PART TWO

THE CLEARWATER VALLEY

The following pages are excerpted from the 2nd edition of Nature Wells Gray: A Visitors' Guide to the Park, by Trevor Goward © & Cathie Hickson (1995). Most of the text is current, though a few important changes should be noted:

p. 101: The Helmcken Brink trailhead – an outsized parking lot – is located at the top of the Mushbowl Hill, where the road descends steeply to the Murtle River.
p. 107: With the creation of Pyramid Campground some years back, the Pyramid Mountain trailhead has been relocated. Turn right about 750 m past the Murtle River bridge, then proceed 1.3 km to the campground (a great place to camp if you like mosquitoes and other biting flies).
Note: Road and trail conditions in the Clearwater Valley are subject to change. Please check with the Wells Gray information Centre (250-674-3334) for current conditions. The authors cannot accept responsibility for any inconvenience or damages incurred through the use of this posting.

HELMCKEN BRINK TRAIL

3 hr (8 km) return.
Elevation change: 50 m.

41.1 km
(25.5 miles)

- WATERFALLING
- MUSHROOMING
- ORCHID LOOKING

HELMCKEN Falls is Wells Gray's grandest statement: a 145 m exclamation mark drawn endlessly. Yes, you can drive there (check km 42.5), but for a real sense of what Helmcken is about, take the trail beginning at this mileage. (Parents beware: there are no fences here.)

The trail sets out across a series of glacially arranged hummocks. Here the forests are open, and support a vigorous understory of various shrubs, including Falsebox (*Paxistima myrsinites*), one of few evergreen shrubs in the park. Look for its toothed, oval, leathery leaves much like those of the garden Boxwood, to which it is not, however, closely related. Early in the season the leaves conceal tiny flowers, four-parted and crimson red. Falsebox is a preferred winter browse of Wells Gray's Moose – when they can find it under the winter snow.

After 15 minutes, the trail descends to the Murtle River, and at the same time passes the original location of Dawson Falls, now 1.3 km upstream. Dawson first formed at this escarpment, which appears to be the edge of a lava flow.

As you proceed, watch the bases of the trees for dense clusters of creamy brown mushrooms. If the caps are scaly, and the stems are each encircled near the top by a whitish ring, you're probably looking at the Honey Mushroom (*Armillaria mellea*). This parasitic fungus feeds on living trees, which it eventually kills.

Once the host tree is dead, the *Armillaria* penetrates the wood, thus initiating decay. Dispersal is primarily via shoestring-like structures called rhizomorphs; these spread outward through the soil from the infected tree, causing further infection. (Good news for the woodpeckers that thrive for a time on insects attracted to the dying trees.)

Even if you don't see the mushroom itself (it may be too early in the season), chances are good you'll notice evidence of it, for it causes its host trees to exude pitch from their trunks. Beneath the bark of affected trees grow broad mats of tiny fungal threads (mycelia). When eventually the tree dies, and the bark sloughs

Falsebox has waxy, evergreen leaves. (NONC)

Honey-hued Honey Mushrooms (Armillaria mellea *group*) *come in several flavours – and digestibilities! Take care.* (TG)

off, the mats may for a time be seen to glow at night with an eerie phosphorescence.

Another mushroom to watch for is the Fly Agaric (*Amanita muscaria*), with its red, soap-flaky cap, white spores and whitish ring around the stalk. This is the mushroom that Alice ate prior to growing very, very small; it is definitely not recommended for consumption.

Fungi come in three groups, according to diet. To the first group belong the parasites. These, like the Honey Mushroom, feed on, and eventually kill, their hosts. The second group are the saprophytes. Their food is nonliving matter – fallen branches, logs, needles – which they thus help to decompose. The third group,

The Conifer Connection

Trees are often perceived as rugged individualists – woody versions of John Wayne. The truth is, however, trees depend for their strength on mushrooms. With these (and other fungi), trees have entered into a symbiotic relationship, each partner depending intimately on the other. Take their fungal partner away, and trees are not particularly rugged at all. A Lodgepole Pine, for example, would be a sickly stem hardly three m tall.

The partnership takes place underground, where the fungi grow as a network of fine threads. In some cases the threads surround the individual plant cells within the root tips of the appropriate tree partners, whereas in others they actually penetrate the cells. Sometimes the root tips resemble fingers in a coloured glove made of fuzzy fungal material. Together, the roots and the fungi are called mycorrhizae, that is "fungus-roots."

