

A DESCRIPTION OF SOME CAVES IN THE TOTES GEBIRGE, AUSTRIA

by
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ABSTRACT

An account is given of the discoveries made by a joint University of Bristol Spelaeological Society and Cambridge University Caving Club expedition to the Totes Gebirge, Austria, in 1980. It includes descriptions of four caves: 1623/41, 87, 113 and 115, together with surveys of two of them: 1623/41 and 115. The caves consisted of a mixture of vadose passages and old phreatic systems and the potential for further discoveries is great.

INTRODUCTION

For a number of years members of Cambridge University Caving Club have been investigating an area (Fig. 3, map) of high alpine karst north of the Altaussee See at the western end of the Totes Gebirge (Leach, 1977, Various, 1978, 1979 and 1980). In August 1980 a joint U.B.S.S./C.U.C.C. party spent three weeks exploring caves on the north side of the glaciated valley that runs down to the Altaussee See between the Schwarzmoos Kogel and the Trisselberg. The expedition prospected a fairly limited area above the Weisse Wand either side of the footpath that runs from the Löser Hutte to the Wildensee at an altitude of about 1,500 to 1,600m. (Alpenvereinskarte nr. 15/1 Totes Gebirge, Westliches Blatt, scale 1:25,000). This area had not been visited by the C.U.C.C. before, but one major cave (1623/41, Stellerweghöhle) was known. A German group had previously worked there, though information on their finds was sparse.

It should be noted that access to the area is considerably easier than is suggested by the map. Since the map was published a toll road has been built from the road between Altaussee and Blaa-Ulm to a point between the Löser Hutte and the Angst See at an altitude of 1,600m. From here the caves were an easy forty minute walk. Groups wishing to undertake work in the area can negotiate free access to the toll road through the Austrian caving organizations. As much of the higher karst has been effectively designated a conservation area, camping is not permitted except by special arrangement.

DESCRIPTIONS

Descriptions are given of the major systems explored by the expedition. A number of other sites were investigated but weren't of sufficient significance to warrant mentioning. The numbering system used for these caves is the one adopted by the Austrian cavers. The prefix 1623 describes the general area they are in, i.e. the western end of the Totes

