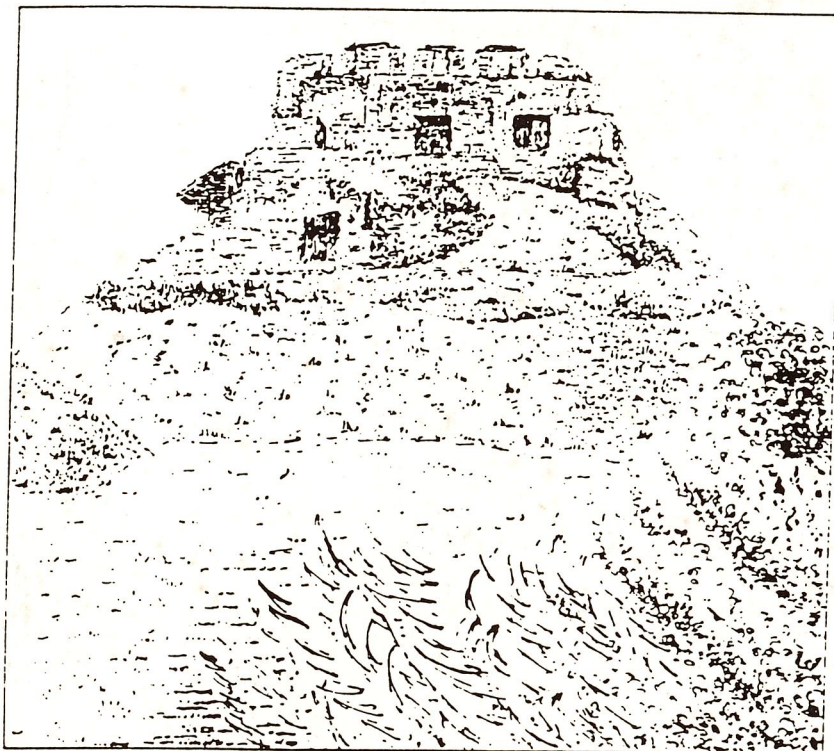


MENDIP CAVING GROUP
NORDRACH COTTAGE
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BLAGDON
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THIS ITEM CAN BE BORROWED
FOR A SHORT TIME

Mendip Caving Group



Belize '94

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Surveys

Crab (Rocky) Cave
Unique Cave
Cool Spot Cave
Cocohil Cave
Actun Merech
Valley of the Caves (Actun Mai,
Actun Hoyanko, Tzonot,
Cueva Del Indio Perdido,
Valley Sink)

Appendix A - First Aid Kit (Base Camp)

Objective

The idea for an expedition had been brewing slowly in a few minds for a while. The 1993 BCRA conference was the deciding factor however. Hours were spent ooh-ing and aah-ing over other peoples expedition photos - We could do that, couldn't we? We spent a while talking to various people at the conference and soon come to the conclusion that if we wanted to go caving in some exotic country then we would have to organise it ourselves. Tim has had a desire to go to Belize for many years (even before he knew there were caves there !) so for no more pressing reason than this, we decided to go there.

Once we had decided upon our destination, our objective was simple - to find as much cave as possible in a five week period with a view to a return visit at a future date.

Previous Expeditions to Belize/Advice and Assistance

A quick look in Below Belize, the report of the Queen Mary's College (QMC) expeditions in '88 and '89, revealed that the dry season ran from early March to late April, so suddenly we had four months to organise an expedition.

The first thing we did was to write to the Department of Archaeology in Belize for a permit to conduct our expedition. It was made clear to us that without this we stood a good chance of being arrested if we ventured underground. We received permission early in November so it was all stations go.

The next step was to contact Nick Williams, leader of the QMC trips. He proved immensely helpful providing us with copies of all his reports, including the detailed Logistics Report of the 1988 expedition, as well as offering us loads of good advice.

The other line of enquiry we explored was via the Cavers Digest. This is a network of cavers, principally in the States, that can be accessed using Email. Before long we had a list of North Americans who had been involved in expeditions to Belize. Foremost among these was Tom Miller, who wrote his doctoral thesis on Belizean caves and has a good idea of who has done what. He is still actively involved with Belize having recently been involved with the Jason Project, an ambitious project which amongst other things aimed to provide a live, interactive satellite link between cavers in Chiquibul Caves and school children across the world. Tom provided us with a map showing who had explored which areas of the country. We also got in touch with a number of other people notably Jim Bowden and Logan McNatt, both of whom were helpful but directed us back to Nick Williams.

Towards the end of January we headed off to meet Nick Williams in person. Also present was Struan McDonald who had just returned from an Army caving expedition in Belize. The two of them had a great time telling us horror stories about the various

creepy crawlies we were likely to meet. However they also provided us with much useful practical information. Having talked to them we decided that the Vaca Plateau would make a good expedition area. We were told that the man to speak to was Antonio Morales, a Belizean who was setting himself up in the ecotourism business. Along these lines we talked to Ern Hardy who had spent a few days with Antonio during one of the QMC trips. Ern was very positive about the area saying that the potential to find more caves in the area would be good, the caves wouldn't be huge but they would be caves. Tom Miller had told us that the Vaca Plateau had been looked at by another American called Phil Reeder, so we got in touch with him. Once again he was very helpful and sent us a lot of useful information, but at the same time he suggested that the Vaca Plateau was his territory and that maybe we should look elsewhere in order to avoid duplicating his work.

We were starting to run out of time as it was the end of February and we were due to leave on 20 March. However it was about this time that Chris Jackson, the army caving instructor in Belize, returned to the UK. A late night meeting at his house provided us with an alternative field area. Before he left he'd done some recce work for a future expedition he was planning. He very generously let us into a few of his secrets and pointed us towards Fidencio Bol, a Belizean living in San Antonio.

A couple of days later Jules flew out to Mexico with instructions to try and get in touch with Antonio Morales and Fidencio Bol and decide which area was going to be best for us.

[NOTE: Details of this information are now lodged for future reference in a boxfile or two in the MCG library together with other bits and bobs - maps etc.]

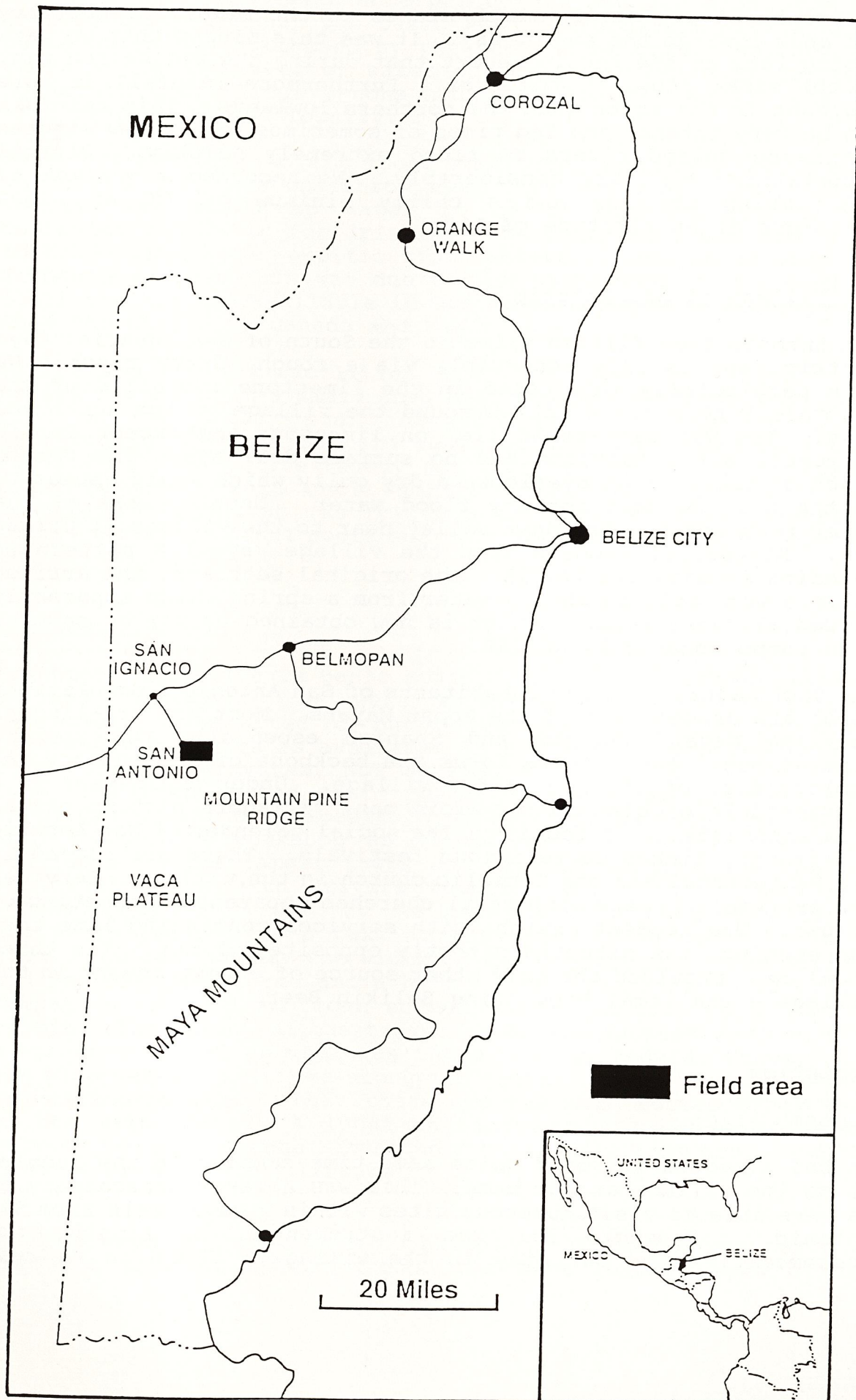
The Field Area

Belize - Location and Geography

Belize, formally known as British Honduras, is situated in the south-east section of the Yucatan Peninsula of Central America (Figure 1). The country is only 280km north to south and 109km east to west. The 23 300km of land within its borders, slightly more than the size of Wales, making Belize the second smallest country in Central America after El Salvador.

