

The Vancouver Mycological Society's

# Mycofile



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On the occasion of the 40th anniversary of the  
founding of the Vancouver Mycological Society



*Agaricus bisporus* by William Gilson Farlow.

# A History of Mushroom Culture in BC; how things have changed

By Paul Kroeger

Mushroom cultivation changed drastically just when the Vancouver Mycological Society was formed, with the appearance of novel edible species and new culture technologies. During early years of our club new kinds of fresh mushrooms other than white button *Agaricus* began appearing in markets and a diversity of both wild and cultivated mushrooms was introduced to the consuming public. Today we are used to seeing a great variety of mushrooms offered as food, but before the VMS it was different.

Public concepts of mushrooms were very different in British Columbia before the 1970's and for most of Vancouver's population the word "mushroom" meant just cultivated *Agaricus* buttons or "Money's Mushrooms". We were predominated by British people with Anglo-attitudes including mycophobia, a general cultural fear of fungi; but while most wild mushrooms might be pejoratively dubbed "toadstools" the cultivated button mushroom was embraced with great gusto. At one time Vancouver claimed the highest per-capita consumption of button mushrooms in the world.

Mushrooms were mostly thought of then as a complement to beef dishes. The consumption of mushrooms was found to be linked to the price of beef, so when the meat was more affordable mushroom sales increased. If not served with steak, mushrooms might have mostly appeared in the morning fry-up we call an English breakfast.

*Agaricus* mushrooms were being grown commercially by a few farmers in BC's Fraser Valley by 1928, including William T. Money in Burnaby. An agreement was reached among Fraser Valley mushroom growers in 1931 for William Money to handle all marketing and distribution of their mushroom produce. Farmers could now concentrate on mushroom growing and Money's trucks picked up their crop and delivered it to markets. The entire mushroom crop was sold as a fresh product then.

By 1936 production of mushrooms was excessive to fresh demand so Money built a mushroom cannery to process the surplus crop. When Money retired in 1956 the Fraser Valley Mushroom Growers Cooperative Association was formed

and the trade name “Money’s Mushrooms” was purchased for mushroom marketing operations. Around 1940 the slogan “What food these morsels be!” was created and used for many years to promote Money’s Mushrooms; consumption of canned or other processed mushrooms often exceeded fresh sales.

Cultivation was focused on strains of *Agaricus* harvested young in mass production because white tightly unopened little button mushrooms retain better texture and have more appealing appearance after canning. Prior to the canneries mushroom crops were often harvested just as their caps were opening and delivered fresh to market for immediate consumption with dark gills and deep earthy aromas. Modern agriculture’s industrial mass production and processing had made mushrooms bland and boring.



Old advertising mural on Prior Street (photo MDM <https://vanasitwas.wordpress.com/2016/04/16/what-food-these-morsels-be/>)

Around 1980 Money’s Mushrooms started a vigorous new marketing campaign with the slogan “Mushrooms make meals Mmmarvelous”; and writer James Barber ([The Urban Peasant](#) and author of [Fear of Frying](#)) starred in ads and promoted using more fresh mushrooms in different ways and with a greater variety of other foods. Around this time several different *Agaricus* cultivar strains were introduced, so in addition to white button mushrooms there were also brown varieties, and eventually the large brown Portobello and Cremini mushrooms we regularly see now.

The importation of much cheaper canned mushrooms from abroad, especially from China, had meant that selling their entire mushroom crop fresh was essential to BC producers. By 1985 73% of canned mushrooms consumed were imported from overseas and farmers could no longer afford to grow mushrooms for canning.



Money's bag 1990 (photo: P. Kroeger)

**Table: *Agaricus* mushroom production in BC: Fresh vs. processed 1975-1985**

Year	Fresh quantity lb	Fresh value \$	Price / lb*	Process quantity lb	Process value \$	Price / lb*
1975	5,321,000	3,859,000	\$0.73	1,926,000	949,000	\$0.49
1976	6,319,000	5,189,000	\$0.82	1,797,000	896,000	\$0.50
1977	7,361,000	6,610,000	\$0.90	3,549,000	2,131,000	\$0.60
1978	9,576,000	8,744,000	\$0.91	3,545,000	2,125,000	\$0.60
1979	9,479,000	9,615,000	\$1.01	4,534,000	3,245,000	\$0.72
1980	11,372,000	12,616,000	\$1.11	6,487,000	4,663,000	\$0.72
1981	12,624,000	16,648,000	\$1.32	6,948,000	5,299,000	\$0.76
1982	13,092,000	18,517,000	\$1.41	11,999,000	7,988,000	\$0.67
1983	14,506,000	21,026,000	\$1.45	16,346,000	10,071,000	\$0.62
1984	15,492,000	24,871,000	\$1.59	15,734,000	9,990,000	\$0.63
1985	15,332,000	25,871,000	\$1.69	17,063,000	11,085,000	\$0.65

