

LAVA TUBES

THE COLLINS SYSTEM - A RECENT LAVA TUBE DISCOVERY.

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ABSTRACT.

In May 1985 Gerry Collins of Rosella Plains Station led us to a tunnel he had seen about 10 years previously. It proved to be part of a series of 9 tunnels with a total passage length of approximately 1100 m. The caves are briefly described. Some of the biological findings are given.

INTRODUCTION.

"The entrance is straight ahead', a voice boomed out of the sky. And sure enough, there it was. This was a highlight of Brother Nicholas Sullivan's 1985 Explorer's Club Expedition. One might think, from this, that it had divine guidance.

Gerry Collins had led us to the area where about ten years previously he had seen a tunnel entrance. We had driven around for an hour in rough country and not found it. He told us to wait while he went back for the plane. The entrance was quickly spotted from the air and he came and guided us to it. The Piper Cub is used for mustering and has a loud hailer in it. Hence the guiding voice from the sky."

This is the opening description in the report of our first trip to the Collins system. On the first trip we were able to take the biologists Frank Howarth and Fred Stone.

We were there for less than 24 hours and a survey of Collins No. 1 Cave was made and Collins No. 2 was explored. No. 1 is about 150 m long and ends in a rubble pile that is venting. The cave may be extended with digging. For part of its length it has two parallel interconnected passages that are about 7 m wide and 5 m high. This is quite unlike the tunnels at Undara. There are two piles of guano each over a metre high under bat roosting sites. A large number of bats (1000+) were present. No. 2 is about 100 m long and is a simpler tunnel. It has a low section and also ends in a venting rock pile.

Frank Howarth and Fred Stone did some hasty collecting. From the lavicles on the wall it could be seen that the lava flow was from north to south. The tubes were aligned at about 5°.

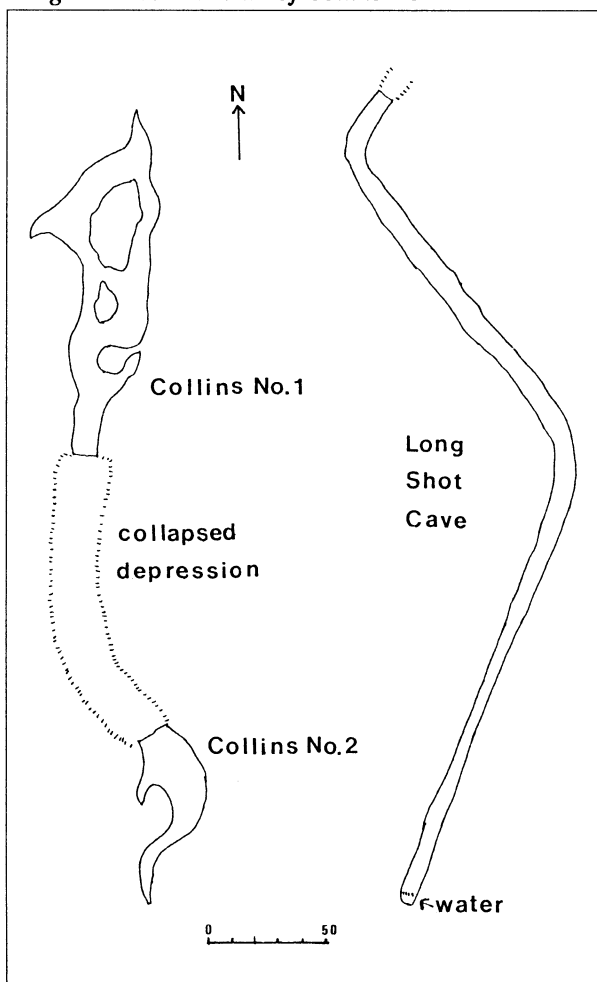
On return to Cairns the aerial photos for the area were studied and the caves tentatively located. A source for the lava flow was sought. The next craters to the north on

a 5° bearing are a group of steep cones which are probably pyroclastic. These do not produce lava tunnels. Further north is Mount Tabletop which about 9 km from Collins No. 1. This is a layman's guess as to the source of the Collins lava flow.

