



TENGLONG DONG SHOW CAVE AND THE HEI DONG (CAVE) BODY FIND IN CENTRAL CHINA

– Arthur Clarke

INTRODUCTION

During October–November 2006, I was the cave biologist/ ecologist with a British-led international expedition exploring karst areas in central and eastern China: in Hubei and Jiangxi provinces respectively (Bensley, 2006). The first major part (3 weeks) of our visit to PR China was based in the high elevation plateau karst of Lichuan and Jianshi County (Xian) located west of the city of Enshi in southwestern Hubei Province. The second part of our expedition was centred on the *Shennong Gong* show cave and its karst surrounds in Jiangxi Province, a low elevation limestone area southeast of Hubei Province, from where several new cave dwelling species have been recently described, (e.g., Ueno and Clarke, 2007; De Souza, *et al.*, 2008.)

Hubei Province is situated in south-central China, surrounded by several provinces including Shaanxi (to the northwest), Henan (north and northeast), Anhui (east), Jiangxi (southeast), and Hunan (in the south). Immediately west is Chongqing Municipality, from where the *Yangtze River (Chang Jiang)* enters Hubei and flows roughly east/southeast across the province.

SOME BRIEF HISTORY OF MODERN CHINA AND PRESENT DAY ADMINISTRATIVE DIVISIONS

Some brief historical background about the People's Republic of China (PR China) and general information relating to land area and governmental administration may assist the reader. The country we know of today as 'China' is commonly related as the People's Republic of China, particularly by the Chinese (and often abbreviated to PRC or PR China) in order to distinguish their nation from the Republic of China (ROC).

Today, and since being ousted from mainland China in December 1949, the ROC is largely represented by the island of Taiwan (formerly Formosa).

The Republic of China which began in 1912 following the collapse of the Qing Dynasty (and over 2,000 years of imperial rule), formerly covered much of the eastern mainland of China. From 1928 to 1949, its capital city was Nanjing (meaning 'southern Capital'), during a time when much of China was in the grip of a civil war between the ROC 'nationalists' and the new 'communists'.

Hubei Province (showing location within China)



This civil war itself, which raged from 1927 to 1950, followed an era of unrest during harsh rule by regional warlords, who during the early time of the ROC, were fighting over the spoils of conquest after the demise of the millennia of imperial kingdoms. Following a pronouncement in late September 1949 to establish Beijing as the new government capital centre (also known as Peking and translating as 'northern capital'), the creation of the People's Republic of China was announced by Mao Zedong in this city, on 1st October 1949. Mao had led the Communist Party of China into Beijing earlier that same year, near the end of the Chinese Civil War.

From its capital Beijing, PR China is governed on a hierarchical basis; some of these administrative divisions within China are quite complex. At the provincial level of land area (comparable to the State and Territory level in Australia), China is composed of 23 provinces (such as Hubei), five autonomous regions (e.g., Guangxi) and four municipalities (including the urban sprawl and land area around its two biggest cities: Shanghai and Beijing, plus the largest municipality: Chongqing, formerly the eastern part of Sichuan Province).



Expeditioners (Graham Salmon, Emerson Clarke and Dave Williams) with bent oar

These larger regions, particularly the provinces are generally divided into prefectures, each containing smaller county areas. The county regions of Lichuan and Jianshi are just two of the eight counties in the Enshi Autonomous Prefecture, itself one of 13 prefecture-level divisions within Hubei. Just considering the province of Hubei alone, its thirteen prefectures are subdivided into a total of 102 county-level divisions; these are further subdivided into a total of 1220 township-level divisions.

THE EXPEDITION SETTING IN LICHUAN COUNTY, SOUTHWESTERN HUBEI, WEST OF WUHAN

Following our arrival in China – or taking a direct flight – all expeditioners flew to Wuhan, capital of Hubei. Wuhan was formed in 1950 when three cities or boroughs: Wuchang, Hankou and Hanyang were amalgamated to become one administrative unit, forming a major rail, road, river and sea-going transport hub and industrial complex, particularly known for its metallurgical industries. Located at the confluence of the Han and Yangtze rivers, the inland port of Wuhan with its associated waterways and lakes is accessible to ocean-going container vessels.

