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OBSERVATIONS OF BATS IN STUMP CROSS CAVERNS

G.H. Workman

Introduction

Whilst camped in stump Cross Caverns, near Greenhow Hill, Pateley Bridge, Yorkshire, during the summer of 1963 the author made several observations on bat flights and behaviour. No bat studies had been planned and the observations were purely incidental but included occurrences from July 30th to the end of the expedition in September. Although mostly they occurred during the night, some were recorded at various times during the day.

Observations

The first incident occurred on July 30th. Whilst digging near the Aster Column I heard at 21.10 what sounded like a 'distant rumble' which appeared to come from the direction of Heartbeat Passage. A reasonable assessment was impossible as the sound (which was brief) took me by complete surprise. I was at the time quite at a loss to know what had caused the noise as the cave had, up until then, been silent except for the occasional drips of water.

The following morning, at about 09.10 I heard a 'soft rumble' twice, while in the tent 20 metres east of the Aster Column. On coming out of the tent nothing could be seen. The sound appeared to be to the east of the tent.

Two days later, again sat in the tent, I heard at 12.00 a very loud flapping and also a small flap-flap. The following day a fairly quiet flapping was heard at 02.15. On both these occasions nothing was seen on leaving the tent.

Several more 'flappings' and 'Brrrump' noises were heard whilst sat in the tent, and once I heard a low soft rumble while sat outside the tent, but still saw nothing.

Then on August 13th while stood in the first chamber along the Clay level I heard the flapping and rumble together. On this occasion I saw a bat fly through the chamber towards the cave entrance. The noises, which were caused by the bat, were the same as I had heard on previous occasions.

From that date onwards many bats were both seen and heard, although those heard whilst I was inside the tent were still not

seen, as I was never able to get out quickly enough.

At first the bats seemed rather afraid and timid of me. They were very reluctant to fly past me at close range. As the weeks passed however, they appeared to become more used to, me and would rarely hesitate. It is felt that given sufficient time and a policy of non-interference it might be possible to gain their confidence sufficiently to tame them.

In their efforts to avoid flying past me they would often exhibit considerable gymnastic manoeuvrability in flight. They would often come flying towards me at full speed, do a quick somersault in mid-air, and fly straight back again at full speed.

In general the bats all kept up with their reputation for avoiding obstacles in flight, including thin telephone and aerial wires crossing the passage at several places. On September 15th however, one bat hit the aerial wire (with its wing?). This happened once the following day also. It is suggested that this may have been a deaf bat that had entered the cave, but in view of the distance in and the necessity for sonar to navigate the passage it seems more likely to the author that this bat was using too low a frequency to detect a thin wire - although such a frequency could, well be adequate for navigating through the passages.

Their reactions to dark and light are sometimes a little puzzling. In general they would fly back, away from my light if I was facing them, so I assumed that it was the lamp frightening them. On occasions, however, they would start to fly straight past, and then do a quick somersault and return after they had got level with me. In other words, they flew back when they reached the end of the light and 'hit' the darkness again. One bat made several attempts to fly past, bouncing off the dark on six occasions, and only succeeding on the seventh attempt. It is as if any sudden change in light intensity confuses and frightens them. On the instance above there was about 5ft between me and the cave wall so there was, really no obstacle to the bat at all. Other bats had flown past me in the Sand Crawl without hesitation with much less than 1 ft clearance. The presence of low intensity light never seemed to bother them at all.

Several instances indicate that the bats carried a map of the cave with them in their brains. On occasions I would stand in the passage as a bat approached and it would fly back again away from my light. Sometimes on its second approach it would turn down a small hole (too small for me) and then reappear several yards beyond me down the cave. This suggests that the bat already knew of the alternative route as well of the main route. To have this knowledge it must have explored these side holes thoroughly before

OBSERVATIONS OF BATS IN STUMP CROSS CAVERNS

and remembered them (ie drawn a Mental map).

On another occasion I was stood in a small chamber about 12ft in diameter and in the direct line between the entrance and the exit. A bat came down the cave, located me stood there, and flew back again. It then returned and flew right round me at close range, flew to the side of' the chamber, flew right round the edge of the chamber, returned to me, and then continued with its flight down the cave. I was, of course, stood perfectly still all the time, moving only my eyes and a slight movement of the head as the bat flew round the edge of the chamber. It had quite obviously been surprised to find me there when it arrived - in other words I was not marked on its map of the cave. It had returned, surveyed me and my exact location, resurveyed the chamber to make sure that it knew which chamber I was in, and continued its journey with its amended map. I assume it did this partly because I stood perfectly still (like a stalagmite). I often wonder what happened on its next flight through that particular chamber.

One interesting case of a bat turning off sharply was at the Skittle Alley. A bat flew in, travelling up cave, and when it 'saw' me it immediately turned off sharply and went northwards. This would take it to the high level T-junction passage, which would suggest that this is an alternative route to the bats potential destination. Both arms of the T-junction may be possible digs.

Most of the time the bats were vocally silent during their flights through the cave, except towards the end of the expedition. It was also noticed that they were only observed to be making sounds when there were more than one bat present; this suggests that the sounds represented bat-to-bat communication. Three bats were observed chasing one another in the Clay Level on September 19th. and making little metallic clicking noises. Pairs were seen chasing each other on 17th, 18th, and 20th. September, but there were no clicking noises. Vocal sounds are mostly high pitched squeaks, but were very rarely heard. In view of the bat behaviour it is suggested that mid-September is the start of the mating season for the particular species found in Stump Cross caverns.

The majority of the bats were seen or heard at times when it was dark or dusk outside. Some bats were noted to be earlier or later than normal, however. The July 31st bat was heard at 9.10 - i.e. nearly four hours after sunrise. Even more unusual were the August bats, some of which were recorded at 12.00, 13.55, and 15.00.

The bats were observed in nearly all parts of the cave right through as far as the November series at the end of Heaven. The greatest number of observations relate to the Clay Level series,

but this is inevitable as I spent the greatest amount of time there. On September 18th I went and sat behind the wooden security door just after 1 o'clock in the morning, when the show cave was dark and locked up. From this position I could see past the door to the junction in the show cave. I was thus able to check where the bats were flying to and from. Observations were made from 01.15 to 01.32 with the following results:

Time	Flying from	–	Flying to
01.15	Entrance	–	Lower caves
01.20	Entrance	–	Show cave
01.25	Entrance	–	Lower caves.
01.26	Show cave	–	Entrance
01.28	Entrance	–	Show cave
01.29	Show cave	–	Entrance
01.30	Lower caves	–	Entrance
01.31	Entrance	–	Show cave
01.315	Show cave	–	Entrance

In the 16½ minutes 5 bats flew into the Cave and 4 flew out. Of those coming in, 2 went towards the lower caves and 3 went towards the show cave. Of the outgoing bats 1 came up from the lower caves and 3 came from the showcave.

On September 16th whilst working at the east end of the Clay level I observed between 00.30 and 04.45, seven bats flying towards the entrance and two going down the cave. The ones flying down the cave were the first and the eighth. It would appear that at that time, which was, the second half of the night, the bats were still leaving the cave more than entering it. Further observations are needed nearer the entrance to prove this.

It should be emphasised that with the exception of the period 01.15 to 01.32 on September 18th, I was not deliberately looking for bats during this expedition. All the observations were made co-incidentally to other work which was being carried out. It is apparent from this that the observations are very incomplete and there would almost certainly have been more bat flights through the cave than I actually observed. More detailed work is planned for later dates.

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