From Huang, Hsin Chung 1988 The B.C. Mushroom Industry: An analysis of demand and supply. University of British Columbia M.Sc. Thesis. (\*wholesale price / lb)

The B.C. Mushroom Marketing Board had been formed in 1966 and was a monopoly which long controlled production and distribution of all mushrooms grown in BC through quotas. Following the introduction of new species and varieties of cultivated mushrooms in the 1980s the mushroom farming industry was transformed. Now a great diversity of fresh edible mushrooms could compete with the boring but still reliable old standard white *Agaricus button* of the past.

The first BC Shiitake mushroom farms were started in 1979 utilizing drilled and inoculum-plugged deciduous tree logs. Doctor Theodore Takeuchi pioneered the farming of Shiitake on alder logs in British Columbia.



Dr. Theodore Takeuchi  
Shiitake farm VMS tour  
1983 (photo: P. Kroeger)

Shiitake *Lentinula edodes* growing from a log (photo: P. Kroeger)

Recently developed methods of using artificial substrate mixes formed into tubes, blocks, trays or bags allowed many new kinds of mushrooms to be grown from a variety of materials. Many agricultural wastes or by-products were tested to grow edible fungi. Trials on growing Paddy-straw mushrooms *Volvariella volvacea* at UBC Agriculture Department showed it wasn't practical, but discarded materials from the experiment resulted in Paddy-straw mushrooms fruiting from hot steaming large compost heaps at UBC Botanical Gardens and Stanley Park in 1982 and 1983. In 1983 a scheme was hatched to grow Oyster mushrooms on pulp mill waste sludge, a project doomed by association of pulp mills with toxic dioxins.

A more successful and appealing method of mushroom cultivation was developed by Peter Greystone who adapted shipping containers into computer controlled growth modules where Oyster mushrooms grew out of perforated stainless steel vertical trays from alder wood-chip and sawdust in attractive and easily harvested clusters. For many years Peter and his wife Jill introduced people to cultivated gourmet mushrooms at farmers' markets and our annual VMS shows, and their differently coloured (pink, yellow or blue-grey) Oyster clusters were always a hit.

With introduction of new culture technologies and with a variety of new species available to grow a new hobby was also born, the home cultivation of mushrooms. In early 1970s small scale techniques for growing magic mushrooms were developed for the tropical *Psilocybe cubensis* and growing "shrooms" became a popular counter-culture hobby. Today most magic mushrooms consumed are cultivated not wild.



Magic Mushrooms  
*Psilocybe cubensis* growing  
from grain trays in 1977  
(photo: S. Czolowski)

Many magic mushroom growers soon branched out to grow edible species, and eventually other medicinal fungi. Home growing of popular edible mushrooms took off with the development of "space-bags": flexible thin and sterilizable containers that allow creation of kits consisting of formed blocks or logs of substrate inoculated with mushrooms easily grown at home.

The Mushroom Cultivator 1983 by Paul Stamets and Jeff Chilton was a detailed book that described techniques for growing a variety of different mushrooms, and introduced many people to the science and art of growing fungi. Bill Chalmers had already founded his BC business, Western Biologicals, which provided educational workshops and mushroom grow kits and equipment, supplies and cultures for home cultivation enthusiasts in Western Canada for many years.



Bill Chalmers cultivation display at 2010 SVIMS show in Victoria (photo: P. Kroeger)



Concurrent with an expanding interest in finding and growing various edible and magic mushrooms there was increasing awareness of traditional uses of fungi in folk medicines. The 1970s had seen a great interest in natural and herbal medicines and traditional medical practices of different cultures. Fungal moulds had already yielded many valuable drugs such as antibiotics, and different larger fungi and mushrooms were being scientifically investigated for interesting chemical compounds that might have medical potential. Many fungi have a long history of use in Chinese Traditional Medicine and are being studied.

Asian Shiitake mushrooms were introduced to the west with many claims of health benefits and thus promoted as a medicine as well as food. Soon a variety of other medicinal fungi were also available to grow at home and incorporate into gardens.