The fungus helps the tree by extracting phosphorus and other fertilizing nutrients from the soil, while the tree pays for its upkeep by providing sugar to the fungus. In the autumn, many of these symbiotic mycorrhizal fungi use much of the energy thus gained to produce fruiting bodies: "mushrooms" when they grow above ground, and "truffles" when below. The fruiting bodies bear the spores of the next generation.

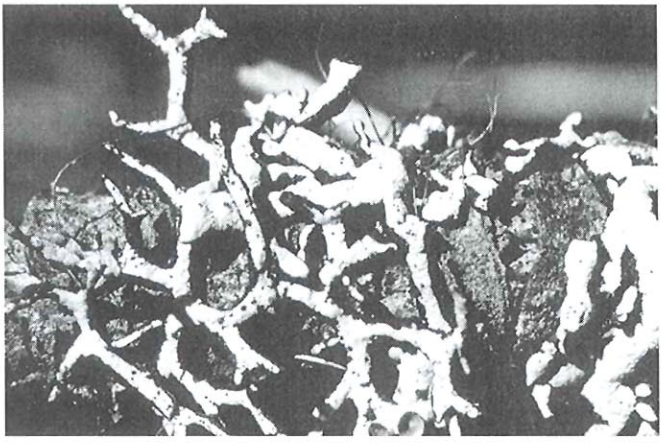
Some conifers can enter partnerships with as many as 100 different fungal species. In different forest types, of course, different fungi are involved. But whatever the conditions, one fungus or another is always present. As many as 500 species of mycorrhizal fungi are thought to inhabit Wells Gray.

Along this trail, the Douglas-fir associates with truffle-like *Rhizopogon* species, which in autumn are dug up as food by the Red Squirrel and, especially, the Flying Squirrel. By bringing the "truffles" to the surface, these creatures ensure that the spores are released, and thus that these fungi may re-establish themselves

One common above-ground mycorrhizal mushroom occurring here is the Booted Amanita (*Amanita porphyria*), which begins by looking like an egg, but which eventually "hatches" into a tall, elegant, smooth-capped, greyish-brown mushroom having a bulb at the base. Look for it in late summer, after rain.

Mycorrhizal associations are not restricted to trees, but occur in virtually all flowering plants. Among the only truly "rugged individualists" (i.e., plants that avoid mycorrhizae) are members of the Sedge, Carnation, Mustard, Rush and Rose Families. Of these, the Swamp Gooseberry (*Ribes lacustre*) and the Baldhip Rose (*Rosa gymnocarpa*) grow along this trail.

Richard Summerbell



Lichen fungi, like mycorrhizae, are mutualists, in this case associating with tiny algal cells which they cultivate and selectively harvest. Pictured here are Hypogymnia imshaugii *(left) and* H. occidentalis. (TG)

the mutualists, include the mycorrhizal fungi [see: THE CONIFER CONNECTION].

Another plant group entering into partnership with fungi are the orchids, second largest plant family in the world, with some 15,000 species. Common along this trail is Rattlesnake Plantain (*Goodyera oblongifolia*), an orchid more easily recognized by its leaves than by its blossoms. In fact, you may scarcely recognize the tiny, drab, greenish-white flowers (borne in a spike) as orchid flowers at all.

As for the leaves, they grow in a basal rosette, are strikingly bluish green, and generally bear a white fishnet pattern over their upper surface.

The seeds of Rattlesnake Plantain are virtually microscopic, and contain very little stored food to help the embryonic plant get started. They rely on mycorrhizal fungi for nutrients in their early stages. Orchid mycorrhizae are able to break down lignin and cellulose (the stuff of wood) into carbohydrates, and so supply these to their hosts, rather than the reverse, as in other plants.

Eventually, a sound like distant thunder begins to gather ahead of you. This is Helmcken Falls. If you have children with you, this is your cue to get them in tow.

At Helmcken Falls the Murtle River plummets into space off the edge of the Murtle Plateau. Only a few metres away, the trail leads out into a little clearing, which commands a view six seconds to the bottom! There are no handrails here; if you feel you must peer out over the canyon edge, please do so on your stomach.

In winter, the perpetual spray from the falls congeals in a wall of ice along the canyon rim, in some

Rattlesnake Plantain is neither a rattlesnake nor a plantain, though it somewhat resembles both. (TG)

years accumulating to a depth of four m. Generally this wall is slow to melt, lingering on into June, and some years into early July.

The plants encased within the ice are of course unable to begin the year's growth until long after their neighbours. For species like Oval-leaf Blueberry (*Vaccinium ovalifolium*), this results in an intriguing progression from earliest budding through to full blossoming, all in the space of four or five m. Here along the rim of Helmcken Canyon, the passage of time is made spatial and springtime can be seen to advance in terms of metres, not weeks.

