, but thank you!

The empty skillet

Maria Voitk

Linda and Umberto Pascali, members of the Mycological Society of Toronto and FNL, here offer us two ways to preserve mushrooms: pickling in spirits and pickling in oil.

Most recipes for Chanterelle Vodka concentrate on the flavour of the resulting golden drink without mentioning what to do with the chanterelles. Fortunately, Umberto mentions both, but omits photo of vodka bottle...

As well, we are very fond of Linda's Pickling in Oil recipe, where all three ingredients are important—oil, spices and mushrooms. Be daring and also experiment with different oils, spices and different mushrooms. Bear in mind, that the consistency of the mushroom is a major taste component in this recipe. Because we have not found *Grifola frondosa* in NL (probably because we lack the oak it likes to grow on), we suggest *Hydnum repandum*, which approximates the same consistency. Or try the aromatic *Catathelasma ventricosa* or *Tricholoma matsutake* (pine mushroom). Even morels are worth a try. Note that Linda has also used *Armillaria* and *Hypsizygus*. Both can be found in Newfoundland and Labrador. We have not tried them in oil, but suspect they would be delectable.

CHANTERELLE VODKA

UMBERTO PASCALI

INGREDIENTS

vodka*	* the amount is dependent upon the amount of mushrooms and imbibitions...
chanterelles	

PROCEDURE

Select only small, perfect, fresh chanterelles. Clean. Either spin dry in salad dryer, or pat dry with soft tea towel, if washed with water. Allow to stand exposed to air for a day to dry, but not so long as to shrivel or deform the mushrooms.

Fill a Mason jar almost full of chanterelles, add NL Iceberg Vodka up to the brim. Keep the empty vodka bottle handy for later use.

Set chanterelle jar aside in a cool place. Chanterelles will rise to the top. Over 1-2 weeks all chanterelles will have settled on the bottom, indicating that they are pickled and ready for use.

Use a slotted spoon to retrieve the chanterelles from the jar. Sprinkle them in green salads for colour and as a delightful surprise for the unsuspecting palate. Don't overdo it! Or use as condiments on the olive tray or to replace the olive in a (chanterelle) vodka martini. You can also use the chanterelles in all your cooking (but the alcohol will then dissipate).

Using a funnel, pour the vodka from the now-empty mason jar back into the original bottle: use a fresh coffee filter if vodka is cloudy or contains mushroom bits. Keep the bottle in the freezer; serve this chanterelle vodka in small shot glasses as an aperitif.

Hedgehogs in Oil

Linda Pascali

Linda and Umberto Pascali with *Grifola frondosa* (hen of the woods).

Hydnum repandum (hedgehog mushroom), a common fall mushroom. Note teeth under large cap (8-20 cm diam.). Colour varies from tan-orange-beige-cream. This mushroom is more brittle than the pliable *G. frondosa*, but after cooking, has almost the same consistency.

INGREDIENTS

hedgehogs*
white vinegar, water
sunflower oil
salt, pepper
garlic cloves, thyme, oregano, parsley
"sterile" jars
sweet and hot peppers

* the amount of mushrooms determines the amount of other ingredients

PROCEDURE

Clean mushrooms, cut into suitable pieces. Slice or/and chop peppers—if small, use whole.

Bring a 50/50 mixture of white vinegar/water to a boil. Add mushrooms. Boil for 3 minutes. Drain well in colander, let cool a bit.

In a bowl, put oil, cloves of garlic, thyme, oregano, parsley, black pepper, sliced sweet red peppers, and hot peppers sliced or whole, depending how hot you want it, then salt to taste. Add drained mushrooms, and mix well.

Fill mason jars, add more oil to cover mushrooms.

Close jars with lids, boil for 10 minutes submerged in water to sterilize them. Provided the jars are sterilized, store in the pantry as the herbs suffuse better at room temperature than under refrigeration. Once the jar is opened, store in refrigerator.

Serve as a condiment, on toast, as an interesting flavour in winter salads, or as an eat and go snack.

