OMPHALINA

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Newsletter of FORAY NEWFOUNDLAND AND LABRADOR

Vol. IV, No 1
Jan. 13, 2013

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.*

Issues of OMPHALINA *are archived in:*

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COVER

Biscogniauxia repanda, photographed 28 March, 2010, in the lower Humber Valley, on *Sorbus*. The lead article describes the mushroom and the men behind making it the wildly popular cult icon that it is to-day. *Apiosporum morbusum*, black knot, is our best known pyrenomycete, but this one surely is our most dramatic one. The second article introduces you to 11 others of its ilk. Many of them are at their peak and sporulate in late winter or early spring, so that soon you will have an opportunity to test your pyrenomycete identification prowess.

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CONTENT

Message from the Editor

Happy new year!

Here we are, at the beginning of Volume IV. Last year was an experiment with one-issue-per-month publication rate, to see if it could be done. It can. Although rewarding for the Editor, it is a bit taxing for an old man—and probably insurmountably so for anyone younger. This Editor's promise: it won't happen again on my watch! This issue would not come out in January, had not lot of work accumulated over the year. Some of it has been moved from originally intended issues to make room for themes (rot, Halloween, etc), and some has awaited special projects that stalled short of fruition. It is not fair to the authors to keep shelving their material—hence this issue now.

What about subsequent issues? They will appear two ways:

1. Whenever a need to communicate information about the foray or other matters to members and participants arises.
2. Whenever contributions pile up, generating a pressure that demands release.

Hence, if you want frequent publications, keep the contributions coming! Past year demonstrated that anybody can write a quality article, if so inclined. We featured excellent articles by authors who stated from the outset that they are not writers and do not know much about mushrooms. We even had an article by a fellow, who admitted that before writing it, on a dare, he knew nothing whatsoever about fungi. Again, it can be done. Pick a mushroom that strikes your imagination and share the experience with others.

It has been a pleasure to note that after a while an increasing number of very high quality contributions from respected naturalists and mycologists flow in unsolicited. The material and the interest are there, and will continue to fuel our newsletter, if it remains active with many interesting articles (or audacious contentions!). Again, if you want the contributions of experts to continue, keep the fire going.

Happy mushrooming!

andrus

Biscogniauxia

Dave Malloch

One of the great pleasures of mycology, or any other branch of natural history for that matter, is the discovery of great depth in what first appeared to be a shallow subject. That unremarkable little mushroom you almost stepped on turns out to have an intricate anatomy, a complex relationship with its environment and possibly a long literary history with human beings. The more you look into it the more meaningful that little mushroom becomes to you, revealing a richness you may not have imagined.

Such is the case with *Biscogniauxia reppanda*, a little fungus only recently known to occur in our area. *Biscogniauxia repanda* is found on the dead branches of living mountain ash. You will recognize it by its hard, black, cup- or disk-shaped fruiting bodies, one to two centimeters in diameter, raised slightly above the surface of the wood. A related species, *B. marginata*, also grows on mountain ash and produces smaller but similar fruiting bodies, leading it to be called "nail-head disease".

The pictures say it all. The title banner shows four fruiting bodies partially fused into a single continuous layer on a dead branch of mountain ash. Notice how the fruiting bodies extend above the branch and are fringed by a paler rim. Figure 1 is from a little closer and shows the surface marked by small circles. The fruiting bodies are actually what mycologists call stromata (sing.: stroma). The stromata are rigid hard structures bearing multiple bottle-shaped receptacles called perithecia, which in turn bear asci and ascospores. Each of these structures is in turn smaller than the one bearing it, leading us from the easily visible stromata on the branch to the decidedly microscopic world within.

Visualizing this complexity is easier with a cross-sectional view. Figure 2 shows a branch of mountain ash cut so we can see its interior. The most conspicuous feature is the division of the wood into a light central portion and a marginal grayish portion, separated by a black line. The fungus producing the stromata lives outside the circle, gradually digesting the wood. The black circle is a sort of impervious stromatic line that defines the edges of the fungus's territory, helping to control water content and keep other fungi out. Microscopic examination of this branch reveals fungal hyphae, mostly those of *B. repanda*,

Figure 1. Photo: Andrus Voitk


Figure 2.

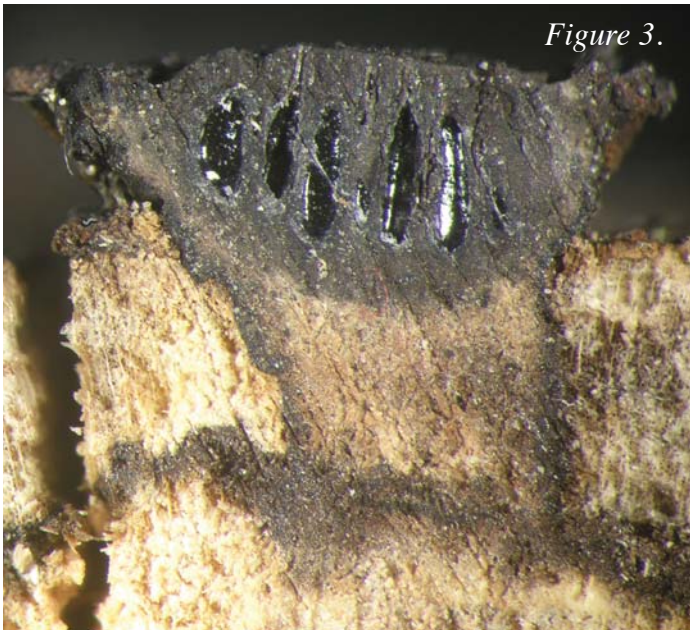


Figure 3.

