

IMPERIAL COLLEGE CAVING CLUB

THE HOLLOW MOUNTAIN II

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Editorial

Looking back over the caving exploration between 2007 and 2012 it almost seems like it was a pre-ordained story. Living it, it never seemed like this, rather a more confused and complicated picture, individuals actors without a script, pulling together in some vague direction but towards perhaps an achievable objective.

If exploration were a rational expenditure of efforts towards a known end, the scenes would be rather more simple to describe - we realised how close we were to the connection of Vrtnarija and Kavkna Jama (M2) after more carefully analysing the 2007 “Kill ’em All” survey data. To pursue this, we rebolted and rerigged Kavkna Jama in 2008, while exploring on the other side in Vrtnarija. In 2009 we established a camp in Vrtnarija at the nearest suitable point to the closest approach, and used it to massively increase our time at the pushing front. In 2010, 2011 and 2012 we camped deeper in Vrtnarija, while pushing Kavkna Jama from the surface both during the Summer and on Autumn / Winter trips. In 2012 we connected the systems, forming the longest cave system in Slovenia, and one in which the vast majority of cave passage is at depths greater than 500 m.

However, this isn’t the real story of exploration. Rather, it is the story of the people involved that is the true history of Migovec. For the connection was not made in the obvious location between Kavkna Jama and Vrtnarija, but down at 650 m of depth, as the result of yet another successful, to the point of routine, pushing trip. Motivated by the connection target, during 2008 we flung ourselves into the exploration of Captain Kangaroo, Vrtnarija. At the grim pushing front were the youngsters, highly motivated but lacking the experience to go deep. Lacking in time at the pushing front we determined to go back and camp in 2009.

“The art of roughing it is in smoothing off the edges.” Stories of draughty campsites, cassette players slurring to an undignified quietness, shivering through the night, and unlabelled plastic bags of miscellaneous white powder were retold by the experienced members, and duly obsoleted by careful consideration of the logistics. We went back with free standing tents, layers of fleece, MP3 players, modern winter-mix gas stoves and LED fairy lights. We went back to stay, and almost effortlessly pushed this tough branch of the cave down to 550 m.

This new generation of cavers, who cut their teeth in Captain

Kangaroo, suddenly found themselves with the endurance and know-how to successfully explore at depth. Though the connection of the systems were certainly still a major aim of 2010, 2011 and 2012 expeditions, we were mainly there to push deep new cave passage. We re-established Camp X-Ray (550 m deep) as our main base, and improved on it year after year till it became a truly palatial location. And now that the going was once again deep, we were rejoined by the more experienced members of our club, for whom the prospect of another grim rift in Captain Kangaroo was not suitably motivating. And as our collective abilities improved, normality shifted. Exploring over multi-day camping trips, hot bunking and the considerable feat of endurance just to reach and return from these depths became standard practice. That which was just-possible the year before became the standard trip, that which was beyond our reach became achievable.

I am proud of the time that I have dedicated towards these expeditions, and every moment spent with the people involved. There are others in the club who have contributed very much more. We were all volunteers - we did all this because we wanted to, but little would get done if we only did things that were fun. Spending your free-time down caving stores fettling kit is neither particularly enjoyable nor directly rewarding. Carries in the hail and rain are arduous and unpleasant. I don't think it is possible for this document to understate the sacrifice of time and effort made by expedition members and friends. Forever lacking in adequate funding and gear, unrecognised and often misunderstood, we have achieved our exploration on a wing and a prayer.

This exploration report is dedicated to our many friends who assisted, sponsored, carried, hosted and advised. You all contributed to the achievements documented herein.

And so, Ninety-Nine years after Apsley Cherry-Garrard returned to South Kensington with the Penguins Eggs, we return to our college with a minor news story and a few pretty photos for their website. For those involved in the exploration of Tolminski Migovec far more precious are the memories of friendships formed deep within the Hollow Mountain.

We were always in the longest cave in Slovenia, we just hadn't realised.