Reishi or Ling Zhi, the red-lacquered *Ganoderma* polypores, soon became very popular and highly esteemed in herbal medicine, helped along by a rich folk lore with colourful legends involving mighty Emperors and the great deeds of heroes who were, of course, handsome daring and brave. Most people first heard of Ling Zhi from Gordon Wasson's 1968 book [Soma: Divine Mushroom of Immortality](#) in which the 8th chapter, "The Marvellous Herb", describes some roles of *Ganoderma lucidum* in Chinese and Japanese history and folklore.

The Caterpillar fungi, *Cordyceps* species that are parasites on insects, also became popular and have now become the most expensive mushroom at more than \$20,000 a kilogram. It's perhaps not entirely surprising that robbers armed with pepper bear-spray have held up a couple local Chinese apothecary shops for their *Cordyceps sinensis* (plus some bird's nests), making off with \$30,000 worth in one incident and \$40,000 in another.

Much of people's fascination with *Cordyceps* probably derives from its intriguing but rather ghoulish lifestyle and these "Zombie fungi" have truly captured the popular imagination. While Caterpillar fungi are not cultivated much locally except as a novelty, the bright orange *Cordyceps militaris* is grown overseas and now available here fairly cheap in dried form. In nature it grows from *Lepidopteran* (butterfly or moth) pupae and is considered a rare find.

There are now numerous species of "medicinal" fungi being sold as herbal teas, medicines and nutritional supplements, and many are being incorporated into drinks and foods. What was a very esoteric subject in the early 1970s,

mushrooms as medicine, has now become common knowledge and even somewhat of a fad.

In the early 1990s cultures of the Manchurian mushroom or Tea fungus began to circulate, passed from one person to another as starter cultures much as sourdough bread and ginger beer starters used to be shared. The Tea fungus is a mixed culture of various yeasts and bacteria grown in sweetened tea to produce a fermented beverage called Kombucha. Commercial Kombucha products are now available in stores everywhere in a variety of flavours and there are even dedicated Kombucha tea shops and breweries. There is definitely a Kombucha craze right now and a once obscure cultured folk food from Eastern Europe and Eurasia has become big business.

Another medicinal fungus use that comes to us from Eastern Europe and Eurasia is Chaga or *Inonotus obliquus*, the cinder or clinker conk of birch trees. After it was mentioned in Aleksandr Solzhenitsyn's 1966 novel *Cancer Ward*, this obscure folk medicine has gained increasing notoriety as an alternative cancer treatment as well as a tonic. Scientific research has not kept up with the increasing popularity of Chaga tea and its efficacy as a tonic or for treating cancers in humans remains largely unproven. Excessive consumption of Chaga may actually adversely affect human health due to high oxalate content, with a risk of kidney stone formation and kidney damage. [www.namyco.org/docs/Oxalates\\_in\\_Chaga\\_a\\_potential\\_health\\_threat\\_M\\_Beug.pdf](http://www.namyco.org/docs/Oxalates_in_Chaga_a_potential_health_threat_M_Beug.pdf).

Chaga is unusual among "medicinal mushrooms" because it's not really a mushroom or fruit body, but rather a canker formed from the birch tree tissue permeated by mycelium. Oxalates and oxalic acid play vital roles in many wood-decay fungi by weakening and penetrating plant cells through growth of calcium oxalate crystals from mycelial exudates into the wood. Apparently many tree-conk fungi produce oxalates in their mycelium and substrate and continue to do this in artificial culture.

Many available proprietary "medicinal mushroom" preparations actually contain grains grown through with mycelium which are dried and powdered. These products are suspected to be high in oxalates, and have been shown to mostly consist of cereal substrate rather than fungal material. The small amount of fungus present may not even be effective. Several desirable constituents of medicinal mushrooms, such as the triterpenoids called Ganoderic acids found in Reishi, are associated with formation of fruiting bodies and not the mycelium. So, *caveat emptor*. [www.nammex.com/redefining-medicinal-mushrooms/](http://www.nammex.com/redefining-medicinal-mushrooms/)



Turkey-tail *Trametes versicolor* inoculated log at Beaty Museum UBC (photo: P. Kroeger)

Mycorestoration is the latest catch-word in the mushroom cultivation world. This refers to strategically incorporating fungi into damaged landscapes to restore and enhance ecosystem functioning. The term was introduced and popularized in Paul Stamets' 2005 book Mycelium Running: How mushrooms can help save the world, along with mycofiltration, mycoforestry, mycoremediation and mycopesticides. But these mycoconcepts are not all new. In 1981 Hellmut Steineck published Pilze im Garten, later published in English as Mushrooms in the Garden in 1984, which described how to incorporate edible and interesting mushrooms into home gardens.