Belize has a geography that contrasts with that of its neighbours. The northern lowlands are level to gently rolling, but the southern highlands are rugged and mountainous. Much of northern Belize is underlain by limestone, however its lack of relief means that there is an abundance of rivers flowing above ground. In contrast, southern Belize is dominated by the Maya mountains. These mountains are formed by a granite batholith and are flanked by limestone on the lower slopes. This limestone has a well developed Karst topography, and it is within these beds that the country's principal cave development is to be found.

Figure 1 - The Field Area
Location Map



Climate

Belize has a dry season which starts in the middle of February and ends towards the end of May. It was this window that we were aiming for, as the locals report that during the wet season many of the sinks flood to the roof. Furthermore rainfall is more abundant in the south than the northern lowlands. This rainfall can be very intense and lag times of sometimes only a few minutes can cause upland rivers to flood extremely quickly. Diurnal temperatures can vary considerably. We recorded a maximum of 42°C during the day and a chilly minimum of 7°C at night (recorded at an altitude of 120m).

The Village of San Antonio

San Antonio lies fifteen miles to the South of San Ignacio, Cayo District and is only accessible via a rough, dusty track. We were particularly interested in the limestone foothills of the Mountain Pine Ridge which surround the village to the south and West. The village itself lies on limestone and except for in extremely wet conditions has no surface drainage. The "South Side" of the village overlooks a dry gully which would appear to be the main conduit for any flood water. Usually most of the water resurges further down valley near to the village of Cristo Rey. Historical records from the village reveal a pattern of receding groundwater levels. The original settlers, who arrived in 1876 were able to obtain water from a spring which apparently flowed all year round. Water is now obtained by way of several hand pumps donated by UNICEF.

The vast majority of the inhabitants of San Antonio (population=3000) are descendants of the Mopan Mayans. Most are tri-lingual speaking Mayan, English and Spanish especially the younger generations. Agriculture forms the backbone of the economy and employs most of the men in the village. Under-employment is a considerable problem so therefore many villagers pick up casual work associated with tourism. The social calender of San Antonio is strongly linked to religious festivals. There are currently six Pentecostal and one Catholic church in the village. Services are extremely lively with rival churches apparently competing by volume. The loudest church, with services continuing late into the evening, was situated directly opposite our hut. The three local bars provided the only other source of entertainment in the village - the local brew being Belikin Beer.

Logistics

Accommodation

We had expected to spend quite some time camping in the jungle, using the village as our base. This was however unnecessary as we were able to visit numerous sites within a days' walk from San Antonio. Fidencio Bol was instrumental in finding our accommodation for our stay in the village. There is no real

accommodation available for rent but he managed to negotiate the use of a hut at a reasonable price (\$10 BZE per night for all four of us). The hut was basic with no furniture save a small table which had collapsed by the end of the trip. Neither was there any electricity or water but this was the norm for many houses in the village (-none had piped water) We lit the hut with candles bought locally.

Water was available at the local standpump (mentioned previously) which was only a stonethrow away from our hut. Many locals thought the standpump water to be of dubious quality and collected rainwater for drinking. We used the standpipe water together with water purification tablets. Some of us were ill although whether this was due to the water supply is arguable. Bottled water was available in San Ignacio but this was imported from the States or Canada and was pricey.

Toilet and washing facilities at the hut were primitive. The toilet was a pit in a small shed near the hut which was extremely ripe in the midday sun. Unfortunately, the washstand was situated in the same hut and was similarly populated by a wide variety of fauna! The remedy for this was to wash as little as possible or to wait until dark so that an outside wash was possible. Both Crab (Rocky) Cave and Cocohil Cave (described later) were near small pools suitable for bathing/washing clothes in.

Transport

Transport in Belize is basic - although not as uncomfortable as we had expected. We were a small group and restricted financially so we opted for public transport throughout our stay. Apparently car hire is available in Belize but with the lack of a car insurance system, MOT or road taxes you can imagine the type of car you would get! Chris Jackson found that the four wheel drive that his expedition hired spent as much time in the army mechanic's workshop as it did on the road! Taxis are available in the larger towns and tourist resorts and the air constantly rang with drivers tempting you with a cheap ride ("taxi, Lady? taxi, Sir?"). We soon found out that it really is not worth paying for a taxi as the price of a bus ride is so good. You can journey the width of the country for a few dollars and in less than three and a half hours. The buses used by all companies are old American school buses, in various states of repair. The beauty of bus travel in Belize is that you can flag a bus down almost anywhere as there are few regular stops. You can also get out anywhere along its route. The main problem with travelling by bus is that there are few main routes other than on the main roads. A local and infrequent truck service ran between San Ignacio and San Antonio during daylight hours and the chances of getting a lift back to the village after dark were remote.

This is when you must turn to hitching. Hitching was our most frequent mode of travel around the more remote areas of the

country. Locals are generally willing to give lifts to locals and tourists alike although it is usually polite to offer a couple of dollars for a long ride.

Metalled roads in Belize are few and far between. The main Western Highway which runs from Belize City to the Guatemalan Border is tarmacked (to a fashion) although it is interesting to note that our visit was only a couple of weeks after the Queen and the Prince of Wales' trip to Belize. I wouldn't go so far as to say that the whole country smelled as if it had been given a good lick of paint but... The Hummingbird Highway is in a worse state of repair (the Queen did not use this particular road..) but a bit of careful driving can avoid most of the larger potholes. Careful driving was something we rarely encountered in Belize. It was lucky that most pick-ups were open-topped or there would have been a few headaches as well as sore bums! All roads other than the two metalled ones mentioned before were either dirt tracks or gravel tracks maintained during the dry season. We were in Belize during the dry season and the roads were incredibly dusty and the potholes not too large. We saw some evidence of road maintenance (ie. pothole filling) whilst we were there. Many roads become impassable during the rainy season.

Access to the Field area

Access to the field area was entirely by foot once we had reached the village of San Antonio. We armed ourselves with machetes bought locally in order to cut paths through the jungle undergrowth and had a large supply of luminous orange masking tape with which to mark our route. Many trails are cut through the dense jungle by local hunters and farmers for access to cleared fields or "milpas". We made full use of these trails and the use of machetes was kept to a minimum, making our "jungle bashing" easier than anticipated. It was once we ventured away from the more widely used routes (much of the time) when machetes came in handy. The secondary growth on areas of previously cultivated land was particularly dense and required a good few blows from a machete to clear. This thick secondary undergrowth got lighter the further up the hills we got and more natural primary growth was more common (although technically all Belizian forest is secondary as it has been cultivated by the Mayans). The very tops of the hills had little or no undergrowth as the soils were quite thin and the limestone old and shattered. From consultation with cavers familiar with Belize, we learned that often features on the map showed little or no resemblance to those in the field. This was partly due to the 20m contour spacing used on the Belizian maps. It was on the basis of this advice that we decided to hire a local guide for a few days until we were more accustomed to jungle terrain. Our guide, Javier Mai however turned out to be a mine of local information regarding the jungle, creepy crawlies and snakes as well as knowing of countless "bottomless pits" and gibnut nests he had come across whilst out hunting. He let us into many well kept local secrets and took us to some largely unexplored sites.

Discoveries

JAVIER'S CAVE

This was our first taste of Belizean caving, and it was if we had never left the environs of the misty Mendip Hills. Our guide, Javier Mai, was keen to show us this site first, as he had come across the entrance whilst cutting a new trail. He lead us up a vague track to a small opening only a few minutes walk from the road. Downing rucksacks and donning caving gear we were off! Ten minutes later we had done the whole cave including checking out every impossible lead. The cave contained several large spiders, but probably not the largest we were to see on the trip. There were also several fragments of Mayan pottery, and a few rounded stones almost certainly used as grinding implements.

Javier's Cave essentially consists of one chamber, with a rift dropping away to the right. Dropping through the small entrance squeeze you immediately enter the single chamber: 15m long, 10m wide, 5m high. At the far end daylight enters from a second entrance in the roof. We were unable to climb up to this entrance and we did not attempt to locate it on the surface. Just inside the entrance, on the right, the rift can be descended for 6m. Alternatively the rift can be pushed at the far end of the chamber. An awkward descent lands at a small choke. This did not draught and no way on could be found.

