

The entrance to Dachsteinhöhle showing the electronic display board. Eleven minutes to go for tour group one. The young lady was not impressed by being the 'figure for scale'!



FROM THE RIVER TIMAVO TO THE SEVEN HILLS OF ROME

– via Austria, Switzerland, Liechtenstein and France:
ten show caves in Western Europe. PART 1.

– Andy Spate

As you may have read in the last Journal, Kent and Steve abandoned me in Trieste after we had visited the truly impressive Grotta Gigante. I soon found that nothing much happens in Trieste on a Sunday – culture I thought – art galleries, museums and so on. They were all closed, as were all shops except for bars and cafes. After finding a hotel I walked for several kilometres to find the 'open seven days a week' biospeleological museum had in fact closed permanently. Luckily the day was saved by the presence of a pan-European craft and food fair that provided entertainment education, food and various good quality beers.

I got my lovely little diesel Opel the next morning – oh so economical and easy to drive! Why can't we have cars like this here? First stop Montefalco where the River Timavo rises from its subterranean course. It commences near Ljubljana and is known as 'The River of Seven Names' because of its sinking and rising habits across Slovenia and Italy. A website says:

It is worth stopping to see the church of San Giovanni in Tuba (XV century) built on the remains of a pre-existing paleochristian building, and the mouths of

the mysterious river Timavo coming back to the open air after flowing for many miles under the Carsic plateau along a path that so far defied all investigations. It is quite possible that the church and the pre-existing building stand on the ruins of a Roman temple and spa devoted to Speranza Augusta.

We had seen the cave on the surface and underground in a number of places including Postojna Jama, Scojanske Jama, Otok Jama and elsewhere. So the website's explanation of the unknown is misleading.

Another site points out that tracings of the River of Seven Names have been conducted using a variety of agents including dyes, radioactive materials and eels! I would like to know more about the use of eels for karst hydrological research.

The risings are very impressive – lots of cool clear and possibly polluted water! If the Romans used it as a spa it would be a bit like regarding the swimming pool at Buchan as such a site! But the site certainly had an ancient feeling to it.

Looking down the funicular railway
from the Hallstatt Salt Mine to the village.



So off to Austria ... One of the strongest impressions of my European adventure was my alpine crossings. One way and another I crossed the Alps or its subsidiary mountain chains five times. The second impression was how many tunnels there were – their length, complexity and whilst it meant that I didn't have fantastic views for each of the alpine crossings I didn't go mad winding upmountain (not uphill!) and down again.

A third strong impression is how well roundabouts work in the countryside. I didn't actually find a tunnel with a roundabout in it – but I am sure there must be one! A fourth impression is how bad the placing of road signage can be – especially in France. The fifth, and different class of impressions, is the caves and karst scenery but we will get to them later. But wow! will do for now.

The Alps crossing from Trieste to Austria was a wonderful collection of fabulous views and tunnels. The crossing involved:

16 tunnels > 1 km
6 more tunnels > 2.5 km
3 more tunnels > 4 km
1 more tunnel 5.4 km long
1 more tunnel 6.4 km long
that is 26 tunnels > 1 km plus
uncountable tunnels < 1 km!

By the end of my trip 6.4 km long tunnels had been totally eclipsed by much longer ones – and the 50+ tunnels in 80 km east of Nice to Italy. Horrible! The Côte d'Azur, especially during the evening rush hour, should very definitely be avoided!

My diary partially records the day as:

No dramatic getting losts but a few km retracing steps. The southern side of the [limestone] Dachstein Alps amazing! Oberstraun amazing! Dachstein Gasthuas amazing! Tomorrow – probably wow!

Next day it starts:

Definitely wow! ...