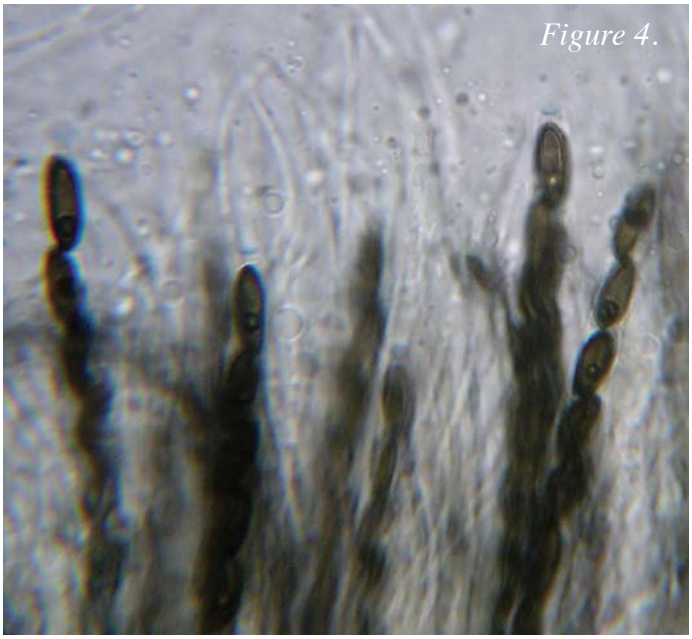


Figure 4.

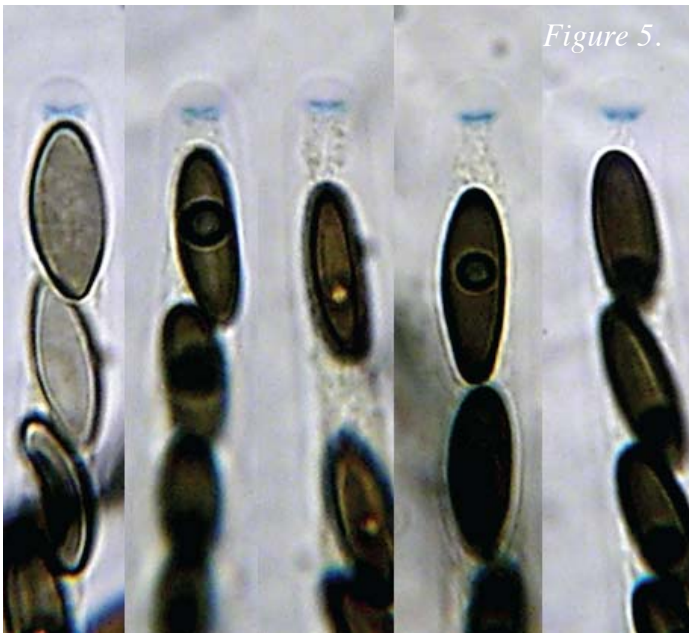


Figure 5.

growing throughout the outer layers. *B. repanda*, in common with many members of its family, is more tolerant of dry conditions than most other fungi. This drought-resistance probably serves it well in the extremely dry conditions prevailing in dead branches above the snowline.

Near the top of the cross section you can see a small blackish body extending out to the surface. This is the stroma bearing the perithecia, seen in detail in Figure 3. First of all, ignore the diagonal lines in the stroma; these are the marks left by the saw used to cut the section. Notice that the stroma extends up from the black ring and that it seems to be made up partly of brown wood and partly of black fungal material. This will be important to us later when we consider the related genus *Hypoxylon*. Inside the upper part of the stroma are five bottle-shaped perithecia with gooey contents. Each perithecium is connected to the surface by a long narrow neck. The necks end at the surface to form the ostioles, those little rings seen on the surface (Figure 1).

The gooey contents of the perithecia are more than just goo. This is actually a mixture of asci and sterile tissues, seen in Figure 4. The asci are cyclindrical structures, each bearing a row of eight dark brown ascospores. Parallel to the asci are dozens of narrow colourless threads called paraphyses, which mainly serve to keep the asci pointing up towards the ostiole. In a closer view (Figure 5) we see five asci, each with a blue ring at the top. This ring is a part of a mechanism allowing the ascus to swell and discharge its spores forcibly, one at a time, out through the ostiole. The blue colour, the “amyloid reaction” is not a

natural feature but appears when the asci are put in an iodine solution called Melzer's Reagent. You may also have noticed the light-coloured line along the length of the ascospores in the right side of the picture. This line is a "germ slit", an actual thin area along the spore that allows it to split open like a clam when it germinates.

So, from all this we can conclude that *B. repanda* is a fungus that colonizes dead or weakened branches of mountain ash, claiming and marking off the outside of the branch for digestion, and releasing spores by means of complex external stromata. Although this sounds quite straight-forward and simple, there are some complicating issues. From experience in the field we know that not all dead branches of mountain ash bear the fungus and that the colonized branches are often high up off the ground. We also know that branches lying on the ground soon lose *B. repanda* and become colonized by basidiomycetes. We also have good indications that although *B. repanda* can be found on branches in the late summer and fall it will only discharge its ascospores after exposure to winter conditions.