Jarvist Moore Frost

We shall not cease from exploration
And the end of all our exploring
Will be to arrive where we started
And know the place for the first time.
Through the unknown, unremembered gate
When the last of earth left to discover
Is that which was the beginning;
At the source of the longest river
The voice of the hidden waterfall

T. S. Eliot

Vodna Sled: Slovenia 2010

Vodna Sled 2010 was a clear success - in all we discovered 2.2km of new passage, all below -500m, all in Vrtnarija using CAMP X-RAY (RELOADED, now a plush four bed camp at -550 m) as a base. The majority of the discoveries lead from a horizontal series near ZIMMER chamber with numerous un-pushed leads for next year and over 1.5 km of passage. Significant amounts of exploration also took place in TOLMINSKA KORITA concluding with a connection to the 'deep' level at -653 m, and pushing the REPUBLICA streamway from -744 to -802 m.

Expedition Overview

Twenty-two expedition members travelled from the UK for a total of 65 person-weeks in the field, with 88 person-trips in our callout roster. Seventeen from the UK stayed at underground camp, along with six Slovenes from the local JSPDT club, a total of 95 people-nights at camp. All successful exploration took place on camping trips. This was the first expedition for three first-year UK students, all of whom stayed at underground camp and discovered significant quantities of new cave.

In all, the cave consumed a kilometre of rope for the rerigging of the main pitch series, and newly explored sections left rigged (or with rope pulled up) for 2011.

No work during the 2010 expedition went into M2 (Kavkna Jama), directed towards forging a connection with Vrtnarija. However, during the early Autumn two JSPDT trips capped through the tight rift at the very end of the cave (~-390m), discovering and then descending a ~60m pitch.

The prospects for 2011 are extremely good. The extensive horizontal development has led to the discovery and initial exploration of a number of independent streamways and associated pitch series, in a horizontal slice of the mountain we have never visited.

Expedition Findings

The initial effort of the expedition was directed into setting up underground camp. As the first pushing trips from this underground camp came back with positive news, exploration based from camp (i.e. deep in Vrtnarija) quickly became the main focus of expedition

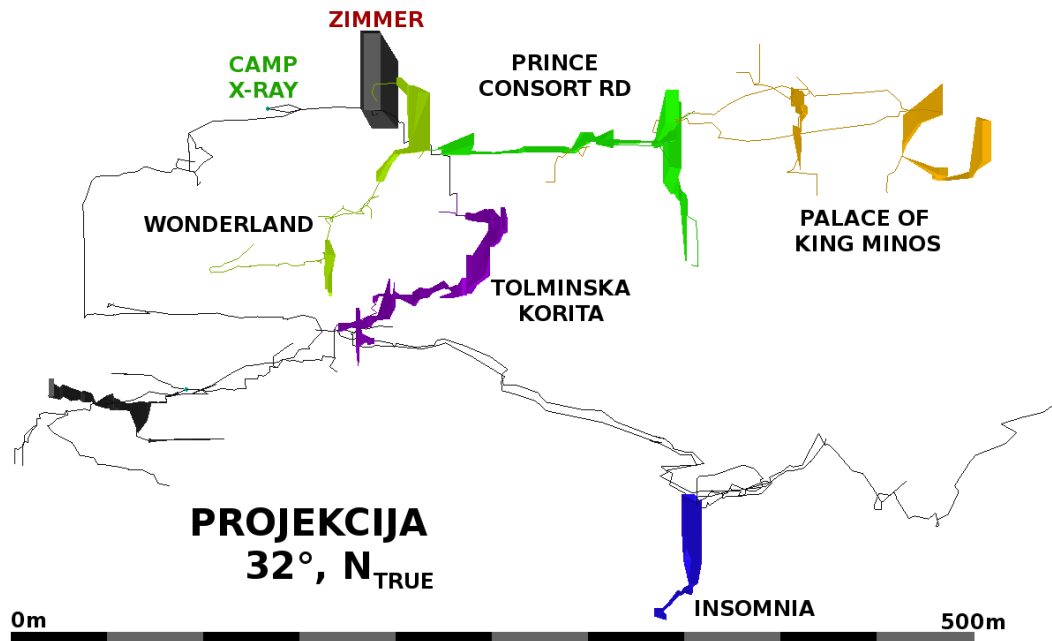


Figure 1: Colour coded diagram of new cave discovered & surveyed in 2010 in Vrtnarija.

effort. This came at the cost of further work in bounce trips down Captain Kangaroo (Vrtnarija, the likely connection region to M2) and M2 / SysMig itself.

