

The  
Caribou  
Mountains  
Expedition

## THE CARIBOU MOUNTAINS EXPEDITION 1986

A reconnaissance of a sub-arctic karst area in northern British Columbia, Canada

### Introduction

Up to the time of this Expedition, cave exploration in Canada has been mainly centred on the southern Canadian Rockies, Vancouver Island and Queen Charlotte Islands and, to a lesser extent the Atlantic Provinces. Few caves have been found north of latitude 50 degrees in Canada, the exception being the Nahanni Region where caves were noted in 1964 when Jean Poirel of Montreal and three companions, made the first descent of the Nahanni River after parachuting to its headwaters (Thompson, 1976). More recently in 1985 an Anglo-Canadian team explored caves in the Williston Lake area (ACRMSE, 1985) and a British team returned to the same area in 1986 (ICCC, 1987).

There is no shortage of carbonate rock in northern Canada but the general belief that the climate is too cold coupled with the difficulties of access posed by sheer distance (Middleton and Waltham, 1986) means that very little cave exploration is carried out in this sub-arctic region.

### The Caribou Range

There are several Caribou Mountain ranges in the Canadian Rockies and the one reported here forms part of the Rocky Mountain Foothills. The range is situated adjacent to the Liard Basin in British Columbia, twenty kilometres south of the Yukon border. Fifty kilometres to the south-west lies the small settlement of Liard River on the Alaska Highway.

The Caribou Range consists of a rolling alpine plateau and sandstone ridge reaching a maximum elevation of 1720 metres. West of the sandstone ridge, boggy slopes underlain by shale provide a large catchment area for a series of incised valleys which cut through limestone beds dipping steeply to the east. The limestone outcrops uninterrupted, but at a lower elevation, northwards into the Yukon and southwards to the Grayling River. The open alpine meadows below the rocky ridge contrast greatly with the dense forest below the 1400 metre tree-line, where walking is only just possible in the 'burn' areas associated with the 'Tee Fire' of 1971 and along the alignment of the existing seismic lines (both now significantly rejuvenated by the new growth of alder).

The Grayling River, a tributary of the Liard River forms a gorge through the limestone outcrop and at this location are to be found several hot springs. The whole setting of the Caribou Range is one of beauty and remoteness. The area is the home of many Caribou, the North American reindeer from which the mountains take their name. These animals were hunted by the first known visitors to the region who almost certainly gained access to the mountains by a long pack trail from Smith River sixty kilometres to the north-west.

## Background to the Expedition

British Columbia Provincial interest in the area started in 1980 following a report by B.C.Hydro and a subsequent letter to the Parks Branch concerning UREP Reserves (i.e. reserves for recreation). The Ministry of Lands, Parks and Housing (Parks and Outdoor Recreation Division) sent representatives to the Caribou Range and the Grayling River hot springs. The visits were made in June and September of 1981 and in both instances, a helicopter was used to gain access. The Park Planners were very impressed with the Grayling River hot springs and supported UREP Reserve status for the site. Bad weather permitted only a brief reconnaissance of the Caribou Range but caves and sinkholes were noted in several locations and it was considered that if exploration of the area by speleologists uncovered significant karst features then this would substantiate the designation of the area as a Provincial Park.

The field trip reports (Murtha, 1981 and St.Pierre, 1981) described the following features :

A one mile long river canyon with hot springs discharging water at temperatures between 45 and 55 degrees C on both banks of a fast flowing river. A tufa terrace on the right bank of the Grayling River was explored and a large cave about 40 m further up the cliff. The cave was about 20 m deep by 30 m wide and 5 m high. To one side of the cave entrance was another entrance, 2 m by 4 m leading downwards at 30 degrees to another cave system. Warm sulphurous air emerged from this vent "indicating a connection to the underground hot water source".

On the Caribou Range they reported that

"The knolls and ridges consist of bare limestone outcrops weathered into scree. The westerly ridge has rocky cliffs facing the Vizer Valley. Caves and sinkholes were noted in several locations. There is one large basin at the northwest end of the Range, marked on the map as a depression".

The group recommended that

"Investigation of the caves by a competent speleological group should be encouraged".

In 1984 a Natural History Study of Mineral and Thermal Springs in Canada, prepared by Parks Canada, identified Grayling Hot Springs as the top-ranked in Canada (with no human disruption and exhibiting outstanding physical and biological characteristics). The report by Houseknecht in 1984 suggested that the

"Grayling Thermal Springs should be further investigated as a potential site for a Natural Site of Canadian Significance".

It was with this background information that a caving expedition to the area was first planned. After the success of the ACRMSE projects of 1983 and 1984 (Lowe and Roberts, 1984), Mike Evans of the University of Victoria Caving Club sent information, supplied by D. Coombes and M. Murtha, to Tony Bennett in Britain and a joint British

and Canadian team was assembled for an expedition in the summer of 1986.

The Caribou Mountains Expedition aimed to locate, explore and survey features of speleological interest noted on aerial photographs, geological maps and described in the Parks and Outdoor Recreation Division reports, on the Caribou Range and in the vicinity of the Grayling Thermal Springs.

### The Expedition

The Expedition team, six from Britain and seven from Vancouver Island assembled at Liard River, British Columbia, in July 1986. B.C. Parks Canada had used a helicopter to gain access to both the Caribou Range and the Grayling Thermal Springs. The Expedition had attracted insufficient financial aid to permit this luxury and an alternative approach was made by employing the services of Scatter River Outfitters, based at a small ranch a few kilometres north-east of the settlement of Liard River. The outfitter had hunting rights to the Caribou Range, a number of pack horses, a small airstrip at the ranch and two other airstrips on Vizer and Chalford Creeks, close to the Caribou Range. The Chalford airstrip was three hundred metres long and about 15 kilometres in a direct line from the Hot Springs. Twenty-two kilometres further north, the Vizer Creek airstrip was a little longer and with a better approach for landing the aircraft. From here, access to the Caribou Range was on foot via a 30 kilometre trail. We wished to investigate the caves reported to be at the Grayling River Hot Springs and since the Chalford Creek access facilitated this and was the one preferred by the outfitter this was the route chosen. The expedition with its equipment was flown to the Chalford airstrip in a two-seater Super Cub on 25th July 1986. Fifteen flights from Liard River were required with a round trip time of forty-five minutes each.

### The Route

The Expedition was met at Chalford Creek by three guides, nine pack horses and two saddle horses who had left Liard River three days earlier. The route taken led back up Chalford Creek to an old seismic line, over a ridge to another seismic line and down the Grayling River to the Hot Springs. From there a five kilometre trail was cut up a spur to the tundra of the Caribou Range, 750 metres above river level. The outfitter had estimated that the journey would take three days. It was to be nine days before a camp was finally established on the Caribou Range. The seismic lines, whilst appearing clear from the air, were thickly rejuvenated with alder saplings in several places and progress could only be made by frequent use of a petrol driven chain saw. Heavy rain had swollen the waters of the Grayling River making it impossible to walk down the gravel banks as planned and progress had to be made in the adjacent thick bush. This resulted in being separated from all the equipment and food for 24 hours, certainly one of the more uncomfortable experiences of the trip. As Charles Darwin noted in his account of the first voyage of the Beagle, "A light stomach and an easy digestion are good things to talk about but very unpleasant in practice". The horses did not fare well during this period. One of them fell 10m into the river to the detriment of a significant amount of our cereal and carbohydrate provisions. The horse recovered. Our stomachs

remained light.

Around the Hot Springs area, the bush was particularly dense, isolated areas having escaped the Tee Fire. It took several days to cut a trail suitable for horses up the steep slopes to the open alpine meadows of the Caribou uplands. This allowed an opportunity to examine the Hot Springs area in greater detail (see below).

The whole trail was blazed for the return journey but in the event the walk out was to the north and the Vizer Creek airstrip. One of the guides spent several days finding a route from the top end of Vizer Creek, around the cliff and across the open tundra to our camp. This 34 kilometre walk out was accomplished in one day, in contrast to the 20 kilometre walk in, which took eight. The time taken to trail blaze through the Canadian bush can be easily under-estimated, even by local guides, and this experience serves to illustrate the enormous problems of access to some caving areas in the Rockies without helicopter support. Finally, half of the team were forced to stay at the Vizer Creek airstrip for a further three days when bad weather prevented the aircraft from landing.

### The Grayling River Thermal Springs and Caves

The waters of the Grayling River along with those of its major tributary, Vizer Creek, pass through a limestone gorge en route to the Liard River and thence to the Beaufort Sea. The cliffs on the right bank of the Grayling form the northern extremity of the Barricade Range whilst the left bank delimits the southern end of the Caribou Range. Within the gorge itself and on both sides of the river, lay the Grayling Thermal Springs.

There are seven springs on the true left bank and six on the right. The left bank spring has formed three large pools that are aquamarine in colour and the water discharges into the river by a series of small waterfalls. The right bank springs flow from a twenty metre high travertine terrace above the river, with one large spring and pool located on top of the terrace and several other springs emerging from along its base.