SKELETON CAVE

This is another well known site so "discovery" is a bit of misnomer. Javier Mai and Fidencio Bol have placed a wooden ladder in the entrance to allow easy access to the cave. The 8m ladder assists the descent into a fairly roomy chamber. Dumping our stuff at the bottom we followed Javier on the "guided tour". The floor is strewn with boulders concealing the true dimensions of the chamber. He pointed out several good pot fragments and a nice stal grotto before sending us off into the lower levels. The lower route, the only way on, involves climbing down an inclined rift and squeezing past calcited boulders. Once at the bottom, we went for a nose down every unpromising lead. All holes ended in a solid choke with no apparent airflow, although one or two particularly dodgy sections were not fully investigated. Fragments of bone were scattered throughout the lower levels, some of which were heavily calcited. On the way out we passed a large colony of bats tucked away behind a large boulder in the entrance chamber.

SINK ONE

After having looked at two caves well on the beaten tourist trail we were keen to find some new stuff. We asked Javier if he knew of anywhere that streams disappeared. The term "sink" is used very widely in San Antonio and initially caused a bit of

confusion. The locals considered any large drop, whether it was an entrance or a pitch inside a cave, to be a sink.

This steep-sided valley contained a small stream which sank 60m upstream of the cave entrance. The entrance is located at the base of a small cliff, and judging by the large quantities of debris the sink must take a huge river in the wet season. Although quite an impressive entrance the meandering passage soon degenerated into a tight winding rift and a series of awkward squeezes. The base of the passage soon became choked with organic debris, but we were able to force a way at a higher level. Unfortunately after 30m we had to drop back down to the stream bed. This soon choked with no further way on. It may be that in other years this cave could be followed for further, depending upon the nature of the floods in the wet season.

Length: 35m Depth: 5m

CRAB (ROCKY) CAVE

Javier, suggested that a pool nearby would make a good stop for lunch. After a quick swim we headed back down valley to look at the sink. The entrance portal was 10m high by 12m wide and made a pleasant contrast to the earlier grovels. Whilst we were putting on our gear we asked Javier what he knew about the cave. Surprisingly he did not consider that such large river sinks were worth entering! However it took only a little persuasion for him to accompany us into the cave. We quickly descended the entrance gorge, clambering down bus sized boulders. The passage dimensions can only be described as huge great big yomping stuff to a sump (-40m) after 230m.

Just beyond the daylight section the cave became narrower and the descent involved negotiating several small climbs. We passed plenty of rocky pools, some of which were inhabited by large crabs: hence the name of the cave. A few avens in the roof were noted, but there were no obvious side passages. After a healthy session of passage yomping we entered a large chamber. This was estimated at 30m high. There appeared to be a good lead high up on the left hand wall but entry to this was by means of an awkward traverse. We were unable to free this and lack of time prevented us from returning with kits. This is a lead that would certainly be worth examining on a future trip. Beyond the chamber the main gorge continued to a sump. This was heavily choked with organic debris and diving would be pretty grotty. Whilst we were thrashing around in the ooze at the sump we noticed several white fish. This terminal section was also home to a large colony of bats.

Returning back up the gorge we examined possible leads. One climb in the roof turned out to be a small oxbow. Further upstream a small inlet was investigated. This began as pretty section of streamway with plenty of gours and flowstone. However it soon degenerated into a low, wet thrutch. This was pushed via several climbs and squeezes to rejoin the main gorge near the

entrance. One particular squeeze was completely choked, and took ten minutes of digging to pass. Jammed flood debris would make this section impassable after flooding.

Length: 325m Depth: 40m

UNIQUE CAVE

We visited this site on a horrendously wet day when enthusiasm for caving was at a low ebb. Fidencio Bol was keen to show us a deep sink that he used as a stop on horse riding trails. He estimated the pitch to be about 30m deep. Tim and Pete trudged up the hillside above San Antonio to take a look. The pot was located high up on a thickly clad jungle slope and its location did not look too promising. Rigging from a couple of trees the pitch was descended to 25m. The bottom was so completely choked that there was little point in even getting off the rope. A second entrance, 3m from the pitch, was entered. This immediately joins the main shaft 6m down, where a precariously jammed boulder acts as a balcony to watch others descending the pitch.

Length: 10m Depth: 25m

COOL SPOT CAVE

Named after one of the local bars we frequented, this cave was dug open by a local farmer who was chasing gibnut (a small furry creature that tastes a bit like chicken). The entrance had been uncovered when he was clearing his milpa. He had been into the cave a considerable distance and, disconcertingly, even carried a loaded shotgun on our initial trip. The cave entrance, although large, is well concealed in a gully, thick with vegetation. Our guide, Marcello Howe, had not visited the cave in the last seven years, so it took us some time to locate the entrance.

The main section of the cave consisted of walking-sized, mud floored passage. Three rocky squeezes divide up the first section of passage; the first of which was dug through. In parts the roof rose to 25m with one particularly impressive section of high vaulted rift. The largest chamber was inhabited by a large colony of bats with an accompanying stench of guano. This section appeared to terminate at a large flowstone barrier. However a squeeze was found 4m up on the back wall. A body length thrutch lead to a large chamber. The floor was covered in huge tree roots which had forced their way through minute cracks in the walls. We furtled around in an interesting section of breakdown in the floor where a twisting section of passage could be entered at several points. At the end a squeeze was forced to rejoin the passage on the other side of the flowstone barrier. Back in the chamber the obvious way on was followed for a further 20m to a final conclusion. A large phreatic passage was completely filled to the ceiling with mud. This lies only 3m

higher than the entrance.

Approximately 215m from the entrance a crawly inlet on the right was followed. This was floored with mud which after only three trips worth of caving had, in places, degenerated into a gravel. In places the rock has been sculptured into sharp flakes and phreatic gouges. After 50m this emerged at an impressive set of gour. The largest of these was waist deep with the water pleasantly warm. It was after climbing out of this gour on the way out that we heard water dropping away in the floor. The removal of several wedged rocks revealed a small slot leading to a 5m pitch. This tight pitch head provided plenty of amusement on exiting. The drop was descended to an especially fine section of streamway where an inlet contributed most of the flow. This eventually terminated at a sump at a depth of 13.91m. We are almost certain that this inlet is the downstream end of a streamway we encountered at Aquabatics (see below).

Back in the main passage progress was made by wading across several large gour. Unfortunately this pleasant section closed down to a horrendously sharp crawl. After several trips this section became slightly more tolerable as we dragged in plenty of mud from the crawls beyond. Things opened out beyond Emkuf Crawl to walking sized stuff between mud banks. Ominously a tide mark above our heads suggests that the whole of this section could flood to the roof in wet weather. Crossing over fossil gour the end came at a nasty squeeze. Tim was able to force this but was defeated by a particularly stubborn flowstone squeeze beyond. This did not yield even after ten minutes of bashing with a geology hammer.

A further side passage was entered back at the fossil gour. We quickly followed an enticing draught and the sound of a streamway. This just had to go big! Whilst we were wading through a deeper section Julie rescued a bat which had fallen into the water. Hence the streamway was named "Aquabatics". An obstacle was climbed and we were rewarded by a delightful flowstone cascade. Pete investigated a tight continuation downstream but this appeared to close down. It is believed that this streamway reappears as a small inlet below the pitch. Climbing up the cascade, the streamway was found to close down to a crystal clear sump. Nosing around in a muddy choke above the sump a small phreatic continuation was entered. This bypassed the sump but did not enter the hoped for continuation. A further sump was discovered but with no way over the top. A quick investigation was attempted but the sump went deep. This sump was surveyed to 11.45m above the entrance.

This concluded our exploration of Cool Spot Cave, but it took a further three days to complete the survey and photograph the highlights.

Length: 815m Depth: 25m

COCOUIL CAVE

This was another large sink, but unusual in that the stream drops down a steeply sloping rift (50 deg) to a depth of 65m. The cave, named after the piece of land on which it was located, is found at the bottom of an overhanging cliff. A small stream flows along a densely vegetated gully which is only a few minutes walk from the road. We were lucky to spot a turtle hiding in shallow pool, but not so lucky to be acquainted with what Javier guessed to be a colony of African killer bees.

Once in the cave we tried to follow the streamway down. This was not always possible as the rift was broken up by huge, jammed boulders and vertical drops. Surveying this section proved to be particularly awkward as the easiest route was somewhat convoluted. The final section of the rift involved negotiating a 10m waterfall and getting a thorough soaking in the process. At the bottom of the rift a pleasant phreatic passage was entered. After 15m this opened out into larger stuff: 40m wide, 10m high and 70m long. The stream soaked away over a low area of cobbles to the left, whereas the main passage was floored with fine sand. An almost totally flat section dropped to a dry stream bed before an impressive stal grille was met. Clambering through this portcullis a steep rubble slope was encountered. We were extremely cautious whilst climbing this slope as obvious impact marks testified to its instability. The slope terminated 70m above the sandy passage, with its roof made up of several bus sized boulders. Not a place to hang around in, and worryingly the survey revealed that the choke lies directly underneath a large depression in the road above.

Length: 286m Depth: 75m

ACTUN MAI

Although Cocouil was the most impressive cave we found, the Actun Mai - Tzonot system proved to be the most complex discovery. The cave was named after the family of our guide, Javier Mai, and was found to be heavily choked with tree trunks and rotting debris. The entrance was typical of the San Antonio valley in that it was large, and took huge volumes of water in the wet season. Initially things looked extremely promising with a large canyon passage somewhat reminiscent of Crab (Rocky) Cave. Unfortunately, once out of sight of daylight, things degenerated into a grotty grovel. By clambering over tree trunks and clawing our way through organic debris we were able to follow the small streamway. This soon became completely choked with the streamway appearing to sump. Luckily, Tim was able to dig a way through a nasty blockage, and once through investigated a rift in the roof. This was a rather tight and slippery tube which was entered by a tricky climb. The rift popped out into a large aven and more open passage.