41.2 km
(25.6 miles)

MUSHBOWL HILL

WHERE the road leaves the Murtle Plateau to descend to the Murtle River, it slants downward across the base of a steep embankment. As it does so, it passes successive horizontal layers of rock and till – each a separate chapter in the geologic history of the Clearwater Valley. Laid out before you is a story written by fire and ice on pages composed of soil, till, lava flows, pillows, and sediments. The story begins at the top of the hill and concludes at the bridge at the bottom.

These bubbles (vesicles) formed when gases were trapped in cooling lava as it hardened around them. (CH)

Underneath a thin veneer of post-glacial soil lies a layer of glacial till: a compact mixture of ice-smoothed pebbles and cobbles in a matrix of clay and sand, laid down in place at the base of a glacier. Squeezed by the weight of the ice above, and cemented by the clay (actually ice-pulverized, flour-sized particles of rock), the material forms a solid grey rocky deposit – a geologic Christmas pudding! The till here dates from the middle of the last Ice Age, and was probably deposited about 15,000 to 20,000 years ago.

The till is underlain by layers of lava. The lavas vary in depth, and are in places as much as 11 m thick. They represent the same lava flows as those over which Dawson Falls falls. If you examine the rock closely, you'll see it is dense, black and flecked with green crystals. These are called olivine. Geologists refer to such iron- and magnesium-rich lava as basalt. Note how the upper portion of the basalt is pocked with bubbles, or vesicles. These result from depressurized

gases within the molten lava. As the gases rise through the molten rock, they become trapped near the cooling, hardened upper surface. Further cooling "freezes" them in place forever. The fact that the vesicles are empty, rather than filled with agate or chlorite, tells us the lava here is relatively young – a mere 200,000 years old.

The lower portion of the basalt is lobed and lumpy, very different in appearance from the upper portion. Why is this? Pillows. Pillows form when lava flows into water – in this case a prehistoric creek or river. Entering the water, the lava cools quickly, and at the same time hardens into lobes. Like fresh candle wax, the lobes have a thin outer skin surrounding the still molten lava inside. Pressure within the lobes eventually ruptures the skin, thus creating new lobes as the lava oozes from the cracks. The end product is hundreds of hardened lobes, each of which bears a striking resemblance to a household pillow. Hence the name.

Near the bridge, the lava overlies a second glacial deposit. Notice how much "tidier" these sands and gravels are than the till at the top of the hill. Notice also how the sands are distinctly layered. The layers tell us these sediments were deposited by meltwater streams at the close of an earlier Ice Age, roughly 400,000 years ago.

These deposits bury a still older, though possibly related, deposit, visible at the bridge. This material is grey, hard and pebbly; it closely resembles the till at the top of the section. Close inspection, however, suggests that it is actually a debris flow: a slurry of rock, sand and clay that sloughed off the melting front of a glacier. This same glacier once smoothed and polished the rock on which the footings of the bridge now stand.

The till-like material at bottom of the Mushbowl roadcut was laid down by an ancient glacier, and then buried by lava. (CH)

Mushbowl crossing: where the bottom of a valley is really the top of a hill. (TG)

41.5 km
(25.8 miles)

- ALLIGATOR HUNTING
- RIVER CROSSING

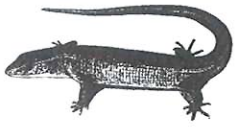
THE MUSHBOWL CROSSING

THE road crosses the Murtle River over an outcropping of Kaza Group schists, into which the river has carved a narrow gorge. This is the Mushbowl – a stretch of river aptly named should you happen to fall in.

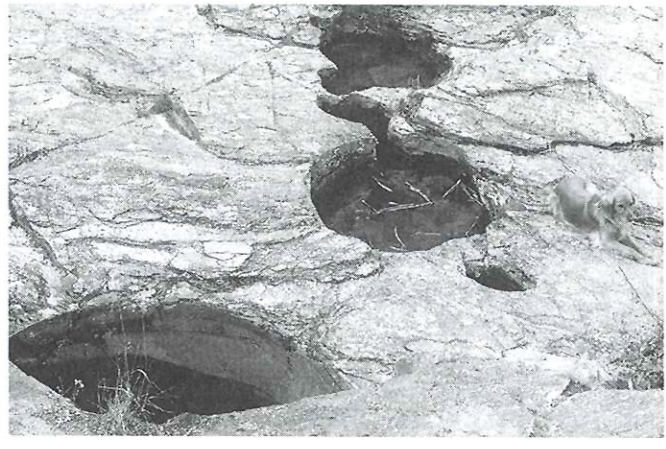
Strange to say, the Mushbowl was once an elevated hillock – one of many that underlie the surface of the Murtle Plateau. Over the last half million years, lava flows have inundated this rolling landscape layer by layer. Valleys were filled and overtopped, and eventually so were the hilltops. Later the river downcut through the lava to reveal the hillock here.