Houseknechts 1981 report gives the following physical characteristics for the hot springs:

Temperature 34 - 58 Celcius  
Discharge: 12,000 litres per minute  
Chemical constituents (ppm): Ca(110), Mg(25), K(6.6),  
Na(14), SO<sub>4</sub>(290), C<sub>1</sub>(13.9).

Whilst the Expedition was at the Hot Springs there was only slight flow from the top of the travertine terrace on the right bank but a large and extremely hot discharge from its base.

A number of features of speleological interest were noted on the walk in to the Hot Springs from the north-west along the Grayling River. Several more were investigated during the three day camp there, including the 'Tube' previously noted during the 1981 field trips. The camp was sited on the left bank of the river and access to the caves on either bank was initially made difficult by the river being in flood. There were cliffs upstream and downstream on the left bank and horses had to be used to cross the swollen river until levels fell to the point where it became just possible to cross on foot.

Four features were noted on the left bank. A stream of clear, colder water was observed to enter the Grayling River about three kilometres upstream of the Hot Springs camp and opposite a small island. The presumed resurgence could not be located in the thick bush. On the ridge about one kilometre to the west of the Hot Springs a small climbable shaft was examined and found to be choked. A small, 'cold water' resurgence, in a low bedding plane at river level, was found adjacent to one of the Hot Springs near the camp. This only became apparent once the river level has fallen substantially and it was heavily silted. The most significant feature on the left bank was the main resurgence pool approximately half a kilometre from the camp. Two days after the extensive period of heavy rain which had caused the Grayling to flood, this resurgence was estimated to have a discharge rate in excess of two cumecs. There was no obvious underwater continuation and a number of apparent entrances above the pool did not lead to any cave passage.

Opposite the camp, on the southern bank of the Grayling River, the Barricade Range ends in a steep cliff down to the water. About two hundred metres upstream from the camp, an extensive travertine terrace rises over thirty metres above the river. Above the terrace are steep slopes of breakdown below cliffs consisting of vertical beds of limestone. Several entrances were located in this cliff but all quickly closed down except for the 'Tube'. This cave was situated at the top of a boulder filled gully. Sulphurous steam vents issued from the floor of the entrance chamber. Immediately to the left of the chamber a two metre diameter tube descended steeply to a twenty metre pitch into a small chamber. The floor of the chamber was covered in guano and the air temperature is in excess of 30 degrees centigrade. Surprisingly the sulphurous emissions from the floor of the entrance chamber were nowhere in evidence deeper in the cave but the high temperature was thought to be responsible for the large colony of bats, these initially being identified as to be Pipistrelles. The cave was named The Guana Sauna.

Bats have been recorded in caves further north, for example in the Gotte Louise of the South Nahanni River in the North West Territories (Thompson, 1976), but Pipistrelles have not been previously found north of the United States border on the west side of the continent (McFarlane, D A, pers comm). Some bat skeletons were collected by Glenn Peppard for confirmation of the identification but his unfortunate death prevented this.

Other entrances were seen in cliffs on the right bank of the Grayling River during the walk in to the Hot Springs but, with the river in full spate, they were inaccessible.

### Caribou Range Karst Features

A desk study using 1:50,000 scale geological maps and aerial photographs indicated speleological potential on the tundra area of the Caribou Range. Many significant karst features, depressions, shafts, sinkholes and dry valleys, had been identified and located on field maps in preparation for the Expedition. Parks Canada reports had confirmed our studies and the team had great hopes for major cave discoveries.

Eight days after leaving Chalford Creek airstrip, the Expedition moved up onto the plateau and a camp was set up in a large depression with a small stream sink on the limestone/shale contact. During the following days the area was rapidly investigated,

using our field maps to guide us to the best sites. The findings were disappointing and after four days we had examined all of the previously identified potential sites with not one significant open cave being found.

The features were all choked, either with boulders or sediment, and many shafts were found to be flooded. Horizontal cave passage was found in two locations. Both represented small truncated phreatic tubes and were filled with ice a few metres from their entrances.

Several choked entrances draughted and it was decided to attempt to dig a way through to open passage. A considerable amount of effort was expended with little reward. One sink, close to camp, was quickly opened into a short section of passage which became completely choked with fine silt at a depth of fifteen metres. Another sink was dug by removing boulders from a rift to a depth of five metres. The excavation was halted at a large wedged boulder above an open rift with fine fluted walls and a strong outward draught.

The whole of the Caribou Range was reconnoitered, from the southern ridges to the large depression in the north. No surface karren forms were found and the majority of limestone exposures were severely frost shattered. Most depressions were filled with silt and the surface streams sank either directly through their beds or via small holes bored through the silt. When the large depression in the north of the range marked on the map as a sink-hole was investigated, two large dry stream beds were found to lead into it. There was no discrete point of engulfment of either stream, the water presumably percolating through the floor of the depression.

#### Geomorphology (by P. Hatherley)

"There is no greater dividing issue among geomorphologists than climatic geomorphology and more studies of the far northern karsts of North America and the USSR are called for". (Jennings, 1985).

The Caribou Range, at latitude 59 degrees 45 minutes, is one of the most northern limestone areas in Canada investigated by cavers to date. It lies within the area of 'discontinuous permafrost' but because of its high altitude and exposed position, exhibits many of the characteristics of the widespread zone with permafrost extending deep into the bedrock. The depth of permafrost is not uniform, with one cave blocked with dry silt at a depth of fifteen metres and shafts sealed with ice less than one kilometre away. The Caribou Range has a very short summer and temperatures rapidly fall to -40 Celcius in the winter. The area is known for its strong winds which keep most of the surface free of snow. Exposed surfaces consisting of a felsenmeer of shattered rock have no protection against the low temperatures and frost will penetrate. Snow accumulates in the depressions, providing this ground with some insulation.

Permafrost on the Caribou Range appears to have impeded karst processes and sub-surface water circulation in the sheltered areas. Additionally, the lack of snow cover on the exposed upland surfaces, in particular the overlying sandstones and shales, has had a secondary effect by virtue of the reduced snow melt. Since the majority of the precipitation over the area falls as snow, the surface streams are either small and misfit

or non-existent. Summer storms may swell the streams but because the sinkhole system is poorly developed and the doline outlets are constricted with frost debris, they quickly become inundated with water. More silt is carried into the depressions by the flood water and the normal drainage is insufficient to maintain open entrances.

In the Nahanni Karst Region, poljes were observed using Landsat imagery on a monthly basis over several years (Brook, 1983). The depressions were seen to flood during the major snow melt events of the year and again when there was an above average rainfall during June to August. In years with no unusually high monthly precipitation the depressions remained dry or suffered only minor inundation. It appears that similar conditions, although on a smaller scale, have contributed to the choked nature of the surface depressions and cave entrances on the Caribou Range.

### Conclusion

The Expedition was a disappointment from the standpoint of discovering new caves but did achieve its aims. A complete exploration of the vast area of carbonate rock in Canada will take many decades. Few trips to new areas in Canada have actually found significant caves but nevertheless all areas must at least be visited. This is after all the nature of exploration. The Nahanni Karst remains to date the only area of fully-developed subarctic karst known in Canada. The Caribou Range may have an extensive underground drainage system to the resurgence noted on the Grayling River but it is unlikely that any cavers will go back to look for it in the foreseeable future.



## References

ACRMSE 1985

CANADA. The Anglo-Canadian Rocky Mountains Speleological Expeditions of 1983 and 1984'

Brook, G.A. 1983

Application of Landsat Imagery to Flood Studies in the Remote Nahanni Karst, N.W.T., Canada J.Hydrology 61 305-324

Darwin, C. 1891.

Journal of a Voyage Round the World Nelson

Houseknecht, S.J. 1984

Natural History Study of Mineral and Thermal Springs in Canada prepared for Parks Canada by TERA Environmental Consultants Ltd., Vancouver, B.C.

I.C.C.C. 1987

The Canadian Rockies - The Imperial College Caving Club Expedition Caves and Caving no 37 pp 17-19

Jennings, J.N. 1985

Karst Geomorphology Blackwell

Lowe, D. and Roberts, C. 1984

ACRMSE 1984 Caves and Caving no 27 pp 19-23

Middleton, J. and Waltham, A.C. 1986

The Underground Atlas Hale

Murtha, M. 1981

Province of B.C. Ministry of Lands, Parks and Housing, Memoranda of 3 July 1981 and 1 October 1981.

St.Pierre, P. 1981

B.C. Hydro Memorandum of 2 July 1981

Thompson, P. 1976

Caves of the Nahanni Region, N.W.T.

Cave Exploration in Canada Canadian Caver, special issue.