The usual surface bashing continued, looking for new cave systems on the plateau. A revisit was made to the area north of Kuk. This region is heavily cratered with clear cave development, but the fear is that the limestone is too broken and chossy for a human sized entrance.

We first visited this region with a serious aim of cave exploration in 2008, and returned in December 2009 on a 'winter recce' by a two person team with ice axe and crampons to identify which surface features were actively linked into extensive underground systems through the holes blown in the snow. Several more entrances were identified during this recce, ones that were likely to be continued to be ignored in the summer due to their unusual position.

These entrances were relocated this summer, but no new descents were made.

Leopard — 1.5 km of new passage

Leopard became the great focus of exploration this year. This lead (a window off Zimmer chamber, now a 15m 'up' pitch) had also been originally discovered in 2001, but the drop that it led to had lain untouched since then. This was partially due to its loose and muddy nature, but also that deep exploration had concentrated on good leads elsewhere (most particularly the lower Vrtnarija level accessed with the bottoming of BIG ROCK). This took several sessions of rigging and gardening to successfully conquer, and is now named Cheetah (P35m), because of the sense of having cheated death that it engenders on passing. There are several windows off Cheetah,

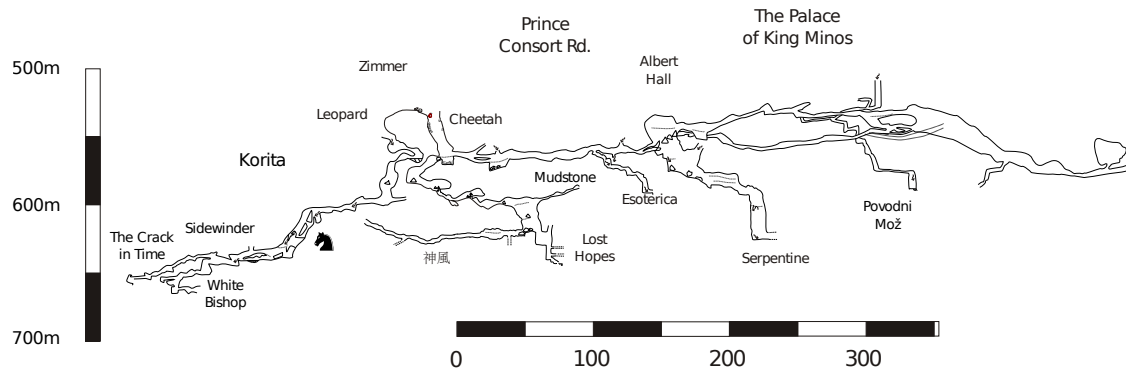


Figure 2: Extended elevation of new cave discovered in TOLMINSKA KORITA and PRINCE CONSORT during 2010 Expedition.

which are definitely promising, although not easily accessible because of the broken nature of the rock.

At the bottom, it intersects a horizontal, fossil passage, which has been explored in three main horizontal parts:

Wonderland (heading South) linking into Rolling Stones, Surprise, Mudstone Traverse, Kamikaze and finally Lost Hopes. Mainly dry with large breakdown chambers.

Prince Consort Road (heading North) was initially pushed to THE ALBERT HALL (from where the SERPENTINE meander leads off to the IT WILL RAIN FOR A MILLION YEARS pitch), bisects three streamways (one of which was pushed and forms the Esoterica series) and includes considerable calcite formations.

From THE ALBERT HALL a climb was made into the PALACE OF KING MINOS. This passage is complex, and side branches have neither been fully explored nor surveyed. The known passage leads via Minotaur Rift to terminate in the Queens Bed Chamber where the draught disappears towards the ceiling.

Together this passage leading off from Cheetah has been explored to over 1.5 km in length, and we are sure that more is yet to be found.

A significant volume of air flows through these regions, indicating that there may be further developments.

Wonderland

Wonderland is the southern-most of the horizontal development, leading directly off from Cheetah. It was pushed to a small pitch dropping into a boulder filled chamber, Rolling Stones, which was the limit of the first exploration trip due to the lack of rope. This chamber is situated right below Zimmer, about 40m deeper. There is a further, as yet unpushed, pitch going down between the large, seemingly unstable, boulders on the floor.