The presence of stromata in various stages of development on a single colonized limb suggests that *B. repanda* is present in the wood for extended periods of time, perhaps two years or more, and that a single colony has more than one opportunity to reproduce. The stromata appear to be formed in late summer and fall and to begin discharging spores early in the spring, continuing on for a month or two. This kind of life history is typical of many ascomycetes that can be collected in the fall but do not reach reproductive maturity until the following spring.

The host, Sorbus aucuparia
Photo: Henry Mann

Biscogniauxia repanda is just one of about 40 species of the genus *Biscogniauxia*. Most are tropical or subtropical and are not well-studied by natural historians. Most of the species that we know well, such as *B. repanda*, are restricted to the wood of particular trees. However, most of the tropical collections are reported to be just on wood, with no attempt made to identify it. On the other hand, some really are known to occur on a variety of trees, so it is difficult to make sense of the tropical species at the present time.

Six species are known from (or might be found in) eastern Canada: *B. albosticta* on hazel, *B. atropunctata* var. *atropunctata* on oak, *B. cinereolilacina* on basswood, *B. marginata* and *B. repanda* on apple and mountain ash and *B. mediterranea* var. *mediterranea* on a variety of hardwood trees (reported on birch and oak in Ontario). Boreal localities, such as most of Newfoundland and my property along the Bay of Fundy in New Brunswick, may have the first and the last three, although so far we only know *B. repanda* to be present for sure.

The genus *Biscogniauxia* is a member of the Xylariaceae, a large family that includes the familiar dead-man's fingers and cramp balls. The family is largely united in having its perithecia in stromata, in having an amyloid (blue) ascus apex and in having spores with a germ slit. The genus closest to *Biscogniauxia* is *Hypoxylon*, a much larger and widespread group. You may be familiar with *H. fuscum*, a very common colonizer of dead alder branches that also has a clear winter-to-spring reproductive cycle. The two genera differ in the nature of their stromata: while those of *Biscogniauxia* contain both tissues of the fungus and the plant, the stromata of *Hypoxylon* are purely fungal in nature and are mostly black and like brittle charcoal.

Personalities

So what of the name Biscogniauxia? How would you pronounce it and who in the world would have thought it up in the first place? At first glance none of this is obvious, but I shall attempt an explanation.

Biscogniauxia honours the Belgian botanist Alfred Cogniaux (1841-1916). Cogniaux started out as a teacher of mathematics and natural science in several small Belgian cities. He did not graduate from a university and had no formal training in botany yet rose to a position of respect in nineteenth century science equal to the best.


Alfred Cogniaux


Otto Kuntze

He worked for much of his life in the herbarium of the Belgian Botanic Garden and published a great many important papers and books in botany. In 1884 Henri Ernest Baillon, a prominent French Botanist named a new genus and species *Cogniauxia podolaena* in honour of Cogniaux. *Cogniauxia podolaena* is a west African vine in the cucumber family, a group with which Cogniaux had particular expertise. Cogniaux also had expertise in the orchid family and the German botanist Rudolf Schlechter (1872-1925), wishing to honour Cogniaux for his work is this area, described in 1913 the new orchids *Neocogniauxia hexaptera* and *N. monophylla*. The "Neo" in front of "Cogniauxia" was necessary to distinguish it from the old name.

In common with Schlechter, the eccentric and much maligned Otto Kuntze also wished to honour Cogniaux. Kuntze was a German botanist who had made a good income in the essential oils industry and who decided to travel the world and make botanical collections. When he finally published his work he decided to adhere to a slightly outmoded system of naming plants that accepted names published early in the eighteenth century. Kuntze adopted these old names, ignored by most botanists, and used them in his own publications.

He angered the botanical establishment of his time so much that he was simply excluded from their society. (How would you feel if someone changed most of your familiar mushroom names?) One of the targets of Kuntze's work was *Nummularia discreta*, a member of the Xylariaceae. Because *Nummularia* had been used by the British Botanist John Hill (1716 – 1775) for a member of the primrose family Kuntze rejected the use of it for a fungus and decided to rename the species in honour of Alfred Cogniaux. Like Schlechter, Kuntze wanted to use the name "Cogniauxia" but was compelled to modify it. In his case he decided to precede the name with "bis", meaning "a second instance". Thus *Biscogniauxia*, the second instance of *Cogniauxia*.