## Accounts

Expenditure	£	Income	£
Air Travel	3484	RGS	250
Overland Travel	294	MEF	300
Outfitters Fee	980	Sports Council	545
Printing &	96	Ghar Parau	150
Photography		Foundation	
Insurance	240	Personal	4184
Food	345	Contributions	
Admin (inc maps)	56	Equipment Sales	75
Equipment	89	Canadian	102
Miscellaneous	72	Contribution	
	-----		-----
	5606		5606

## Acknowledgements

We would like to thank the following organisations and individuals for their support and assistance with this Expedition:

From Britain:

The Royal Geographical Society, The Mount Everest Foundation, The Sports Council, The Ghar Parau Fund, Dutton Campbell-Dixon, Colmans of Norwich, DRG Plastics, FSA Laboratory Supplies, Holland and Barrett, Kenco, Lyon Equipment, Nikwax, Prestige, St Ivel, Supreme Plastics, Silva (UK), Quaker Sutherland, Tate and Lyle, Timex, Tor Outdoor Pursuits, Troll, Welch and Sons, Wild Country, Wilkin and Sons, Woodcock Travel, Gable CAD Systems, Allen and Hanburys, Astra Pharmaceuticals, Evans Medical, ICI Pharmaceutical Division, Janssen Pharmaceutical, J.Pickles and Sons, Seton, Smith and Nephew, Sterling Winthrop Laboratories, Hull University Speleological Society, The Untamed River Expedition, Andy Eavis, Tony Waltham, P.B.Smith, Dr. J.Hansom, Mrs D.L Bennett, Instaprint, The Sheffield Star, Telegraph and Argus, The Yorkshire Post.

From Canada:

David Coombes, Mike Murtha, Okanagan Dried Fruits, Rennie-Clark, Memorial Fund, Neil Meanwell, Julian and Mary Coward, Scatter River Outfitters (Ted Cobbett, Wes Beavan, Eric Wandishin and Randy).

## Expedition Personnel

### British:

Dr Tony Bennett (Leader)  
Paul Hatherley  
Dr Charlotte Roberts  
Nick Thompson  
Dr Becky Vincent  
Alan Weight

### Canadian and Ex-Patriate:

Mark Crapelle  
Mike Evans  
Dr Steve Grundy  
Jim Jacek  
Alysoun Lawrence  
Glenn Peppard  
Olivia Whitwell

Shortly after the end of the Expedition, Glenn Peppard was tragically killed during the exploration of a long and difficult cave system on Vancouver Island. Those of us from England had known Glenn for less than a month, but we will remember him as a fine explorer and good friend. We extend our sympathies to his family and friends in Canada.

Dr. A.J.Bennett,  
5 Hillcote Mews,  
Fulwood,  
Sheffield,  
S10 3PU.

P.Hatherley,  
54 High St.,  
Queensbury,  
Bradford,  
BD13 2PA.

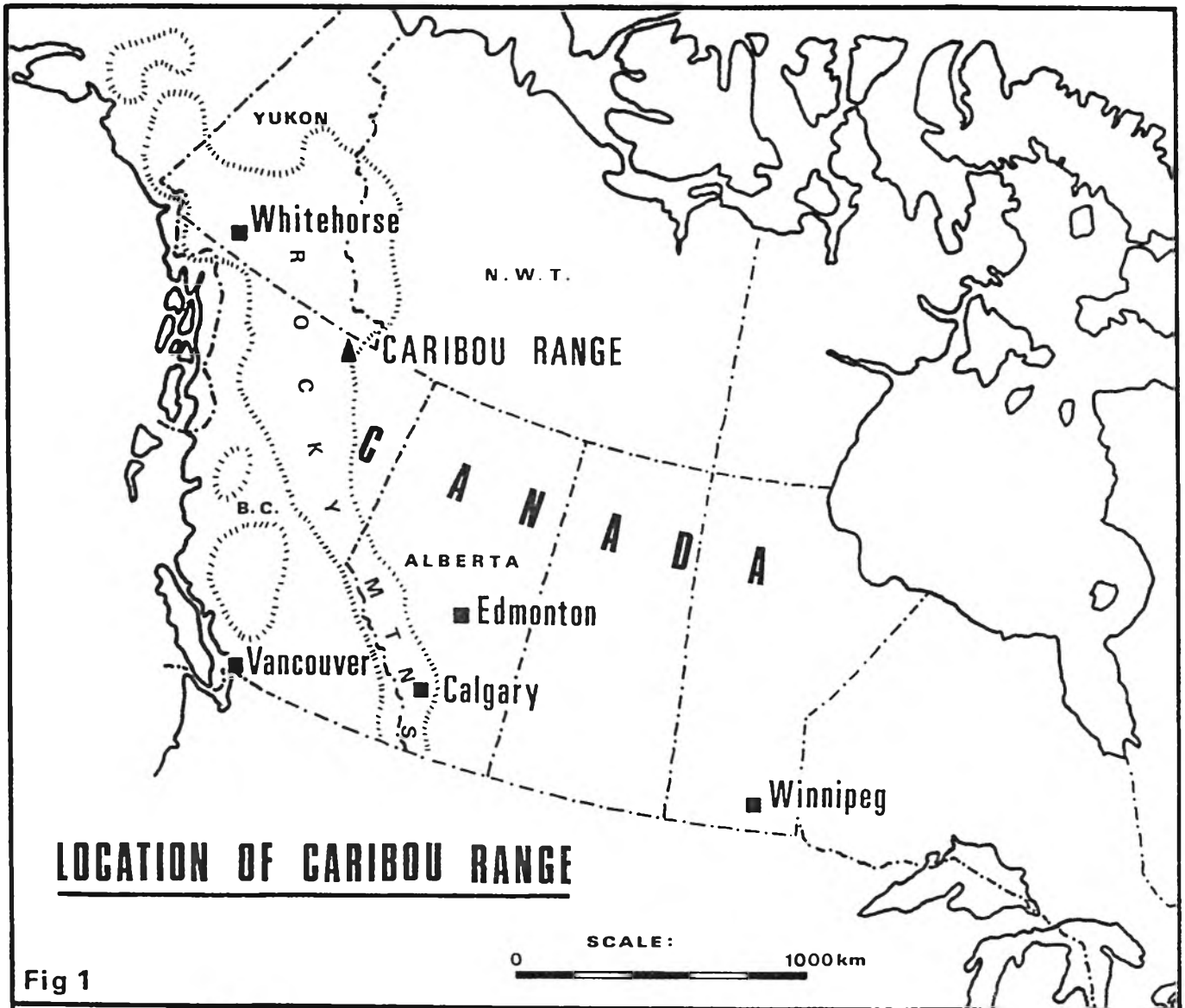


Fig 1

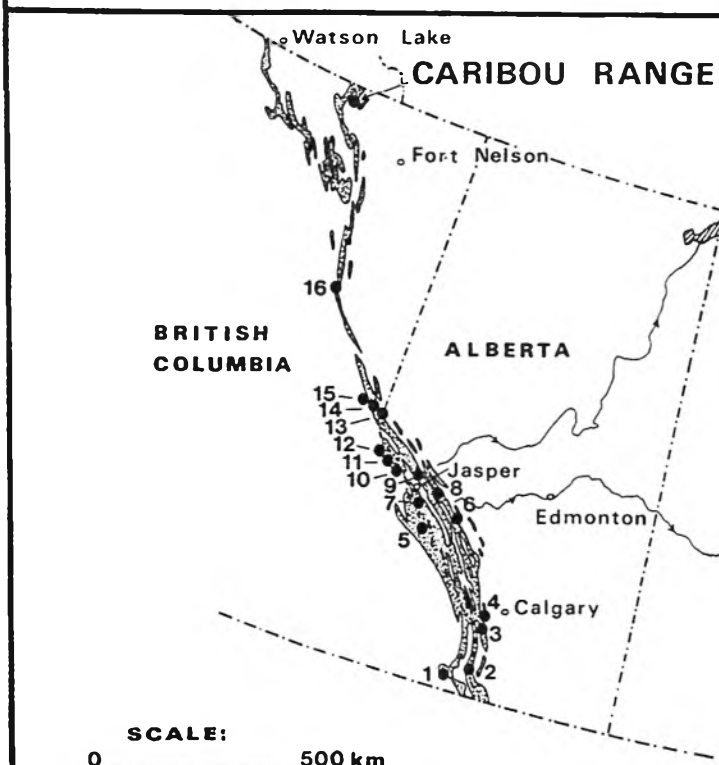


Fig 2

**PRINCIPAL CAVE AREAS OF THE ROCKY MTS.**

- 1985:
- 1 Top of the World
  - 2 Crowsnest
  - 3 Plateau Mountain
  - 4 Canyon Creek
  - 5 Castleguard
  - 6 Wapiago
  - 7 Maligne
  - 8 Cadomin
  - 9 Snaring
  - 10 Arctomys
  - 11 Mount Robson
  - 12 Small River
  - 13 Moon River
  - 14 Dezaiko
  - 15 Fang Cave
  - 16 Williston