A climb, awkward on the return, lead to a further series of crawls and a junction. To the right the passage became heavily choked with a delightful mix of twigs and black gunge. This was forced to 100m of thrutching and crawling. A little relief was enjoyed, in some pleasant walking passage, until a small streamway entered on the left. This dropped down a 5m pitch where the water soaked away at the base of a cone of mud. This point marked the end of this section of cave.

Once back at the junction the passage on the left was investigated. This issued a healthy draft, and it was soon obvious that this was the main way on. The team were initially held up by a 6m drop which was overhanging towards the bottom. Tim managed to free this climb but the passage continued as a low crawl. On a later trip a three hour survey marathon knocked off 200m of passage in this section, dubbed "Burrger Bugger Passage". The crawl drafted strongly convincing us that we were on to something big. A final squeeze popped out at the base of a large aven, estimated at being 20m high. The floor was littered with plant debris and anaemic seedlings sprouting from a mud bank. A large colony of bats whirled around at the top of the aven. These facts suggested that we must be extremely close to a second entrance. The aven, however, was unclimbable so we had to call it a day. It was named Disappointment Chamber.

Length (including Tzonot): 590m Depth: 35m

TZONOT

Javier had told us a story about this pot long before we actually got to investigate it. Apparently it contained a huge pitch reputed to be a thousand feet deep. This was a little unlikely as the area did not have enough limestone to contain a cave of such depth. Obviously we were keen to go and take a look. The entrance is located in the dry valley above Actun Mai. This immediately raised our suspicions that the "huge" pitch would drop into the aven we had found at the end of Burrger Bugger Series.

A short section of walking stuff lead to the head of an 11m pitch. The left hand wall was quickly bolted, and the drop descended. A muddy floored chamber lead immediately to a second pitch. Pete continued the bolting on the following day, whilst the rest of us were surveying Actun Hoyanko. The pitch was found to be 21m deep and landed on the mud slope in Disappointment Chamber as expected.

Tzonot provided us with a quick route into the further reaches of Actun Mai, and was used to tie up a few loose ends in Burrger Bugger series. A through trip was done to tie in the survey loop and investigate a few leads that Jules and Tim had noticed on their mammoth survey trip in Actun Mai. The first lead looked at was at the end of the survey in an inlet just before Disappointment Chamber. Jules was keen to lead the survey so was the first to crawl up the continuing passage. He was soon

observed rolling around in the organic debris, and appeared to be wrestling with something. Hauling him out we discovered that he was covered in red ants, most of whom were clinging to exposed skin. Tim, whose caving attire was in a better condition, decided to venture in to check out the situation. He was soon back having experienced crawling over an advancing column of soldier ants. Considering the prospects of this crawl, The Trail of the Killer Ants, we decided to go and look elsewhere. Somewhere a little less painful!

Another inlet, Cockroach Passage, was surveyed for 50m past some particularly grotty thrutches. Although draughting slightly the passage degenerated further into a wet, flat out crawl. The survey was abandoned, leaving Tim to investigate further. The crawl continued for a further 100m until progress was halted yet again by ants. However, this time an ants nest was reached, with a column of ants heading up passage. Not a pleasant section, but both leads head off into a blank area on the survey. They head in the direction of another valley where we were told of yet another sink, but did not have time to investigate it.

Depth: 40m

VALLEY SINK

A further sink was noted downstream of Tzonot. This was completely choked with organic debris. A small oxbow in the cliff face was surveyed for completeness.

Length: 8m

ACTUN HOYANKO

This attractive, phreatic entrance is located in the same dry valley as Tzonot, but slightly further downstream. Initially prospects looked poor. The cave had long been abandoned by the stream, and the entrance passages were well visited. However a series of climbs dropped into a large, mud lined chamber. The final thrutchy rift became increasingly awkward as it soon became coated in a film of mud. The mud bank was scaled and a draughting crawl followed. This point lies only 15m from the right hand passage in Actun Mai with good potential for a connection.

The crawl degenerated into an extremely tight squeeze, and wetter crawling beyond. An apparent end was met in a roomy chamber where two muddy rifts were climbed but no way on was found. Our final option was to force a calcited squeeze at the back of the chamber. A steep climb lead to a deep duck and a further series of crawls similar in character to the lower levels in Actun Mai. At this stage things were looking extremely promising. We had not sketched out a survey of Actun Mai at the time so were unsure whether we were heading towards, or away from that system. On a solo bash Tim pushed a low draughting crawl past two grotty

ducks. The way on continued tight and wet, but was not pushed to a conclusion. Upon drawing up the surveys we discovered that this passage trends towards the choked sink (Valley Sink).

We returned to these crawls again intending to complete the survey. However after two legs into the flat out stuff a draughting squeeze was noticed on the left. This popped out, through clean washed boulders, into a large chamber. We were obviously into something much bigger than the crawl, and with a much better draught. We followed a pleasant section of walking sized passage which ended in a smelly sump. The route involved several awkward climbs and squeezes. This section was particularly flood prone and we were glad to climb up into higher levels. A pretty grotto was discovered as well as a gear wrecking thrutch - "The Red Ragged Rift". A couple of high level oxbows were investigated but none went far.

Actun Hoyanko certainly still contains a few going leads which were not pushed due to lack of time. There would appear to be a good potential to connect the cave with Actun Mai, and possibly the choked sink as well.

Length: 299m Depth: 30m

ACTUN MERECH

This cave was discovered by Javier on a gibnut hunting foray in the jungle. He wanted us to take a look at the pitch at the end of the cave. The entrance, a walking sized phreatic hole, is situated on the hillside above Mai's cave. As we expected for such a location the cave did continue very far. However a survey was knocked off, and photographs taken, whilst Tim investigated the pitch. A nice take off, using naturals, became fairly constricted 5m down. At the constriction a particularly suspect flake allowed a free hang to the bottom, 20m below. All ways on were completely choked and no sign was seen of the remains of a gibnut which Javier had seen fall down the pitch. One possible lead was seen half way down the pitch but this was not entered.

Length: 52m Depth: 21m

BLIND PIT

A small choked shaft, 8m deep on the hillside above Actun Merech was investigated. Jules was the sole member of the team to descend as the way on was choked.

Depth: 8m

UNNAMED CAVE

This was found on the valley side, almost opposite Actun Hoyanko. Two chambers are separated by a tight squeeze which had been opened up by Javier whilst chasing gibnut. This event must have occurred a few years ago as we had to dig the squeeze wider to get Javier through. The further reaches of the cave, although dry and dusty, were well decorated. The end was heavily choked with no draught.

Length: 30m Depth: 2m

CUEVA DEL INDIO PERDIDO

15m further along the valley side from the unnamed cave Javier pointed out a small entrance. A decorated entrance chamber was found to lead to a small complex of passages. These all led to a pitch which appeared to be quite deep. Stones thrown down were heard to land in water. Pete bolted down the pitch with Javier accompanying him to the pitch head. The bottom dropped into a nasty tight rift so the smallest member of the group was brought in to investigate (no guesses!). A natural was excavated to improve the hang but the bottom was found to end at a tiny sump. On the prussic out a draught was felt which appeared to come from a void in another aven. A climb into this was not investigated. It may well be that this cave also drops into the Actun Mai master cave. The cave was named by Javier, who amused himself by making little mud figures at the top of the pitch whilst Pete was bolting below.

Length: 22m Depth : 24m

Medical Report

None of the expedition members had any practical first aid experience at all (save the odd boy scout course) and so medical support for the trip was very much a make-do affair.

Vaccinations required were polio, typhoid, cholera and hepatitis A. Two of us also had rabies jabs as rabies used to be endemic in Belize and there is a small risk from contracting it from bats. The jabs for rabies are expensive but if the full course is taken, some long term protection is offered. Cost of the other vaccinations varied from doctor to doctor - most were free but two members had to pay for their Havrix jabs whilst the other two were offered it for free. Malaria tablets are essential in Belize as with all tropical countries although different doctors recommended different brands.

We took advice mostly from the QMC logistic report when stocking first aid kits although with limited personnel and transport, weight was the main problem. A small base camp kit (contents listed in Appendix A) was left at the camp whilst expedition members carried a small, basic kit into the field.

The medical problems we faced in Belize were few and minor. Most of the team were struck down by "Belize Belly" at some time (or for at least one person, throughout the whole of) our stay. Vast quantities of Immodium were packed in the kit for this eventuality but in the event we decided against taking them as they have a mean reputation for bugging you up for a long time. We agreed that whatever it was causing our distress was better out than in so we let any such illness run its course.

All of us were troubled a little by mosquitos but no more than was expected. A small amount of Eurax cream on the affected areas did the trick and antihistamines were not really necessary.

Our guide was the only person to suffer from the dreaded "bot fly" - a common affliction in Belize. This fly lays its larva just under the skin and a small bruise-like patch will appear. A breathing tube is sent out to the surface of the skin. If left to their own devices for a few weeks, the larva will grow fully into a pupa which will fall out of the affected area. We gave the victim some airproof plasters to suffocate the little beastie and a pair of tweezers to pull it out with and this did the trick within 24 hours.