After an overnight stay in Wuhan, checking out the floodlit lake surrounds and the Yellow Crane Tower, an early morning flight took us 470km west to Enshi. While we were gazing at some spectacular karst scenery from the aircraft's windows, the plane's hold luggage must have moved; on arrival in Enshi we found one of our two pairs of raft oars in very bent condition. Our expedition base was located further west in the small city of Lichuan, located 130km by road from Enshi, though only 53km away as the crow flies!

For over two hours during the bus journey to Lichuan with our Chinese hosts, we travelled through spectacular karst terrain, ascending a limestone escarpment with distant views of huge fossil cave entrances. With a population of around 114,000 (Bensley, 2006), Lichuan city (capital of Lichuan County) is located 6.5km southwest of the very impressive *Tenglong Dong* show cave, which became the initial focus for our 2006 expedition.

Aside from the eleven English cavers, our expedition included one Irish caver, three Hungarian cavers and a freelance Hungarian cinematographer, two Australians (myself and son Emerson, now based in London), plus several Chinese academics and their students from institutions in Guangxi and Hubei Province. We were ably assisted by numerous willing local guides, interpreters and 4WD vehicle drivers, all keen to show us the cultural and karstic delights of their region.

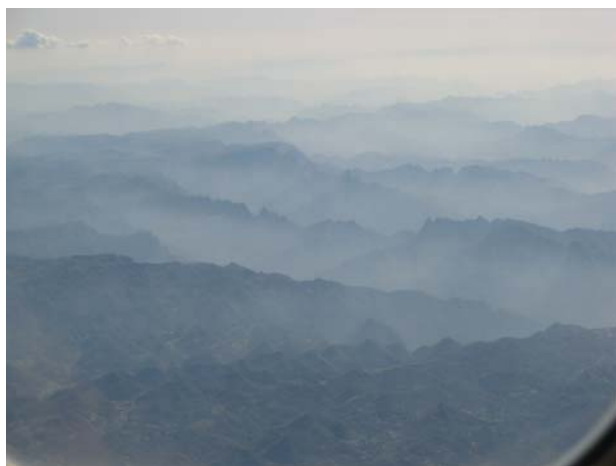
Located 30-40km east of the border with Chongqing Municipality, the karst investigated in the Lichuan area in western Hubei forms part of a limestone plateau, with elevations of around 1250-1300metres. *Tenglong Dong* was being re-developed

to become a more prominent tourist destination, so our expedition team had been requested to update the cave survey and check out other significant attributes, including the cave fauna.

TENGLONG DONG SHOW CAVE, NORTHEAST OF LICHUAN COUNTY TOWN

Translating as 'Rising' or 'Soaring' 'Dragon Cave' or 'Cave of the Flying Dragon', the quoted lengths for *Tenglong Dong* (TLD) are varied (Duckeck, 2007; Lynch, 2007). Currently rated as the second longest cave in China, it has been recently determined as having a length of just over 40.5km (Zhang Yuan Hai, 2008). For most of the first week to ten days of the expedition, our exploration efforts were centred on a re-survey of the upper fossil level passages of TLD, as well as a brief foray into the active passages containing the underground course of the *Qingjiang River* and tributaries, previously surveyed by a Belgian caving team in 1988 (Masschelein & Zhang, 1989).

The lower river course was initially accessed by abseiling down the 40-45m high *Qingjiang River* canyon wall with an inflatable raft near the outer entrance, but an oar was lost during the first white-water rafting attempt. The predominantly dry and inactive upper levels of TLD were reached by walking into several of its enormous side passage fossil entrances and via the main show cave entry itself, with its 74m high and 64m wide portal, probably one of the largest show cave entrances in the world.