PALAEZOIC ROCKS WITH EXTENSIVE CARBONATES

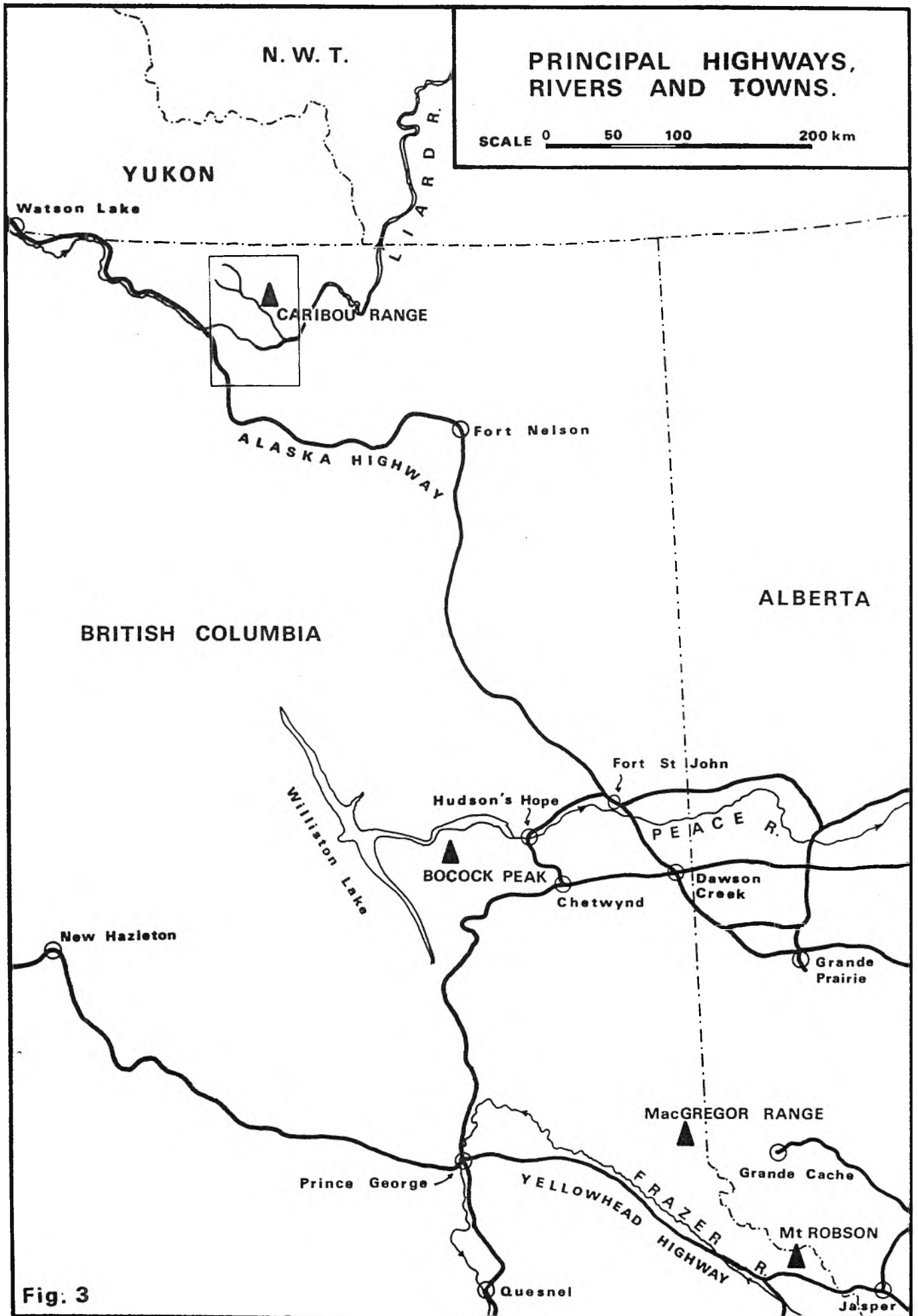


Fig. 3

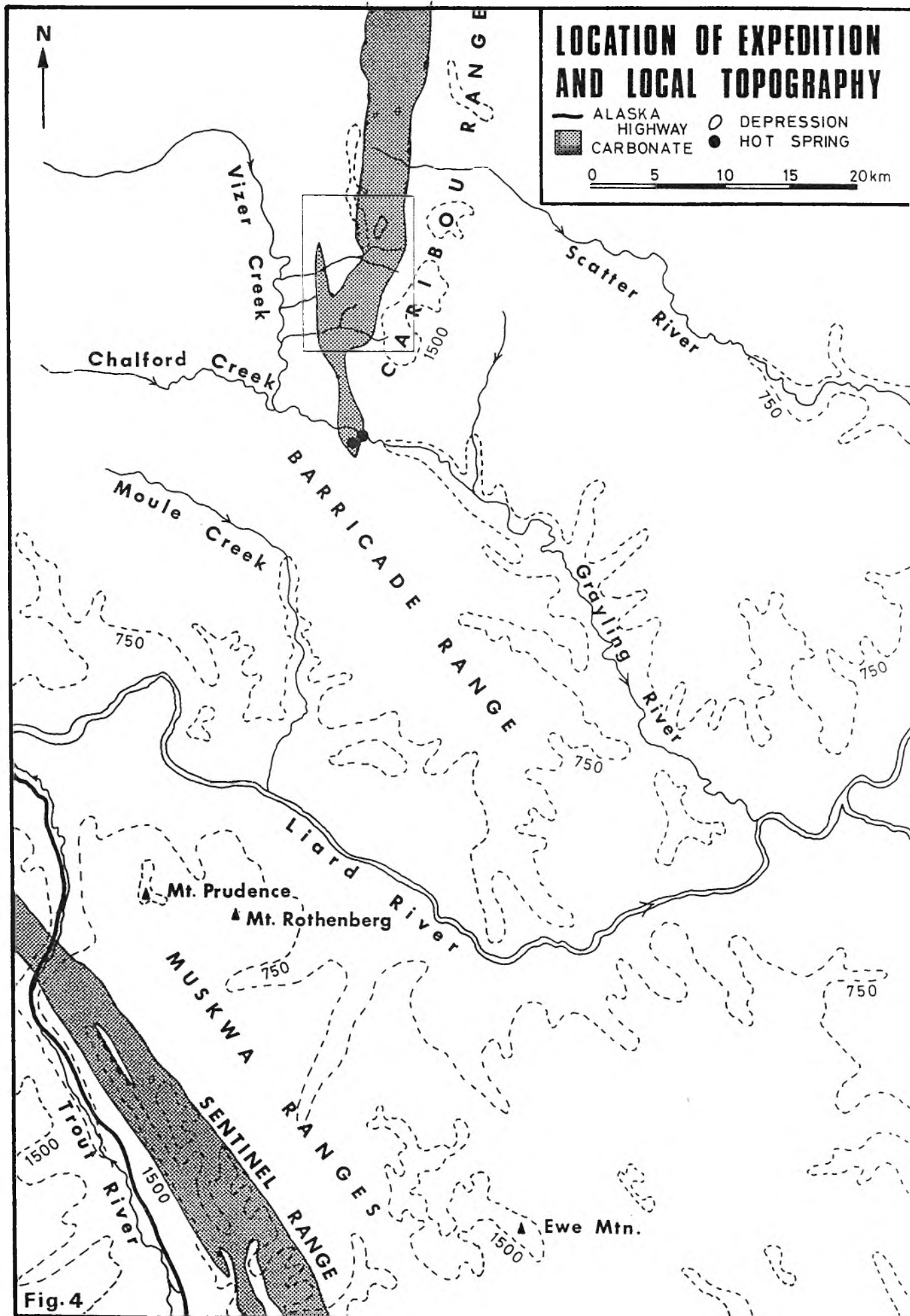


Fig. 4

# CARIBOU MOUNTAINS

## CARBONATE OUTCROP AND CAVE FEATURES

- ◆ ◆ ANTICLINE
- DIP
- - - - GEOLOGICAL BOUNDARY
- (dashed) DEPRESSION
- (with hook) STREAM & SINK
- ● SHAFTS
- (dotted) KARST FEATURE