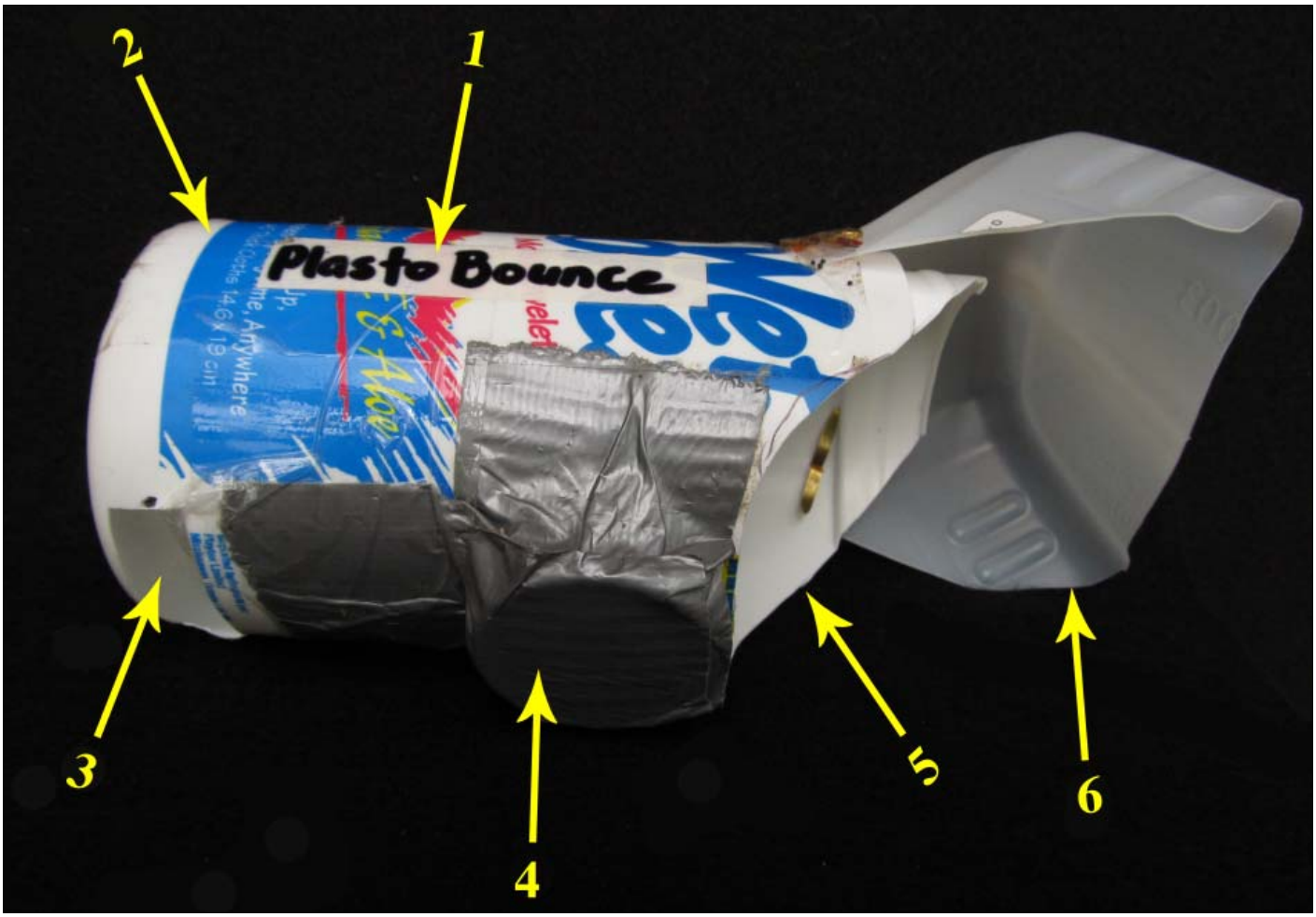
How would you pronounce Biscogniauxia? I have heard people say "Biss Cog Knee Auksia", which sounds like a home-free call in a children's game. We should probably say "Beece Cone Yozia", or, to be more Anglo-sounding "Biss Cone Yozia". But suit yourself; the subject may not come up at your next cocktail party anyway.

We could go on, but I have probably made my point. Even that humble little fungus on mountain ash can open the door to new worlds, both biological and historical.

Isn't mycology wonderful?

PlastoBounce—Son of StyroPod

Henry Mann



Brand new PlastoBounce off the production line. 1 Trade mark and copyright protected logo handcrafted by Swiss precision artisans. 2 Opaque plastic container, about as long as the focal length of the lens. 3 Slot cut to fit snugly over raised camera flash. 4 Support to keep unit essentially parallel with the lens axis. 5 End bevelled down and back at about 45°. 6 Opaque reflector taped at about 45° down from the axis of the lens.

In keeping with no cost/low cost functional photographic equipment inspired by the wildly successful StyroPod (Omphalina Vol. 2(6), 2011), I here unveil the latest innovation, PlastoBounce. Participants in the Nova Scotia/NL joint Wildflower Trip (Aug. 5–12, 2012) have seen PlastoBounce in action, resulting in a multitude of orders and several requests to publish details of its construction and use.

The concept was developed in response to a need to photograph mushrooms and wildflowers close-up in a shaded or dark woodland habitats using the cameras' small pop-up flash, i.e. without resorting to the purchase of an expensive external add-on flash. A ring flash is one type of add-on flash which mounts around the end of the cameras' lens and provides a direct unobstructed light beam directly onto the object being photographed. Originally developed for dentists to take close-up photos within the oral cavity, the ring flash produces marvellous photographs in dimly lit circumstances. So, if you can afford one of these high-priced beauties, I encourage you to go for it. However, if you do not mind eye-rolling, snickers or junk-jokes, you can get near-equivalent results with

Professionally mounted PlastoBounce unit on top of cheaper model digital camera. For some degree of uniformity in appearance, a more expensive camera is suggested. Note that unit sits reasonably stably, but is not taped on, so that it can be removed quickly if anybody comes along, to avoid embarrassment and lengthy explanations.

All pictures uncropped, unretouched, unedited, unPhotoShopped, shot with a Panasonic DMC-G1 camera, using the camera's pop-up flash, directed, diffused and reflected by a PlastoBounce unit. All shot with automatic Aperture Priority setting, f 20.0 and ISO speed 400.

your in-camera pop-up flash for next to nothing with a pair of scissor, some discarded plastic containers and some tape.