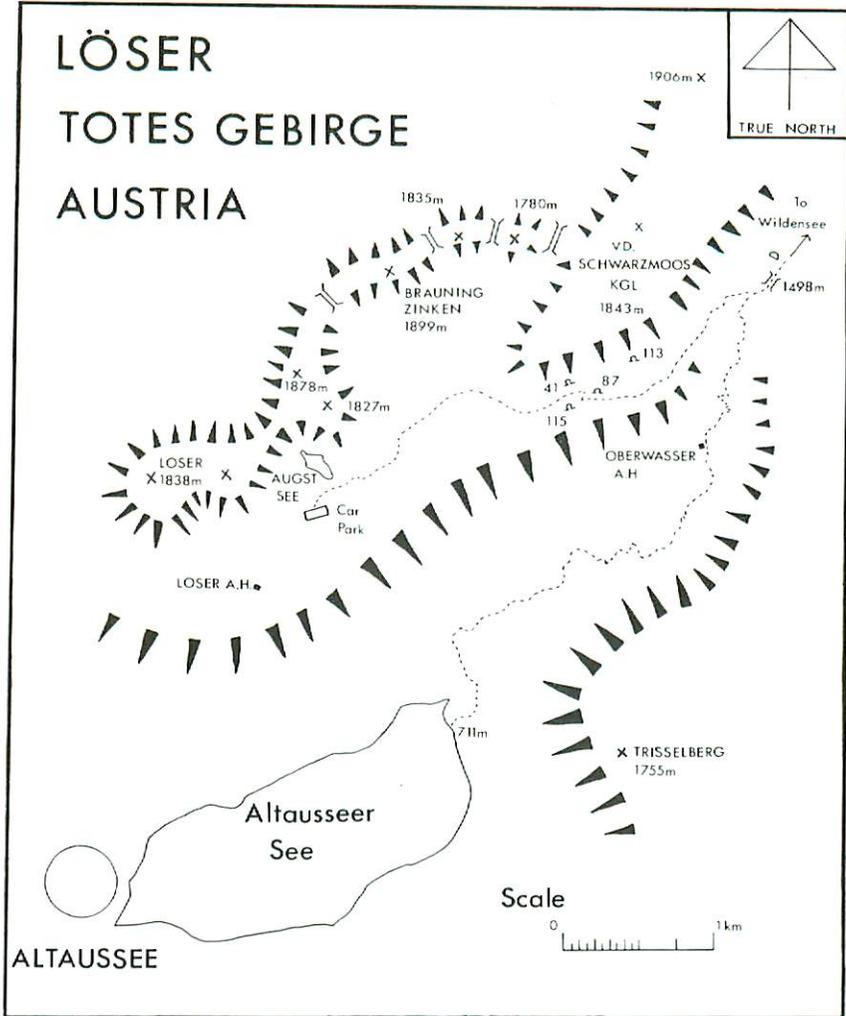


Fig. 3: Map of area explored.

Gebirge, while the second number is unique to a particular cave. It is the latter number that is normally painted on the rock at the entrance to the cave and enables previously explored sites to be identified.

1632/41, STELLERWEGHÖHLE (Fig. 4)

Lat. N $47^{\circ}40.2'$, long. E. $13^{\circ}48.5'$

The largest of the caves explored by the expedition, this site had previously been visited by some German cavers. Reports suggested that they had got down to -220m. and that the cave was still going.

The cave has two entrances, the lower of which is a classic draughting tube. This tube quickly led to a slope down into a chamber where a large

STELLERWEGHOHLE

1623/41 TOTES GEBIRGE, AUSTRIA

ALT. ca 1650m

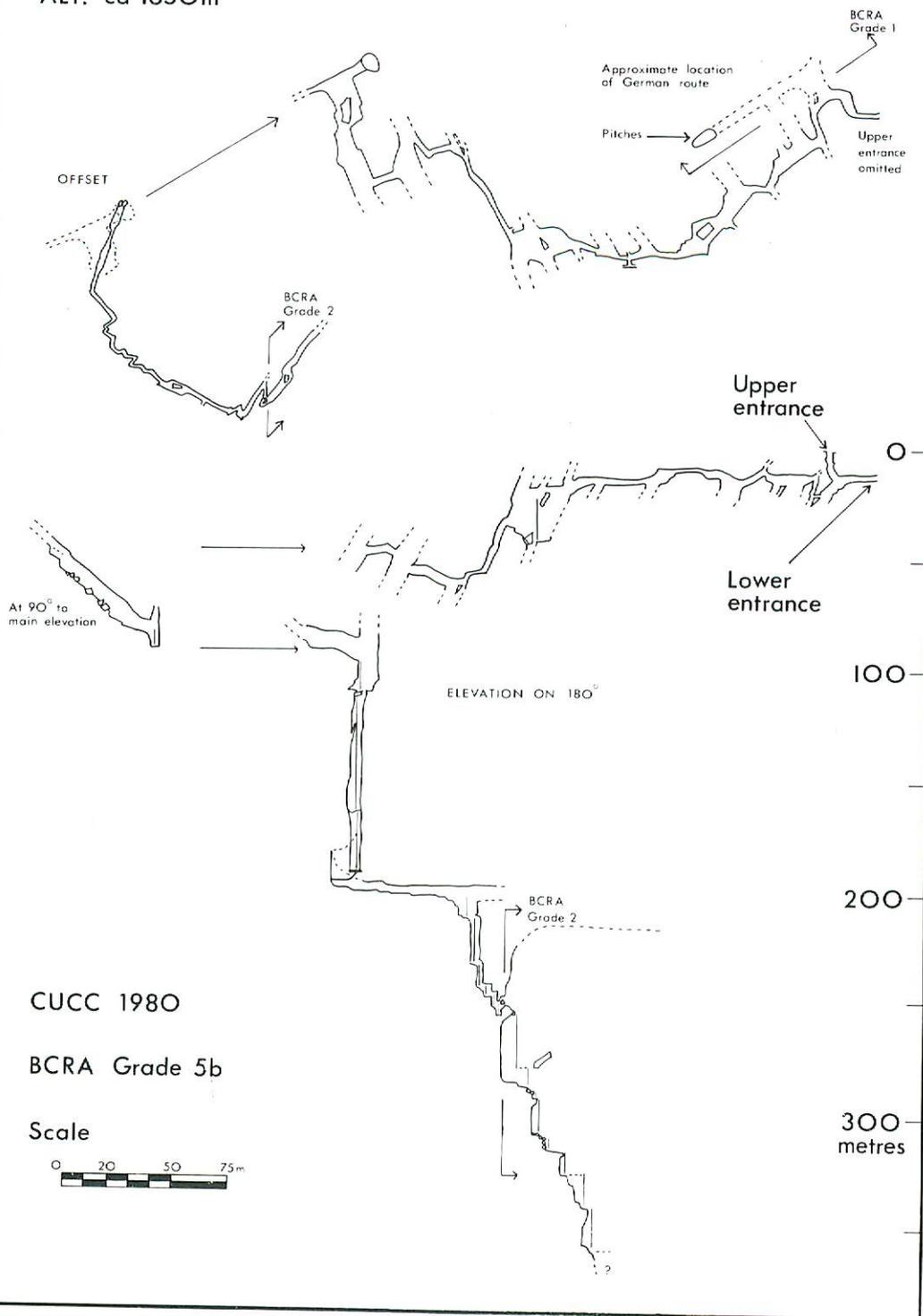
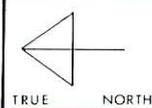


