

## Subnivean Sublime: the beauty of snow tunnels

by Mike Duguid

In winter, from within the storm's fury, frozen sculpture crawls around cold black rock, forming swirls and edges, sputtered and crackling textures. Snow and wind dance a vigorous tango of deposition and erosion. The battle between air and land, usually invisible, now becomes solid form in cornices, waves and windslab etched into geometric ripples of sastrugi.

If we're intrepid in our exploration and lucky with weather we can catch these at their best: aglow with a dawn palette of pinks, blues, amber, wrapped in tendrils of sparkling spindrift like ice ghosts sculpting their magic around us.



*Sunrise at Coire Boidheach*

The high Cairngorms are rarely that kind though, and it's more usual to be staggering through a storm, bleary goggled and grimly focused on the compass in a frost-encrusted mitt, barely glimpsing what nature forges around us. In a few months, winter has retreated and these sculptures have splashed down gullies into The Dee, their glittering magic forgotten

as summer hazes the plateau in muted pastels. Only tiny islands of snow survive amongst the sizzling uplands: bright speckles and notches winking amongst a landscape of grey and brown rock and heather.

Winter's still got a last gasp for the dedicated chionophile, a final sculpted surprise in blue for the off-trail adventurer. Hidden underneath a rare few of those quickly melting patches, where the contours agree, the wind blew true and the snow packed deep, and if the thaw and rain of spring was not a torrent, then for a month or so we can perhaps peek inside the incredible beauty of a snow tunnel.



My first inkling of their existence was on a blaring hot June ascent of Beinn a Bhuid. I was drawn across the baked ground to a tiny bright remnant of the "Laird's tablecloth" snow patch, and peaking into a small gap was surprised and intrigued by the cool air and the unusual colours painted by snow algae, and resolved to explore more of these in future - I wondered if larger examples existed. It wouldn't be until a few years later, after much winter exploration looking for places of deep snow accumulation for the purpose of snowholing, that I'd arrange a specific targeted exploration of them.

It was worth the wait though - on a scorching day, hot and bothered from scrabbling up each high contour, to enter one is a delight on the senses: shaded from the glare and soothed by chill, a gallery of exquisite shape and colour alien to the parched surroundings. It's been patiently hewn outwards: first by a thawed stream gurgling to life in spring, then sculpted cavernous by rivulets of meltwater spinning sinuous magic down from the ceiling. A cascade of curvature, all eerily glowing with submarine hues.



A late June might be the best time; before then these spaces are dark and narrow labyrinths, unseen deep below the snow with no easy entrance. One might enter not with abracadabra but deft enlargement of a small entry point with the shovel or axe. It takes time for them to grow wide and bright into something one would be confidently drawn into, so summer must be well afoot but not fully inclined. A fortnight later and the sun has burned through the roof, their collapse more rapid once the warm air can easily circulate within. The final jumble of bergs succumb quickly to the sun and dissolve into the stream.

How does one see such a fleeting phenomenon in the vast spaces and distant nooks of The Cairngorms? First one must understand why only a few spots accumulate deep snow. Our prevailing westerly winds blow across the heights, gathering spindrift, and a hollow or gully that provides refuge for spindrift to drop out of the wind and also shields from direct sun is a good candidate, usually steep-sided gullies splitting the high plateau. With a target location we also need a date, and fortunately when to prospect to these distant places is greatly aided from space. Every day, the Copernicus satellites capture photos from 785km above, and when clear of clouds, we can see snow patch cover shrinking into summer with the last few remnants often indicating a place of high snow depth. An online archive allows looking up dates and places of the best snow tunnels from previous years and comparing what cover remained then and now.

Using these methods over a few years has led to the discovery of some fairly reliable locations, albeit way off the usual trade routes:

**Lochnagar** - Coire an Daimh Mhoile's narrow confines are the best here, while Coire Boidheach holds snow deeper and later it's not sufficiently v-shaped in profile for something large (though I first spotted "tunnel breathing" here where the inside fogs and clears on a periodic cycle). The upper Glas Allt and Allt a Choire Dhuibh might only form something in a very good year of snow.