Essentially a PlastoBounce requires a white plastic container about 8 cm in diameter and about as long as the focal point in front of your cameras' lens. Cut a slot on the side at the bottom end so that it will just snuggly slide over the popped up flash. Trim away the bottom of the front end back to the front of the lens and slope it up to an overhang at the top just as long as the focal point of the lens. Attach a hood from a piece of translucent plastic container (e.g. windshield washer fluid container, etc.) so that the hood will bounce the light from your flash down at about a 45 degree angle. Voila, done! You may need to make a few minor adjustments with tape and bits and pieces so that PlastoBounce will sit roughly parallel to the lens and sit firmly on the camera, but do not tape it to the camera. It is intended to be attached and removed quickly and easily to the pop-up flash. Using aperture priority at your highest f-stop setting you will get great photos, deep colours and good depth of field in dimly lit situations. And of course, you need to play with it a bit with different camera settings and in different contexts to get maximum results.

Clavaria vermicularis *photographed in deep woods. Note good depth of field for entire cluster, nice detail, deep colour saturation. Soft appearance, with neither harsh shadows nor areas of "white wash-out" usually seen with flash and white or light subjects.*

The major difference between the results of PlastoBounce and a quality commercial ring flash can be up to $500. Another difference is that the ring flash light strikes the object directly in front eliminating any shadows, whereas the PlastoBounce light strikes at a downward angle and can throw a shadow beneath structures. This can, however, be compensated for by the angle at which the photo is taken, and can in itself be manipulated to produce some intentional interesting visual effects by the photographer.

With a little ingenuity and a bit of trial and error, a PlastoBounce can be fashioned for almost any camera with a pop-up flash, and possibly variants can be developed even for cameras with fixed flashes by curious tinkerers.

Above: Hygrocybe miniata *photographed in very dark woods. Slightly excessive light, with some shadow, but much softer than "normal" flash, and good colour saturation.*

Below: Gaultheria procumbens *photographed in deeply shaded woods. Soft reflection from shiny leaf surfaces without wash-out or harsh shadows, deep colour, good depth of field.*

12 NL pyrenomycetes
that you can identify in the field

Andrus Voitk

This article will introduce you to one dozen pyrenomycete species that you should be able to identify on sight with reasonable confidence. This is no small feat, considering that close to 99% of amateur mushroomers do not know what a pyrenomycete is, and are none the worse for it. I have been helped by Dave Malloch and Adrian Carter, who identified several collections of these fungi for me, until a pattern developed. There are so many pyrenomycetes, most macroscopically so similar that field identification may seem highly unreliable. However, because our flora is less diverse than that of gentler climes, the diversity of decay fungi is also less. The combination of host specificity and a few characteristic macroscopic features make it possible to recognize some more common ones on sight, at least in Newfoundland and Labrador; the same approach may not work elsewhere. Most pyrenomycetes have co-evolved with their hosts to a very narrow specificity. For these, the maxim, "By their host shall ye know them" works well. First, let us meet a recognizable and very common generalist, found on birch, alder, hazelnut and other hardwood.

Hypoxylon fuscum.

(Hypo = below, xylem = wood; fuscum = dark)

We have collected this very common species on dead wood, both attached to living wood and separated from it, of alder (speckled more often than mountain), birch (yellow more often than white or heart-leaved) and beaked hazelnut; elsewhere it has been reported to occur less frequently on other deciduous hosts.

The fruit bodies are readily identified by their cushion-like shape. 4-7 mm in diameter, occasionally these may coalesce to form quite large masses, more mattress than cushion. The colour varies from tan when dry, to reddish mid-brown, dark brown, to almost black, but there is almost always a hint of purple visible. A hand lens shows the surface dotted with small ostioles (mouths) of the asci (sacs filled with spores), without surrounding rings. Shallow indentations outlining each ascus are barely visible on the rather smooth surface.

Somewhat similar *Hypoxylon* species differ by more select host, size, colour, size or more distinct separation of the asci, ostiole colour, and microscopic features. Just by commonness alone, anything fitting this description has a good chance of being *H. fuscum*.

Biscogniauxia repanda

(See lead article for more detailed information and pictures)

Host exclusively mountain ash, probably all three local species, although so far we have only seen it on *S. decora*. Only on dead wood attached to the living tree.

Mountain ash, *Sorbus decora*

Black, stemless, saucer-like 1-5cm diameter fruit body with gnarled, often reflexed sides, the top studded with ostioles, growing on mountain ash (dogberry) should identify it.

Several similar species of *Biscogniauxia* are known, primarily differing in size. Because we have not seen them in our province, any such fungus on mountain ash is most likely *B. repanda*.

Eutypella sorbi

(Eu = well, typa = struck in, referring to sunken peritheca; ella = diminutive, i. e. little—or daughter of—*Eutypa*; sorbi = of mountain ash)

Host, mountain ash, as its name suggests, on dead wood attached to the living tree. There are many similar pyrenomycetes on other hardwood, making host an important factor of identification.

Black, raised fruit bodies bursting through the bark of smaller dead branches and twigs, under 1 cm diameter. Hand lens shows multiple tubes with puckered ostia on top. On cross section tubes arise from globose sacs. When fresh, these are full of a gooey spore mass. Pictures show dry specimens, long since dead. Same tree may also be host to *Biscogniauxia repanda*, so use your hand lens.

Black adherent tubes with puckered mouths, arising from globose sacs on *Sorbus* should make correct identification of the species quite likely.

Birch, *Betula* spp.