Delicious!

Linda's wonderful *Armillaria*, *Grifola*, and *Hypsizygus*

WITCH'S BROOMS

Unexpected windows into life and religion

Andrus Voitk

Figure 1. Large witch's broom in balsam fir. Serpentine Lake.

Trees are so beautiful—ordered symmetry, round, branches evenly spaced, tapered and divided, reaching toward the sky—they look so perfect! Their perfection is in their simplicity and, as with all simple things, the underlying mechanism is very complicated. They make it look so easy because they've had millions of years to practice. Plants can detect the direction of light and control their growth toward it through a process called photomorphogenesis. This complicated mechanism involves genetic material (DNA, RNA), light-sensitive hormones (phytohormones with light sensitive chemicals like flavins and carotenoids), growth-directing hormones (like auxins and cytokinins), other biochemical components, physical structures (like meristems and terminal buds)—all working together with orchestrated precision. The result is that each photosynthetic factory (leaf or needle, with its chlorophyll) gets maximal exposure to capture solar energy. We know this from indoor plants that grow toward the light; if we want them to be symmetrical, we must turn them manually, so that all sides get equal light.

Perfection is never appreciated, were it not for evil forces that set out to mar it, thereby reminding you of the desirability of the unattainable ideal. Therefore, we should not look at imperfection inimically, but rather embrace it, for it is this imperfection that helps us imagine and appreciate the perfect. One of these imperfections, familiar to all who wander our boreal coniferous forest, is the witch's broom, seen so frequently in our balsam firs (Figure 1). This dense, localized mass of branches growing in a chaotic and intertwined fashion, totally opposed to regular ordered growth, is caused by a parasitic fungus that thwarts its host's normal growth process by interfering with its intricate photomorphogenesis mechanism. The tree can no longer tailor growth to ambient light, resulting in random, directionless and seemingly purposeless growth.

The causative agent for the witch's broom in balsam fir is a rust, *Melamsporella caryophyllacearum*. Rusts have a very complicated life cycle, usually involving two hosts and as many as five different spore forms, some asexual and some sexual. For *M. caryophyllacearum* the other host is a chickweed, sandwort or starwort (all in the pink or carnation family, Caryophyllaceae, explaining its species name). Basidiospores are carried by wind from chickweed to infect balsam fir. They germinate and produce pycnia, small orange dots on the upper surface of the needles that release pycniospores. Mycelial growth interferes with localized photomorphogenesis, causing broom development with discoloured, short and swollen needles, followed by pustules on the undersurfaces of these needles, which release thousands of yellow-orange aeciospores, carried by the wind to infect a chickweed or relative (Figure 2). Then the tree loses the involved needles, but the infection remains systemic and spreads from new needles for several years. Aeciospores that germinate on the chickweed or relative produce orange pustules releasing urediniospores, which are carried by wind to infect other chickweed. The infection is systemic and can last in this host for years. Thickwalled teleutospores (interchangably known as teliospores) overwinter on the

Figure 2. Melamsporella caryophyllacearum. *Broom, orange pustules, shedding yellow-orange aeciospores. L'Anse aux Meadows.*

chickweed and develop to release basidiospores in the spring to start the cycle anew.

Several other rusts use balsam fir as a host, albeit without producing witch's brooms in the fir. Most of these parasites actually do not cause excessive damage to forest, tree, or alternate host, probably partly because of their complicated life cycle. However, the broom makers have discovered a very dangerous mechanism that theoretically could threaten all life on Earth. All life depends on the sun's energy; to get it there is a simple system (again, with very complicated mechanics) of producers (plants), consumers (animals) and decomposers (mushrooms). Plants gather the sun's energy to grow, animals get the energy by eating plants, and when plants and animals die mushrooms get the energy by breaking them down, at the same time restoring the building blocks to the system, so that new plants can be formed.