The warm, south-facing outcrops on the north side of the river have in the past supported the park's only known population of Northern Alligator Lizard (*Eglaria coerulea*). This is the northernmost of all lizards in North America, and is here near the northern edge of its range. Does it still exist in the park? No one knows. Please record any sightings in the "Wells Gray Wildlife Register" at the Wells Gray Visitor Centre.

An unsigned trail to the "Cave-of-Winds" on the north side of Dawson Falls begins just upstream of the bridge, and involves a walk of about 45 minutes return. Earlier it had been possible to actually slip in behind the falls, but this is now difficult, except at low water, owing to a rock slide in the spring of 1990.



The Northern Alligator Lizard: does she or doesn't she? (RCBM)



Pebbles caught in cracks in the rock were caused to swirl round and round by a rushing river current. The resulting "punchbowls" are located just downstream from Murtle River bridge. (TG)

PYRAMID MOUNTAIN TRAIL

4 hr (9 km) return.
Elevation change: 300 m.

42.0 km
(26.1 miles)

- MUSHROOM SNIFFING
- WILLOW WATCHING
- VOLCANO VIEWING
- HORSE FLY GAZING

PYRAMID Mountain is a volcano that erupted while glaciers covered this valley, some 11,000 years ago. In the geologist's lingo, it would be called a tuya. Yet unlike most tuyas, which have a characteristic crumpled stetson-like appearance, Pyramid Mountain is cone-shaped. Why? Read on.

The trail leaves the road at the top of the hill just north of the Murtle River bridge. For most of its length, it traverses the rolling surface of the Murtle Plateau; the only steep pitch is at the end, on the mountain itself. Be sure to carry water and mosquito repellent. (Beyond Pyramid, the trail continues another six km to Majerus Falls: be prepared to camp overnight in excellent Black Bear country.)

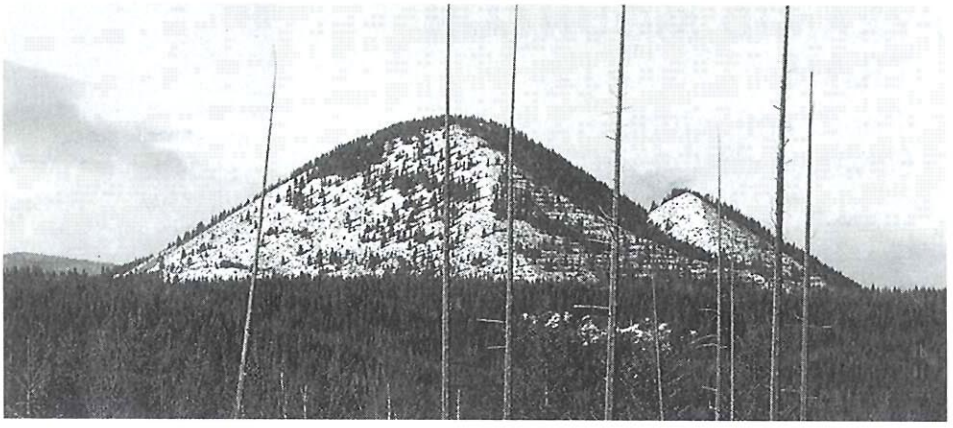
The first kilometre is through an open forest dating from the fire of 1926. Good mushroom country, this. After mid August, boletes are common, as are russulas and milk mushrooms of the genus *Lactarius*.

Milk mushrooms are easily recognized by their tendency to bleed when cut (try the gills near the stem). The "blood" (or milk) varies considerably from species to species. In the Red Hot Milky (*Lactarius rufus*), for example, the milk is whitish and, when tasted, burns the tip of the tongue (try it; you'll hate it!). By contrast, the Delicious Milky (*Lactarius deliciosus*) has a mild, orange-coloured latex. But most interesting of all is the milk of *Lactarius resimus*, which comes out white, then promptly turns yellow upon exposure to the air.

Other mushrooms can be recognized more easily by nose than by eye. Keep a nostril open for the Garlic Mushroom (*Marasmius scorodonius*). This tiny brownish parasol (growing in groups on forest litter) is sometimes smelled even before it is seen. The chlorine bouquet of the similar Alkaline Mushroom (*Mycena alcalina*) can also be experienced here, though for this you'll have to sniff a fresh cap.