Looking across a landscape of karst ridges (from aircraft)

Over the last few years, the *Tenglong Dong* show cave has been receiving a revamp, with a multi-million dollar development by Chinese investors and a Hong Kong based consortium together with Lichuan Qingjiangyuan Tourism a local government body, reportedly to the tune of 150 million yuan, quoted as about US\$18million (Anon., 2003; Duckeck, 2007). Show cave visitors have a choice of going directly along a 'wheelchair-friendly' route from the main road 'dinosaur' egg ticket offices, crossing a suspension bridge over the *Qingjiang River* then along a freestone slab pathway passing a tea house *en route* to the several hectare grass lawn

area outside the high portal entrance. The more spectacular entry to the TLD portal is gained from the restaurant ticket office above the *Qingjiang River* gorge via a precarious walkway and its associated steps carved into the limestone wall, circling around and above the active river entrance across a bridge inside the cave with impressive views looking out over the river canyon walls and the 50m wide, 30m high entrance waterfalls.



Fossil entrances in wooded limestone escarpment cliffs

The *Tenglong Dong* show cave experience can take several hours, depending on the time of day you enter and what you want to see. From under the high portal fossil entrance, tourists walk in past manmade fish ponds for about 300-350m, and then to save your legs, you can board small electric-driven open-topped buses. These 12-16 seater buses travel at speeds up to 50kmh along the side-lighted course of a concrete road, driving another 2.2km into the cave bypassing a large chamber set up as a theatre and terminating at a slightly smaller chamber where the first few speleothems occur.

In this second chamber, tourists sit on wooden benches to witness an elaborate laser light show conducted in swirling mist and fog that is pumped into the cave. From this point, visitors have two options; firstly continuing through and past the maze of varied speleothems in coloured lighting sections that extend another 2-3km into the cave, walking along the mix of concrete pathways, 'anti-slip' cobblestone paths or raised stepping stone slabs in small side stream passages. (Even at the furthest extent of the tourist section, some 4-5km into the cave, mobile phones still work!)

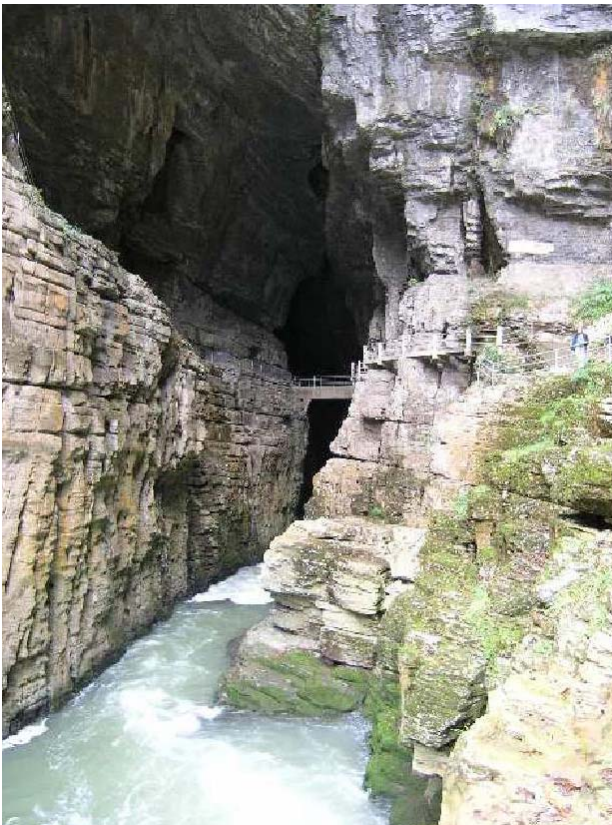
The second option which most tourists partake in during their visit to *Tenglong Dong* involves walking back or returning by electric bus to the first 'theatre' chamber, where a daily performance is delivered at 3.30pm. An elaborate stage has been constructed complete with a local rural style house where Chinese dancers and acrobats perform the mid-afternoon theatre production relating local folklore with a mix of dance, gymnastic pantomime and opera for the hundreds of tourists. Once again sitting on wooden benches, cave visitors now have a

table in front where you are served with cha (Chinese green leaf tea) or bottled water and issued with hand operated clappers to ensure a crescendo of clapping to applaud each performance.