The only other minor problem was that of the heat. One member got minor sunburn which proved to be highly amusing for the others during a particularly gritty surveying session. One person suffered from mild heat exhaustion early on in the trip exacerbated by late mornings (so that much activity took place at midday) but this was overcome by gradual acclimatisation and early mornings.

To conclude, we had a fairly trouble free time with far fewer problems than anticipated. We were fortunate though in working

in an area with reasonable access to roads. Our daily trips into the jungle were by foot which meant that we were never more than a few hours walk to a road. Parties planning a more remote expedition would be strongly advised to swot up on all aspects of first aid and self rescue to a much higher level than we did!

Financial Report

The expedition was initially intended to be self funding, something that was only possible because we were able to borrow SRT rope, a bolting kit and survey gear from the MCG. However in the end we also received a £700 grant from the Sports Council. This money allowed us to buy a comprehensive medical kit and some photographic equipment as well as supporting us for a couple of weeks in Belize.

The finances can be broken down as follows;

Airfares	1811.00*
Transport in Belize	126.00
Accommodation	143.00
Guides	60.00
Food	363.00
Rope	21.16
Spits	18.90
Miscellaneous	48.00
Photographic equipment	76.06
Medical kit	167.73
Insurance	440.00
Total	3274.85

* The airfares to Belize were £505 each including taxes. This was by far the main cost to the expedition. Jules however opted to fly to Mexico city for £250 and then take a bus down to Belize. While this saved money it added at least a day to his journey time and resulted in the confiscation of his boots by a military guard at the Mexican border. We took one of the cheapest fares offered to Belize which involved a stopover in Houston which added significantly to the accommodation costs.

As well as these costs each of us also spent large sums of money in order to kit ourselves out for the trip. This amount varied according to how much gear we already had in our possession. Of course future trips should be cheaper as we now own mossie nets, hammocks, Ortleib bags etc, etc.

Not included in the above breakdown is the cost of postage. Copies of our expedition report have since been forwarded to the Department of Archaeology (£9.50 airmail for 2 copies) and we expect further expense as copies of all reports and photos were promised to various locals who helped us during our stay. These

costs have not yet been realised and are not estimated here as considerable "help" in photocopying and postage costs were covered by the workplaces of all personnel (ahem).

Anyone else thinking of going to Belize would do well to bear in mind that the cost of living is quite high for a Central American country. Jules was constantly reminding us how much cheaper things were in Guatemala while everyone noticed that many of the prices were only marginally cheaper than the UK.

Photographic Report

As the expedition was being run on the smallest budget possible we had very little money to spend on photographic equipment. In the end all we had to buy was a small light weight tripod and two additional flash guns, generally making do with what people already owned. We were able to acquire a supply of Kodachrome 64 ASA slide film for free. Purchases of print film for point and press cameras were additional.

Throughout the expedition the cameras and lenses were carried in Camera Care Systems (CCS) bags. These proved more than adequate when it came to protecting the camera gear in the jungle and the caves. When we took the gear into wet caves the cameras were put inside watertight Ortlieb bags. The combination of CCS bags and the Ortlieb bags meant that we did not have to carry any bulky ammo boxes. We took a considerable supply of silica gel with us to Belize but we found that the jungle was not nearly as humid as we had been led to believe.

Unfortunately, when we got the films processed, we found that the cave photography had been something of a disaster. The decision to combine a fast slide film with low power flash guns meant that many of the photographs were poorly lit. Apart from this, we were fairly lucky with the photographic equipment. The slave units worked well and only one flash unit packed in. We also managed to lose one of the cable releases on our first photography trip and the second one broke a couple of weeks later. This was however inconvenient rather than critical. "Point and press" cameras were used in conjunction with Pete's SLR camera and these proved to be useful in smaller passages. Many of these prints were later converted into slides to supplement those salvaged from the slide photographs. Low light levels in the jungle were not a problem. Most of the general landscape pictures came out fine as well as plenty of decent entrance shots. We were therefore able to adequately illustrate both talks and magazine articles.

Photographic equipment used;

Olympus Trip and "Eagle Creek" camera bag
Olympus OM1 camera
28mm wide angle Minolta lens
50mm standard Olympus lens
80-300mm telephoto Miranda lens
Slik lightweight tripod
Four Quicksilver flash guns
Two cable releases
Camera Care Systems camera bag
Camera Care Systems lens pouch
Kodachrome 64 ASA slide film
Fuji 400 ASA print film

Equipment Report

Caving Equipment

Hardware

Ladder and lifeline were recommended to us for the short pitches that we were likely to encounter. It was however impractical for us to carry long lengths of bulky ladders - particularly through Heathrow Airport. We decided that lifeline would also be essential even for the shortest of pitches due to our remoteness. We therefore opted for SRT as the combined weight of rope and SRT kits was probably less than that of ladder and line. In the field this worked quite well as we were able to divide the equipment up evenly between us. The main disadvantage with SRT is that we had to put in more bolts on each pitch than would have been necessary with ladders, although for many pitches we were able to use naturals. A larger expedition willing to ship gear out in advance would probably do as well to take a few ladders for prospecting. An assortment of slings and belays were also carried.

Light

Between us we had four sources of light. Petzl Zooms were used by everyone and generally worked well although the light they gave out was not great. We also had quite a few bulbs blow during the trip. Flat batteries for use with Petzl headtorches are not available in Belize and so we took a large supply out with us. Jules had an adaptor so that his zoom could take AA batteries (also taken out with us). AA batteries are available in Belize but you could spit further than the light they gave!

One carbide lamp was taken for use on survey and photo trips. Carbide is available but unfortunately it comes crushed to a fine gravel. While this worked well in a Malham generator the small lumps burnt far quicker than the large lumps used in the UK, a

full generator only giving 2-3 hours light.

Tim, Jules and Julie used a "Q" diving light as a back-up to their Petzls. These gave the best light with a life of around 6 hours with 4 AA batteries. They were however somewhat temperamental, were easily clogged by mud and suffered from dodgy contacts and took a lot of maintenance. Pete used a mini Maglite as a back up to his carbide, this used AAA batteries which were less common in Belize and provided a light only just adequate to exit a cave safely.

We found our light sources adequate for the type of caving we did although carbides would probably be useful if anything big was found.

Personal Gear

Caving was generally done in trousers and long sleeved shirts, this being the clothing we walked to the caves in. These were ideal for the hot caves. Only Jules suffered as a result of this scratching his back badly at regular intervals, although we all regretted the lack of padding provided by a furry and oversuit, particularly in Emkuf crawl, Cocohil Cave. Jules wore a cotton boiler suit for most trips and eventually gave up carrying it and wore it in the jungle too. It is really personal preference which jungle/caving gear to wear although thin cotton trousers and shirts may rip more easily on particularly sharp limestone. Lightweight helmets are recommended if you don't want to slow cook your brain in the warm caves.

Surveying Equipment

Surveying was carried out using a Suunto combined compass/clinometer and a simple Silva compass. This allowed us to take forward and back bearings improving the survey accuracy. The compasses worked well although they were sometimes clogged by mud. The data was recorded in either hard backed yellow notebooks obtained from the RHBNC Geology Dept or waterproof notebooks from Silvermans. Both were adequate although the geology one could hold considerably more data so were probably better value for money, although how well they would work in a wet cave remains to be seen.

An assortment of drawing equipment was left at the camp so that quick sketches could be made to periodically test the accuracy of our survey data. A calculator would also have come in handy.

Field Equipment

Personal

Unsure of exactly where we would be staying once in the field, we came prepared for any eventuality. This meant having

sufficient equipment to camp in the jungle if it became necessary for our entire stay. We managed however to find cheap accommodation in San Antonio. The accommodation was basic (a shed) so most of our jungle gear was still put to use.

Jules slept in a hammock with a built in mossie net throughout the trip and claimed that this was comfortable although how he slept for 5 weeks with his feet above his head beats the rest of us! It did provide hours of amusement for local children who endlessly clambered in and out of the "den" provided by the sewn in mossie net (although he found that this did nothing to keep it in good repair). Tim used a separate hammock and net which was an altogether more satisfactory arrangement. He managed to fix his hammock to an existing bed frame to make a very comfortable if somewhat noisy bed. For Julie and Pete hammocks were dispensed with in favour of a foam mat (bought locally) and a concrete floor.

Light at the camp was provided by a box of candles bought in San Ignacio as we were reluctant to use our Petzl torches for camping purposes. This was not a problem as we were generally knackered by 9pm and went to bed.

Cooking Equipment/food

We had initially intended to cook for ourselves firstly as we expected it to be the cheapest option and as we had envisaged to be further from civilisation. We had been told that we could get Epigas canisters in most places although initially we couldn't find any. In the end we gave up, especially when we found a lady in the village who was prepared to cook for us each evening. A simple meal of chicken, rice and coleslaw or for a change chicken, rice and beans (every day for 4 weeks!) cost only BZE\$15 (£5) per day for all four of us including Cokes etc.. When we got back to the UK we discovered that the Colmans canisters which were so numerous in Belize would have fitted the epigas burners. We would suggest that anyone wanting to cook for themselves takes a "Trangia" type stove as fuel for these is more readily available. Breakfast and lunch in the jungle consisted of food bought locally - small tins of chilli sardines on locally made sweet rolls and endless packets of biscuits.