The Garden Giant *Stropharia rugosoannulata* in compost mulch (photo: P. Kroeger)

Fungi have great potential to clean up chemical or microbial contamination and as bio-control agents to limit weeds and pests or diseases of plants and animals. Mycorrhizal fungi enhance plant growth and vigour and methods of inoculating plants with mycorrhizal fungi are now widely used in agriculture and silviculture.

Some applications of mushroom cultures for bio-control have been developed in BC. Some years ago inoculum of *Chondrostereum purpureum* was available to inject into and kill deciduous tree stumps preventing shoot re-growth from removed alder, poplar or maple trees. Oyster mushrooms' ability to trap and consume minute roundworms may be used to rehabilitate nematode-infested agricultural soils. *Hypholoma fasciculare* was tested in BC to limit spread of infection from *Armillaria* (Honey mushroom) root rot centres in forests. [www.for.gov.bc.ca/rsi/research/cextnotes/extnot33.pdf](http://www.for.gov.bc.ca/rsi/research/cextnotes/extnot33.pdf).

Another popular idea is to use mushrooms to digest and break down hydrocarbons from petrochemical contaminated soils, or in absorbent materials after they're used to sop up oil spills. Some vigorously growing aggressive saprobic fungi such as the Oyster mushrooms *Pleurotus* have been shown in test trials to happily feed on hydrocarbons, reducing them to harmless products. Obviously the goal here is not to produce mushrooms to eat, but to eliminate the petrochemical contamination. Toxic non-hydrocarbon residues may still remain.

Some fungi promise to help repair damage humans wreak upon our environment, but there are challenges in scaling up such applications to a landscape level and successfully integrating them into communities of other organisms we want to establish in damaged sites. We want to avoid the sorts of unforeseen consequences that seem to bedevil many human attempts to manipulate our natural environment. Some fungi can behave like diseases or weeds and introducing novel fungi into complex landscapes could create whole new problems. The concepts of mycorestoration sound promising but practical applications in larger landscapes remain mostly untested.

Diverse fungi can be grown to satisfy many needs. Home cultivation is a fascinating hobby that offers mushroom enthusiasts greater insight into how fungi grow while yielding crops of fresh mushrooms for food or medicine. The selection of edible mushrooms available in markets has greatly increased over the past few decades, and some are grown on materials that were previously discarded as agricultural or food-processing waste products.

Mushrooms are very new human cultivated foods in our broader history. Human domestication of plants and animals began some twelve thousand to thirteen thousand years ago. The archaeological record shows that by about ten thousand years ago a Neolithic transformation into pastoral and agricultural communities began as populations settled down to raise animals as livestock and grow plant crops. Fungi first appear in the archaeological record several thousand years ago as residues of yeast-fermented grains on vessel shards. One Natufian site with traces of brewing evidence has been dated as older than 13,000 years before present. [www.history.com/news/oldest-beer-ancient-brewery-invention](http://www.history.com/news/oldest-beer-ancient-brewery-invention).

Humans have fermented beverages and leavened cereal foods with yeasts for millennia, but yeasts aren't mushrooms. Cultivation of mushrooms, the larger fleshy fruiting bodies of what we call macrofungi, is fairly new to us, only a few centuries not millennia. Asian cultures may have started culturing Wood-ear mushrooms *Auricularia* species and Shiitake *Lentinula edodes* several centuries ago, but Europeans were slower to innovate and cultivation of Champignon or *Agaricus* only began in France in the 1700's. Most other cultivated mushrooms are much newer on the scene, only a few decades!

The four decades since Vancouver Mycological Society formed has witnessed the spread and growth of an entirely new mushroom culture, a veritable mycocultural revolution. Now the VMS can hold occasional banquets (outside mushroom season) at Po Kong vegetarian restaurant and order a whole

variety of delicious dishes featuring more than a dozen different kinds of cultivated mushrooms.



Po Kong "Bamboo pith rolls" Stinkhorn stems stuffed with Shiitake and Enoki (photo: S. Redhead)



Hot & Sour and Tai Chi soup with *Agaricus*, Shiitake, Wood-ear and Enokitake (photo: S. Redhead)

It's a different world of food from the time of 'steak and mushrooms' when only *Agaricus* buttons were available and canned Money's Mushrooms were served in Chop Suey houses or found as toppings on pizzas (in 1950s pizza was considered an exciting new exotic 'foreign food'). Cultivation of a variety of mushrooms has helped diversify modern cuisine and it's much more interesting now. "What food these morsels be!" indeed; many more mushrooms really do make meals marvellous.