Fig. 4: Survey of Stellerweghöhle (1623/41).

snow bank signalled the entry of the passage from the upper entrance, daylight being visible at the top of the snow slope. On our first couple of trips into the cave it was not realized that the snow bank masked the main way on into what later became known as the German route. As a result the passage was followed round to the left, across an ice traverse, and then up dip along a fine arched passage. At the top of this a turn to the right opened up onto one of the large ramps that were such a feature of the cave. Traversing across this a short length of passage led to another ramp. Again the way on was gained by traversing across this and into a crawl at the far side which draughted strongly. Two more of these ramps were passed before a short climb down led to a traverse that required a hand-line. This traverse appeared to be in a large sloping chamber split by a rock barrier at its top end. Across the traverse on the other side of this rock barrier a pitch dropped away: 5m. sloping to a ledge and then an 18m. free-hang to the floor. At the bottom were several possible ways on. Down the bedding was a gently draughting passage much obstructed by collapse. This was not explored for any great distance. A climb down from the bottom of the pitch led to a corner of the chamber that evidently took a lot of water in flood conditions. A squeeze over boulders here dropped into an immature vadose canyon which was followed for about 30m. with no end in sight. The main way on though necessitated a climb up onto a large boulder and then up a ramp opposite the pitch. This led to a steeply descending phreatic passage dropping down some rift climbs and then into a short crawl. Two more ramps followed, the first requiring a hand line, before the final ramp was reached; there was no way on on the other side. A series of scrambles and free climbs down this brought one to the head of a mud slope that required laddering. Here the whole character of the cave changed, as the ramp met a large passage in a cross joint and the whole passage dipped sharply away to the right.

A six metre descent of the mud slope and a short climb down ended at the head of a large circular shaft. A pitch of 14m. dropped onto a large ledge in a tremendous shaft, the first shaft merely being a subsidiary shaft. From here a 55 metre pitch descended to a further ledge, the last 47m. being absolutely free. A 26m. pitch followed ending on the floor of a large rift. Continuing along this rift the passage took the form of a tall narrow canyon with a stream flowing along its bottom. The stream disappeared down a hole in the floor after about 40m. and no attempt was made to follow it. Instead a further 90m. progress was made along the canyon passage to the head of a 9m. pitch. Here the character of the cave changed again, as a small stream descended a series of short pitches linked by sections of narrow rift passages and it may be that the canyon continued above the head of the 9m. pitch. Pitches of 20, 9, 5, 6 and 6m. followed in quick succession, before a short climb up onto a pile of boulders broke out into the impressive final rift. It could have been anything up to 100m. high and averaged about 5m. in width. Its descent was to mark the final stage of the expedition's exploration of the cave. The first pitch descended a loose gully for 7m. and then hung free for 24m. Here the rope ran out necessitating a pendulum to a point in the rift where one could jam oneself between the walls. From here a 9m. pitch brought one to the floor. This