Our diet in Belize was better than we had expected (having packed vast quantities of soya and OXO cubes!) and the only real complaint from some was that there was just not enough food (Tim lost half a stone). Whilst this was not really true, boredom stopped us from filling up on biscuits and bread. Fresh fruit was not as abundant as expected largely due to poor communications links to San Antonio. Our guide, Javier kindly provided us with massive watermelons from his farm and we were able to buy bananas, mangos and oranges on occasional trips into San Ignacio. We took vitamin supplements with us but as we were only in the field for 5 weeks or so, these were not really necessary. Expeditions staying in the field for longer periods may decide to take supplements.

Summary

All in all, the expedition can be considered a success with some 15 sites visited and explored, 3.5 kilometres of passage surveyed and four cavers returned with much more experience of how to organise an expedition.

We have hopefully shown that it is possible for a small team to mount an expedition to a small area on a relatively small budget.

Future Work

The expedition was primarily conceived as a reconnaissance trip for a future, possibly larger expedition. From our experience, we have concluded that a small party is ideal for the fieldwork involved in the area. Logistically, things would be much more complicated with a larger group, who would also find it more difficult to be based in the village.

There is still considerable potential for discovery in the Valley of the Caves and we estimate that we only investigated one fifth of the hillsides surrounding San Antonio. It is unlikely that a large system exists in the area, although the discovery of a cave several kilometres in length is certainly feasible.

A return trip is planned over Easter 1996 with the aim of consolidating our current knowledge of the area.

Acknowledgements

Our thanks go to the following people:

In Belize

The Department of Archaeology for their kind permission to explore the caves around San Antonio; The villagers of San Antonio for their warm hospitality and in particular Mr Javier Mai for his guidance, help in exploration, surveying and providing abundant information and hospitality; Mr Fidencio Bol for his help in finding accommodation, his guidance and surveying skills and Mr Marcello Howe for his guidance to Cool Spot Cave.

In the UK

Messrs Nick Williams, Struan McDonald, Chris Jackson and Ern Hardy for their logistical help with the planning stages of the expedition.

We also received financial assistance from the Sports Council of Great Britain through a grant administered by the National Caving Association and the Ghar Parau Foundation.

In the USA

Messrs Tom Miller, Logan McNatt, Jim Bowden and Phil Reeder for their helpful advice.

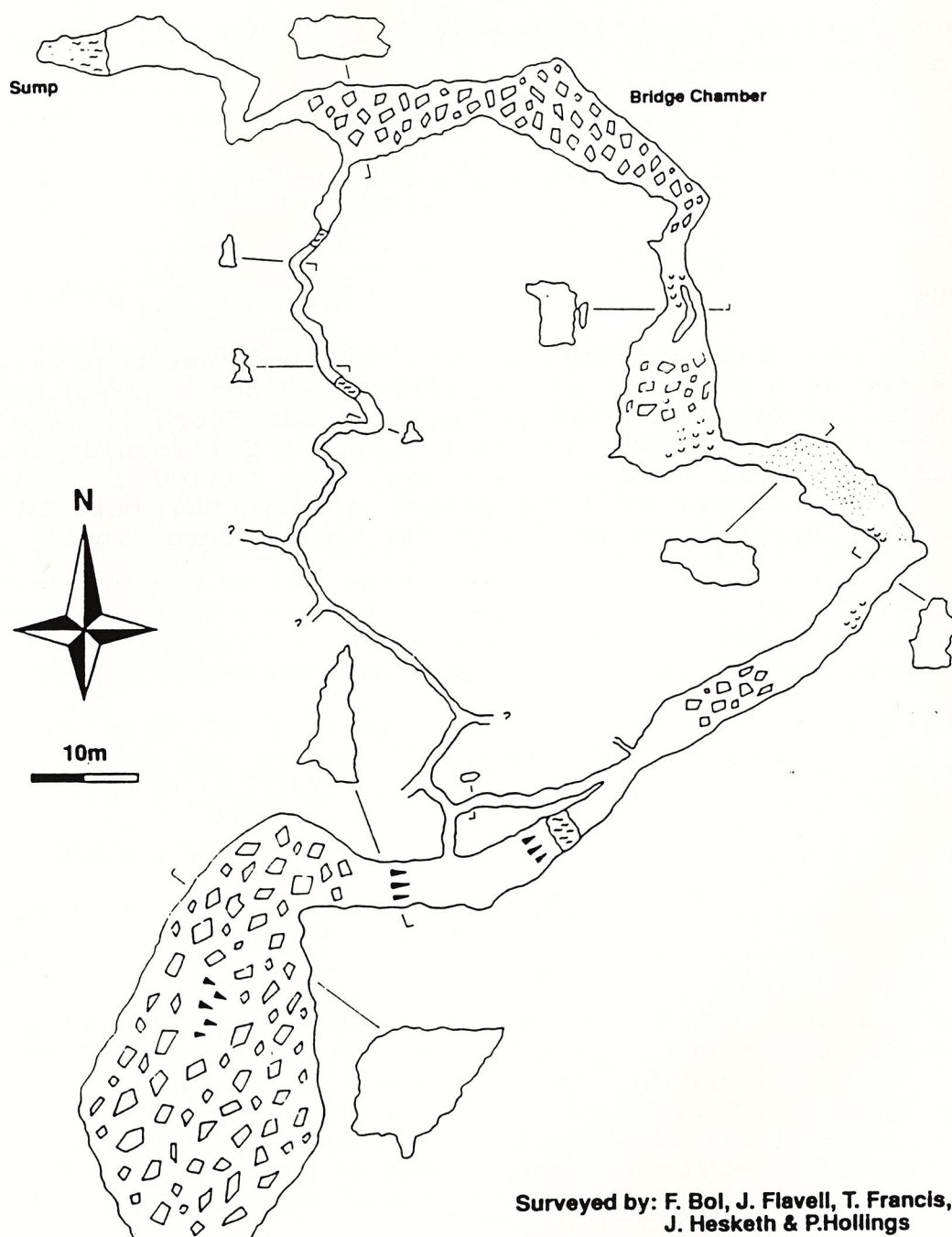
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ADDENDUM

Since this report was written, we have received news that Cocohil Cave is not as unknown as we had first imagined. Logan McNatt and Tom Miller explored what we think is our "Cocohil Cave" in 1985. In 1986 it was surveyed by a Group of Californian Cavers (M.Davis, B. Farr, E.Garza, C.Vesely) who called it "Gibnut Cave". Their survey will be placed in the MCG boxfile for reference. Thanks to Logan McNatt for this information.

Rocky (Crab) Cave

Cayo District, Belize



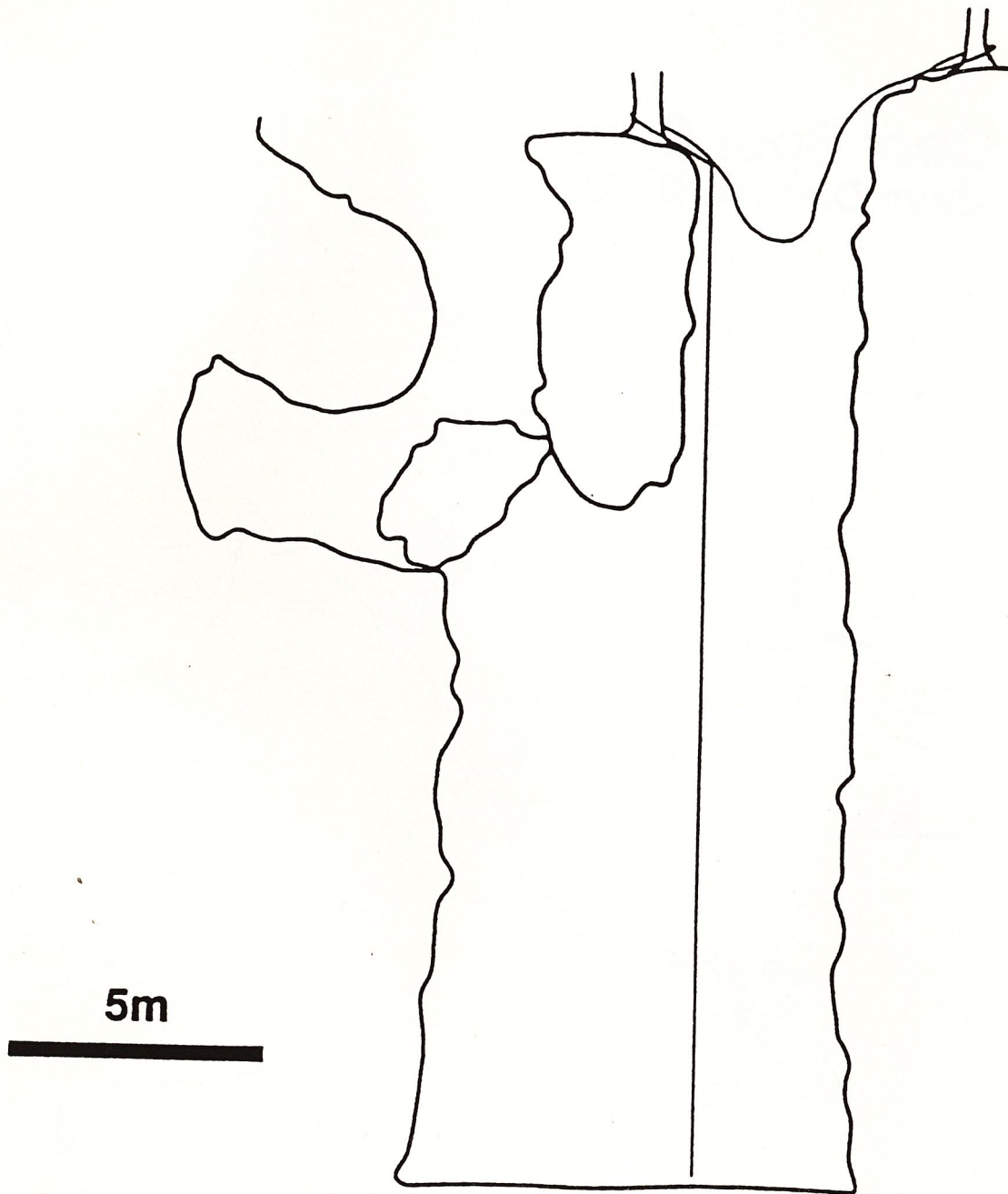
Surveyed by: F. Bol, J. Flavell, T. Francis,
J. Hesketh & P. Hollings