Well – the day I had been waiting for – Dachsteinhöhle! One of the things that I had always wanted to see in Europe were the Austrian ice caves and here I was surging up the hill in the

cable car on a dull gray morning. As Ernie would say, Wow! The ritual passing over of an ACKMA Journal and other indications of identity found me on the first tour of the day. Dachstein, which is open from 1 May until mid-October, has about 120,000 visitors a year. In busy times parties leave every 15 minutes – maximum party size 60. When you buy your ticket you are given a tour number. After wandering up a hillside path complete with fine interpretive signs – in German unfortunately – you arrive at the cave entrance with an electronic sign counting down the minutes until your tour number leaves. Very efficient.

Into the cave with a party of about 30 high school kids – better behaved than Australian ones – with a guide with a very good command of English who effectively gave two tours in Austrian and English. And I was the only English speaker in the party. I encountered this politeness time and time again in European caves. Speaking of which, there were comprehensive pamphlets on these caves in English and Austrian – plus leaflets in 17 other languages! But in the museum, on the karst walk, both of which more later, the interpretive signs on the tracks and in the reception area there was a dearth of English. Just like in Australia where there is a dearth of anything but English in so many of the areas, which cater for overseas visitors.

In both Dachstein and Mammuthöhle as soon as I entered the cave I was handed a little spiral bound booklet in English which explained very simply what was going on at each tour stop – a map would have improved it. Again there were six languages catered for with these books.

Anyway into the cave. First impression, a favourable one with the booklet, was an appalling amount of *lampenflora*. Wooden steps and pathways as befits an ice cave – the cold certainly keeps the fungus etc at bay. The antislip surface was very efficient. Lots of magnificent ice even at the wrong end of the season, almost no calcite perhaps in part due to the lack of soil above the cave. As with almost all of the caves I visited in Western Europe there was a sound and light show near the end of the tour. Whilst not a fan of these in the past I must admit that when done well they can be good. This one included lots of bird calls intermixed with the music.

Then off to Mammuthöhle – along a different path. This had a very fine geological time scale along it with concrete plinths set into the path at appropriate intervals indicating the start of each geological era – Cambrian, Silurian, Devonian and so on. Near each plinth was an interpretive sign explaining what was going on through time. Similar to the one I have been designing for Brian at Mulu on which I have been very tardy – sorry Brian.

My guide, Daniela, handed my booklet but then gave a dual-language tour again. Not so dual, really, as she spent more time speaking with me perhaps because the rest of the tour seemed singularly uninterested in what was going on. Mammuthöhle is a huge cave with little in the way of decoration and its interest largely lies in the huge phreatic pressure tubes.

Part of my tour group, wearing the issued overalls, being farewelled by the guide (= being reminded to tip!) at the adit exit to the Hallstatt Salt Mine.



Behind the visitor centre is a fine museum with a wonderful model of the Dachstein/Mammuthöhle system. The system is simply enormous and very varied in form and content. There is also a fine range of other displays on all the aspects of caves that one sees, or hopes to see, in a cave museum. Well up to the Waitomo standard! Surprisingly the souvenir shop lacked variety and content – perhaps due the end of tourist season not far off. A better range of postcards (and stamps – gee they are expensive in the European Community) in the tobacconists in the village of Oberstraun far below.

Down the cable car and off on a lovely walk along a river to Koppenbrüllerhöhle. This is a stream cave whose chief claim to fame – in the spring and summer, which wasn't the time I was there! – is a very loud waterfall. I don't think it would be value for money unless one was there at times of high stream flows – that is during the snowmelt. A mini-hydroelectric plant in the cave powers the lighting.

As I arrived at the cave entrance I greeted by the site of a group of wheelchair-bound people being eased into overalls, knee and elbow pads and climbing harnesses. Apparently this is a common service given by the management. About halfway through the cave these people were hoisted out of their wheelchairs, eased over the handrails from where they abseiled about 8-10 m down to the streambed below. They then crawled several hundred metres over the cobbles to a point near the entrance. I imagine the bruising was

something awful – but a very different experience for these intrepid explorers!