A happen stance crawl behind some boulders led to further draft-ing passage (Hidden Surprise), which, after traversing another chamber and crawl, finishes in a chamber with a massive hole in the floor (Kamikaze pitch). The passage continues on the far side of the pitch (traversed on mud along the left wall), however, due to the collapsed ceiling, these developments are almost two-dimensional (Mudstone

Squeeze). The squeeze, which is filled with interesting fossilised mud formations, was pushed to the limits of comfort, although it still continues.

Kamikaze consists of a series of small ledges. From the second ledge a tell tale breeze led to an interesting bedding plane crawl pushed upwind but still untouched downwind. The pitch was bottomed (Lost Hopes), wherein an inlet was followed down a 10m pitch to a series of squeezes and rifts which quickly became tight. There is a ledge halfway down Lost Hopes, with a perhaps larger abandoned rift.

These three leads (Kamikaze, Mudstone, Lost Hopes) are of interest as they now form the most Easterly extent of Vrtanarija at depth, seeming to 'spear' through the large N-S geological feature that contains the majority of the horizontal passage.

The whole area of Wonderland is extremely dry, quiet and rather spacious in its scope. It is particularly reminiscent of the higher level passage in the Easegill system, Yorkshire.

Prince Consort Road

Prince Consort Road is the passage going north from Cheetah. Several streams intersect it and some formations have been found there. The discovery of stalactites covered with helictites proved particularly exciting! The passage leads to a small boulder choke which was easily surpassed and led to a large chamber (the Albert Hall). Before the Albert Hall, three apparently unique streamways have been found:

One intersecting the passage along a traverse (water chokes into boulder floor), then around a small chamber at about halfway to Albert Hall, on a corner of the main passage approximately 2/3 of the way to the Albert Hall a small rift to the east, and a nice white-sanded water inlet to the west. The latter leads to an unpushed pitch under the main passage, there is a cairn and note mentioning the lead. Of these, only the second has been pushed, into the Esoterica series. Strangely this wet, tight rift has only been visited once during the expedition, even though it is still going!

In the Albert Hall two streams enter the chamber from on high (the ceiling was measured as being over 30m up, by laser disto) and join into a rather beautiful spacious vadose streamway (The Serpentine). Serpentine was pushed and leads to another split pitch (It Will Rain for a Million Years — pushed during a continuing flood pulse). At the bottom of It Will Rain pitch the stream continues and has not been explored.

The Palace of King Minos

North from the Albert Hall a muddy climb lead to The Palace of King Minos. This passage and its continuation (The Minotaur Rift) has some of the most beautiful formations found on Migovec to date, in particular fine walls of calcite, gypsum and aragonite crystals,

mud formations and weird soot encrusted floors. The Palace has a labyrinthine nature with several passages leading back to Albert Hall, the largest loop of which was named Ouroboros

The passage has a classic large phreatic lozenge shape, with some parts undercut by fossil vadose passage. Near the start of the passage a significant breeze blew through a small hole. This was enlarged and found to lead to a small phreatic tube which bizarrely led into an active vadose streamway (Povodni Mož — Water Nymph). Povodni Mož has been pushed upstream to a large active aven (and smaller dry parallel shaft), and downstream to a sump (approximately 2mx2m in size in the corner of a small chamber and taking the small flow) and has hence been derigged.

Continuing along the main Palace passage several horizontal tubes have been explored which lead back into the main passage, though not all have been entered in the survey. Eventually the main route leads to a high and wide rift (Minotaur Rift — 20m high, 60m long) beyond which the best formations are to be found. This passage has a few interesting leads in it: a high, dry, circular, muddy window to the right of the passage near a tiny inlet, 2 small tubes leading off the main passage which both need a little mechanical persuasion.

The chambers beyond Minotaur Rift are spacious and display massive amounts of crystal formation on all available surfaces — there is white ‘popcorning’ almost everywhere, with regions of more intricate needle and feather formations. The chambers decay into a crawl, which almost unbelievably is over a smooth calcite floor. This leads to a classic boulder choke gallery (choking at the end). On the left a small boulder choke climb leads to the Queens Bed Chamber. In this large room, the draught appears to disappear up towards the ceiling - both ends of the chamber are potential climbing projects (~+20m).

The region is extremely reminiscent of Ogof Ffynnon Ddu II in Wales.