point could probably be reached by rigging the first pitch to the floor. A short but bouldery climb down led to the head of a 16m. pitch and from here descending the rift pitches of 5, 10, 17 and 17m. were rigged. At the bottom of this last pitch two short free climbs ended at the head of another pitch which was not descended due to lack of time. Total estimated depth of the cave 360m.

A party had the misfortune to be down this cave during a flash flood. At this stage the last five pitches in the rift had not been descended, but it is clear that these must become extremely wet in flood. The series of short but constricted pitches and the main shaft were unpleasant but passable, under these conditions.

During the course of the exploration of this main way down the cave the German route was also investigated and didn't turn out quite as straightforward as had been expected. Past the snow bank in the entrance a large passage crossed over a couple of ramps, evidently those descending from the other series, before a roped traverse around a choked pot reputedly 28m. deep ended at the head of a series of pitches. Pitches of 6m. and 18m. dropped to a floor in the rift. Off one end of this was a 20m. pitch with a small outlet at its base. This was not investigated, as the other route appeared larger. Pitches of 3, 14 and 16m. followed in quick succession. From the bottom of this last pitch an awkward sloping traverse down a canyon passage was explored to where a passage going off on the left seemed to afford easier progress. A muddy free climb of 10m. descended to a low crawl which looked very much like a dried out sump. Beyond this a window opened out onto a climb down and then a traverse across a hole to the head of a pitch. This descended a slope for about 5m. before hanging free for 12m. From the chamber into which this dropped a rift passage led on. Pitches of 8, 12 and 8m. were rigged in this rift, before exploration was halted at the head of an estimated 6m. pitch. The rift had narrowed considerably by this stage and the series was proving far more difficult than the main way on. There were signs of previous exploration up to the dried out sump but not beyond. The limit of our exploration was estimated as being 140m. below the start of the pitches, possibly therefore 180m. below the entrance. Claims that the cave had previously been explored to -220m. must be treated with some suspicion.

1623/87

Lat. N 47°40.14', long, E 13°14.7'.

This was the first and most rapidly explored of the major finds of the expedition. Located whilst looking for the Stellerweghöhle it lay just above the path about 100m. past the climb up to the Stellerweghöhle at an altitude of about 1,550m. The entrance was situated below a cliff at the top of a gulley. What attracted the first party to the cave was the cool draught filtering up through boulders in the gulley. From the entrance a peaty slope gave out onto the head of a pitch. Traversing over this the first pitch of 20m. was rigged from a rock bridge, the other pitch entering half way down. The second pitch quickly followed, 16m. and sloping, ending in a

chamber. The third pitch of 17m. led off from this chamber. Again it dropped into a chamber from which the fourth and final pitch descended. This was 38m. to a choke, the total depth of the pot being about 105m. The draught noticeable at the entrance was absent here and appeared to come from an inaccessible passage some way up the last pitch. About half way down this final pitch a pendulum could be made onto a large block. However there was no way past this.