Diatrypella betulina

(Dia = through, trypella = small cluster of holes; betulina = birchy)

This is a very common pyrenomycete on all our three big birch, *Betula papyrifera*, *B. alleghaniensis* and *B. cordifolia*, usually on dead wood attached to living wood. However, like most pyrenomycetes, the hard material remains for a long time after the dead branch has broken off.

The typical appearance is that of black raised fruit bodies, under 5mm diameter, breaking through the bark. The top is relatively flat, with several small ostioles, as befits the generic name. The same branch is usually covered with small slits in the bark containing black material. Usually these are either too immature or too old to identify microscopically. Cross section shows the dark area, where the mycelium extends from the bark to the sapwood. The picture also shows some brown granules on top of the fruit body. These are *Merismodes anomala*, a very frequent seeming consumer of this species in the early spring. With some imagination, especially if there were more magnification, you can see some green in the stroma (flesh) of the fruit body at the top. Green upper stroma is a characteristic of the species, shown better on the tangentially sectioned specimen. The intimate and constant association of the slits with the mature specimens makes one suspect both are the same entity, seen at different stages. Indeed, if one sections some of the black organisms under the slits, often a small amount of green pigment is seen, suggesting the suspicion is right.

Raised entirely black fruit bodies with several small ostioles on a dead birch branch attached to live wood, usually with several slit-like lesions in the surrounding bark suggests the species and confirming green upper stroma on tangential section confirms it.

Diatrypella favacea

(favacea = honeycomb-like)

This species differs from D. betulina by having its black asci and their ostioles poke through a white stroma. Otherwise, it grows on the same dead branches of the same birch species. Although not as obvious, this species also has some yellowish green in its upper stroma. It is considerably less common. We have found no other similar species on the same hosts, so that this also seems like a reasonably confident identification.

Annulohypoxylon multiforme

(Annulo = derived from Section *Annulata* of Genus *Hypoxylon*; annulata = ringed (refers to ring around ostiole); multiforme = many-formed)

This species grows on fallen or felled dead wood of all species of birch and reportedly occasionally on other deciduous wood.

The species epithet sums up the appearance: it takes many forms. It may poke through slits of bark, as *Diatryptella*, but is much larger and the separate masses soon coalesce. Once out from under the bark, it will form large sheets of contiguous fruit body. Separate asci are readily discernible, each with a pointed nipple-like small ostiole, surrounded by a ring, not the flattish ostioles of the other birch denizens. Its shape is more rounded or pillow-like, resembling *Hypoxylon fuscum*, not a straight raised fruit body like *Diatryptella*. The colour ranges from dark brown to black.

Although in the early stages it could be confused with either *H. fuscum* or *D. betulina*, its size, shape serve to differentiate it from them. Rings around pointed ostioles, seen with a hand lens will confirm it. There are several similar *Annulohypoxylon* species, but on birch in our province we have not identified any yet, so an identification should be reasonably confident.

Diatrype stigma

(Dia = through, trype = cluster of holes; stigma = mark)

This is a commonly seen and immediately ignored fungus on the inner bark of fallen birch. Its appearance as a thick layer of dry, black, dull, cracked crust is an invitation to ignore it with nary a second glance. However, it is that same appearance that helps to identify it on sight.. *Annulohypoxylon multiforme* comes close at times, but closer examination shows that *Diatrype stigma* is flat, not bumpy, and the small ostia are not surrounded by a ring. In the pyrenomycete world, nothing quite looks like it—easily one of the most off-putting pyrenomycetes in our forest. Therefore, recognizable from afar.

Alternate-leaved dogberry, *Cornus alternifolia*

Cryptodiaporthe corni

(Cryptos = hidden, dia = through, porthein = destroy; corni = of *Cornus*)

This is a fool-proof identification! The orange colour is visible from afar. The branch is dead, but always attached to living wood. The host is only the uncommon alternate leaved dogberry, not the more common opposite-leaved one. Once you recognize the fungus, it will identify the "uncommon" shrub, and you will be convinced that it is not as uncommon as generally thought. The pustules are crowded, no more than 2mm wide, with a small ostiole appearing to burst through the bark. Do not mix up with larger pink-orange-red fruit bodies on top of bark. As with many pyrenomycetes, often it is dead and finished sporulating when you find it. However, the look is unmistakable and the host diagnostic.

Mountain alder,
Alnus viridis ssp. *crispa*

Melanconis marginata

(Melano = black, conis = conidial or asexual stage; marginata = marginated, referring to the ostia opening around the margin of the fruit body)

This is a very common pyrenomycete, limited exclusively to mountain alder. It is macro- and microscopically similar to the *Melanconis alni* of Europe, but the North American species has evolved to become genetically distinct.

The species is easy to recognize. Often the fruit bodies are copious and close together, as on the photos, making the branch look like a grate. Even if the growths are not so densely together, the look is unmistakable: black ostia around a cantral white matrix, opening to the outside through the bark of mountain alder. There are no other pyernomycetes in our province on mountain alder with the same appearance, so that identification of typical fruit bodies is fairly certain.

Strand wheat,
Leymus mollis

Claviceps purpurea

(Clavi = club, ceps = head; purpurea = of purple)

An enemy to cereal crop and livestock, reducing grain production and causing ergotism in livestock eating infected hay. Of great economic and scientific significance, but more of a curiosity than pest in our province, because most of our land is not suited for agriculture. Found in many open flowered grasses, particularly our coastal strand wheat. The black sclerotia among the wheat kernels are readily recognized.