Above: The gigantic Tenglong Dong fossil entrance

Below: Tenglong Dong (Qingjiang River) entrance



As described by Duckeck (2007) a running commentary of the performance is displayed for visitors, with excerpts in Chinese posted on electronic signboards beside the stage. The daily performance includes a light show, music, multimedia projections, water jets and gas flames. Although the electric buses are available to take visitors back to the entrance, many people choose to walk out or alternately continue further into the cave where motion sensors activate the walkway sidelights and some of the coloured chamber lighting. The ticket entry cost, including shuttle bus from Lichuan city plus the laser light show and theatrical performance, is RMB 180 (Chinese yuan) per person, equating to about AUS\$25-30.00.

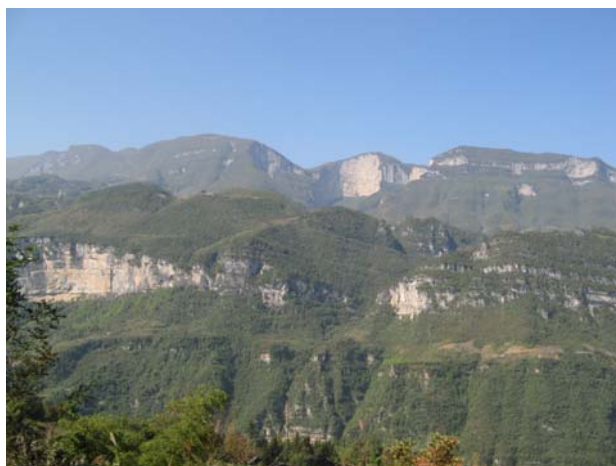
Following the excitement of the show cave experience, it was down to business, in terms of cave exploration and mapping. The initial efforts were concentrated on Tenglong Dong and its many connecting high level side passages. Although access to the subterranean stretches of the Qingjiang River could be achieved further downstream via other entrances, there was a need to re-examine the entrance stream channel, which also provided a unique opportunity to capture some spectacular white-water and black-water rafting film footage.

With one set of oar paddles damaged on the flight to Enshi, the unfortunate loss of one more oar during this first rafting venture into TLD, curtailed further exploration of caves by this method, obliging expeditioners to swim with survey equipment or establish bolt traverses along subterranean stream passage walls. It seems we were forgiven our lost rafting opportunity, judging by the joviality with members of the Lichuan Exploration Society around a few bottles of beer at a local eatery that evening.

From a cave fauna perspective, *Tenglong Dong* was quite an exciting new prospect for me, particularly with regard to the vast numbers of aquatic species, many of which were stygobites. Two of the most ubiquitous species were crustaceans: some 1.5-2.0cm long blind white aquatic amphipods, plus the smaller 1.5cm long shrimp-like atyids that were also blind. Another exciting discovery was the presence of some very large (8 to 12cm long) white or translucent tadpoles with minute (tiny) eyes, found in a connecting side passage from the *Bei Dong* (White Cave) entrance, located several kilometres into TLD. Some of these tadpoles were also observed and reported by the Belgians in 1988 (Masschelein & Zhang, 1989).

Just a little aside; while doing an internet search on 'Tenglong Dong', I came up with a reference to the cave in the U.S. Cavers Forum. As quoted by Lynn Roebuck on January 30th 2007, Professor Yan Zhiwu from the China University of Geosciences (who was with us during the 2006 expedition) has been reported as stating – from his recently published results on the combined scientific research on the *Tenglong Dong* system – that, after being measured and compared with data of other large caves in China and elsewhere, it is currently the world's largest cave.