Scale: 0 1 2 3km

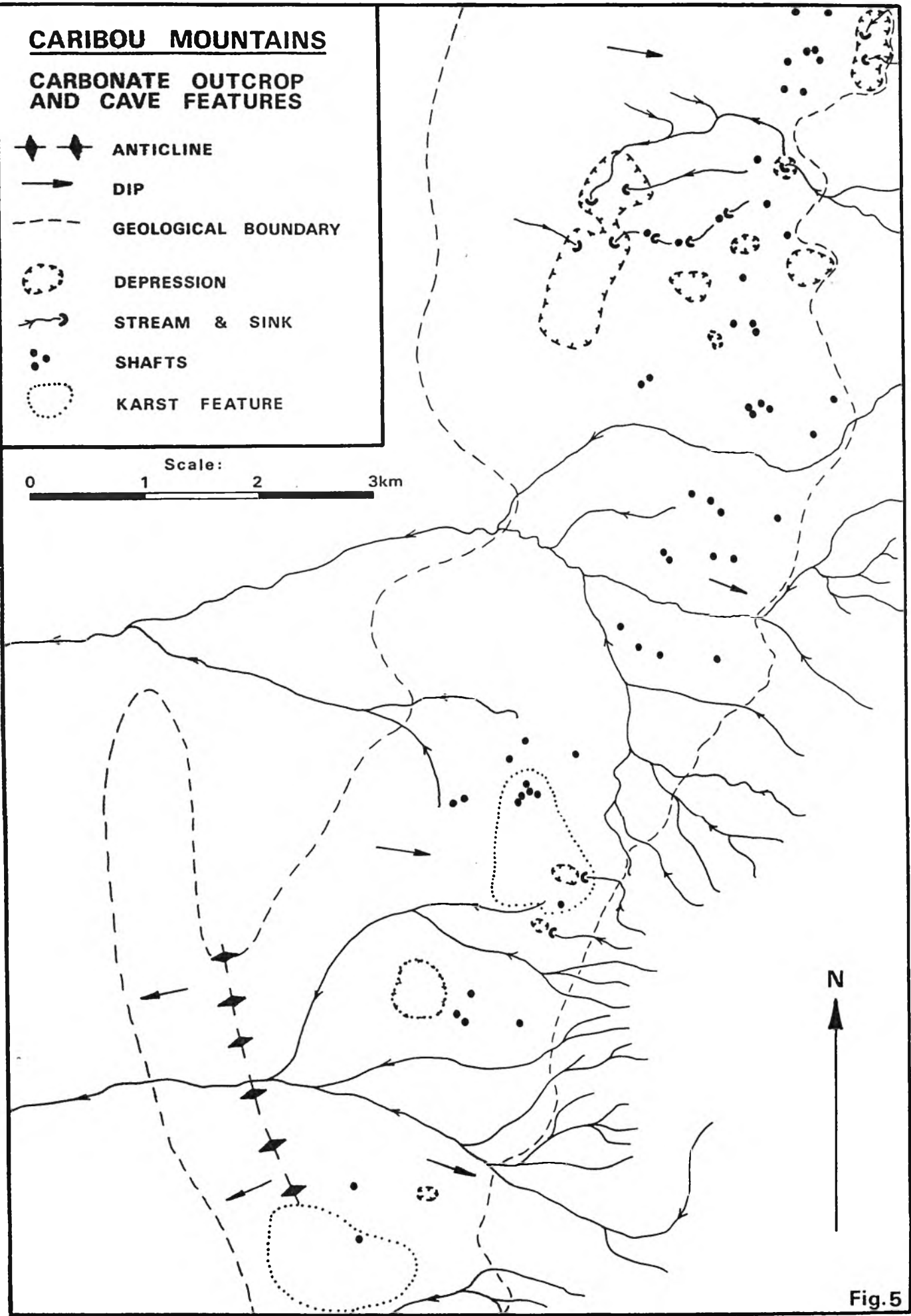


Fig. 5



# CARIBOU MOUNTAINS



*The Caribou Limestone Viewed from the Eastern Shales.*

The Caribou Mountains Expedition aimed to locate, explore and survey features of speleological interest noted on aerial photographs and in other information supplied by David Coombes and Mike Murtha of B C Parks, Canada. There are several Caribou Mountain ranges in the Rockies. The one reported here forms part of the Rocky Mountain Foothills and is situated 50 kms north-east of the settlement of Liard River in northern British Columbia. A team of thirteen cavers, six from Britain and seven from Vancouver Island spent 23 days on a trip which was described by one member at the end as comprising "long periods of waiting punctuated by terrible suffering". The following is an account of our adventure in the Rocky Mountains of Northern Canada.

Eric entered the trapper's cabin where we were huddled around the pot-belly stove, drying out. "We'll ferry you guys across the river on the two saddle horses". The words came out slowly in a thick Montana accent. "Wes is feeling pretty Gung Ho 'bout reaching the hot springs tonight". It had been raining for 36 hours and the Grayling River had risen about a metre as a result. The hot springs were 4 kms downstream and on the opposite bank. We had been trying for two and a half days to reach them. We had hired the services of Ted Cobbett of Scatter River Outfitters to transport us and the equipment onto the Caribou Plateau. "I'll fly you into the airstrip at Chalford Crick", he had said. "From there it'll take you a day to reach the hot springs with the horses. My men'll cut a trail up onto the plateau. You should be there by Sunday night." It was Monday already and some folk were making book on us getting there by Friday.

The airstrip at Chalford Creek was 300m long, just enough for the two seater 'Super Cub' if the wind was low and in the right direction. It had taken a day to fly the team and equipment to this point. The guides, Wes, Eric and Randy, arrived the next day with the horses. In order to load all of our gear onto the nine pack horses, the guides left their sleeping bags, spare clothes and most of their food at the airstrip for Ted to air-drop onto the plateau. "Guess we'll go Coyote" was how Wes explained it.

We'd set off from Chalford, some of us leading the horses, with Wes and Eric in front clearing the trail with a petrol driven chain saw. A horse shed its load after the first 100m and this was a regular occurrence from then on. On the first day, we made 6 kms. That night it rained, and the guides looked pretty grim in the morning having refused space in our tents. By the second day, we were down to eight pack horses; Sox had thrown his load, smashing two wooden pack boxes. That day we reached a trapper's cabin, a further 8 km on. It had been cold and wet all day and whilst clearing an overgrown seismic line, we'd run out of fuel for the chain saw. In the evening, Ted flew over to see how far we'd got. He dropped some more fuel, an interesting exercise in ballistics, but Wes and Eric failed to make him understand that they needed food as well.

"Don't hold onto the saddle post", Eric shouted back to me, "It makes him nervous." Sitting behind the saddle watching the Grayling flow swiftly round the flanks of the horse was very disorientating. "I think you ought to know, I can't swim", I mentioned, not as casually as I would have liked. Eric looked over his shoulder at me, "Holy Smoke!" We crossed the river to the start of another seismic line





*The Trapper's Cabin. Photo. Nick Thompson.*

which led downstream for a kilometre. After that we climbed up steeply through deadfall to avoid the vertical sides of the limestone canyon which the Grayling entered on its way to the hot springs. The horses carried on downstream, making use of gravel bars wherever possible to keep out of the deepest water. By midnight it had stopped raining. As we made the final descent to the hot springs, a large shallow pool lay before us with its silvery vapours caught in the moonlight rising from it. The horses were nowhere to be seen. We made a large fire and settled down to a cold night with no tents or sleeping bags. The only food we had was the days rations of Welch's sweets and 'Okanagen Fruit Snacks', a 'first' in Canadian caving sponsorship. Charlotte had four Earl Grey tea bags and Paul an Oxo cube they'd been saving as 'treats' for later in the trip. Randy was with us that day. He was sixteen and his father had sent him up to Ted's ranch that summer to learn the value of money. In a thin shirt, jeans, oversized wellies and flimsy cagoule, he was fast becoming an exposure case. Someone offered him a sweet. "No thanks, I'm OK", he replied at first. As the night drew on, his pride weakened. The gold American Express card he carried in his back pocket was of no value in the bush. Hopefully, he went home having learnt the value of warm clothes and food in his belly.

Though we didn't know it at the time, the horses were stopped 300m upstream and just out of sight. They had refused to cross the deep, fast water in the dark. It wasn't until 10pm the following evening that the last of them reached us. One had fallen 10m into the river and came close to being shot. Another fell in a fast, deep section of the river and its load had been cut off to save the animal. As a result of this, some of the food got wet and had to be burned. This left us short of cereals and carbohydrates towards the end of the expedition.

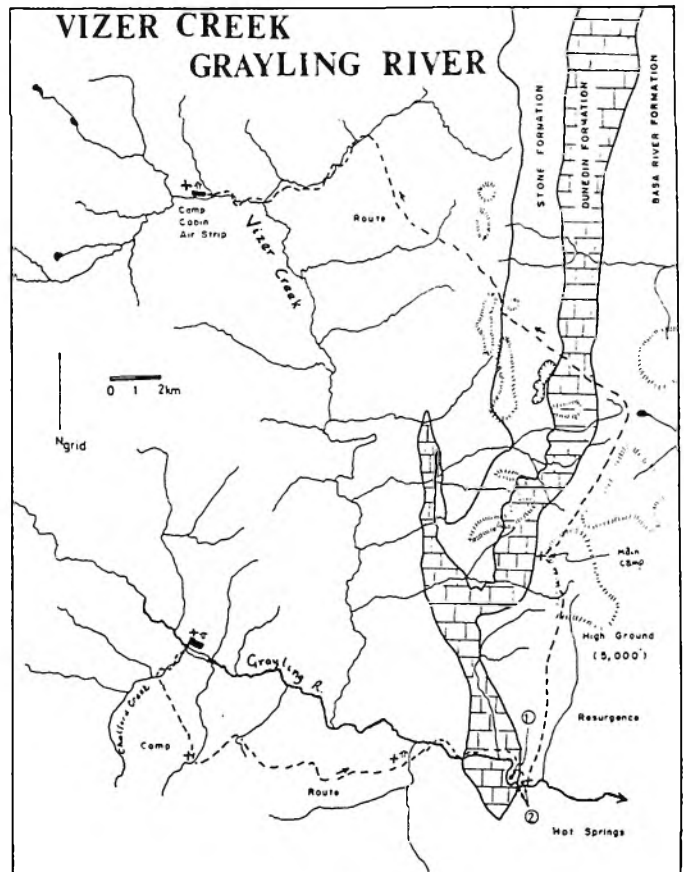
"Paul's seen a bear at last", said Charlotte. "Are you sure it wasn't a bin liner", I replied, remembering our encounter with a ferocious black plastic bag at Bock Peak one dark night in 1984. "It was huge, I'm not going anywhere without the gun in future", he retorted and pulled out a cigar from the same box that the Oxo cube had come from. What else had he got in there?