Pin cherry,
Prunus pensylvanica

Apiosporina morbosa

(Apis = bee, sporina = spore; morbosa = diseased)

Black knot is probably the most well known pyrenomycete. So well known, in fact, that I had intended to leave it out. It is a parasite to most members of the genus *Prunus*. Once the hard mass is made around a branch, the branch dies distally. Spores are shed from it for many years, spreading to other branches. Affected branches can be cut off, but must be burned to destroy the spores. A hard black concretion around the branch, which swells (forms a gall) at the site. Eventually it crumbles and disintegrates, but by then most branches will be affected.

10% of mycophiles know what a pyrenomycete is. 5% may know one or two pyrenomycetes, without realizing they are pyrenomycetes. Less than 5% of amateur mycophiles can identify *Hypoxylon fuscum*. You, on the other hand, can now identify 12 species in our province by their macroscopic appearance alone, with over 90% likelihood of being correct. Quite an achievement. Congratulations! These fungi will not figure large on your dinnerplate. But in their own niche of dead branches of living wood, they occupy a central role. If you are curious about how things work, there is much to explore here!

My Favourite Mushroom

Jim Cornish

Craterellus tubaeformis

In the field of observation, chance favors only the prepared mind.
Louis Pasteur

Serendipity is a fancy word for chance or luck. The word was coined by Horace Walpole, an 18th century English novelist, to describe the fortuitous adventures of three fabled Persian princes who traveled to the island of Serendip, (Sri Lanka). In the tale, the princes "were always making discoveries, by accidents and sagacity, of things they were not in quest of", wrote Walpole in a 1754 letter to his friend Horace Mann. The meaning of the word serendipity has expanded to include "the pleasure of finding one thing while looking for something else", an apt description of what life is often like, even when searching for mushrooms. My most memorable serendipitous quest happened three years ago while looking for boletes on a trail I rarely walk. In the back of a clearing, I stumbled upon a troop of mushrooms I had never seen before: *Craterellus tubaeformis*, my first chanterelle!

Craterellus tubaeformis (Bull.) Quél, fruits from the end of August to frost in Newfoundlabd and Labrador, hence its common name, the winter chanterelle. Its preferred habitat is older wet coniferous forests and the rotting softwood logs and stumps found there. Look for it in older pre-commercially thinned (PCT) balsam fir forests. It is a small to medium-sized mushroom with a waxy, rough, brown cap 2-8 cm in diameter. Convex at first, its cap develops a funnel-shaped center and enrolled margins, giving the mushroom a trumpet or goblet appearance (Figure 1), hence the genus name "crater", from the Latin meaning vessel. With age, the cap becomes convoluted and sports a lighter coloured trim along its margin (Figure 2). The stem of *Craterellus tubaeformis* is typically 5-10 mm thick and often grooved or slightly flattened. The stem is yellow to dull yellow-orange in colour and typically becomes brownish with age. This yellowish stem gives

Figure 1

Figure 2
Photo: Pieter van Heerden

Figure 3
Photo: Pieter van Heerden

C. tubaeformis another common name, yellowfoot. The stem is hollow from the funnel-shaped cap (hence the specific epithet tubaeformis).

Photographing *C. tubaeformis* produced another serendipitous discovery. I laid my camera on a bean bag, wiggled it into position for the best composition and, using a remote cable, took several shots, changing the aperture a little each time. When I checked the camera's LCD, I was completely surprised. Instead of blade-like gills typical of other agaric mushrooms, the underside the cap was covered in forked ridges. A closer look revealed they were, blunt, widely-spaced, decurrent and connected to one another by a cross-veined pattern of shallower ridges. Called "false gills", the ridges are covered in spores and are typical of the Cantharellaceae Family (Figure 3).

Cantharellus, *Gomphus*, *Polyozellus*, *Turbinellus* and *Craterellus* are commonly called chanterelles because their spore-bearing surfaces appear similar to the naked eye. It is not surprising that the morphological classification system for mushrooms considered *Craterellus tubaeformis* and six other similar species in the complex part of the genus *Cantharellus.* Molecular studies have

Figure 4
Photo: Andrus Voitk

reclassified all seven to *Craterellus.* These studies have also shown that there are two distinct genetic populations of *Craterellus tubaeformis*: one in Europe and eastern North America, and another in western North America. *C. tubaeformis* and *C. infundibuliformis* have been determined to be the same mushroom although many field guides list them as separate species. The only other *Craterellus* closely resembling *C. tubaeformis* in Newfoundland is *C. lutescens*. It is distinguished from its cousin by a smooth to slightly wrinkled hymenium on the underside of the cap, a deeper yellow stem and a preference for calcareuos soils (Figure 4). Mycologists differ on the ecology of *Craterellus tubaeformis* considering it mycorrhizal or saprobic or both. Either way, it associates with coniferous wood (Figure 5).

C. tubaeformis is one of our choice edibles. I have not found it since my serendipitous off-trail adventure several years ago, despite searching in several places, including the clearing of my first encounter. Maybe serendipity will play a role in my next find.

Figure 5

The Bishop's Sketchbook

XANTHORIA in NEWFOUNDLAND AND LABRADOR

Michele Piercy-Normore

Xanthoria (Fries) Th. Fries is a genus of Sunburst lichens with a name that reflects its deep orange colour and sometimes a circular thallus forming a rosette on rocks or trees, reminiscent of an exhilarating morning sunrise. Members of the genus are widespread because they tolerate high nitrogen levels and high light exposure, and they associate with very common algal partners. Some species of *Xanthoria* tolerate masses of white seabird guano on rocks while others form orange cushions on twigs and branches of trees. The genus typically contains a group of anthraquinone pigments that give the thallus the orange color, one of its key diagnostic features. This orange pigment is found in the outer layers of the lichen thallus and it protects the algal partner within the thallus from excessive ultraviolet light. This is an important adaptation considering the highly exposed habitats in which these lichens are found.