# Four Decades of Vancouver Mycological Society: How mushrooming in BC has changed

By Paul Kroeger

Vancouver's mushroom club has always been considered a very special and unique group of enthusiasts, with a distinct blend of interests and skills. Comparison to other regional mushroom clubs and natural history groups has led many to comment that VMS is one of the more interesting and fun bunch of people they've ever encountered. Forty years ago some very different interests converged to create an amateur society for the study and appreciation of fungi. This is why Vancouver's mycological society has its own distinct mushroom culture, so to speak.

Here we'll look at some interests that brought mycological society people together, and some things that have changed over four decades of VMS.

## Science

Science had recently established the Fungi as being a vast group of diverse organisms constituting their own Kingdom, or major limb in the tree of life (Whittaker, R. H. 1969. New concepts of kingdoms of organisms. *Science*. 163 (3863): 150–60). The fungi had just begun to get the attention they richly deserved, and a keen group of avid naturalists from the Vancouver Natural History Society formed the nucleus around which a mushroom club developed or grew at the end of the 70s, in 1978-1979.

During the 1970s the burgeoning study of ecology had just begun to reveal many vital roles of fungi in forest ecosystems. British Columbia's universities, government agencies and corporations supported research in mycology because of the importance of fungi to British Columbia's valuable forest industry.

UBC's Botany Department mycologist Dr. Robert Bandoni ran the mycology lab that spawned our club's dedication to what is now called "citizen science". Some early Bandoni -Lab students who helped develop the VMS included Andy MacKinnon, Keith Siefert, Richard Summerbell, Gavin Kernaghan, Sharmin Gamiet and Eduardo Jovel. Professor Bandoni especially appreciated

the establishment of our club as a welcome relief from the distractions of seasonal flurries of public enquiries about mushrooms; he could now refer all those curious people to us.

Four decades of collecting and documenting mushrooms at Vancouver Mycological Society events have contributed a lot to knowledge of larger fungi of British Columbia and the role of the VMS in promoting and advancing mycological knowledge in BC has been significant. We've documented the macrofungi of Manning Park for over 30 years, and the mushroom populations of many other areas in BC were first described from VMS field trips. Amateur mycologists have discovered many new mushroom species here and elsewhere.

Dr. Mary Berbee, the current UBC Mycology professor, continues to support amateur contributions to mycology research in BC, and students from UBC are still actively involved with and contribute much to the VMS's endeavours.



Circa 1980. Left to right: Dick Fraser & sons. Helene & Ole Juul, Paul Kroeger, UBC students Andy MacKinnon and Keith Siefert, Les Wigglesworth. (photo: K. Fraser)



## Counter-culture

In the 1970s hallucinogenic “Magic Mushrooms” were very popular and high profile, often appearing in the news, and several kinds of wild magic *Psilocybe* mushrooms were abundant in coastal British Columbia communities. Counter-culture interests in magic mushrooms added many colourful characters to the membership of our early mushroom club. For more on BC magic mushroom history see our webpage essay: [www.vanmyco.org/about-mushrooms/psychedelic/brief-history-magic-mushrooms-bc/](http://www.vanmyco.org/about-mushrooms/psychedelic/brief-history-magic-mushrooms-bc/).

It’s interesting to note that wild magic mushrooms were very common in the 1970s and 1980s and several species grew abundantly as weeds in urban landscaping. *Psilocybe stuntzii* sometimes formed fairy-rings and arcs or vast swathes in recently installed lawns of newly developed areas and the extensive use of bark mulches in institutional landscaping produced great crops of *Psilocybe baeocystis*, *Psilocybe cyanescens* and *Psilocybe stuntzii* around hospitals, courthouses, police stations and schools. At our annual VMS Mushroom Shows at VanDusen Garden, throughout the 1980s, we always displayed *Psilocybe baeocystis* gathered from the grounds by the gardeners.

During the 1990s many alternative uses for wood waste products were developed, and landscaping materials and practices changed. The building booms of the 1960s and 1970s had slowed down, the nature of development changed, and with a lack of new habitats and introduction of watering limitations most of the once abundant weedy urban magic mushrooms disappeared.