1623/113 SONNENSTRAHLHÖHLE

Lat. N 47°40.3', long. E 13°49'

400 to 500m. along the path from the Stellerweghöhle a long climb up overgrown gulleys to an altitude of 1,650m. ended at a large depression. At the south-east end of this was a large hole, the entrance to 1623/113. The normal method of entry was to rig a 26m. pitch on the far side of the entrance dropping to a snow slope, though a series of climbs down the snow slope would bring one to the same point. From here a short scramble down in a large chamber led to a 3m. climb up into a traverse along a steeply inclined bedding plane. Following the obvious route in this bedding plane, past a couple of alternative ways on, the head of Point Five gully was reached about 100m. from the chamber. Here a steep descent of the bedding opened up into Barnsley Methodist Chapel. It is assumed that some of the alternative ways on in the bedding re-emerge here. This chamber marked the end of the inclined bedding plane and the cave continued in the form of a small tube in one wall. Twenty metres of crawling ended at the head of a 14m. pitch in a rift. The passage at the bottom could be followed to a cross joint where the main way on was to the left and along a short traverse into an impressive chamber. This chamber, later named the Opera House, was at a depth of about 100m.

From here a 12.5m. pitch dropped to a bouldery floor. At the far side of the chamber was a 7m. pitch of boulders and the passage narrowed into a rift. This quickly led to a climb and an 11m. pitch. Below a tube opened out onto the head of another pitch. The cave was rapidly going vertical. Descents of 11m., 26m. and then three short steps of 5m. ended at an apparent sump after a very constricted rift. It was originally thought that the cave ended here at a depth of 210m. However a climb up of 3m. in the tight rift led to a body sized tube going off on the left. Ten metres of crawling and once more the cave headed down, this time in an enormous shaft. After 10m. was a re-belay at a flake and then 30m. to a saddle between two shafts. The one taking a small stream was descended in a series of short pitches, 12, 10, 16, 6 and 12m. At the bottom of these a ladder descent of the gully in the floor of 5m. ended at an impenetrable tube taking a small stream. Again the cave seemed to have come to an end, this time at -310m.

However a narrow slot in the wall next to the ledges above the gully broke out into a large chamber, the Crematorium, after a short length of passage. This chamber was formed along another steeply inclined bedding plane. At the far side of the chamber the bedding closed down, though a draught was noticeable at this point appearing from a small hole

down the bedding and disappearing into a choke in the roof. It should be noted that in the main body of the cave the direction of the draught was inwards. A hole in the floor of the passage before the chamber dropped down into a small stream, the one seen at the bottom of the gully, and this descended a series of short free climbs to a depth of 330m. The way on was still open at this point, indeed this section of the cave was only explored towards the end of the expedition when floods trapped a party down the cave.

The present limit is still 600m. above the Altausseer See and the cave must offer considerable potential for further exploration.

1623/115 SCHNELLZUGHÖHLE (Fig. 5)

Lat. N 47°40.1', long. E 13°48.6'

The entrance to this cave lay directly below Stellerweghöhle at an altitude of about 1,520m. The main entrance was a large phreatic tube which appeared to have been explored before. This tube ended in a small rock-filled passage from which a strong draught emanated. Excavation enabled this to be passed to a small chamber. From here a short length of walking passage ended at the head of a pitch. Down this (8m.) a steeply descending passage ended at a choke after about 20m. An airy traverse across the head of the pitch led to a chamber and choked inlet with no draught. The way on was anything but obvious! Half way across and about 1.5m. above the traverse was a small tube in the right hand wall concealed by a lip of rock. The draught blew strongly through this. After 8m. this dropped into a chamber. A traverse round the left hand wall and a squeeze past some boulders led to a pitch. This was a fine free hanging shaft of 18m. From the chamber at the bottom two narrow vadose trenches descended. The one to the right was the larger and was followed in preference, though both appeared to rejoin a short distance on. After an initial steep descent the narrow canyon could be followed for 20m. to where it broke out in the side of a large phreatic passage. To the right this was explored for a short distance, further progress necessitating crawling. The more obvious way though was to the left. The passage appeared to be developed along the strike and after 25m. its floor was incised by a very narrow and deep vadose trench. Past this junction the phreatic passage continued in fine style to where a couple of large blocks appeared to be obstructing the way on. Here it was decided initially to descend the vadose trench in an attempt to regain the way on. Accordingly a 30m. pitch was rigged off the boulders. At the bottom however the canyon choked.

