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## Journey to the heart of the “Dead Plain Glacier”

*“Into the Deep” by Dominik Osswald and Christian Muelhauser was in the *Tagesanzeiger* and then translated into English. Heavily edited by Helvetia Team*

“La Plaine Morte” Glacier is located in the Bernese Alps in an ice field covering 7,88 square km. The area is accessible by cable car and is enjoyed by hikers and cross country skiers. The summit offers impressive views of the Valais Alps and a large lake formed at the eastern base of the glacier. However, the glacier itself is as untouched as its name suggests.



In December 2018, a group of explorers decided to go right to its heart. At an altitude of 2,700 metres, the 200-metre-thick ice lies in a gigantic basin high above the valleys of Valais and the Bernese Oberland. There is hardly any life up here; the vastness and wind ruffling the surface of the snow are about the only forces to be found.

The dead-ice holds many mysteries, and nobody knows them better than Fred Bétrisey and Hervé Krummenacher. That glaciers have their own, hidden lives has been known for a long time. In summer, for example, we can see melt water disappearing in deep holes, but nobody really knows what happens next. The fact that the water eventually flows out at the end of the glacier suggests that there must be a well-connected canal system somewhere down there. They want to do what has never yet been done: to inspect the whole labyrinth, in all its dimensions.

The beginning of winter is cold and dry – ideal conditions to go inside a glacier. Indeed, the expedition starts

on a promising note when we arrive at the moulin [circular shaft in a glacier] in the middle of the plain. In summer, when the accumulated water thunders down into the valleys, this would be the ideal place for a murderer to make a dead body disappear forever. In the winter, however, the water runs dry. On an earlier exploration, they had already been as far as 150 metres below the surface. “At first it’s a vertical drop and then you enter a narrow corridor on the side...” Fred explained a few days ago and now, impossibly, we are here, abseiling into it.

After 50 metres we reach snowy ground and are instructed to remain tied to the rope at all times. “It looks different every year,” Fred says, looking up to another gigantic snow bridge towering high above us. “If it tumbles down, we’ll be trapped. “If there was a bit more snow, we wouldn’t stand a chance,” he says. Fred calls out of the darkness. We follow him. We have just entered a completely new world: we are surrounded by blue ice, which is as hard as concrete and reflects the shining lights of our headlamps. Snow crystals sparkle all around us. The ground is as flat as a pancake, ice cracks underneath our crampons and our sounds echo through the labyrinths. After having crawled underneath a snow layer wedged between the walls of the corridor, the terrain allows us to walk upright again. Here the corridor is a few metres high suggesting a curve of about 180 degrees. In the light of our headlamps, we can see that the ice has been shaped into a pillar.

Suddenly, we see a fly frozen in the ground. This discovery is not only

a reminder that once a glacier has captured something, it does not give it up readily; it is also an indication that the flat ground we are standing on is actually frozen stagnant water. We are now 70 metres below the surface. The lower we go, the higher the tension. What would happen if one of the narrow corridors behind us collapsed? We would most likely end up like the fly. However, the ice is as bombproof as a brick wall, and it does not give the impression that it wants to trap us. “The biggest danger is the water anyway,” Hervé says. “You can also find water down here in winter. We are lucky this year: due to the dry autumn, the water has trickled farther down. A sudden rise in the water level would be dangerous.”

This is where we stop our first excursion, neither Fred nor Hervé have ever been beyond this point and the long return leg would keep us busy for the rest of the day. When we get back to the surface, the sun has long disappeared behind the mountains. The flat glacier glows in the faint light of the stars.

Fred and Hervé tell us about their plan for the following day: they want to look for the entry point on the eastern end of the glacier, where the water has cut a gorge into the ice. “The outflow must be gigantic,” Fred says, explaining that in summer a gigantic glacial lake, the Lac des Faverges, usually lies there. Come autumn, it suddenly vanishes when around two cubic metres of water gushes through the glacier and only reappears when it flows into the Simmental Valley. “It is as if someone pulls the plug of a gigantic bathtub.” The tranquil Simme turns into a raging river



and, with the increasing size of the lake, the threat of a devastating tidal wave gets bigger each year: it has actually tripled in size over the past five years. And because the level of the glacier has dropped, the lake can no longer drain into Valais, across the ridge. The creeks there have dried up and all the water now ends up in the Bernese Oberland. Since 2011, the Lac des Faverges has been under close surveillance so that the population can be warned in case of bursting.