The original magic mushroom in Canada, the Liberty Cap or *Psilocybe semilanceata*, grows in wet pastures. Agricultural fields in the Fraser Valley and in the Fraser delta around Richmond produced abundant crops during the late 1960s into the 1980s, the most productive fields being pasture lands seasonally grazed by cattle or horses. This is no more. Marginal farmland, which was often leased out for grazing because it wasn’t suitable for more intensive agriculture, has been built upon while remaining productive agriculture lands are used differently. Cattle are not often grazed outdoors and both dairy and meat cattle are now mostly raised indoors while fields are used for intensive hay or feed-maize cropping or other types of farming. A little mushroom that was once plentiful, and that changed the cultural landscape of Vancouver and BC, is now scarce.



Picking Liberty Caps in Fraser Valley 1977 (photo: S. Czolowski)

## Cuisine

Cuisine was also changing rapidly when the club was formed with natural fresh, organic and wild foods gaining popularity. Post-war baby-boomers were more affluent and better travelled than previous generations and had developed tastes for cuisine from diverse cultures; many novel and exotic dishes and ingredients were introduced including mushrooms. Until then an abundance of choice edible wild mushrooms had grown in our forests largely unnoticed except by some immigrants from mushroom-loving countries who could enjoy their beloved foods in peace, privately and with little competition.

Then in 1978 a Japanese market for Canadian pine mushrooms (*Tricholoma magnivelare* or *murrillianum*) was developed and a gold rush style stampede into the woods began. At the time, Japanese domestic Matsutake (*Tricholoma matsutake*) had severely declined and even the somewhat less desirable large white North American pine mushroom, known then as *Armillaria ponderosa*, became a valued and expensive substitute.

It's said that Canadian pine mushrooms were first discovered by Japanese-Canadian citizens interned during World War II growing near internment camps in Greenwood and Kaslo in the Kootenays, New Denver in Slocan Valley, and near Lillooet and Bridge River. Until the commercial harvest began, multi-

generational Japanese Canadian families had continued to revisit their patches every mushroom season. Then suddenly the “White Gold rush” stampede deprived them of a much enjoyed traditional family activity that was one of the few silver linings to brighten the cloud of their dark WWII experience.

Other wild mushrooms were soon being commercially harvested for export to European countries, especially chanterelles and morels. Chanterelles were canned for export to Germany at St. Jean’s Cannery in Nanaimo, and for a time, fresh chanterelles were also packed into brine in barrels for export to European canneries. The shipping of brined fresh mushrooms for later canning was stopped after some chanterelles spoiled in transit, causing illness from heat-stable staphylococcus bacterial entero-toxins in canned products.

Various dried BC mushrooms also became available in our markets and were exported abroad. Boletes and morels are especially suited to being sold dried, but other local mushrooms such as chanterelles and lobster mushrooms have also become widely available in dried form. Processing of wild mushrooms to produce high quality dried products is described in this video from Royal Roads University: [www.youtube.com/watch?v=x1VOjMV-J7Y](http://www.youtube.com/watch?v=x1VOjMV-J7Y).



As foreign markets for BC wild mushrooms opened, local interest and demand also increased and wild harvested mushrooms started to appear in many local produce stores and farmers’ markets.

Canadian restaurants also began to incorporate more wild mushrooms into their menus. Unfortunately not all chefs were familiar with safe preparation of mushrooms and this resulted in a couple of infamous mass poisonings in Vancouver restaurants. In one case in 1987 improperly bottled chanterelles caused severe botulism poisoning in 11 people; in another incident in 1991 fresh morels served raw at a banquet made 77 people sick.

BC canned chanterelles for export to Germany. St. Jean’s cannery, Nanaimo 1985 (photo P. Kroeger)

## Landscapes change

Landscapes have changed in south western British Columbia over forty years of VMS activities; mushrooming was different at the beginning. Large scale industrial clear-cut logging of the 1960s through the 1980s had resulted in extensive logging road systems throughout forested landscapes giving access to many productive forest remnants not yet logged but doomed soon to be. Within a couple hours drive of Vancouver were many forests abounding in interesting and edible mushrooms, though one might have to face thundering great loaded logging trucks barreling toward you to get there. In the 1980s public sentiment began to change and protests against industrial destruction of old-growth forests began.