Drawn by: P. Hollings

Surveyed to BCRA Grade 4d

Cross section of Unique Cave Cayo District, Belize

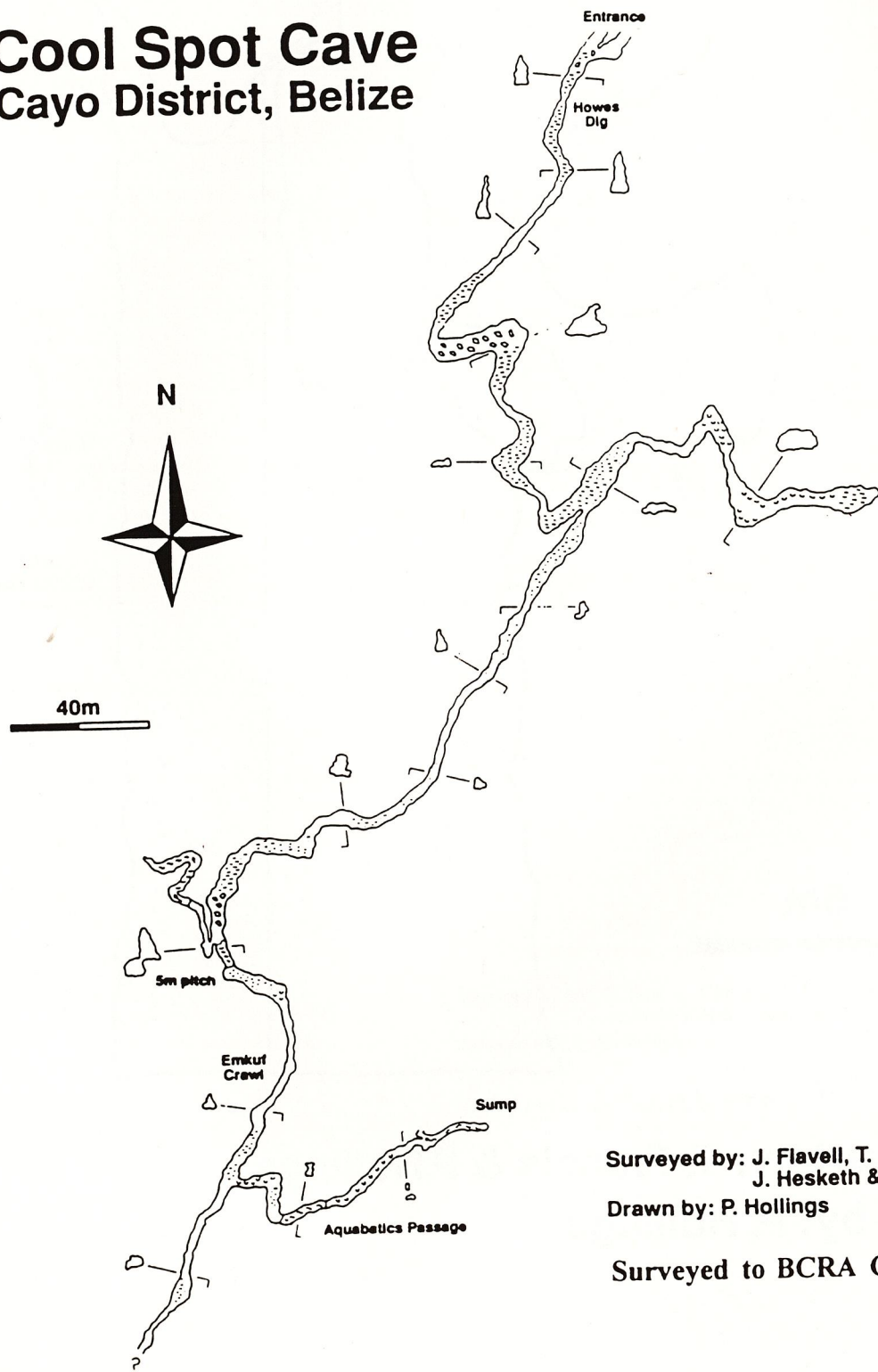
Surveyed to BCRA Grade 1a



Surveyed by: T. Francis & P. Hollings
Drawn by: P. Hollings

Cool Spot Cave

Cayo District, Belize



Surveyed by: J. Flavell, T. Francis,
J. Hesketh & P. Hollings
Drawn by: P. Hollings