Hervé and Fred are convinced that – at least at times – the corridors must be connected throughout the whole glacier; otherwise, the lake could not drain. The underground canal system expands across 3.5 horizontal kilometres and 250 vertical metres and exploring this gigantic space has long been a dream of theirs. "You would have to do it wearing a complete diving suit because of the water level," Hervé says. This means that from a certain depth onwards, it would probably feel like being inside the sinking Titanic, with all the corridors filled with water. We contemplate this for a little while until the cold drives us into our sleeping bags. It's minus 25 degrees, lonely and completely silent and hard to believe that all this will disappear in the coming decades.

The Plaine Morte Glacier has retreated more than any other glacier in the Alps, even though it was doing relatively well between 1960 and 2002. Then, the amount of ice in the winter was almost identical to the amount of melt water in the summer. However, since the turn of the millennium, there has been a rapid change and there has been less and less snow on the glacier during the summer. The rule of thumb in glaciology is that in order to keep the natural balance of a glacier, at least two thirds of the icy surface needs to be covered in snow throughout the year. Over the past four years, the Plaine Morte was completely bare by the end of summer.

The following day, we step into the empty lake basin. Initially flat, the trough ends up in a gorge, which has cut itself deep into the ice. The ground is covered in snow, which makes walking comfortable. However, it is also a bit disconcerting, as we have no idea what is beneath us. We are roped together, getting closer to the end: an immense wall of ice towers above the arches, which looks like the entry portal to a tunnel. This must be the drain of the lake. In summer, millions of litres of water thunder down here on their journey through the glacier.



We arrive at the ice wall and are disappointed to see that the entry is full of snow. Aerial pictures have shown that the course of the gorge is similar to a trouser-zipper: at the start, wide open, but then reduced to a tiny crack in the ice before finally disappearing completely. The pictures also show three holes in a row, which seem to indicate the course. Could these be moulin that end up in the underground canal system? When we descend vertically into the depths of the glacier and hit snowy ground we see something that makes our hearts leap. At the lowest point, we find icicles hanging above a dark hole with a diameter of about one metre. Dark holes are good. The darker, the better. It must lead somewhere. We fix a rope and crawl underneath the icicles. Our sounds of excitement echo powerfully throughout the maze. This is only one indication of the vastness of the space we are in; our headlamps also fail to find any sign of an end.

A narrow but high shaft leads into the darkness. We are surprised to see that it gets brighter after a while. Faint blue light shines in from above. High above us, we can see something that looks like a round lid, letting some daylight in at the side. Could this be a moulin, covered over by snow on the surface? Is this what the snowy ground we walk on looks like from below? The fact that daylight gets in makes us believe that it is anything but solid. We call it the 'UFO lid' (apparently, this is what a UFO looks like from below) and hope that it will not come crashing down on us.

We have reached the water. We carefully move along the ice. Ice floes are swimming in the corridor. Below our feet, we encounter another problem. The

shaft ends and flat icy ground opens in front of us. After only two steps, it collapses. We start sinking in and quickly rush back onto solid ground. There it is: the water that does not freeze inside the glacier throughout the year. Alpine glaciers have a stable temperature of about zero degrees inside.

Progress becomes cumbersome: we fix a rope on the sidewall and move carefully along it, inch by inch. Every so often, we pass big chunks of ice in the corridor and we carefully test their load-bearing capacities. Sometimes they offer solid ground.

Finally, we reach a space as big as a chapel. A small lake appears in front of us. Far above, we can see the light shining through the UFO lid. We are probably the first people ever to enter this space. On the walls, we can see fragments of ice plates indicating that the water level must have been much higher not too long ago. Some of these ice plates are as big as tables and are towering menacingly above us. We wonder whether our combined body temperature could generate enough heat to make them tumble down. We decide not to hang around too long.

At the end of the hall, we can see a continuation of the tunnel. The corridor disappears into the water. "Next time, we should bring wetsuits," Hervé says to Fred. They are serious. We can sense that they feel at home down here. No adversity would make them give up on their dream. We, however, have reached the end. And who knows what it will look like next year...