Field trips for the VMS were much more frequent in early years because there were many more places a fairly large group of us could go for a casual mushroom walk. Many parks, trails and areas of accessible forest land were a short driving time from the city, and even on weekends were not filled with other people. Fewer people were interested in mushrooms at first, so impressive fruiting of fungi could be seen in abundance. But as interest in mushrooms grew over the years, many areas near the city were regularly picked over for edibles, and the other fungi and their habitats (and mycologists) were increasingly disturbed.

The population of Greater or Metro Vancouver has more than doubled over the past 40 years (from 1,169,831 in 1981 to 2,463,431 in 2016) and human pressure on natural areas near the city is tremendous. Many parks, trails and recreation areas are packed with visitors every weekend and large numbers of users along with inadequate care, maintenance and repairs has deteriorated access trails making them unsafe, and degraded or damaged the natural environment people come to enjoy. People seem to “love it to death”.

VMS used to have many day trips to areas in the upper Fraser Valley and places around Hope but now it takes twice as long to get half as far. Heading east on the highway past the Port Mann bridge would take you through miles and miles of agricultural land because much of the Fraser Valley was composed of distinct small towns and cities surrounded by farms and undeveloped land. Now urban development has filled much of the valley, suburbs have grown like giant slime-moulds absorbing rural lands as their streaming plasmodial paved road systems carry more propagules to colonize yet more land. Getting out of the city now almost means travelling beyond Hope.

## Mushrooms change

Some once-common popular edible mushrooms have become scarce near Vancouver but others have appeared as new and then spread within the growing city. In 1983 mini-parks were created in many parts of the city and the horticultural *Rhododendron* "Anna Rose Whitney" was planted out, soon to produce from their root-balls enormous crops of mushrooms identified as the very similar *Stropharia riparia* (a native species) at the time. This mushroom was evidently introduced from abroad and found its way into the horticultural trade to hitchhike with transported nursery stock. It's now called *Leratiomyces percevalii*, a less attractive name than that of the delightfully rhyming native's *Stropharia riparia*. Whatever its name might be, this introduced species is now a widespread common weed mushroom in gardens here and around the world.

In 1984 a new species of mushroom was found growing abundantly in the UBC Botanical Gardens, a peculiar little *Hypholoma* that arises from buried sclerotia or tubers. We named it *Hypholoma tuberosum* Redhead & Kroeger and soon after publication it was reported from the USA, Japan, France, Germany, Belgium and Australia. The species was found to grow wild in a bog in New South Wales Australia where sedge peat was mined for use in the nursery industry, and appears to have found its way around the world from there hitchhiking on the commercial plant trade.

Another import probably also from Australia is *Stropharia aurantiaca*, now called *Leratiomyces ceres*, which first showed up in Vancouver in 1974 in landscaping of the newly built Arbutus Village development. This beautiful and distinctive little orange-capped mushroom has over the past decade become a common weed mushroom in wood chip mulches here, much as it now grows elsewhere around the world.

Of course, the alien imported mushroom of greatest importance and concern right now is the Death Cap, or deadly *Amanita phalloides*. The VMS has been central to the discovery and documentation of this dangerous mushroom in Canada. After it was found growing in Seattle Washington we put out warnings and asked VMS members to look out for it and to spread the word it might be here. In 1997 it was indeed found in BC, under sweet chestnut trees at Lake Errock near Mission. We've been able to document its spreading occurrence and distribution, and have helped warn the public of this new threat to public health. For more on BC death caps see our

webpage: [www.vanmyco.org/about-mushrooms/poisonous/amanita-phalloides/](http://www.vanmyco.org/about-mushrooms/poisonous/amanita-phalloides/).

New types of mushroom poisoning have also been recognized over the past forty years. In 1992, *Amanita smithiana* was first shown to be poisonous, causing kidney failure when eaten mistaken for pine mushrooms.

[www.vanmyco.org/about-mushrooms/poisonous/amanita-smithiana/](http://www.vanmyco.org/about-mushrooms/poisonous/amanita-smithiana/).

Several species once considered safe edibles have been implicated in causing sickness in recent years. See [www.vanmyco.org/about-mushrooms/poisonous/](http://www.vanmyco.org/about-mushrooms/poisonous/) Anomalous Edible Mushroom Poisonings & Symptoms table.

## Names change

I've discussed several changes in the world of mushrooms over the last 40 years, but perhaps the most challenging change for enthusiasts is in what we name our mushrooms. When VMS started pine mushrooms were *Armillaria ponderosa*, honey mushrooms were *Armillariella* rather than *Armillaria*, hedgehogs were *Dentinum repandum* instead of *Hydnum* and hawk's wings were *Hydnum* not *Sarcodon*. As DNA technology is applied to look at different fungi, more and more species native to North America are being recognized as distinct from Old World species whose names we've been using. New understanding of evolutionary relationships among fungi is also changing the genus names into which species are placed and new genera are being proposed, so the mushroom names change yet again!