No dinner at the guesthouse that evening for some reason and wanting something more than two mars bars so set off in search for the local pizzeria. Not your standard one either! Two lanes of bowling alley, a log for kids to hammer nails into whilst their parents drink/eat (yes, I know that we usually express that as eat/drink, but ...). Met an English couple that own a local guesthouse on their annual visit of inspection so a better evening than one dominated by a two-mars bar dinner!



The Grottes de Cales. Sandstone rock shelters and excavated rooms used from prehistoric to mediaeval times.

Entrance to the Fontaine de Vaucluse. At times of high flow the water runs over the boulders in the foreground. In October the water filters through the boulders and the pool inside the cave is perhaps 15 to 20 below this point – perhaps more. It is simply enormous!



The next day dawned slightly better than the day before so up to Dachstein and then onto Krippensteinbahn to partake in the karst walk. Unfortunately I didn't get the pamphlet (only available in German) until I got back to Dachstein. Very cold wind, low cloud but a fantastic walk. I think I saw more dolines on those two hours and three kilometres than I have seen in my whole life. Dolines within dolines within dolines!

At the start very limited vegetation and little soil but as one got lower more vegetation. The path was said to be virtually level but actually descends slowly – until near the end when I spotted a cable car station/guesthouse high up in the distance! Oh dear, I thought (or words to that effect!) – a horrible climb and I will certainly miss the next, hourly, cable car.

Turning the corner, another much more sensibly sited station up only a small hill. This walk is just a museum of karren – well worth it. Cave entrances everywhere, some interpretation along the track. Met two other walkers and a team of 'huskies' being exercised in front of a quad bike. Had a 'bush tucker' discussion with their owner who showed me three or four kinds of plant said to have medicinal qualities for the dogs.

The cable car runs between Gjahalm (~ 2,240 M), Krippensteinbahn (~ 2,080 m) and Dachsteinhöhle allows for fabulous views of the karst below – like a helicopter trip – huge shafts which may or may not lead down into the Dachstein system directly beneath! The Dachstein to Oberstraun leg of the

cable car system is about 680 m. A five-kilometre karst reconnaissance worth every penny!

Further down the u-shaped glacial valley lies the town of Hallstatt with its very steep funicular railway climbing up to one of entrances to the famous Hallstatt salt mine with its 7,000 years of mining history! This proved to be a very interesting and well-run tour in two languages. Party sizes to 65 and about 200,000 visitors per year. Audiovisuals, working geological models, laser light show and a very good guide. The laser show was not too impressive. However, the 17th Century animated model of a miner (who looked just like Tim Moore) was well done. Perhaps because of the resemblance to me old mate! Am I suggesting that Tim is 17th C vintage?

At the visitor centre overalls are issued to all members of the party and there is secure storage for backpacks, umbrellas and the like. Robbing up for a party of about 40 took a timed 12 minutes and was a good party-bonding experience. The main function of the overalls seems to be to protect backsides on the two wooden miner's slides (slippery dips) apparently for the miners quick access to lower levels. You can have your photo taken on the slides, with your speed shown, for an additional fee! Or you can walk down if you wish to be gentle.

A fascinating array of mining techniques is on display including the modern water injection/brine extraction method actually swishing water around. The varieties of mine timbering from ancient to modern were particularly impressive – to me anyway. The tour finishes with an ore-train ride along several hundred metres of adit to the entrance. There are various historical displays, including a variety of reconstructed building types and a museum that I didn't visit because I wanted to get to Eisenreisswelt for the first tours next morning.

The trip from Hallstatt to the village of Werfen in the valley below was notable for a Bungonia style gorge with a huge river, railway line and major highway running through it. Eisenreisswelt and Dachstein are on opposite sides of a huge limestone massif – the amount of limestone in Europe is simply amazing! Not sure why with bother in Australia.

I went up a steep and winding road that evening to Eisenreisswelt to check on tour times and so on. And on the way down gave a local bus driver (and me!) a fright by being on the wrong (our) side of the road – the only driving blunder after I left Kent and Steve. Although being on the GRA (Rome Ring Road) in the lunchtime rush hour was probably also a blunder!