They'd just returned from a scouting trip to find the best route onto the Caribou Plateau. It took another three days of trail cutting and blazing to clear a route suitable for the horses. Much of this was done with a bow saw and hatchet since we'd run out of chain saw fuel again and Ted hadn't been seen since the trapper's cabin. This period of the expedition was idyllic, camped by a now comparatively friendly river, the rain and wind replaced by sun, and fresh Grayling caught by some of the Canadians for breakfast. We celebrated Steve's birthday here and drunk most of

our liquor supply in one long night, with the Aurora Borealis snaking green plumes of gas across the starry firmament above our heads.

We made use of this enforced stay to investigate and survey the hot springs area, with its extensive tufa deposits, steam vents and pools of water at temperatures of up to 50°C. On the southern bank of the Grayling, the tufa forms a 30m high cliff on the bend of the river. Above this terrace of alpine plants, withered trees and tiny chipmunks, lay a number of cave entrances in the limestone of the Barricade Range. Most of these only went in a few metres but one dropped 30m into a chamber of breeding Pipistrelle Bats. The geothermally heated chamber had an air temperature of around 30°C. We named it the 'Guano Sauna'. This was quite a find; bats are rarely seen in caves in the Canadian Rockies. Upstream of the tufa terrace, we found a 2.5 cumec resurgence. Dye tests weren't possible - we'd forgotten the dye - but this was sure to be a major rising for the Caribou Plateau. Our impatience to get to the caves grew stronger.

"Brew water's ready", Becky shouted across the camp. It was 5.30 in the morning of August 2nd, eight days after leaving Chalford Creek. Already the guides and some of the team were wrangling the horses. Between the hot springs and the proposed camp on the plateau, there was no water for the horses. In addition, the initial climb out of the hot springs camp was very steep and densely forested. We packed some of the gear up this section ourselves to avoid the nuisance of slipping loads and horses. All went well and we reached the tundra a little after midday. By 6pm, we had made a camp on the shale/limestone contact at the southern end of the plateau. The three guides set off with the horses that evening back to Chalford Creek - they'd had enough of our Batchelors freeze dried food. "Tell Ted to drop us some bacon and whisky", Alan shouted after them. Ted never did. We had 10 days left to find the 'Big One' before they returned with the horses to collect us.



The 'Big One' was never found. Stark white ridges of thickly bedded limestone on the west of the Caribou Range dipped steeply to the east, back under the dark shales. On the contact, we found many sinks - all choked. On the ridges, we found many shakeholes and shafts - either choked or flooded. We found numerous closed depressions - with floors of dry, cracked mud. In the northern area, at the big depression, we found two large, dry stream beds which met 'head on'. There was no unique point of engulfment. The big sink marked on the map did not exist. The water just percolated through the ground. We found all the features we had identified on the aerial photographs but none of them went into caves of any size. It was disappointing and frustrating. Below our feet, there were caves - draughts from some of the choked entrances, and the large resurgence at the hot springs showed that - but the severe winters combined with limestone that was too soft had led to frost shatter on a large scale. There was hardly any evidence of surface karren - it never got the chance to form. These are the things you can't see on aerial photographs.

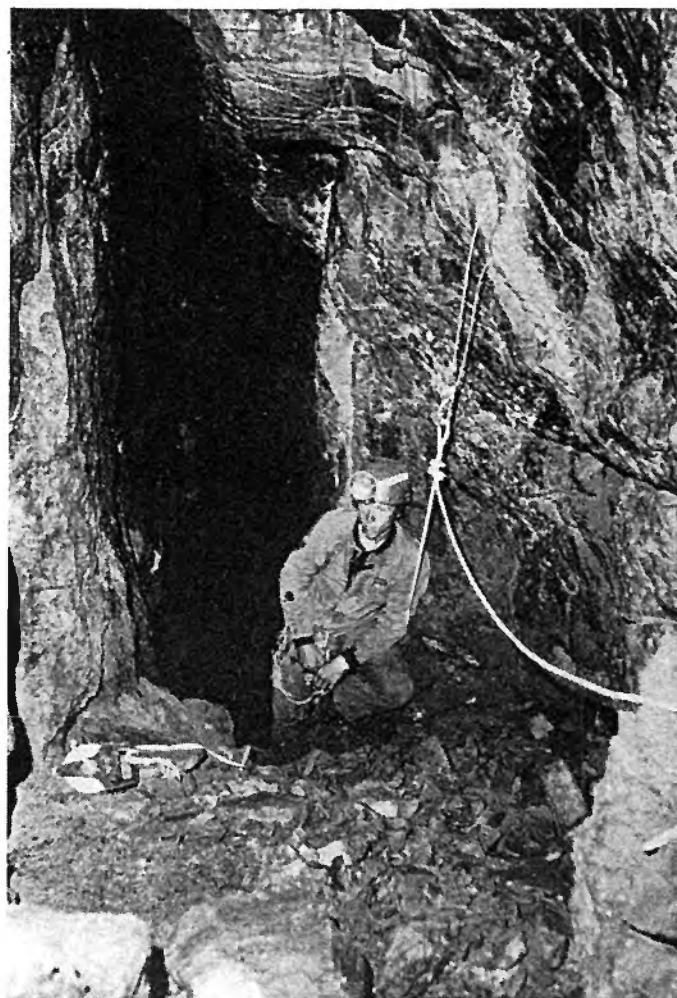
After two days, we laid out some forestry flagging tape for Ted in the pre-arranged escape code, 'OOHH'. He flew over that evening. The guides had just got back to Chalford Creek, after 13 days away when Ted dropped a note attached to a spanner out of the plane. It read "What does OOHH mean?" They didn't know. He flew back to the ranch to check. Soon he returned with another spanner. The message read, "They want to come out as soon as possible".

"It'll go, trust me!", I'd said as I pitched my tent next to a large pile of rocks in a hole. It was a major stream sink taking water draining off a large area of the adjacent shales. We dug there for three days using a pressure cooker we'd been given. Despite an icy draught at -5m, 'Prestige Pot' didn't go. Close by, the '£10,000 Dig' gave us an all too brief moment of excitement when after thirty minutes work, we entered a short tube leading to a chamber and climb - and no way on. About 3km to the north of the camp, some more effort was expended in clearing a number of promising entrances, once again with no success.

"It's the bacon drop", Alan shouted, leaping out of the cook tent. Ted circled over the camp a couple of times before throwing a spanner out of the plane. This one landed in the pond. How many more spanners did he have? What if he needed one to fix the plane? The soggy note read, "Horses be here tonight or tomorrow midday. Okay. Ted". "What about the bacon?" Alan shouted after him.

It was four days later when Wes put his head round the tent door. "You guys got bear problems. There's a couple of big Grizzlies 'bout a quarter mile from here." We'd been on the plateau nine days and the food was running out. We'd tried our hand at hunting and shot a brace of Ptarmigan, more by luck than anything else. They look so plump until you get the feathers off them. We were planning to walk out to Chalford Creek the following day. Wes had come down from the north end of the plateau, from a hunting camp at Vizer Creek, 34km away. We would have missed each other completely. It was lucky he hadn't been a day later.

The route to Vizer Creek was much easier, over tundra and good hunting trails through the forest. We reached the Vizer camp the following evening, in just ten hours from the plateau. Four of the team were flown out the following morning, but bad weather plagued the Expedition once again and three more days passed before the last of us arrived back at the ranch near Liard River, on 16th August. The Canadians had a thirty hour drive back



Glenn Peppard descending into the 'Guano Sauna'.  
Photo. Steve Grundy.

to Vancouver Island, to arrive just in time for work on Monday morning. The British team flew from Fort Nelson to Edmonton on 17th August and arrived back in England two days later. The adventure was over.

*Tony Bennett*

### The Team

British: Tony Bennett, Paul Hatherley, Charlotte Roberts, Nick Thompson, Becky Vincent, Alan Weight.

Canadian and Ex-patriates: Mark Crapelle, Mike Evans, Steve Grundy, Jim Jacek, Alysoun Lawrence, Glenn Peppard, Olivia Whitewell.

### The Outfitter and Guides

Ted Cobbett, Wes Beavan, Eric Wandishin, Randall

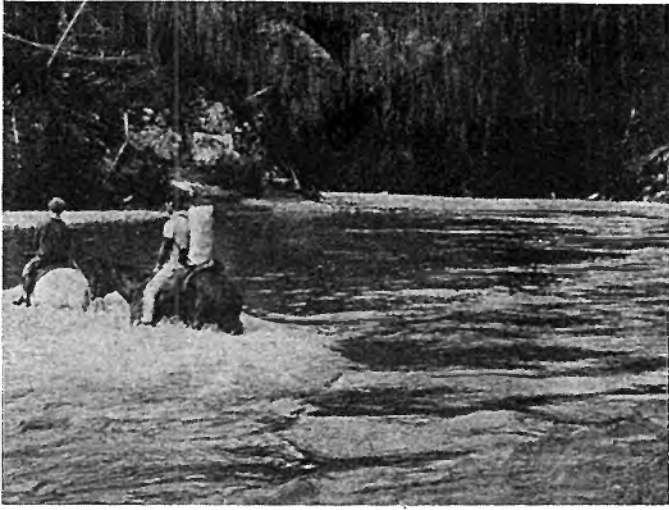
### The Horses

Buck, Bog, Dave, J.O., Jake, Stubs, Sparky, Sox, Tyone, Utah.