Tolminska Korita

This lead of Zimmer chamber had been discovered in 2001 but had lain unexplored until last year, when the first few pits of the active meander were pushed to a larger pitch. Korita developed into cascades of active pitches (Black Knight series) to a duck. The duck was soon bypassed by a 5m free climb into old phreatic level.

The passage beyond soon diverges into two continuations:

Sidewinder, Crack in Time

The higher dust filled dry phreatic level (Sidewinder, Crack in Time) connects into ENVY in the low level via free climbs and two small pitches. It is not particularly surprisingly that the ‘Crack in Time’ was not explored from below, as the connection is made by a long body-sized crawl above a thin (5 cm) crack connecting to known

passage (Envy), which happily pops out at the top of a obscure 3 m free climb. Connecting into a 2004 era permanent survey station, Korita now forms a second loop in Vrtnarija, forming Vrtnarija into a figure-8 shape with Friendship Gallery at the waist.

White Bishop, Stalemate

The active streamway descends two 10-15 m pitches connected with a spacious meander incorporating free climbable cascades, before ending in an impassable rift (-662 m).

This water disappears into 'blank mountain' on our survey, but would require considerable effort to progress, and Korita was thus derigged.

Roaring Floor Tease (Muddy Window off Happy Monday)

This was regained by bolt climbing from the bottom of Happy Monday to regain the Muddy Window. The climb in the mud chamber was made, but quickly led to a large boulder blocking the way. A tight rift taking a large draught was left unpushed. Progress is believed to require expansion.

Similarly the traverse to an inlet on Falls Road, and the continuation of Falls Road itself was left unpushed. A small dig was made in Friendship gallery beyond Prima junction, which led to a small unpushed pitch above a stream.

Deep Leads (Below BIG ROCK CANDY MOUNTAIN)

Insomnia - Republika Streamway

Last year a 'written off' streamway (Republika, leading from Red Cow) was found and pushed upstream to an aven fed watershed, then down the other limb to a rift pitch.

With the promise of being one of the deepest points of the cave a return in 2010 was obligatory. The pitch was found to be 41m and was pushed down a continuing active rift (Insomnia). The end is now only 4m higher than Colorado Sump (the deepest known point of Vrtnarija). Since the limit of exploration is above a small 4-5m pitch it is understood that in 2011 this will inevitably become the deepest passage in the system, and the signs are good for continuing development of depth. The end is 802m below the entrance of Vrtnarija, but the M2 (Kakna Jama) entrance is 75 m higher still, and a connection between the systems would make this point -877m deep overall, with potential for further depth extension.

Balamory

A return to Balamory was thwarted by lack of rope of the exploratory party (one more pitch than expected on route), but the team made good use of the trip to the depths by recovering the

camping mats from the deep 2004 camp (The Fridge, near Cactus Junction), and prospecting for other leads with some success.

Original Exploration Stories

Pushing Insomnia

I had travelled down to T'min to clean and get over the cabin fever that develops over the weeks of life on the Plateau. That night, after a slap up meal and a few brusksies, Jan arrived and we had a great evening of beer and bullshit. After the beer, we passed on to the whiskey and the bullshit got increasingly epic. "The leads at the bottom of Red Cow are going to make GW deeper" I told Jan "the next pushing trip will definitely do it". So after walking up the hill having dinner and a little too much to drink at the bivi we set off for the night train.

Soon enough we are at camp and decide to keep going down, looking to continue pushing the Republika lead. I must admit it took a lot of strength not to push the leads that were already multiplying at the I knew the way to Red Cow, having been there with Dan a few days earlier. We soon got to the junction and followed the water upstream. Nice caving, I start feeling the all familiar excitement: here come lots of km of fresh cave!

At one small pitch I turn around and find Jan has disappeared. I turn back to look for him and find him wandering in the wrong direction towards the sump. Apparently he had fallen asleep and started wandering off route. Shit maybe we are too tired for this? Meh! We get to the pitch head for Republika, which I must admit is rather God forsaken and wet and awful. We drop the pitch, I get the drill out and start rigging, brain totally disengaged. As I am rigging I can feel the batteries getting weaker and weaker. I guess there were a few too few bolts at the bottom of the main drop and maybe some of the pitch heads could have been a little neater. It certainly helps to cave with a tall bastard is all I can say :D.