Found a very nice hotel and a very bad (and expensive) dinner in Werfen – the town square was really a town rectangle but not something I had really encountered before. What a pitiful, parochial person I am! The square had a free touch screen outside the municipal building on which you could do all the usual things one does on the internet – except porn as the large start-up screen tells you in no uncertain manner!

Up the winding road the next morning to the carpark. A stiff 20 minute walk up the hill to a cable car station followed by another stiff walk to the cave entrance. The three-minute cable car ride can be replaced by a horribly steep-looking 90-minute walk. Carbide lamps were issued at the rate of one for 6-7 people – but not evenly distributed amongst the party! I met up with a very nice American aerospace engineer brought up in New Zealand by Dutch parents! Only two electric lights in the cave and most of the tour lighting is provided by the guide burning magnesium ribbon to very great effect. When I was a boy at school we thought we were lucky if our science teacher would allow us a few inches of ribbon to take caving. Each tour at Eisenreisswelt uses 20-25 metres!

So into the cave – 700 steps up and 700 down largely as a loop. And very cold. I was pretty warm arriving at the cave entrance but was very chilly by the time we emerged into the rain. In places tunnels had been dug through the ice and these are being enlarged by ablation (direct conversion by wind of the ice into water vapour) producing large scallops like those carved into limestone by running water. Rather unpleasantly a chainsaw was being used in the cave to cut channels to keep meltwater off the paths. This, the abundant coins and the grey and white deposits of magnesium ribbon somewhat detracted from the experience. The tour was conducted in Austrian and Hungarian (for a bus group through their interpreter) with a smattering of English.

Most of the path is wooden with aluminium and steel handrails in many places. The difference in thermal conductivity between the three was all too readily apparent. The lack of light and the abrupt transitions from steps and cleated slopes and vice versa meant that concentration was required. My diary says “Interesting variety of mainly wooden steps.” The steep ascents meant that some of the less fit were by their guides abandoned in the dark to be collected on the descent. OH&S?

This is a truly fabulous ice cave. Much more ice than Dachsteinhöhle. In one place the guide disappeared into a huge ice ‘flowstone’/column structure and lit it from within with the magnesium ribbon – very beautiful blue effects. Interestingly, the ice has been accumulating in this cave (and Dachsteinhöhle?) since it opened to tourists in the 1920s perhaps because global warming is supplying more meltwater from above.

Much better range of good and kitsch souvenirs than Dachstein to service the approximately 190,000 visitors during the season May to mid-October. Party sizes up to 60 and as with most European caves about 1.5 hours – irrespective of cave size! The guides do up to five trips a day – must be pretty fit.

Then off to Switzerland. Diary says “I may have chosen a very tortuous mountain route to France – but well launched on it now! Lost once! Tunnels!” Stayed overnight in Flims in a tiny room under a sloping roof so low that I could not stand upright in except for a foot or 18” wide strip. The place was run by a Portuguese man and his Slovakian wife. He had worked at the Portuguese Consul’s office in Sydney and his wife was a caver when younger.

Coming ashore at the end of the trip in Lac Souterraine. Note the sign reminding you to tip the guide. Such signs are common but don't seem to lead to great cash flows.



I had a very interesting Portuguese dinner – not what I expected in a Swiss ski resort village!

For 30 September my diary reads:

What a day – only lost once – French signage so 40 km extra motorway as no chance to u-turn! Three major and many minor passes. Did about 550 km at an average of about 45 kph – including considerable motorway. Ended up in the bush at St Mathew de Trièves. Winding roads! Narrow roads! Drivers on the wrong side! [not me] Weather good at the right times by-in-large. -3.5°C and ice crystals forming in the air on the highest pass. Very foggy until this pass and then the Eiger sparkling in brilliant sunshine just a few km away! And the steepness of the vineyards on the slopes! The evening sunlight on Le Grand Ferrard. The enormous landslide!