---

Shortly after the end of the Expedition, Glenn Peppard was tragically killed during the exploration of a long and difficult cave system on Vancouver Island. Those of us from England had known Glenn for less than a month, but we will remember him as a fine explorer and good friend. We extend our sympathies to his family and friends in Canada.

---



Crossing the Grayling River at the Hot Springs (after the flood).  
Photo. Becky Vincent.

**Acknowledgements**

We would like to thank the following organisations and individuals for their much valued assistance with this Expedition:

British: The Royal Geographical Society, The Mount Everest Foundation, The Sports Council, The Ghar Parau Fund, Dutton Campbell-Dixon, Colmans of Norwich, DRG Plastics, FSA Laboratory Supplies, Holland and Barrett, Kenco, Lyon Equipment, Nikwax, Prestige, St Ivel, Supreme Plastics, Silva (UK), Quaker Sutherland, Tate and Lyle, Timex, Tor Outdoor Pursuits, Troll, Welch and Sons, Wild Country, Wilkin and Sons, Woodcock Travel, Gable CAD Systems, Allen and Hanbury's, Astra Pharmaceuticals, Evans Medical, ICI Pharmaceutical Division, Janssen Pharmaceutical, J Pickles and Sons, Seton Smith and Nephew, Sterling Winthrop Laboratories, Hull University Speleological Society, The Untamed River Expedition, Andy Eavis, Tony Waltham, P B Smith, Dr J Hansom, Mrs D L Bennett, Instaprint, The Sheffield Star, Telegraph and Argus, The Yorkshire Post.

Canadian: David Coombes, Mike Murtha, Okanagan Dried Fruits, Rennie-Clark Memorial Fund, Neil Meanwell, Julian and Mary Coward, Scatter River Outfitters.

Maps by Paul Hatherley and Steve Grundy.

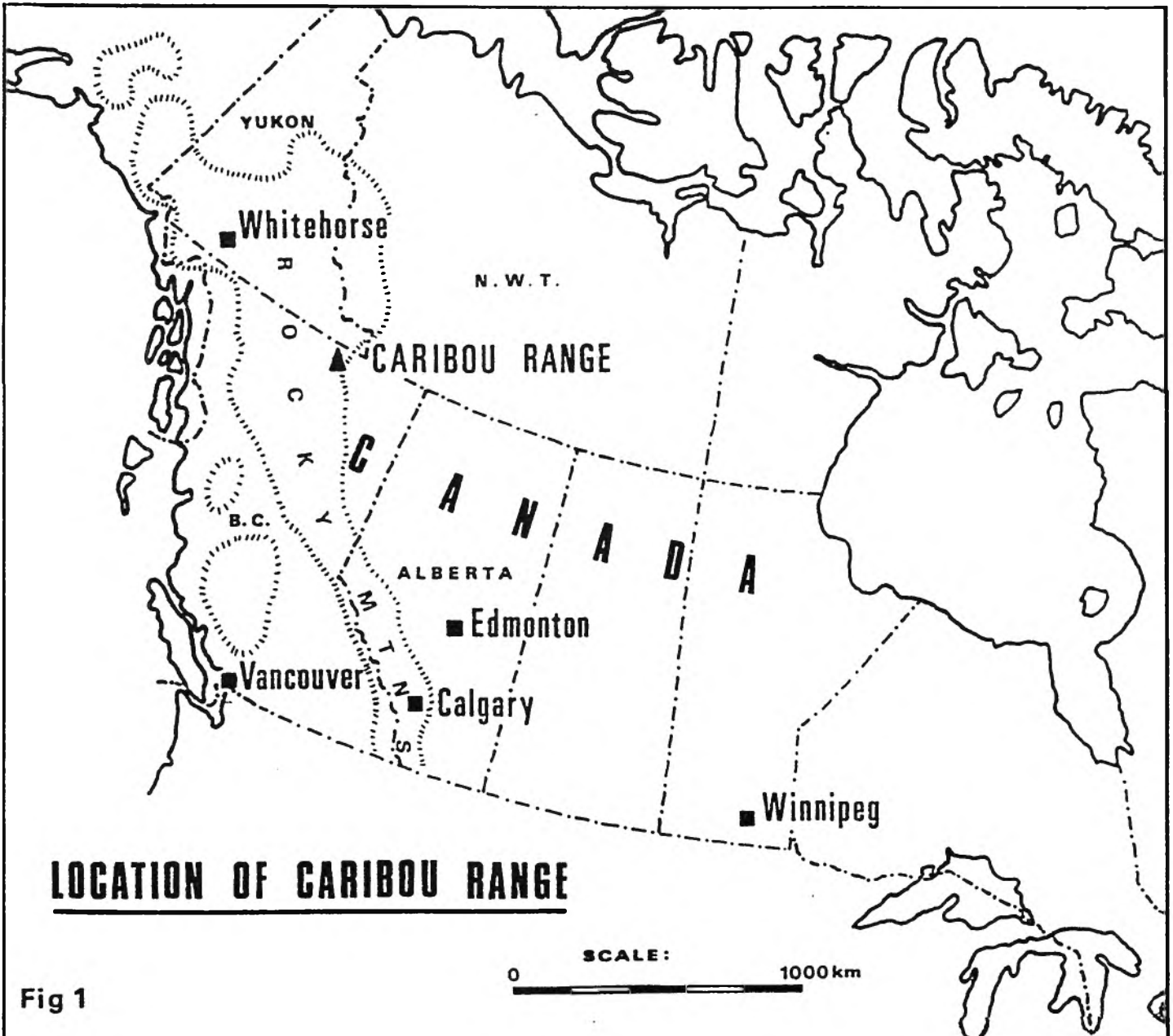


Fig 1

# the Canadian Caver

Volume 18, Number 2  
Fall 1986

Editors: Tich Morris  
Patrick Shaw

Submissions Next Issue:

Able Assistance: Donovan Whistler  
Peter Norris

Shaw/Morris  
8332 Shaugnessey Ave  
Vancouver, B.C.  
CANADA V6P 2Y2

## IN THIS ISSUE

- 2 --Editorial.....*Pat Shaw/Tich Morris*  
3 --Memorial:Glenn Peppard.....*Stephan Meinke*  
4 --Fatal Accident Report:Thanksgiving Cave, Vancouver Island.....*Phil Whitfield*  
5 --Quebec News.....*Daniel Caron*  
    -survey:Boischatel Cave, Quebec..  
9 --Update on Yorkshire Pot, Crownsnest Pass.....*Chas Yonge/Jon Rollins*  
10 --Shorty's Cave:The Connection to Yorkshire Pot.....*Chas Yonge*  
11 --Reserve Established at Glory 'Ole, Vancouver Island.....*Donovan Whistler*  
15 --Close to the Edge.....*Ian McKenzie*  
    -survey:Close to The Edge, Dezaiko Range,B.C.  
20 --Caribou Mountains Expedition.....*Steve Grundy*  
    -survey:Guano Sauna,Caribou Mtns., B.C.  
26 --A Phenomenology of Caving.....*Stewart Aitken*  
30 --Ottawa River Cave Dive.....*Keith Sawatsky*  
    -survey:Ottawa River Cave,Ontario  
33 --International Congress of Speleology:Report.....*Paul Griffiths*  
34 --Drawings: Heslop Gallery.....*Linda Heslop*  
38 --Chiquibul 1986.....*Tom Miller*  
    -survey:Chiquibul System, Belize/Guatemala  
40 --Quick Link Entrance,Windy Link Pot.....*Tich Morris*  
    -survey:Quick Link Entrance,Vancouver Island  
42 --The Clayoquot Plateau:A New Alpine Karst Area on V.I.....*Steve Grundy*  
    -surveys: Holy Copter Cave,Stark Hole, Epic Cave  
    Keel Haul Cave  
47 --Which Way to the North Pole?.....*Chas Yonge*  
49 --Longest and Deepest.....*Ian McKenzie*  
50 --Two Dives in Bluebell.....*Tom Barton*  
    -survey:Bluebell Cave, Dezaiko Range, B.C.  
52 --Confessions of an Underwater Ouigee.....*Mike Evans*  
53 --Underground Lake, New Brunswick.....*Keith Sawatsky*  
    -survey:Underground Lake, New Brunswick  
56 --Solstice Shower Shaft.....*Steve Grundy*  
    -survey:Solstice Shower Shaft, Vancouver Island  
58 --Halfway Caves Revisited.....*Stephan Meinke*  
    -survey:Upper Halfway Cave, Ptolemy Mtn., B.C.  
59 --Aloha Caving.....*Pete Zabrok*  
62 --Letters to the Editors  
63 --Book Review: China Caves.....*Donovan Whistler*

---

Front Cover: Drawing by Linda Heslop

Back Cover: Glory 'Ole Entrance- Photo By Peter Norris

**Subscriptions:** \$12 per year (2 issues) from The Canadian Caver , Box 1175 Station G, Calgary, Alberta, CANADA T3A 3G3 (NOTE: American and overseas subscribers should pay in U.S. funds- the exchange helps to defray the extra mailing expense)

Financial assistance for this issue was provided by the Clark-Rennie Memorial Fund, administered by the Vancouver Island Cave Exploration Group.

copyright ©1986 by The Canadian Caver, All Rights Reserved

ISSN 0833-0948

## *CARIBOU MOUNTAINS EXPEDITION*

Steve Grundy

Maps by Paul Hatherley and  
Steve Grundy

### Personnel:

From Canada: Jim Jacek, Steve Grundy, Glenn Peppard, Mark Crapelle, Alysoun Lawrence,  
Mike Evans, Olivia Whitwell

From England: Paul Hatherly, Charlotte Roberts, Nick Thompson, Tony Bennett, Alan Weight,  
Becky Vincent

Panic!!! The English are coming at great expense in less than two weeks, we have a van in Victoria that won't steer in a straight line and we can't afford the huge sums of money that is required to helicopter us into the Caribou range. As is often the case things started to come together with organization borne out of chaos but unfortunately as things turned out we made two big mistakes. The Caribou range forms a sub-range of the Rockies (see fig.1) and with Devonian limestone plunging gently to the south seemed like an excellent place for caves. Interpretation of the aerial photos showed gaping shafts and many obvious sinks (see fig.2). This was our first mistake. Our second mistake was in hiring the services of Ted Cobbett one of the local outfitters, not that we have anything against Ted or his horses but .....