Plants cannot go to the sun directly, for they do not know the way. Were they able to get there, they would be burned to a crisp by the overwhelming energy. So, they have developed a mechanism to capture this energy in a safe way: the mediator to this process is photomorphogenesis with its many components. Interfere with the plants' ability to capture light and you threaten all life.

What has all of this to do with religion, specifically Christianity? Many religions believe in a deity and that individuals have an eternal soul, directly linked to the spirit of the deity. Judeo-Christian religion considers the deity omnipotent and omniscient, a condition that has eluded individuals, who have to make do with, "God works in a mysterious way". Thus, the individual is unable to approach the Creator directly and needs a mediator to get the spiritual energy to feed the soul. In Christian religion Jesus Christ is the go-between for man and his maker. The Son of God, Jesus can fathom the infinite wisdom of God, and, because He is also a man, He can interact with sinful man at his level. The last member of the Holy Trinity (the Holy Ghost), as well as prayer and revelations —all contribute to a spiritual conduit between man's soul and the spirit of God. In simple terms, Jesus Christ, the Holy Ghost, prayer and revelations provide the modulating mechanism by which the spirit of man derives its power from God, without getting overloaded from direct contact.

In Christianity this mechanism, whereby man can get the needed spiritual energy from God without coming to harm, is as important to the concept of a personal, yet all-powerful god, as the mechanism for plants to get their energy from the sun without being burned is in the life sciences. The physiology of *Melamsporella caryophyllacearum*, transposed to Christianity, would be the equivalent of "the work of the devil" (Michael Newton, pers. comm.). The next time you see a witch's broom, you will think of these organisms and their fascinating life cycles, perhaps even look for tiny sporulating structures on the underside of the balsam fir needles. You will be reminded of the importance of the sun to our survival and the parallel with religion. Thinking further, you will cease blaspheming. When a branch knocks off your hat for the third time, you will shout, "Melamsporella H. McCaryophyllacearum!" And, of course, you will be grateful for the imperfection these organisms introduce, allowing you to value the symmetry and beauty of plants all the more.

Acknowledgments

I thank Michael Newton for reviewing the manuscript, and for his witty comments, which markedly added to the pleasure of writing.

other SOME RUSTS OF NEWFOUNDLAND AND LABRADOR

Phragmidium rubi-idaei (Teleutospore photo by Michael Warnock, courtesy Wright T: *Phragmidium rubi-idaei* teliospores. *MYCELIUM* 36(3):6;2010.)

Taphrina robinsoniana

Uredinopsis pteridis

Uredinopsis americana

Chrysomyxa ledicola

AND

more

SOME RUSTS OF NEWFOUNDLAND AND LABRADOR

Pucciniastrum goeppertianum

Exobasidium vaccini

Exobasidium savilei

Gymnosporangium juniperi-virginianae
Photo: Claudia Hanel

My Favourite Mushroom: *Cortinarius armillatus*

Jim Cornish

Corts a plenty

With well over a thousand species, *Cortinarius* is the largest and most diverse genus of agaric mushrooms in the world. Some of them have never been characterized or named and many are so similar in appearance that identifying them is difficult, even for the seasoned mycologist. And since current field guides describe only a few of the more distinctive species, identifying a cort to species can be a futile task.

One cort that is both common and readily identifiable, even without a key, is *Cortinarius armillatus* (Alb.& Schwein.) Fr. It is one of my favourite mushrooms because I can so easily spot it along the trails in the woods near my Gander home.

Juvenile *Cortinarius armillatus*. Note last remnants of the cortina, above, and club-like stem, below.

Nomenclature

The genus *Cortinarius* gets it name from the Latin "cortina", meaning "veil", a reference to the cobweb-like fibres of the ephemeral veil, whose fibres stretch from the cap margin to the stalk in juvenile specimens, but are usually absent in older ones.

In *C. armillatus* some of these fibres stick to the stem and form two to four reddish-brown bands. The species name armillatus, is derived from the Latin, meaning "wearing bracelets". These telltale bands also give this mushroom its common names: red-banded or bracelet cortinarius.