And I did manage to fit a cave into that day. Between Sion and Serre and a few kilometres off the motorway in the village of St Leonards is the Lac Souterraine.

This cave is developed, somehow, in a gypsum, anhydrite and marble. It is a simple lake cave decorated with several sizes of rock bolts. No speleothems. The guide said there were 160 rock bolts in the roof – seemed like ten times that number to me! Looked like a coal mine!

As the name suggests it is a lake cave – the largest in Europe but there is another ‘largest in Europe’ in Austria. The guide rows you across the lake in specially designed boat. They have six boats two of each size seating 18, 33 and 42 respectively.

The tour takes half an hour with about 100,000 visitors a year at up to 1,400 people a day. My tour was in English and German.

There is a huge sign on disembarking with a cartoon of a guide holding his hand out captioned with “Don’t forget the guide.” It would seem that they are not paid well.

Looking from the Werfen town square toward Eisenreiswelt Cave (arrowed). Dachstein massif in the background - nearly in the foreground too!



When the cave was discovered the lake was near roof level but an earthquake some decades ago lowered the level to about 5-8 m above the lake which is several metres deep and contains introduced trout – fed on the tour (I wonder if there were any *stygofauna*?) – and a shipwreck! A sunken tour boat is one of the highlights of the tour. Apparently the roof troubled someone so the lake was pumped dry and the mining machinery moved in to do the rock bolting. Photos of this process loom large in the visitor centre/bar/kitsch/fast food/souvenir outlet.

All-in-all not a highly recommended cave but I had to have at least one in Switzerland to make up for not seeing one in Liechtenstein – which doesn't have any.

Up amazing, vineyard covered, steep hills and several passes into France and onto Chamonix-Mt-Blanc. Fabulous scenery but very touristy as one would imagine. The French habit of signs in the exit rather than slightly before lead to the extra motorway jaunt. At least it taught me to turn sooner rather than later so that I only got lost in France a few times – although there were a few panic decisions.

Mark Twain says in his wonderful book, *A Tramp Abroad*:

He had growled at everything, but I judged it would puzzle him to find anything the matter with this majestic glacier. I intimated as much; but he was ready, and said with surly discontent: "You ought to see them in the Protestant cantons." This irritated me. But I concealed the feeling, and asked: "What is the matter with this one?"

"Matter? Why, it ain't in any kind of condition. They never take any care of a glacier here. The moraine has been spilling gravel around it, and got it all dirty".

"Why, man, THEY can't help that." "THEY? You're right. That is, they WON'T. They could if they wanted to. You never see a speck of dirt on a Protestant glacier. Look at the Rhone glacier. It is fifteen miles long, and seven hundred feet thick. If this was a Protestant glacier you wouldn't see it looking like this, I can tell you."

"That is nonsense. What would they do with it?"

"They could whitewash it. They always do."

This wasn't the quote I wanted about Twain's views on the Chamonix Glacier but it does sum it up – it is an extremely dirty – and receding horribly!

Finally found a place to stay that night. As it was the end of the tourist year many places were closed but I finally found a hotel beside the road at St Mathew de Trieves. The view to the north with yellow and later pale purple setting sunlight on the carbonate mountain range of the Le Grande Ferrand was totally fantastic. That night I had an omelet in the bar of the hotel – or as my mum would have it (bless her) 'an 'otel' - in what we in Oz would call a counter tea. The restaurant looked too formal. I shared a couple of 'pitchers' of red wine with an elderly local (a farm labouring type, peasant?). Although he had no English and me very little French we had a very pleasant evening. Maybe the pitchers helped?

The next day I continued down the road to Aix-en-Provence where my sister was staying and working on her upcoming book on the artist Cézanne. In the distance I got a glimpse of the pinnacles of *Les penitents de Mes* – are they karstic?

The A-en-P ring road is rather different to the Rome ring road but had its own interesting conundrums. The multi-story parking stations are named after French notables and are placed just outside the ring road. The one nearest (~400 m) Ginny's little apartment in the heart of the medieval town was 'Parking Pasteur'.