The next trips were not made until August 1985. The area to the north of Collins No. 1 was checked but only deciduous vine thicket on large areas of aa lava was found. This is not the type that forms lava tubes. It appears that this could be later flow that covered the area. Checking down-flow from Collins No. 2 about 500 m, the next cave found was Tourist Trap, which is about 100 m long.

The next cave is Daylight Cave with about 50 m of passage. It has an interesting entrance with a roof about

Figure 1. Three of the major tubes of the Collins System. Longshot is 650 m south of Collins No. 2.



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2 m thick and 8 m wide. The ceiling is quite flat. There is a horizontal crack across the arch and a brick like pattern of vertical cracks. It is not a place to shelter in an earthquake.

A collapse leads south from Daylight Cave and Long Shot Cave is in the end of this. The opening had to be enlarged to get in. This is the major cave of the Collins system and is about 370 m long. It contains bats, humidity, CO₂, tree and grass roots and has a small pool of water at the end. By now the tunnels were getting smaller in cross section, being only a couple of metres wide in places.

The next trip was a fortnight later and two more caves down flow from Long Shot were found. The first was Impatience Cave, only about 17 m long, with rock scree going the whole length. A few bats were present. The last cave was Graveyard Cave about 110 m south. It is about 50 m long and has a two level structure. It also had some bats in it. Beyond this last cave there is a marginal increase in slope and there are numerous lava tongues. This is probably the southern end of the lava flow.

The depressions between Collins No. 2 and Tourist Trap were checked and entrances were "expanded by lithological rearrangement to accommodate a human torso" to quote Mick Godwin's report. Never let it be said that we do any digging. The northern one is Two-Ten-Tunnel and is about 210 m long. It ends at the collapse that is at the southern end of Collins No. 2. The floor has some guano on it and a few bats were present. The stems of germinated seeds reacted by quick movement when a torch was brought close to them.

Handful Cave is about 80 m long and starts in the depression that contains Tourist Trap and ends at the depression of Two-Ten-Tunnel.

BIOLOGY

The following year (1986) Frank Howarth and I spent three days there collecting. Most of the time was spent in Long Shot and Two-Ten-Tunnel as these held the most potential for cave life. In the Undara system it was found that the caves with foul air had the most cave adapted life. Long Shot Cave confirmed this theory. It had CO₂ levels as high as 2.8% at the terminal.

These are some of the highlights as seen by a layman. The most exciting find for me was the peripatus. This is an ancient life form and is like a caterpillar. This is the first time that Frank had seen one and it is certain to be a new species. They occur in the rainforest as well. Two were found, one in the end of Long Shot and the other in Two-Ten-Tunnel. The two locations are about 500 m apart. At the end of Long Shot Cave troglobitic singing crickets were found. They have only been reported elsewhere in the world from South-East Asia.

Another exciting discovery was the same blind plant-hopper as found in Bayliss and Nasty Caves over 30 km away. This is in contrast to Chillagoe where in adjacent towers the most and least cave adapted plant-hoppers occur.

A large eyeless spider of unknown family is found both in Bayliss (Undara) and Long Shot. This is probably the largest troglobitic spider in the world.

Also seen in the tunnels were a toad, possum, rat and a snake as well as the tracks and burrow of possibly an echidna. These would all add to the food supply of troglobites when they die.

More work has to be done in the system. An interesting juvenile cockroach specimen was collected from Collins No. 1. It is hoped that more collecting will take place there in the New Year.

Dave Collins of Spring Creek Station recently reported seeing more tunnels while helicopter mustering in the area. We are dependent on the graziers for help in finding new systems. Perhaps when satellite technology improves more discoveries may be made with the help of the mining companies in the area.

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APPENDIX I.
LIST OF TUBES IN COLLINS SYSTEM.

NAME	LENGTH (m)
Collins No. 1	150
Collins No. 2	100
Daylight	50
Graveyard	50
Handful	80
Impatience	17
Longshot	370
Tourist Trap	100
Two-Ten-Tunnel	210
Total	1127

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