It was not until the surveying trip that it was realized that, if one came off the rope about 5m. down this pitch and traversed along, it was possible to pass underneath the boulders into the continuation of the phreatic passage. On the far side of the boulders the passage dipped steeply down, still with the trench in the floor, to a junction with a similar passage sloping left to right. Up to the left this ended at the edge of an estimated 20m. pitch, whilst to the right the slope gave way onto a large oval shaft. Stones thrown down this indicated a depth in the region of 25 to 30m. A

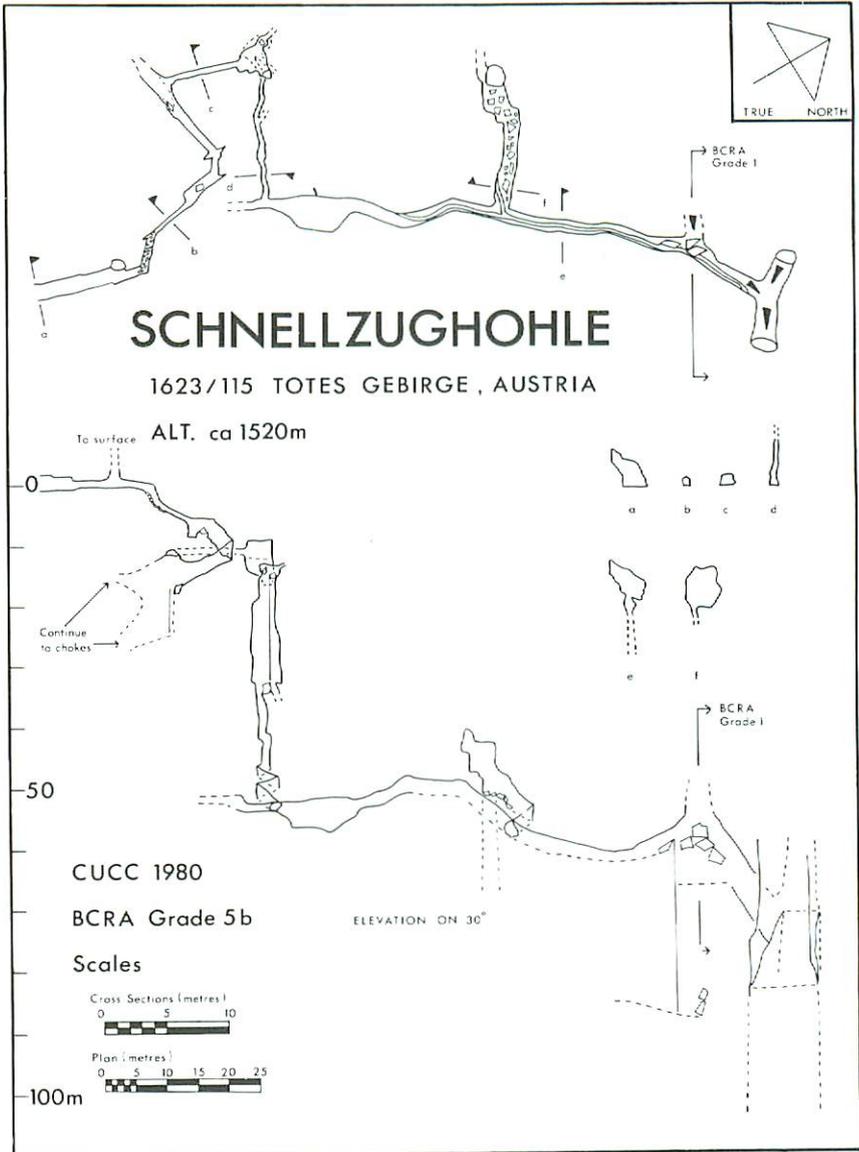


Fig. 5: Survey of Schnellzughöhle (1623/115).

small stream could be heard trickling at the bottom. Lack of time prevented a return to explore this.

DISCUSSION

There is no impermeable covering to the limestone on the Schwarzmoos Kogel and hence there are no surface streams. Some small

permanent streams are encountered in the caves, at least in summer. These are fed by meltwater from snow plugs that abound in the surface shafts in the limestone. When there is heavy rain, water disappears rapidly under ground, as there is nothing on the surface to retain it; the underground streams can then quickly become impassable. It is believed that the water resurges from springs in the Altausseer See some 800m. below.