Appearance

A juvenile *C. amillatus* has an umbrella shaped, dry, smooth and rusty brown cap measuring between 4 to 15 cm in diameter. As the mushroom matures, the cap becomes broadly convex, slightly paler in colour and is often covered with fibrous scales. The gills are attached, broad, distant and shallowly sinuate (marked by a curve or smoothly rounded bend). Yellow brown in juveniles, the gills become dark when covered in the rust brown spores. The stipe, is from 7-15 cm long and tapered upwards, giving it a club-like shape.

Young *C. armillatus*, above and below. If the weather is alternately dry and wet, mature old ones split radially and develop scales concentrically. Note that slugs like them at any age.

Habitat and Distribution

C. armillatus is a terrestrial mushroom and grows alone, scattered or in small groups in moist acidic soils. Being mycorrhizal, it is associated with birch and is common in mixed forests and in coniferous forest with some birch trees. *C. armillatus* appears in late summer and fall.

Use and Toxicity

C. armillatus is among the small number of corts considered edible. However, like most corts, it contains anthraquinones, compounds that produce colour, but are all toxic to some degree. Therefore, these mushrooms should not be eaten. Another good reason to avoid them as food is the possibility of confusion with the lethally toxic C. rubellus. However, their anthraquinones make corts useful sources for wool and fabric dye. C. armillatus is not overly spectacular in this regard, but does produce pleasing, if subdued beige tones.

Newfoundland Corts

Corts abound in Newfoundland. Faye Murrin, Newfoundland and Labrador Foray member and Memorial University mycologist, has adapted a key based on thirty or so species she collected at Terra Nova Park to help with identification. It is available online at http://philos.biol.mun.ca/fungalkey/?p=keycort . Each species is linked to photographs that clearly show the mushrooms' distinct features as well as a map that shows the collection sites in the park. About the same number are depicted and briefly described in *A Little Illustrated Book of Common Mushrooms of Newfoundland and Labrador*, by our esteemed Editor.

THE MAIL BAG

OR WHY THE PASSENGER PIGEONS ASSIGNED TO SERVE THE LAVISH CORPORATE AND EDITORIAL OFFICES OF OMPHALINA GET HERNIAS

RESPONSE TO CHRISTMAS ISSUE

Number of letters and what was appreciated

Total letters	10
General kudos	8
Recipes	6
X-mas mushroom article	3
Cover	1
Phrench article	1

Spontaneous and unsolicited letters are significant. Ten may not seem much, but when your circulation is only 63, even one letter is much. Thank you. We enjoy it while it lasts, because we know, once the novelty wears off…

… yesterday, we had a huge xmas feast here … of especial note was the Newfoundland "Goat and Honey Poke." Yes! I did use your recipe (though substituted frozen chanterelles). Besides our usual 42 lb turkey, grown with love right here on our farm, I dare say the Poke was the biggest hit!

… we had a great dinner and it was in part due to the wonderful mushroom and goat cheese tart, thanks so much for the recipe and to Tiina...a great job with instructions and modeling the finished product.

Best wishes, stay warm and happy new year!

Britt and family

The bear (one of the **KONRAD BROOK SIX**, from last issue: Ed.) seems at ease with the crew of mushroom forayers. Maybe he was thinking ahead to sauteed mushrooms and leg-o-forayer.

Joe Brazil

Just wanted to thank you again for this years foray and wish you happy holidays!

During our stay in Newfoundland I did not have a chance to thank the person who gave a baby doll to Aava. Please pass my thanks to her with the photograph attached :)

Tuula

LICHENS added this year!

FORAY NEWFOUNDLAND AND LABRADOR

2011 2011 2011 2011 2011 2011 2011 2011 2011 2011 2011 2011 2011 2011 2011

Terra Nova National Park

Headquarters: *Terra Nova Hospitality Home*

September 9-11, 2011

GUEST FACULTY*

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*tentative at time of publication

Please check our website in the Spring, 2011, for Information & Registration Forms:

<www.nlmushrooms.ca>