Our arrangement with Ted was simple, he had sent a string of 12 horses into Chalford Creek air strip ahead of us and we would fly in and meet them. From there it would be a 10 hour walk to the alpine karst. Ted's plane would only carry one person at a time so it took 15 flights to get us and equipment in. The following morning the horses arrived (minus one that must have known what was in store for it and had run off in the night). Three guides accompanied them, Wes, Eric and Randall. To say that progress was slow would be an understatement but despite horses kicking off our pack and continuous rain three days later we arrived at the Grayling River. The heavy rain had made the river a muddy torrent and it was impossible to cross by foot. The horses carried us across and we climbed ridges whilst they swam down the river with the intention of meeting us at the Grayling river hot-springs.

We arrived, they didn't, resulting in a cool night around the fire with no packs. I should mention that we were lucky in comparison to the guides, since they thought this was going to be a short venture they had left behind sleeping bags, food and any extra clothes. They were visibly shrinking as we progressed. The hot-springs are at the base of the limestone outcrop and were one of our objectives since the area would be a site for possible resurgences. The area of the hot-springs has been studied by the provincial government (Murtha, 1981 and St. Pierre, 1981), B.C. Hydro and Parks Canada. The Parks Canada report rated these hot-springs as number 1 in Canada. Of speleological interest was mention of a cave above a 30m high tufa terrace on the right bank above a series of hot-springs. We located this easily and with our trusty guides cutting trail ahead, we used the horses to ferry us across the river. The cave (Guano Sauna) was small but certainly not without interest.

First impressions were of a descent into hell. Steam was venting around the entrance and a 30 degree slope led quickly to the head of a 30m pit. On descending the pit, the temperature and smell increased dramatically, and with bats clinging to our oversuits we landed in a heap of ammonia stenching guano in a small sweltering chamber. We photographed, surveyed and collected some dead bats as soon as possible and headed for the welcome surface. On the same day just upstream from this point a resurgence was located discharging c. 2.5 cumecs, although unenterable hopes were high for upper entrances on the top. All this activity had used up a couple of days so on day 7 of the 10 hour walk we set off on a newly cut trail to the alpine area. The site of our shafts and sinks. A hard days walk got us up and installed in a fine camp site next to one of the sinks. At last we were there, the horses left us to return in several days to get us out. The following morning we split into several teams and started to recc the most promising areas from the aerial photos. That evening moods were sombre as not one team had found anything. All the shafts were choked with fill or water and ditto for the sinks. The following day we again recced a huge area going 14km north of the campsite, but still no luck. That evening we put the 'escape' symbol out on the ground so if Ted flew over he would send the horses back in. Ted flew over the following morning and five days later the horses were back with Wes guiding. During this time morale had dropped considerably and despite more walking and alot of digging no significant caves had been uncovered. The walk out was to Vizer Creek proved a much more practical alternative with everyone making it in one day. Mainly alpine walking across high ridges populated by inquisitive Caribou, then down into the trees following a very good trail. The Vizer Creek cabin was luxurious, this was just as well since most of the expedition got fogged in and were unable to be flown out. Eventually we were all assembled in Dan's Neighborhood Pub in Fort Nelson where talk mainly centred around the next expedition which would be definitely further south.

Although the expedition found little in the way of cave, it was successful in that a new area has now been checked out. All the obvious features were looked at and did not go. It has to be remembered though that many Alpine areas do not "go" first time. The expedition will publish a full report in Caves and Caving or Cave Science. I am not aware of all of the English sponsors, but from Canada we would like to thank Okanagan Fruit Products and the Rennie/Clark fund for their generous donations.

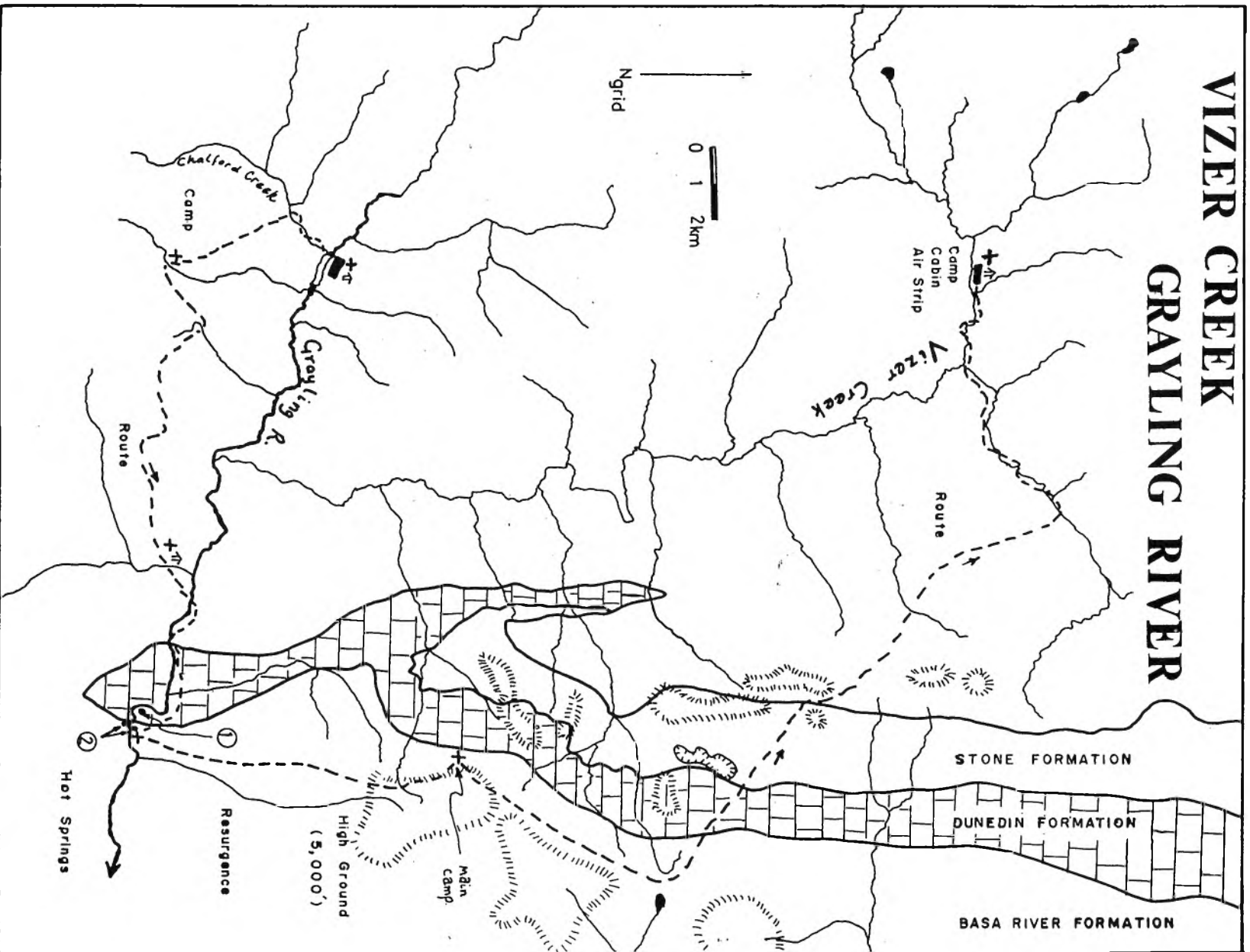
#### References.

Murtha, M.; Youds, K.; St. Pierre, P.; Field Trip Report, Oct. 1st, 1981.

St. Pierre, P.; Downie, B.; McGee, D.; Field Trip Memo, 30th June 1981.

B.C. Hydro Information Review, Report ESS3, Jan. 1980. Natural History of Mineral and Thermal Springs in Canada, Report to Parks Canada, Jan. 1984.

# VIZER CREEK GRAYLING RIVER



# GUANO SAUNA

## PROJECTED ELEVATION