We reach the bottom of the main new pitch and it's a rather God forsaken wet and damp place. The water keeps going down along some immature passage. We follow the water, noting at least one unlikely but unchecked possible side passage. A few hand lines are placed here and there and the drill battery finally dies. Just as well as the last pitch we get to looks like a right nightmare: really tight pitch head etc. By this point we realise it's super late and we are almost certainly going to miss our callout. Time has gone in a blur, we are probably not 100% there mentally to be honest. Still might as well survey out.

The way out is not very remarkable. We bump into Tetley at the top of Big Rock. He is not too worried, but apparently Gergely was hoping we were crumpled up in a heap somewhere so he could come and rescue us.

James Kirkpatrick

More Horror with Jan.

The next night we get up and decide to do some pushing. The whole day is marred by the fact that - once again - we promised not to push the obvious continuation from Albert Hall. So we decide to have a random bimbles around. We try looking for alternative ways around the Albert Hall. No success. Somehow we end up pushing a lead from the right of the passage leading to the Albert Hall (right looking towards the Albert Hall!).

The passage is small and bends under the main route. It is wet and rather grotty. We drop a pitch or two of utter horror and eventually turn around. Surveying out is awful. The book gets wet, my fingers are too cold to hold the instruments¹. It sucks majorly. At least the passage gets a cool name: Esoterica. O, and no-one has pushed the pitch where we stopped! ²

James Kirkpatrick

¹ The survey data had to be 'corrected' to avoid the survey self-intersecting due to backwards legs.

² Esoterica was not revisited until 2012, where a broken bolting driving prevented any additional pitches being descended. It remains a lead.

Happy days with Jan.

On our last day together we went looking around the amazing passage that we politely left for Dan and Izi. We smashed our way through the entrance of what would become Po Vodni Mos, we looked at the Queen's bed chamber, we pushed down some random tubes at the sides of the main route (has anyone ever surveyed these I wonder, one of them went!). All in all a super chilled day. No surveying and no water. And then we got back to camp, watched some videos and drank a lot of whiskey, Happy Days!

James Kirkpatrick

Balamory

When James and I went to have a look at the bottom of Balamory on the first day of our one-noght camping trip, we didn't make it to the target as an unexpected first pitch used up too much of the rope that we had taken with us.

However, as well as airflow going towards Balamory, there is also airflow in the main passage above, beyond the point where the hole down to Balamory leads off so here are two leads in that area there that are worth looking at.

The upper lead *does* need some way of climbing across a pit to a ledge covered in loose crap (maybe a bolt traverse round one of the walls, though I can't remember how much good rock there was in that area. Subsequent email exchanges on the subject do seem a bit vague as to exactly what was done, and whether the upper passage had actually been boldly examined or not (Clewins was bold somewhere round there, but it wasn't certain where), but anyone going to potentially move/split the boulder down Balamory (I think it was supposed to be down the third of the three possible 'second pitches') down should also probably plan to look at the upper passage continuation, especially if they have a drill/bolts to help with

climbing/traversing belays.

On the way back from this little trip, after grabbing some stashed karrimats from the old camp, that the black black hole across Big Rock was noticed.

The next day, James and I went to the new stuff below Leopard/Cheetah, but since we were doing a push-then-out trip, rather than going to the far end of the 'half' where most of the action was, we went in the other direction from the pitch bottom to do some work relatively close to camp, carrying on where Gergely+???? had left off at the Hidden Surprise pitch.

Gergely had dropped the first section of the pitch to an obvious ledge and followed the ledge to horizontal passage that soon died. James and I were to descend the shaft from the ledge, but it immediately became clear the drill wasn't working and so we had to resort to spits, with James bolting while I waited on the ledge.

Fairly soon the bolt (bolts?) was in and James had descended to a large boulder-covered ledge part-way down the large shaft, where I could safely join him. Some of the boulders were rather large, with gaps between them or between them and the wall large enough to climb down and move around in. While James did the business with the next spit, I wandered around between the boulders to keep busy. Where the boulders met the wall, the wall was somewhat overhanging, and from the lowest easily-accessible place near where I had first climbed down, it was possible to look between the boulders marking the lower limit of easy movement and the wall to see a few metres away/down to where the wall seems to meet the proper floor of the ledge, where there was a layer of white rock flour, with some potentially human-sized space between me and it though with no obvious way to get there.