Most species in the genus *Xanthoria* are foliose with multiple attachment cords on the white underside of the thallus. Another genus with orange thalli is *Caloplaca* Th. Fries, which is often confused with members of *Xanthoria*. *Caloplaca* is a genus consisting mainly of crustose species, but they do not have attachment cords and the entire underside of the thallus is attached directly to the substrate.

Before the genus *Xanthoria* was split into two genera (*Xanthoria* and *Xanthomendoza* S. Kondratyuk & Kärnefelt) around 2003, there were 27 species with the above characteristics in North America. Both genera have the orange thallus and attachment cords, but most species of *Xanthomendoza* produce powdery orange soredia (wind-dispersed vegetative propagules) instead of apothecia. Most species of *Xanthoria* produce abundant apothecia, except *X. sorediata*. In Newfoundland there are four species in the genus *Xanthoria*; *X. elegans* (Link) Th. Fries, *X. parietina* (Linné) Th. Fries, *X. polycarpa* (Hoffmann) Th. Fries ex Rieber, and *X. sorediata* (Vainio) Poelt.

Xanthoria elegans and *X. sorediata* can be confused with one another when they are both found on rock because the rosette thallus is similar in both species with very narrow lobe

Figure 1. Photo: Andrus Voitk

Figure 2. Photo: Andrus Voitk

Figure 3. Photo: Andrus Voitk

tips tightly adherent to the substrate. But *X. elegans* usually has abundant apothecia in the center of the thallus (Figure 1) and *X. sorediata* usually has abundant soredia (Figure 2). The soredia are produced from pustules in the thallus that break open into a powdery mass of orange soredia. But beware – on rare occasions *X. sorediata* can also produce apothecia. *X. sorediata* does not produce attachment cords on the underside of the thallus whereas *X. elegans* does produce attachment cords. *X. elegans* can also grow on bark.

Xanthoria parietina and *X. polycarpa* are relatively different in appearance from *X. elegans* and *X. sorediata*.

X. parietina can be found on rocks or tree bark and usually contains many apothecia in the center of its rosette thallus. The thallus lobes are broad, sometimes wrinkled (Figure 3), and are relatively closely attached to the substrate. Although recently other lichens have been submitted to DNA sequencing organizations, *Xanthoria parietina* will be the first lichen-forming fungus to have its entire genome sequenced—the *Neurospora crassa* or *Laccaria bicolor* of the lichen world.

Xanthoria polycarpa will often form a cushion of apothecia and thallus in the axils of small tree branches. The species may also be present on rocks or bark of large branches. *X. polycarpa* has broad lobes like *X. parietina*, but at closer inspection, the lobes of *X. polycarpa* are usually

Figure 4. Photo: Maria Voitk

subdivided into smaller 1mm fingerlike lobes that are usually ascending (the lobe tips are lifted up from the substrate) and the lobes are overlapping with one another (Figure 4). Abundant apothecia often obscure the thallus making the species more easily distinguished from the other species.

With an abundance of coastline and seabird guano in Newfoundland, these striking species of Sunburst lichens will be easily seen on rocks near the coastline as well as tucked away in the axils of tree branches further inland.

Photo: Andrus Voitk

THE MAIL BAG

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

In response to the November issue

Another Great one.....and no, I'm not "laying it on too thick". This really is my favorite myco newsletter. The balance between culture and science is just right.
Bill

I much enjoyed my relaxing morning, mug of fine coffee in hand and latest Omphalina on the screen. Great way to start the day!
I particularly enjoyed the article by a certain Robin McGrath on Russula paludosa. It's funny that I was just asked about that one on Vancouver Island and remarked that I had learned from a trip to Newfoundland that, at least at one time, it was probably THE mushroom for foragers. We were discussing how vastly different mushrooms are the most popular in different regions and that Russulas are revered and reviled, depending on where you live.

I enjoyed that article so much, and feel it perfect for our readers of FUNGI, that I'd like to request permission to reprint it. Can you ask the author for me, or put me in touch?
Thanks so much!
a devoted fan,
BB

Nice to see that the visiting Vikings contributed positively to the mycota of the area and not only went ravaging (as usual), even after a little(?) Aquavit.
Leif Ryvarden

In response to the December issue (Foray Report)

We apologize to Cathie Aime and Renée Lebeuf, both of whose names were misspelled in the last issue. The Editor's unwholesome attempts to blame the Guest Editor were successfully parried by an expensive and expensive investigation. A meticulous Forensic Team search of all correspondence proved conclusively that in both instances the error originated in mailings from the regular Editor to the Guest Editor.

Our thanks to the five (yes, five!) readers who wrote in to notify us of our mistakes. Life has taught us that the usual promise made on such an occasion—it will not happen again—would be overly naïve if not downright hypocritical. Instead, as part of our Increased Transparency Program, we promise our readers that mistakes in taxonomy whether fungal or personal, will continue to be a regular and ongoing feature of our publication. We are grateful to have such errors, oversights, typos and other misunderstandings brought to our attention so that we can apologize and correct mangled taxonomic concepts.

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FORAY NEWFOUNDLAND AND LABRADOR

2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013 2013

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