Eventually the trail leaves the forest for an old burn which is now growing up to Lodgepole Pine, Sitka

The Emetic Russula (Russula emetica *group) looks more edible than it tastes. Eaten raw, it can induce vomiting.* (BCP)



Pyramid Mountain provides a wintering grounds for Moose, and a summering grounds for Mule Deer. The Red-cedar snags in the foreground have been standing since they were burned in 1926. (TG)

Alder (*Alnus sinuata*), Scouler's Willow (*Salix scouleriana*), and Bebb's Willow (*Salix bebbiana*) [see: INTRODUCING THE WILLOWS].

Understandably, this burn is a favourite wintering grounds of Wells Gray's Moose; don't be surprised if you find their droppings, affectionately known as forest glossets. The droppings come in many different sizes (depending on the size of the Moose), but only two basic shapes: pecan and walnut. On average, the former (more elongate) droppings will have been deposited by a cow Moose, whereas the latter (more chunky) ones will have been left behind by a bull.

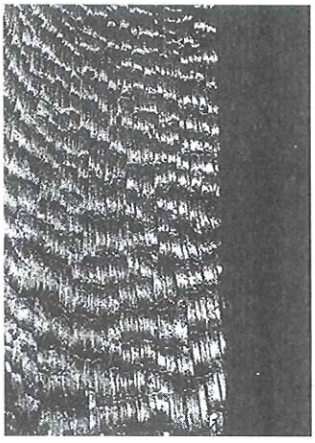
At the foot of Pyramid, leave the trail for the final pitch up the mountain. The slopes are open here, and

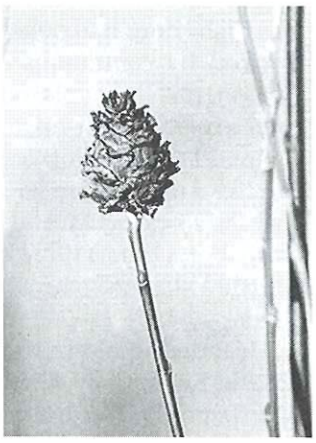
Introducing the Willows

As a favourite food of Wells Gray's favourite ungulate, willow has played a major part in the destiny of the Clearwater Valley. Had there been no willows during the 1930s, there would have been no Moose; certainly the valley could not have supported what has been called one of the densest Moose populations in western North America. In that event, it is unlikely that Moose hunters (and other recreationists) would have eventually lobbied for a park here. Perhaps it is worth saying a word or two about the park's willows.

Willows are shrubby plants with bitter-tasting bark (containing salicin, the forerunner of Aspirin) and, in most cases, long, narrow leaves. Forty-three species occur in British Columbia, many very difficult to tell apart. The problem is that the species can vary not only from place to place, but also from plant to plant. Some even hybridize, producing a rat's nest of intermediate forms.

Like people, willows come in two sexes. The so-called "pussy willows" of early spring are really just the flowers (catkins) of the male shrub, which in some species are produced prior to leafing. The female flowers (aments) come out soon after (or earlier, or at the same time, depending on the species) on a nearby shrub. Later in summer, the aments break open, and a fine cottony down is released, which carries the seeds far and wide.





(*Left*) *To most plants and animals, a charred snag is an inhospitable place. To the tiny scale lichen called* Hypocenomyce scalaris, *however, it is home.* (TG)

(*Right*) *Moose browse on willow branches; so do the larvae of various insects. This "cone gall" is a cancer-like outgrowth induced by a tiny gall midge* (Rhabdophaga *sp.*) *which once lived inside.* (TG)

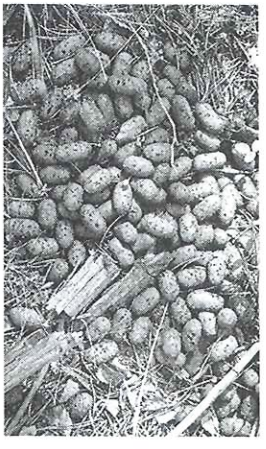
offer one of the warmest exposures in the park. Many of the plants are specially adapted to hot, arid places. Some of them are road edge weeds: Mullein (*Verbascum thapsus*: slender, two m spikes), Yellow Salsify (*Tragopogon dubius*: oversized dandelions) and Northern Goldenrod (*Solidago multiradiata*: the name says it all). Notice how all flower like fire, with yellow blossoms.

As you climb, you're also sure to notice the sickly-sweet fragrance of Snowbrush (*Ceanothus velutinus*) and Redstem Ceanothus (*Ceanothus sanguineus*); this is one of few places in the park where both species occur together. Here too dwell warmth-loving insects like the Band-winged Grasshopper (Subfamily Oedipodinae). Listen as it flies away, never far, on crackling wings.