Cliff-edged limestone escarpments & hills



Although Prof. Yan is quoted as stating that TLD covers an area of 230,000km² and has a volume of 15,750,000m³, statistical figures are sometimes exaggerated in China or can be misinterpreted when translated into English. If Prof. Yan has been correctly quoted from his report, the regional area probably encompasses all the connecting side entrances and their passages and the volume presumably includes the total capacity of active stream tributaries and fossil passage levels. One of the ten massive chambers inside the cave are purported to be up to 235m high and the underground course of the main *Qingjiang River* in TLD (without adding its tributaries) is 16.8km long.

THE SEARCH FOR HEI DONG

Along with a brief foray into Jianshi County (not to be confused with Jiangxi Province), the second half of our time in Lichuan County was devoted to a series of day trips to explore some of the more eastern sections of this elevated plateau karst, north and south of the small township of Tuanbao, located about 30km east of Lichuan city. Along with discovery of some fatter and longer tadpoles (up to 16-17cm in length) several kilometres into another huge unexplored cave, the daily explorations south of Tuanbao provide the setting for this account of a cave burial site.

On Wednesday, 25 October 2006, our aim for the day was to re-locate two caves found in this area of eastern Lichuan County: *Hei Dong* (Dark Cave or Black Cave) and *Da Keng Dong* (Big Doline Cave). A karst geomorphologist (Zhang Yuan Hai) from the Institute of Karst Geology at Guangxi University in Guilin and the Lichuan 2006 expedition leader (Ged Campion) had seen both caves a few days earlier, recording their entrances by GPS and marking them on master maps in our hotel as potentially interesting caves to be re-visited. *Hei Dong* was reported as an inflow cave disappearing into the hill and *Da Keng Dong* as a resurgence cave backed up with a deep lake.

Our biological interest was spurned by their reports, with Ged and Zhanghai stating that both caves contained stream passages with the long thin sticky hair-like vertical threads that are a

characteristic feature of dipteran insect larvae, belonging to a group of mycetophiloid flies of the Family Keroplatidae. (These keroplatid fly larvae with their dangling snare threads are known from caves in several parts of the world; the species found in Australia and New Zealand are bioluminescent and we refer to them as glow-worms. In China, the larvae do not luminesce and some cavers refer to them as 'non-glowing glow-worms'; see De Souza, *et al.*, 2008.)

I had been 'sent out' to investigate and possibly survey the two caves, in the company of Niu Changying, an entomologist from the Institute of Plant Science and Technology with the Huazhong Agricultural University in Wuhan (Hubei) with an interest in cave dwelling flies. (Niu spoke quite fluent English and in 2004, she spent a year in Australia, working with Dave Merritt at the University of Queensland.)

We were accompanied by a geology student (Mr. Dong Yong) under Professor Yan Zhiwu from the Wuhan campus of the China University of Geosciences; Dong spoke virtually no English at all. On that Wednesday morning, we didn't have a GPS with us (let alone the cave entrance co-ordinates pinpointed on a map), but we had been assured that our 4WD driver and a local accompanying guide would know where to find the caves. In fact, we had a lot of difficulty finding either cave, particularly *Hei Dong*. Aside from having a different driver, it seemed that we were continually given misinformation by villagers when we asked for *Hei Dong* en route, being sent off in a number of completely wrong or different directions or to several other caves that reportedly had been interpreted as having the same name, translating as 'Dark Cave'. After all: aren't all caves dark?



Dinosaur egg-shaped offices at the start of the show cave track

It had been relatively pleasant morning inside our plush 4WD with the heating on full bore! I was in the front seat, taking photos of the countryside: open fields of tobacco with a forest backdrop or food crops in front of remote village houses with satellite dishes, young children running along the streets dodging puddles with their school bags trailing behind and passing doorways where dried tobacco

leaves were sorted and graded by village farmers. It had been a wet and miserable day, with heavy showers interspersed by spells of light misty rain. For most of the morning, we seemed to be continually going off the main road, down steep or narrow winding roads, designed for a horse and cart, not any sort of vehicle, even a 4WD. Some of the access roads were very slushy with water-filled potholes of unknown depth.