Sites likely to repay further investigation are easily identifiable by the presence of a draught at the entrance. As a general rule if an entrance doesn't draught then it is not worth exploring. At times it seemed as if the whole hillside was draughting, and indeed draughts were far more prevalent in this area than in the areas explored by the C.U.C.C. in previous years. This seems to indicate that the area is honeycombed with caves. At the 1,500 to 1,600m. level entrances normally draught outwards, while above that they draught inwards.

Several of the caves were entered through phreatic tubes truncated by the glaciated valley and it is interesting to note that a further series of these phreatic tunnels was seen below and slightly to the east of the area prospected. These were in cliffs on the north side of the path that runs along the bottom of the glaciated valley between Oberwasser and Hochklapf Sattel. They were at an altitude of about 1,200 to 1,300m. and do not appear to have been explored.

All the major sites explored, with the possible exception of 1623/87, afford potential for further exploration and it is likely that they will all go to over 500m. in depth. As has already been indicated the area prospected was a fairly limited one, dictated largely by ease of access from the path. The hillside offers considerable scope for the discovery of further extensive systems.

EQUIPMENT

In common with most other groups exploring deep pots in high karst regions the expedition almost exclusively used ropes for rigging pitches. Ladders are too cumbersome for this type of work, though it is useful to include a number in an expedition's tackle list for short broken descents that are unsuitable for ropes. In most cases the ropes were rigged from 8mm. self drilling bolts, as there were few natural belays. The S.R.T. equipment and system used varied from individual to individual. Few rope walking systems were adopted though, as the short but numerous pitches with frequent changeovers militate against such systems. Two points on ropes should be mentioned. First that the rock is very abrasive, far more so than in Great Britain, and hence a premium is placed on good rigging. Second, as in previous years, some problems were encountered with muddy ropes, in particular on the second pitch in the Stellerweghöhle. All ascending devices were prone to slipping on these ropes and whilst alarming this could be overcome by manually pressing the cam onto the rope. Once jammed they normally stay jammed. The only real solution to this problem is to

include a toothbrush as part of one's S.R.T. equipment and clean the teeth of the cam before every ascent.

Waterproof overalls and wool or synthetic undergarments were the most practical and comfortable clothing. Temperatures in caves at this altitude are lower than those normally encountered in caves in Great Britain and wet-suits are not warm enough. They also restrict movement and become very uncomfortable on long trips, so little use was made of them.

Carbides were used as the main form of lighting, though most members of the expedition carried some form of waterproof torch attached to the helmet as an emergency light. This arrangement is most useful on pitches in case the carbide lamp is extinguished by water.

SURVEY

The caves were surveyed using a fibron tape and a hand held Suunto compass and clinometer. Distances were measured to the nearest centimetre and angles to half a degree. The local magnetic variation is about $\frac{1}{2}^{\circ}$ W.

The German route in the Stellerweghöhle was not surveyed, partly because of time pressures and partly owing to the fact that it was not considered the main way on. The Austrians have surveyed it to the head of the pitches, but we were unable to obtain a copy of their survey. Similarly in the final rift, apart from a bearing being taken along the line of the rift, only pitch lengths were measured, again due to lack of time.

Oddments of the Schnellzughöhle have not been surveyed, as they did not represent the main way on, and the last section was only explored at a late stage and then only by one person, so surveying was impractical.

Sonnenstrahlhöhle and 1632/87 have been surveyed, but the surveys have not yet been drawn up. It is hoped to publish these eventually, possibly with a report of the planned 1981 expedition.

MEMBERS OF THE EXPEDITION

Ken Baker, John Bowers, Mike Burgess, Andy Connolly, Julian Griffiths, Simon Kellet, Julia Kostelnyk, Tim Lyons, Tony Malcolm, Ben Van Millingen, Clive Owen, Steve Perry, Mike Perryman, Nick Thorne and Andy Waddington.

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