From where I was, looking along the wall 'clockwise', it also looked like there was a space of some sort ahead of me horizontally, but getting to it didn't look very nice, and after all, I was just in a pile of boulders on a big ledge half-way down a pitch, not in a classic boulder choke as such, so there seemed little point doing anything borderline just to get to a slightly different place in the boulder pile.

However, just as I was preparing to go back up and see how James was getting on, I breathed out a large sigh, only to see it get sucked horizontally away from me between wall and boulders and into the space I had been looking into, which immediately aroused my curiosity.

To get into the space I could see required going horizontally through a not-quite-body-sized vertically-rectangular gap with a short (1m) drop on the other side. After removing all my SRT kit, and doing some work with a convenient rock hammering edges off the boulder forming one side of the slot to make the gap wider, and progressively blunting sharp edges on the wall side as they proved awkward when attempting to get through, it was possible to slowly and delicately post myself through feet first and eventually emerge free on the other side.

Turning around, a short crawl led to a wider area under the overhanging wall, and a view ahead to where the wall/roof sloped nicely down towards into the floor to leave a wide bedding plane with clearly no way on. Turning around somewhat disappointed, the main wall, which I had been looking away from when I had initially turned round, was seen to have a crawling-height hole in it, which, on approaching, it was clear most of the draught was going into.

That hole led to a small chamber with a further hole leading in turn into the side of a walking-height passage with a good breeze running along it. The draught I had followed initially was clearly just a tributary being sucked into the main airflow.

I quickly returned to James to tell him of the find, and we decided to do a little surveying and exploration. We chose the upwind branch which didn't run a great distance before ending in an upwards bedding-plane slope ultimately blocked by a large slab in the bedding blocking sideways movement into what appeared to be a chamber with a waterfall entering. Capping or plugs/feathers would seem to be needed to shift this blockage. On returning to our entry point, we looked the other way, wondered how far the downwind passage went, but left it for someone else to explore.

We hadn't found a great deal of length, but on the other hand, we had left a decent going lead, and due to the combination of a misbehaving drill making waiting cold and dull work and the luck of my breath showing there was something worth looking at, had ended up finding quite interesting passage in what must be one of the most unlikely of situations.

Thinking partly of the initial nervousness with which I had slowly posted myself between the boulders and the wall, but mainly of the immense luck we had had with the draught, Kamikaze seemed like the obvious choice of name for the discovery.

Dave Wilson

M2 — Kavkna Jama

The JSPDT organised a trip based at the mountain hut at Kal on 2nd October 2010. The terminal rift was enlarged to gain a ≈ 20 m pitch and a larger, undescended (due to lack of rope), pitch.

A return trip three weeks later descended the pitch and found it to be ≈ 60 m. The cave closes immediately, with a tight rift taking the water and a slightly larger abandoned rift also offering potential. It draughts strongly.

The M2 cavers returned in thick fog, following their footsteps through the 10 cm deep snow. With the coming winter Migovec is effectively closed for exploration until summer 2011.

Exploration Outlook

In all, 2.2km of new cave was found during the 2010 Vodna Sled expedition, taking Vrtnarija to 8.776 km.

We are in the extremely fortuitous circumstance where we finish the year with considerably more leads in the Migovec cave systems than we started with. The Vrtnarija camp was derigged with the certainty that we will be back next year camping in the same location. Gas cylinders and cans of fish were left sealed in Daren drums with a rock of carbide to keep them dry, the carry mats and tents were left standing to air, and we have a considerable armoury of rope brought back from the pushing fronts waiting for the 2011 team.

The work by the JSPDT in the Autumn has **opened up** M2 once again and brought the possibility of forging a connection back to the table.

The pushing of the Republica streamway (now Insomnia) to within a few metres of the maximum depth of the cave has reawakened the possibility of further depth extension to Vrtnarija. Expedition members have mooted the possibility of establishing an additional 2-man 'deep camp' to benefit pushing trips in the lower reaches of the cave, particularly any revisits to the far North end of the system.