Open gate to the walking track around Qingjiang River canyon

It actually occurred to me that some villagers might not want us going to their caves; perhaps because they were viewed as sacred sites or possibly there was some other specific reason why we were being sent in the wrong direction! After we had back-tracked along the same road for the third time, eventually, around 1.15pm we were shown a narrow 'mountain-goat' track beside some flooded rice paddies on the outskirts of the small village of Dianzi Ping. This track leads us to *Hei Dong* and walking in the rain, I got to use my nice new pretty blue umbrella. (Unless you are actually working in the rain or carrying some food produce on your back, when it's raining in China, the locals tend to use umbrellas, rather than raincoats!)

HEI DONG, A SMALL CAVE NEAR DIANZI PING VILLAGE

Hei Dong turned out to be a small inlet cave taking the overflow waters from a series of rice paddies, with the entrance located at the base of a steep embankment. Thrashing through an entanglement of reedy grass, brambles, small ferns, plus leafy and thorny scrub, we encountered the inflow stream. Inside the cave, a shallow streamway was flanked by a low (stooping) passage with a mud-caked ceiling above a water-washed cobble shingle bank.

Our progress was initially quite slow, with Niu collecting anything and everything that moved, stuffing all manner of spiders and insects alive without preserving alcohol into empty drink water bottles, including moths and cave crickets (even with damaged wings and dismembered appendages). There were a few keroplastid snare threads dangling from the cave roof, so Niu was collecting all the larvae as well. About a hundred

metres or so further in, the cave opened up and just beyond a skylight that served as a rubbish entry point, the passage took on quite sizable dimensions around 6-8metres wide and 4-5metres high. Following behind my two companions, we passed a small left hand side passage with gour pools and flowstone walls; Niu said it didn't go, so we continued down the main streamway until it became too deep, disappearing towards a sump in the distance (probably providing some of the source water for the *Da Keng Dong* resurgence). While Niu and Dong continued collecting from the wall of the main stream passage, I returned to the gour pool floored side passage in the hope of locating aquatic fauna, maybe even some small cave-adapted crustaceans.

Following this passage upstream, it was quite easy to skirt around the left hand edge of a flowstone covered flank of limestone that appeared - from a distance - to terminate the passage. The lower reaches of this calcite floored streamway were highly decorated with lots of straw stalactites and shawls, eventually opening into a considerably wider passage, containing an abundant supply of keroplastid fly larvae suspended above numerous snare threads. There were two small side chambers on the right hand side (RHS) further upstream, one of which appeared to contain some ancient pottery shards.

Returning to the main streamway, I beckoned my Chinese companions to follow me; Niu was absolutely thrilled by the density of the keroplastid fly larvae, asking me to photograph her collecting some specimens. Upstream from the main chamber with the fly larvae, the gour pool basement reverted to being a clay silt-and-gravel based streambed with a few low roofed crawling sections before opening up once more to become a 2-3m wide, 4m high passage with the two small RHS chambers. While I inspected and photographed the pottery shards in the first chamber, the other two checked out the second side chamber, where Niu reported the discovery of a cow bone sticking out of a sand bank; after excavating it, she asked me to come and have a look.



Expedition cavers walking across a suspension bridge over the Qing Jiang river going towards Tenlong Dong (photo from Bensley, 2006).

THE BODY FIND IN HEI DONG

The moment I saw the bone sitting beside an elongated mound of sand and clay, I recognised it as potentially being a human leg bone; definitely not a cow bone. About the same time, I noticed what appeared to be a white, probably troglobitic bristletail, possibly even a dipluran scuttling across the sandy surface and underneath some rotting cloth fragments at one end of this longitudinally and slightly raised sandy mound.