Because of its under-glacier origins, Pyramid is no typical volcano. Its flanks are not composed of loose boulders, as a cinder cone would be, but are compact, almost like rough cement. Walking over them produces a hollow echoing sound.

The basalt here has been quickly chilled by water, creating shiny volcanic glass. A little searching will soon reveal that the mountain is loosely covered in schist, phyllite, granite and other nonvolcanic cobbles. These rocks were deposited by the glacier through which Pyramid Mountain erupted, some time near the end of the last Ice Age.

As a tuya (that is, a sub-glacial volcano), Pyramid really ought to have a "crumpled stetson" profile like that of McLeod Hill just to the east. The fact that it is a "pyramid" instead suggests that its summit did not



Here a female Moose has briefly paused on a winter's day. In summer, the droppings are soft and shapeless, reflecting a less woody diet. (TG)

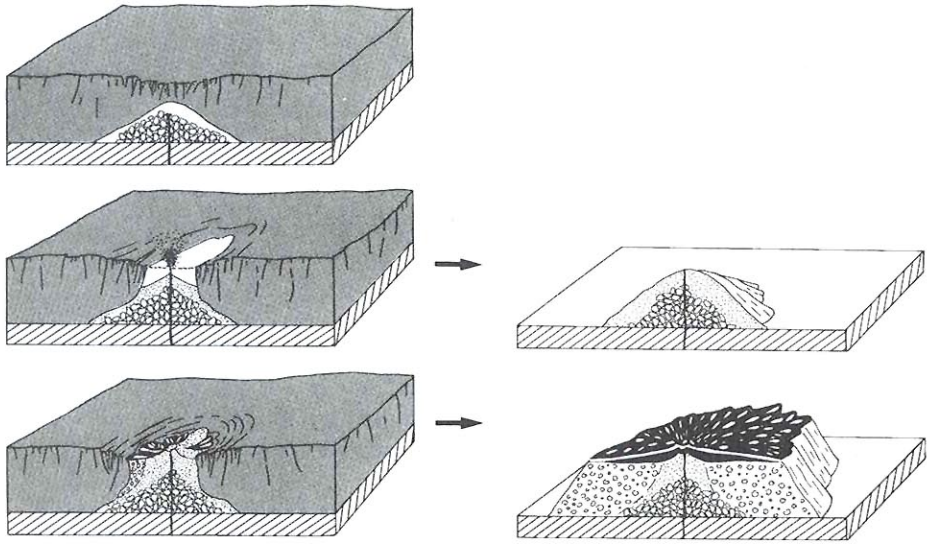
Beware the horse fly: its eyes may be alluring, but its bite is no fun. (BCP)

rise high enough to poke through the surface of the ice. Formed by continuous explosions in its underwater cocoon, this little volcano was confined to a tight cone by the meltwater it created.

Round the summit, and suddenly Wells Gray is laid out like a map before you. From this vantage you learn that the so-called Murtle Plateau is not really a plateau at all, but a broad ridge extending westward from the Murtle Valley into the deeper valley of the Clearwater River.

Meandering along the crest (!) of this ridge is the Murtle River. Only a few kilometres west of here the Murtle pours over the edge of the ridge as Helmcken Falls. From the summit of Pyramid, however, it is obvious that the Murtle River very nearly doesn't keep its rendezvous with Helmcken. As it rounds the base of Pyramid, the river very nearly flows southward into the neighbouring drainage of Hemp Creek. By so little is the Murtle held on track that an afternoon or two with a bulldozer and blasting caps might be enough to divert it. On so little does the existence of Helmcken Falls depend.

"Tuya" is the name given to volcanoes that have erupted under glacial ice. Should the eruption cease before the volcano protrudes through the surface of the ice, the resulting tuya is pyramid-shaped. By contrast, volcanoes that continue to erupt above the ice have a characteristic "crumpled stetson" look. (CH)



HELMCKEN FALLS ROAD

HELMCKEN RIM TRAIL .....PAGE 114

42.5 km
(26.4 miles)

- WATERFALLING

FOURTH tallest waterfall in Canada. A tremendous opening for hydroelectric power. Symbol of untouched wilderness. The very heart of Wells Gray Park. However you look at it, Helmcken Falls is a stunning display of the power of water. It is a must for anyone visiting the park.

The Helmcken Falls road is clearly signposted, and leads four km to the western rim of the Murtle Plateau. En route it parallels the Murtle River, and provides an occasional glimpse of what is here a broad, shallow stream. No sign of the vertical column to come.