Migovec's Long Term Prospects

It has been a recurrent discussion in our club as to when we will run out of new cave to discover in Migovec. Almost all of our fruitful exploration has taken place within a single square kilometre of the flat topped mountain.

Migovec, being part of a mountain chain that is the first high altitude interruption to moist air from the Adriatic, receives an extremely significant level of rainfall. This summer, Jaka Ortar, a Slovenian geographer, recorded 210cm of rain on Migovec in 100 days (28th July-3th November) with his network of rain gauges. However we have never found any large rivers underground — the known cave can only account for a tiny percentage of the total drainage for the plateau.

Our current hypothesis is that there is no **master system** gathering the water, but instead a complex hydrology induced by cave passage intersecting the underlying (as yet, unvisited) band of Cretaceous shales.

For all Vrtnarija's complexity, the entire cave can be fitted into a slab of limestone slanted at 66 degrees and just 1000x150x1000m.

Certainly, as long as we can continue to find entrances through the frost shattered and heavily cratered surface, there will be enough cave in Migovec for decades more of exploration.

Underground Logbook

Found in 'AggregateofMig2007-2010.doc' : Jarv Typed up?

Camp X-Ray Logbook: After about 6 hours of caving, finally made it down. Met Gergely & James on he way down as they were leav-

ing the cave. Last bolt before camp is horrible = needs rebolting / rerigging. 15cm lower would be awesome. Built a tent at teh camp. Required some stone movement. Mike got water, me & Jarv built tent, kate = smoking. NEED WEED! Should have thought about it before. Listening to Massive Attack and getting Raptured. Oh yeah! Kate setting up sleeping space, Jarv went to get more water.

Camp is getting established, looking forward to Worms World Party. Mike = Cooking. Weed is really a missing resource. So far so good. About 5 metres from camp is a hole with water in it = able to hear, quickly got established as peeing corner, hope its not a lead. . . Nick

23/7/10 Nice snooze - super warm. Nicola snored like a trooper - just a few minutes into the classic Black Adder session. Broken sleep - particularly as Nicola got up for X2 piss. Awoken @ 10:30AM by the beasts crawling up towards our pits. Tetley & Myles rustled up some hot-choc then wandered off down the continuing passage.

23.7.10 - 2:10pm MD + Tetley Entered Gardener's World ~6:20am. Made our way through, re-rigged zimmer on the way. Arrived at camp at 10:30am + awakened JV, Mike, Kate + Niko.

Wandered around friendship gallery for hour or two. Found nice lead, will investigate later. Sleep now.

23-7 2:20pm

It's good to be back in a sleeping bag at Camp X-Ray - seven years since the last camp here. It's very comfy. I like the tent - some things don't change though, Blackadder on the sound system, smash + tuna etc. Hopefully we'll get some good pushing in tomorrow! Tetley

23-7 6:20pm James and Dan arrive for a quick visit before heading off to push the muddy window 8:20pm Andy + Gergely arrive - I ignore them! Tet

23-7 10:30pm Fucking body won't fall asleep! Must have only had couple of hours at most since Dan arrived. . . Gergei + Andy turned up at 8ish + now, they have checked our Leopard a little. Tetley's bodily functions are out of control! May bring some corks down for his digestive tract next time. Anyway, now for some food + tea + hopefully can stay awake till bedtime at noon! Myles.

23-7 11pm Myles and I share breakfast / dinner with Gergely + Andy. Fine food! (Ed: Believe this was Tetley)

24-7 12:20 Breakfast with Tet & Miles. Dan & I will visit the lead we killed yesterday (Muddy Window) & survey it, then to Red Cow. James K

24-7 1:30pm MD Back in Camp for 2nd night. Pushed Tolminka today, good lead, surveyed ~8am. Some nice pitches. Covered in mud. Listening to strange foreign music.

24-7 2:05pm Great push down Korita today - 8 bolts, surveying etc. IT'S GOING GOING GOING. . . GO THERE! (But try and avoid rigging future pitches in or near the water. . .) Andy + Gergely have left to push Leopard - James + Dan to survey Muddy Window and then go for a jolly below Big Rock. I've had a great

day - thanks Myles. Time for a decent seep. Tet

23:20 24/7/2010 James + Dan return on a high! 9hrs good kip in
bed - I feel good! forgot to say I had a shit yesterday... Tet