*Waterfall chamber at Coire an Daimh Mhoile*

**Ben Avon** - Flowing south, the Allt an Eas Mhoir and its eastern forks, the northern upper part of Allt an Eas Bhig, and the steep snow patch at 1309 SE of Carn Eas. Flowing east, Allt an Sgoir Ribhaich (difficult geometry at the confluence above the falls), Allt Phouple and Allt an t-Saighdeir.

**Ben Macdui** - a well known one exits the slabs of the Feith Bhuidhe near Hell's Lum. Garbh Uisge Beag is less visible but equally reliable.

**Beinn a Bhuird** - The Allt an t-Sneachda is the right shape but not quite high enough so has only small fare, but the Allt Dearg western fork gully below Cnap a Chleirich has a bowl at 1050m that is the biggest of them all, the huge table-top plateau to the west catching a large harvest of spindrift - it often provides a tunnel over 100m long, and is easily seen from distance when emerging from The Slugain. Elsewhere, south-west of The Sneck is sometimes 'in'. To the north, The Allt Stob an t-Sluichd from 1000m to 850m has some good waterfall snow caves.

Outside any considerations of snow tunnels, many of these are worthwhile alternative routes of exploration, particularly later in summer when the combination of rock, waterfalls and pools can make for an attractive hike/swim/scramble ascent isolated from the summer crowds.

One has to consider safety before heading for and entering a tunnel. Exploring a disappearing structure has obvious hazards, but the first consideration is recent and current weather. A dry period means any stream is a trickle whereas recent rain means the snow pack is heavier and less stable. Excessive heat quickens melting, but strong sunshine illuminates the inside.

On arrival an inspection all around is required: the top surface, edges, and inner structure - looking for any cracks, imbalances in support (i.e. not arch-shaped), and any recent signs of any collapse. A route in and out is considered - upstream/ downstream, what other gaps could be exits (sometimes a randkluft provides this),





and any deep or impassable waterfalls or pools. The nature of the terrain will involve some clambering on wet rock and vegetation around the edges, and I've found it usually better to commit to wading in-stream rather than limbo dancing on moss around the edges in a constricted space. It's like gill scrambling but with very cold water and under an ice roof; neoprene socks and fast draining trail runners work well. Once inside the clock is ticking against the cold and wet and exit will need to be made before extremities become numb.



I recall such an exit from underneath the Allt Stob an t-Sluichd, a remote place where I'd be very surprised to meet anybody. I'd spent 20 minutes below the snow attempting to photograph the best angle of a waterfall pool, and rather than contorting back up past wet rocks to the entry, I decided to excavate a small randkluft at the side. Levering

myself out, dripping wet and swatting the excavated pile of snow aside like some demented yeti-snow-mole, I turned to a surprised intake of breath - a lady hiking nearby stared at me open-mouthed. There was no response to my quick "hiya", she hurried onwards, double-taking glances backward at the apparition. I do wonder if and how she recounts my sudden appearance when telling tales of her mountain adventures.

Those inclined to explore these should look to do so sooner rather than later. It's a tiny window of opportunity each year and sometimes the snow will not have laid deep enough, or heavy spring rain will have accelerated the thaw prematurely. With a typical height of above 1000m needed and only certain aspects and topography suitable they'd always be a rarity, but nowadays their brief display becomes shorter, their beauty more scarce.

Snow tunnels are sufficiently ephemeral and unexplored that they get barely a passing mention in over 100 years of our journals - usually a few words of a curious glance from the outside that didn't reveal the wonder within. Unseen by most, a curiosity of the natural world that will probably be lost from The Cairngorms in the lifetimes of our younger members. At the time of writing, the Laird's tablecloth, a snow patch described in Victorian times as everlasting and where my intrigue of the last few years

started, has melted away earlier than ever before. This article may well be both a literary hello and goodbye to this phenomenon in our mountains.



*More snow tunnel photos here: <https://bit.ly/snowtunnelphotos>*