About 500 m from the turnoff at km 42.5, the road passes an open wet meadow. Prior to 1985, this was a Beaver pond. The old Beaver lodge still occupies the centre of the opening, though the Beaver themselves have moved on to wetter pastures. They abandoned this area when they had finished cutting down, and eating, most of the available Cottonwood and Trembling Aspen trees.

At road-end you'll find a canyon-edge viewing platform and, nearby, picnic tables and outhouses. A fine place for a picnic, but bring your own drinking water.

The spray from Helmcken Falls continuously carves away at the adjacent canyon, and in so doing undermines the falls. (TG)

Helmcken Falls, situated about one mile above the junction of the Murtle and Clearwater Rivers, has a perpendicular drop of 465 feet, and from the basin into which the main falls drop are a series of smaller falls and rapids. These falls present a very beautiful sight when the sun is in the west, for then a large rainbow spans the canyon from wall to wall. The spray rising from these falls can be seen for miles.

summarized from R.H. Lee (1913)

The beauty of Helmcken resides partly in the single clean arc of its fall, partly in the deep, dark cavern which backdrops it, and partly again in the graceful sweep of canyon walls that frames it. All of these characteristics tell a story.

The story of Helmcken Falls began roughly half a million years ago. It was then, as already mentioned, that volcanoes hereabouts began to erupt tens of cubic km of molten lava from deep within the earth's crust. This lava flowed into the existing river valleys, filling them and producing thick, resistant layers of lava which were later covered by Pleistocene glaciers.

Most of the sculpting of the Murtle Plateau by the Clearwater and Murtle Rivers occurred at the close of the last Ice Age, when enormous volumes of silt- and sand-laden waters were carried down from the snouts of dying glaciers. Rivers of water poured braid-like across the lap of the Murtle Plateau carving like a sander down through the heavy mantle of glacial till and into the underlying volcanic rock.

A few centuries later the glaciers had retreated to their strongholds in the Cariboos. Helmcken Canyon, meanwhile, had already been excavated to much the spectacle of today – a stupendous gap 200 metres deep, by 300 metres across, by 1800 metres in length.

The headwalls of the canyon are still being eroded. Erosion nowadays takes place mostly in winter, when the spray from the falls freezes on the nearby canyon walls. The ice then works its way into the cracks between the columns, loosening them and adding to their weight. Every so often, whole sections of the ceiling are brought down in this way. The most recent collapse occurred during the winter of 1983; look for the brightly coloured rock to the right of the falls. Who can say how long it will be until the roof caves in, and the falls relocate some tens of metres farther upstream.

How is it, by the way, that the Murtle carved a canyon, and not just a steep-sided valley? The answer is columns. As each layer of lava rock cooled, it developed vertical fractures inward from the top and bottom. If you could examine the fractures from above, you would see they are actually polygonal columns all fitted together like the cells of a honeycomb. Wind, rain, ice and snow cause the columns to weather away, but instead of crumbling grain by grain, they fall away in slabs, like slices of bread, leaving the cliff face intact.

The Violet-green Swallow can be identified by its white "coat tails." (BCP)

Meanwhile the river below, acting as janitor, carries the rubble away.

Attempt to approach the brink of the falls from the viewing platform, and you'll find your way blocked by a 75 m deep canyon. Nowadays that canyon is occupied by Cougar Creek, which drains into Helmcken Canyon over a waterfall about 20 m tall. It was not always thus. Prior to 11,000 years ago, this canyon carried the glacially swollen waters of the Murtle River (or its predecessor); it was these waters that carved the canyon in the first place. With the eruption of Pyramid Mountain, at around 11,000 years ago, the drainage pattern altered, and the Murtle was obliged to find a new point of entry into Helmcken Canyon. It is owing to the eruption of Pyramid Mountain that Helmcken exists at all.

The White-throated Swift is a recent arrival at Helmcken Canyon. Stay tuned for its excited, but descending, "jejejejeje." (TG)

At the same time as it downcut into the Murtle Plateau, the Murtle River effectively opened a public archives to the history of the Clearwater Valley. It is easy to read the story recorded in these canyon walls: how when the first volcanoes erupted, 200,000 years ago, they buried a valley with a gravelly river bed; how afterward the lavas poured forth at least 20 times; and how then finally – or not finally, but only most recently – the glacial till of the last Ice Age capped the latest outpourings.

During January and February of every year, the canyon nurses an enamel-blue cone of ice in its lap. Although dwarfed by the falls itself, the Helmcken ice cone, in a cold winter standing taller at its crest than a 20 story building, is quite possibly the most impressive sculpture of its kind.