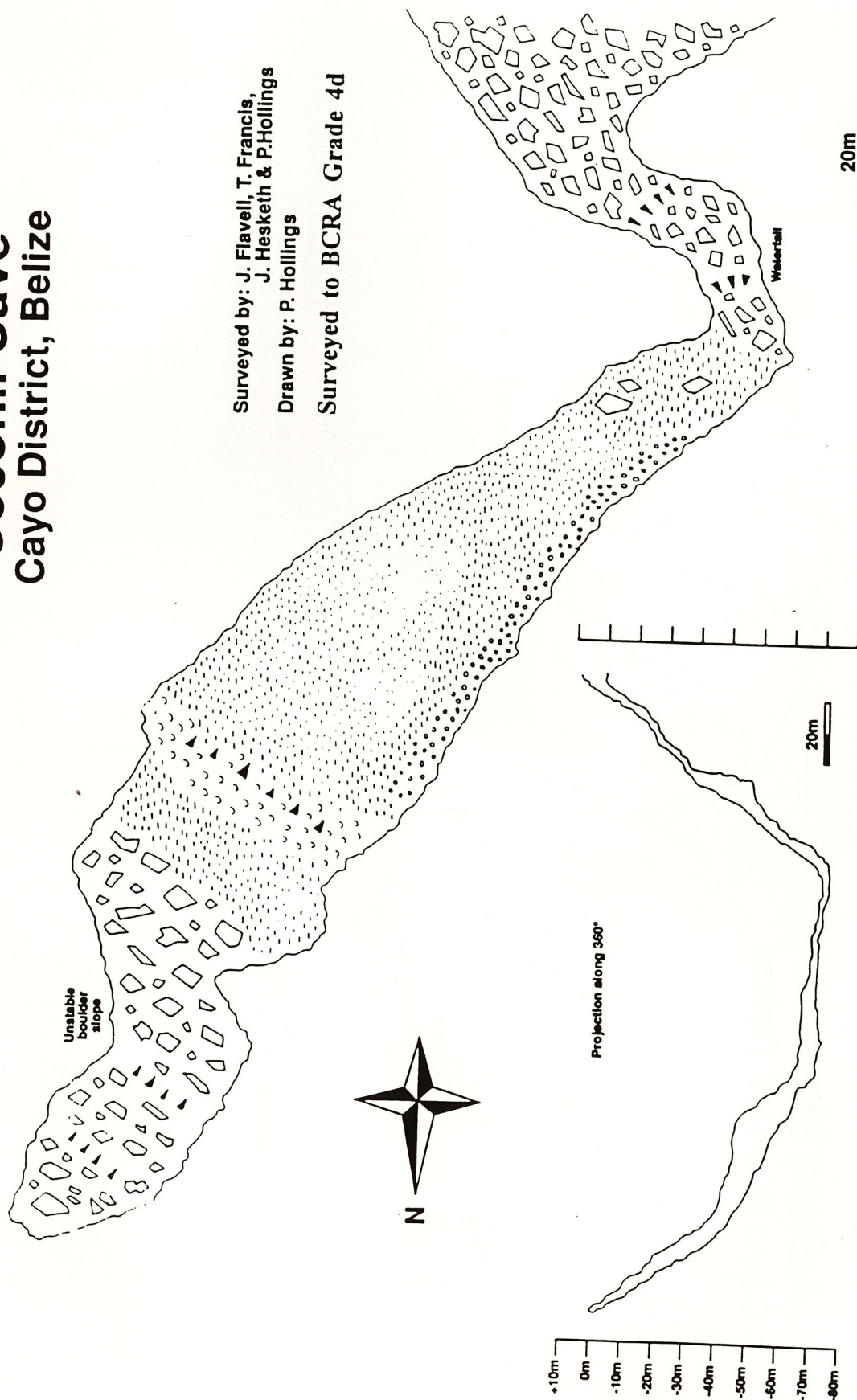
Surveyed to BCRA Grade 4d

Cocohil Cave

Cayo District, Belize

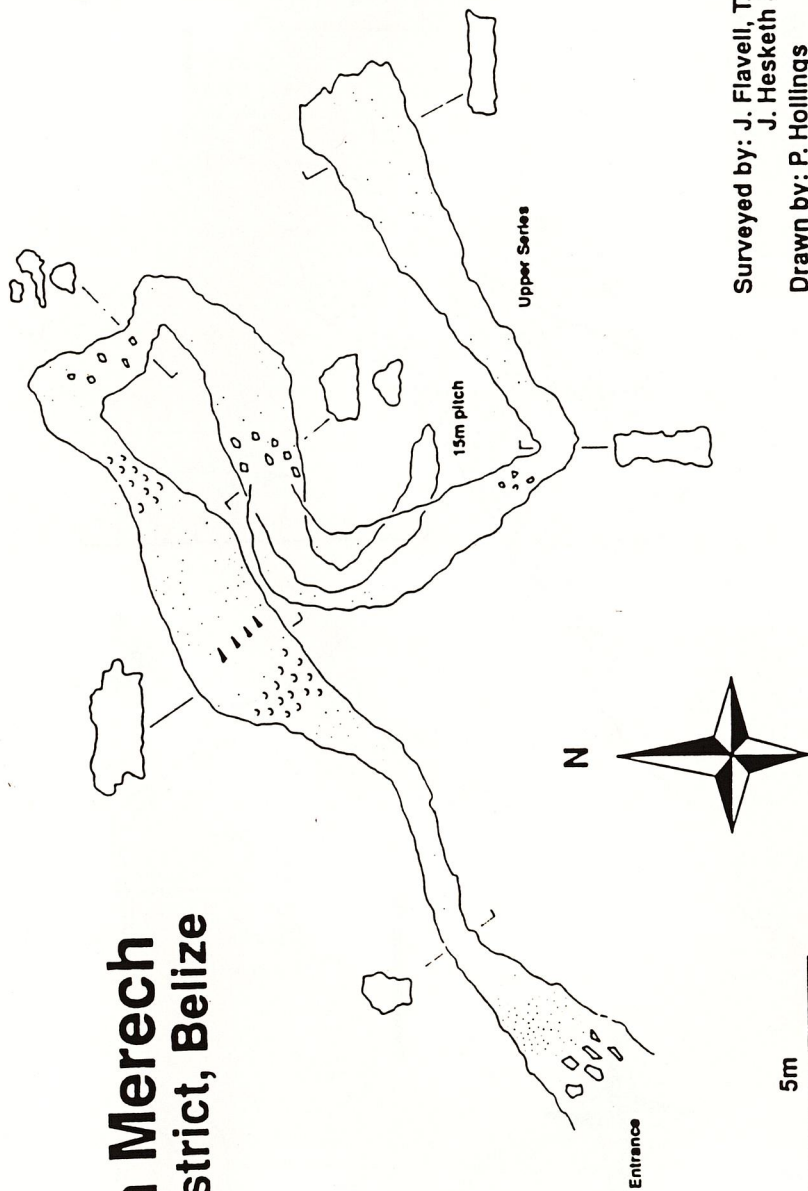
Surveyed by: J. Flavell, T. Francis,
J. Hesketh & P. Hollings
Drawn by: P. Hollings

Surveyed to BCRA Grade 4d



Actun Merech

Cayo District, Belize



Surveyed by: J. Flavell, T. Francis,
J. Hesketh & P. Hollings
Drawn by: P. Hollings

Surveyed to BCRA Grade 4d

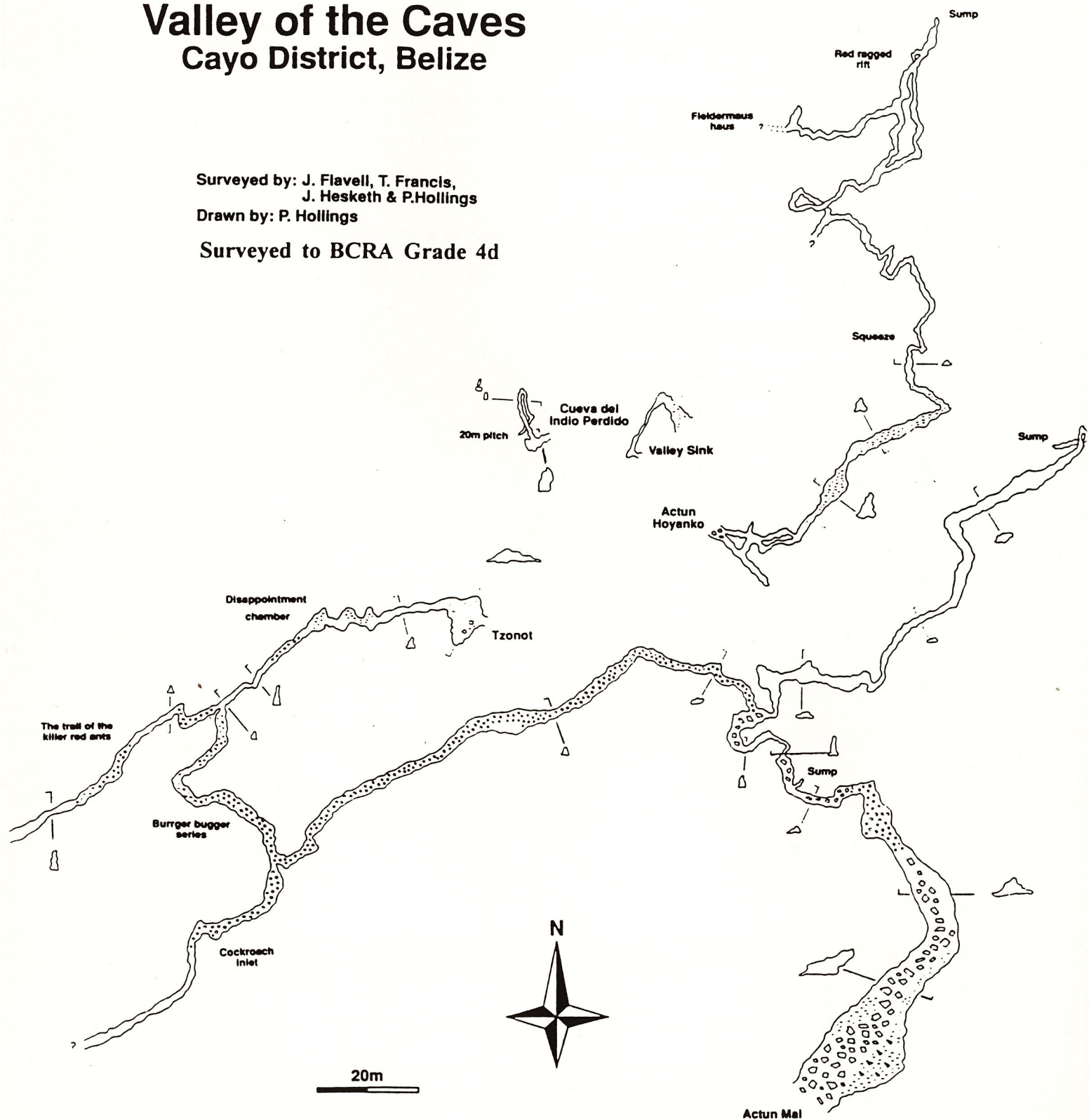
Valley of the Caves

Cayo District, Belize

Surveyed by: J. Flavell, T. Francis,
J. Hesketh & P. Hollings

Drawn by: P. Hollings

Surveyed to BCRA Grade 4d



APPENDIX A - Base Camp 1st Aid Kit

Item	No. of pcks	No. in pck	£/pck	Total
Saline + eyebath	5	-	-	-
Immodium	6	12	4.40	26.40
Triludan Forte	4	7	3.89	15.56
Piriton	2	30	1.79	3.58
Senokot	1	20	1.13	1.13
Iodine Tincture	3	-	0.48	1.44
Rehydrat	1	16	7.57	7.57
Elastoplast	1	-	1.71	1.71
Tubigrip (size E)	1	1m length	2.46	2.46
Absorbant cotton BP	1	-	0.95	0.95
Triangular bandage	1	-	1.89	1.89
Medium dressing	1	-	0.79	0.79
Large dressing	1	-	1.48	1.48
Bandages				
10cm x 4.5cm	2	-	2.35	4.75
10cm x 4.5cm with clip	1	-	1.69	1.69
15cm x 4.5cm	1	-	3.60	3.60
Eye dressing & bandage	1	-	0.78	0.78
Blister kit	1	-	4.75	4.75
Eurax	1	-	2.78	2.78
Antiseptic wipes	1	10	1.45	1.45
Resuscitation device	1	-	2.40	2.40
Medical gloves	4	-	0.50	2.00
Thermometer	1	-	1.99	1.99
Sterile syringe pack	1	-	13.50	13.50
Prescription drugs				
Buprenorphine 0.2 (Temgistics)		10		
Flucloxacillin 250mg		course of 28		
Amoxycillin 250mg		course of 24		
				12.75
				<u>£120.12</u>