## And so do books

In earlier years North American mycologists relied heavily on European literature to find names for our New World mushrooms. Many amateur mycologists used mushroom books from Europe, often translated into English, which were commonly illustrated with beautiful reproductions of watercolour paintings. A very popular and useful early book was [Collins Guide to Mushrooms and Toadstools](#) by Lange and Hora, a 1963 English translation of the Danish 1961 [Svampeflora](#) with beautiful little colour paintings of an interesting variety of fungi.

There were a mere handful of North American mushroom guide books available at first, and most had just black and white photographs. Standard home-grown North American mushroom books you might find on a shelf of early members of VMS include: [Guide to Common mushrooms of British Columbia](#) 1964 by Bandoni and Szczawinski, BC Provincial Museum Handbook #24, or its 1976 colour edition; [The Savory Wild Mushroom](#) 1962

(1971) by McKenny and Stuntz of Seattle; Edible and Poisonous Mushrooms of Canada 1962 by Groves and published by Agriculture Canada; Mushrooms of North America 1972 by Orson Miller, an early all-colour book; The Mushroom Hunter's Field Guide 1958 (1963) by Alexander Smith or its colour 1980 version; and the colour illustrated A Field Guide to Western Mushrooms 1975 also by Alexander Smith.

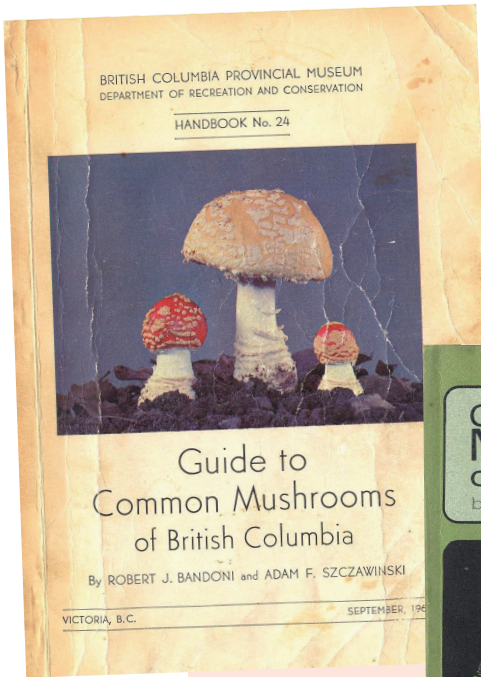
Certain new books came out around the time of VMS's beginnings that covered many more species than any previous field guides. Mushrooms Demystified by David Arora first came out in 1979 and soon was the go-to guide for devoted mushroomers. The Audubon Society Field Guide to North American Mushrooms 1981 by Gary Lincoff was very popular for those who like to use comparison with photos to identify fungi.

For more serious identifiers there were How to Know the Gilled Mushrooms 1979 and How to Know the Non-gilled Mushrooms 1981, both by Smith, Smith and Weber in The Pictured Keys Nature Series of Wm. C. Brown Publishers. For the extremely serious identifier there was also Keys to Agarics and Boleti (Polyporales, Boletales, Agaricales, Russulales) 1983 by Moser with 400 pages of keys, printed in tiny font, to thousands of mushroom species.

As interest in mushrooms has grown over the past decades, so has the number and variety of mushroom books. Many regional field guides have come out recently, and books about various other aspects such as mushroom cultivation or uses of fungi especially as food or medicine, or monographs dealing with just particular groups of mushrooms are now numerous. The revolution in computer technologies has also given us many novel internet resources, so looking up any unfamiliar mushroom name now takes only a few moments spent at a keyboard or gadget.

The VMS was formed just when fungi were exploding into public consciousness. Our club has thrived in an environment where mushrooms and other fungi are conspicuous, varied and around to be found for much of the year. Using fungi for food or medicine might be the first reason most people join a mushroom club, but the general fascination of fungi soon hooks them.

Studying the vast and fascinating, but previously oft overlooked realm of fungi has been a frontier of exploration, innovation and discovery. There are "so many mushrooms but such little time". For four decades the Vancouver Mycological Society has been along for a great exciting ride, and it's been fun.



First mushroom guides for BC.