The north wall of Helmcken Canyon is interrupted by a layer of steam gravels – evidence that the lava flows were deposited over an extended period. (TG)

- CANYON VIEWING
- PELTIGERA PROBING

HELMCKEN RIM TRAIL

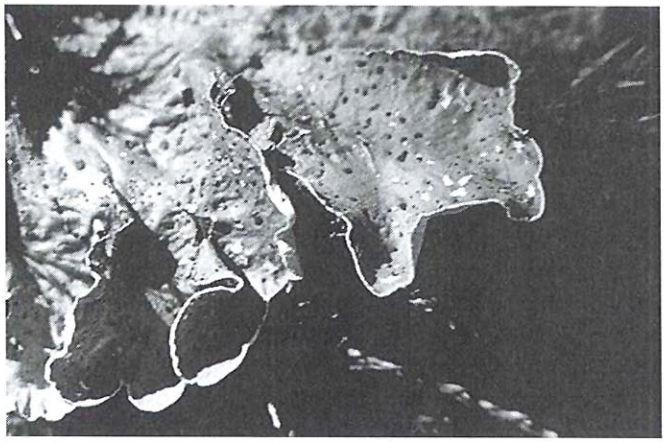
30 min (1.5 km) return. Elevation change: 25 m.

The trail that follows the viewpoint fence west, or away from the falls continues about ten minutes to a fine overlook of the confluence of the Murtle and Clearwater Rivers. This little stroll is highly recommended, but keep in mind that you are still skirting the rim of a canyon; once you pass beyond the fence you are on your own.

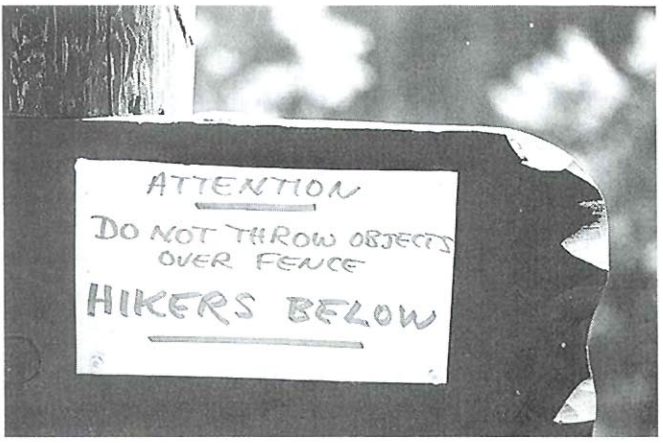
The plants along the rim of Helmcken Canyon are to some extent reminiscent of the interior dry-belt. Clumps of Bluebunch Wheatgrass (*Agropyron spicatum*) – here probably at its northern limits in the Clearwater Valley – intermingle with trailing stems of Kinnikinnik (*Arctostaphylos uva-ursi*). A single Rocky Mountain Juniper has also caught hold not far from the viewing platform. Good drainage and full exposure to the summer's rays have contributed to the development of this little enclave of semi-desert life.

At canyon edge, the trail passes various ground-dwelling lichens at home in the semi-open conifer forest. Watch especially for colonies of Pelt Lichens (*Peltigera* spp.), of which the easiest to identify is the Freckle Pelt (*P. aphthosa*): an emerald green "scatter rug" (turquoise when dry) whose upper surface is faintly speckled with numerous tiny "freckles" (technically cephalodia).

The Freckle Pelt is not, as it would seem, a single plant; rather it is made up of three quite unrelated



The Freckle Pelt (Peltigera aphthosa) *is only one of 24 species of Pelt Lichens that inhabit the forest floor in Wells Gray.* (TG)



This picture is worth a thousand words. (TG)

organisms, namely an alga (accounting for the greenish upper surface), a fungus (the cottony lower surface), and a cyanobacterium (the cephalodia). Each of these partners derives from a separate kingdom of life. The only kingdoms not represented here are the plant and animal kingdoms.

At the overlook, Helmcken Canyon forms a T-junction with the much larger Clearwater Canyon. From here it is easy to imagine how the lavas of the Murtle Plateau once extended across the entire valley, but have since been cut into by the rivers. The cliffs below you fall away about 150 m.

The trail continues north beyond this point, and will eventually lead, as a very rough route, to a splendid worm's-eye view of Helmcken Falls. Allow about five hours return, and be prepared to dodge falling rock.

At the confluence of the Murtle and Clearwater Rivers, you'll have no trouble imagining a time when lava flows extended right across the valley. (CH)