On closer examination, gently lifting the two layers of decayed material in search of my white cave 'beastie', it was immediately apparent that the rotting cloth was covering a human skull; the fabric probably being part of a head garment or a shroud. It was indeed a grave site and most certainly a buried human body! It appeared to be a slightly raised grave site on the streambank, though in fact the cave stream may have been gradually eroding the edge of the burial site embankment. Niu wondered whether it might have been an ancient prehistoric early man grave, but in my estimation, considering the limited extent of partially rotted fabric and staining or discolouration of the well preserved bones, it appeared more recent, possibly only 10-15 years old.

With Niu in disbelief, shock and partial denial, it was obvious that these human remains had to be left intact and undisturbed, albeit with the grave site, leg bone and skull photographed, then reported to the police. Niu thought that if it was human, we should say nothing because the grave site might be sacred, but I was not convinced. We subsequently exited the cave, probably a few hours later than intended. Following my report of the buried body to Zhanghai in our hotel at Lichuan, two police officers and a detective arrived very promptly within 10-15 minutes. Taking copies of my photos, they also requested precise details of the body's location, together with a sketch map of *Hei Dong* and its passages. About two days later, Zhanghai provided me some feedback from the police, relating a rather sad and protracted series of events that that began unfolding almost a decade ago, when a local Dianzi Ping woman had

disappeared without a trace. It appears that a little over nine years previously, a local man in the nearby village had wanted a new wife, so he had murdered his first wife, burying her body, wrapped in a shroud at the far end of *Hei Dong* which was known to be a rarely visited cave. At the time of her disappearance, the family of his first wife had reported the woman as missing and there was an immediate police investigation.



Expeditioners on pathway and steps to Tenlong Dong river and show cave 1

Although pleading his innocence, the husband (now the alleged murderer) was the prime suspect, because there was added suspicion; while reporting to police that his wife had run away, it seemed very odd that she had not taken her children or said goodbye to them. He subsequently had another family of children to his second wife and reportedly the two lots of children did not get on very well with each other or their new step-mother. Based on neighbours' reports, it appears that the man in question became very nervous and agitated when we cavers came looking for the 'Dark Cave' (*Hei Dong*) and may have been one of the several villagers who deliberately gave us misdirections. When local regional police arrived in Dianzi Ping the following day together with detectives from Lichuan, the man now suspected of murder had fled the village and reportedly had not been seen since!

REFERENCES:

- Anon. (2003). Largest cave to be tourist spot. *China Daily* (newspaper), October 25th 2003.
- Bensley, B. (2006). British China Caves Project: Lichuan Expedition, 2006
<<http://www.brucebensley.pwp.blueyonder.co.uk/chinacaves/lichuan2006/index.htm>>
- De Souza, D.A., Niu, C-Y, Li, X-Z., Lei, C-L. and Clarke, A.K. (2008). *Chetoneura shennonggongensis*, a new species of cave-dwelling Keroplatini from China (Diptera: Keroplatidae), with a discussion of the position of *Chetoneura*. *Zootaxa*, 1716: 59-68 (2008)
- Duckeck, J. (2007) *Show caves of China: Tenglong Dong*.
<<http://www.showcaves.com/english/cn/showcaves/Tenglong.html>>
- Lynch, E. (2007) Hong Meigui Caving Club - *Long Caves in China*.
<<http://www.hongmeigui.net/deepandlong.php?stat=long>>
- Masschelein, J. and Zhang, S-Y. [Eds.] (1989). *Teng Long Dong: The longest cave of China*. Report on the first Belgian-Chinese speleological expedition in 1988, published by the Belgian-Chinese Karst and Caves Association; 47pp.
- Ueno, S-I and Clarke, A.K. (2007). Discovery of a new aphaenopsoid Trechine Beetle (Coleoptera, Trechinae) in Northeastern Jiangxi, East China. *Elytra (Journal of the Japanese Society of Coleopterology)*, Tokyo, 35 (1): 267-278; May 30, 2007.
- Zhang Yuan Hai (2008) Analysis on the morphometry of caves in China. In press to *Carsologica Sinica*, Vol.27: No.2 (June 2008).