We had several days together looking at the town and enjoying its life. Wonderful to be with a fine French speaker for a few days. We also traveled out of town to visit a number of places where Cézanne had painted landscapes – many of them with karstic scenery. As well we looked at pre-roman and roman excavated villages – all very humbling to a 21st C Aussie.



Naturally water-worn marble sculpture in the Werfen town square

Cezanne painted many views of the (limestone) Mount Saint Victoria to the east of Aix-en-Provence. At the foot of this mountain is the 'Ecomuseum of Mt St Victoria'. Don't bother! Diary says:

Possibly the worst on this trip. Architecture. Concept. Layout. Contents. All not good. The layout of the toilet doors directly opposite, and 1.5 m from the reception desk, is particularly well done! Ghastly. I couldn't wait to leave.

Next day was much better – although the Moroccan food last night in a back alley in A-en-P was fantastic.

The Grottes de Cales above the lovely village of Lamanon are a series of rock shelters, rather than caves. The village itself is comprehensively heritage listed with wonderful 300 year old plane trees – they look so different to the multiply-pruned plane trees that we see in Sydney and Melbourne and, I imagine, in New Zealand cities. The Grottes are prehistoric rockshelters and medieval settlements in wall-buildings excavated into the sandstone and occupied up to 1586 (or 1386 according to another sign). Modern excavation (= graffiti) – is unfortunately evident. The (non-glacial) cirque has a magnificent feeling and views into the valleys on either side of the ridge. A place well-worth visiting.

Onto the Grotte de Thouzon. This is a small cave – 30 minute tours – discovered by quarrying. Well decorated in parts. Wonderful diagenetic flint nodules said to have been shattered by ice-wedging during the ice ages. They look just like the worked flint nodules of the Nullarbor that certainly have not been worked by ice-wedging! Guide was very definite about frost shattering. And I am pretty definite about human intervention. Why where the speleothems and limestone bedrock not ice-wedged? Tour sizes to about 40 but I forgot to get the yearly stats. One-way lighting in a two-way cave didn't help the quality of the tour. The black poly piping slit and placed over the steel handrails worked well. Slitting it must have been a pain. Wonderful display of French show cave posters in the visitor centre/café.

One of the French cave/karst sites that have always fascinated me has been the Fontaine de la Vaucluse. I now had the opportunity to visit this enigmatic place! Better quote from the diary again:

What a fabulous natural feature – enormous steephead [stream retreating back into the hillslopes behind creating a steep-sided gorge eating into the hillside] – possible huge collapsed cave – large stream flow rising from more than 175 m [below sea level] below the lip of an enormous pressure tube. At low flows water filters through boulder piles to Roman water races, water mills etc. At high flows over the top – must be a fantastic sight! Tourist trap since Roman times! Awful mix of kitsch and truly historic. Both the geographers and natural historians, Strabo (born about 63 BC; died. after A.D. 21) and Plutarch (45–125 AD) have written about this site. Castles, cliff shelter dwellings and water flowing from 60 or more km away! Fantastic. I want to see it at flood times.

Having arrived late in the afternoon Ginny and I were only able to sample a few of the available tourist traps. Most unfortunate. Before setting off to Europe I had put considerable effort into Googling for the whereabouts of the Norbert Casteret collection of speleothems. I couldn't find it but there it was at the Fontaine of Vaucluse run by the French Speleological Association. But it was closed when we were there ...

So I planned to return on my way further west. And on the next morning after I had put Ginny on the TGV to Paris I returned to the Fontaine. Only to find that, whilst the door to the museum was open, the intransigent French speleo inside would not allow me to see the collection. In spite of an ACKMA PR pack being thrust on her! Only open on weekends ...

So onwards westward toward the Grotte Orgnac – listed as one of France's 'Grande Sites' To be continued ...



The Dachstein karst walk