

An Account of Recent Developments in G.B. Cave, Charterhouse-on-Mendip, Somerset

(N.G.R. ST 47615621) (*Fig. 9*)

By

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An attempt is made in this account to summarize results of work carried out in G.B. Cave since the publication of the revised survey and description (Crickmay and Bendall, 1951). The work has been carried out with two main objectives in view. First, to find a route to an eastern series, which can be postulated to exist, as the water from Read's Grotto, to the east of G.B. Cave, does not enter the latter. Dye tests have been made but all have given negative results. Secondly, to find a route through the blockages which close the end of the cave at the termination of the Main Passage.

Only two possible ways to the eastern series have been found and investigated. These are the East Passage and Whitsun Folly. It was hoped that the former would cross the roof of The Gorge and run into a high-level series connected with Read's Grotto. The latter, when entered, proved to be a roof-level ox-bow.

No less than four ways of passing the blockages at the lower end of the cave have been tried. Taking them in order from north to south they are The Ladder Dig, Upper Sand Dig, Lower Sand Dig (now more generally known as Sump Dig), and Bottom Dig. As may be seen from the 1951 survey, and in *Fig. 9*, all these passages, except Lower Sand Dig, at their beginnings trend south-westerly. So also does the lower end of the Oxbow when this part was first formed by water flowing in from the roof of the Main Passage. That all these passages should have followed this direction at various stages in the history of the cave suggests that they all may lead to a focal point of weakness in the rock. This point may well be a chamber that will rival the Main Chamber in size or may be the upstream end of a master cave, such as August Hole.

EAST PASSAGE

This is situated at the top of the east wall of the White Passage where this turns south to run steeply down into the Main Chamber. It is a roof-level passage continuing the line of the Rift Chamber. The passage is reached by a fixed iron ladder of 25 ft. From the top of the ladder there is a very

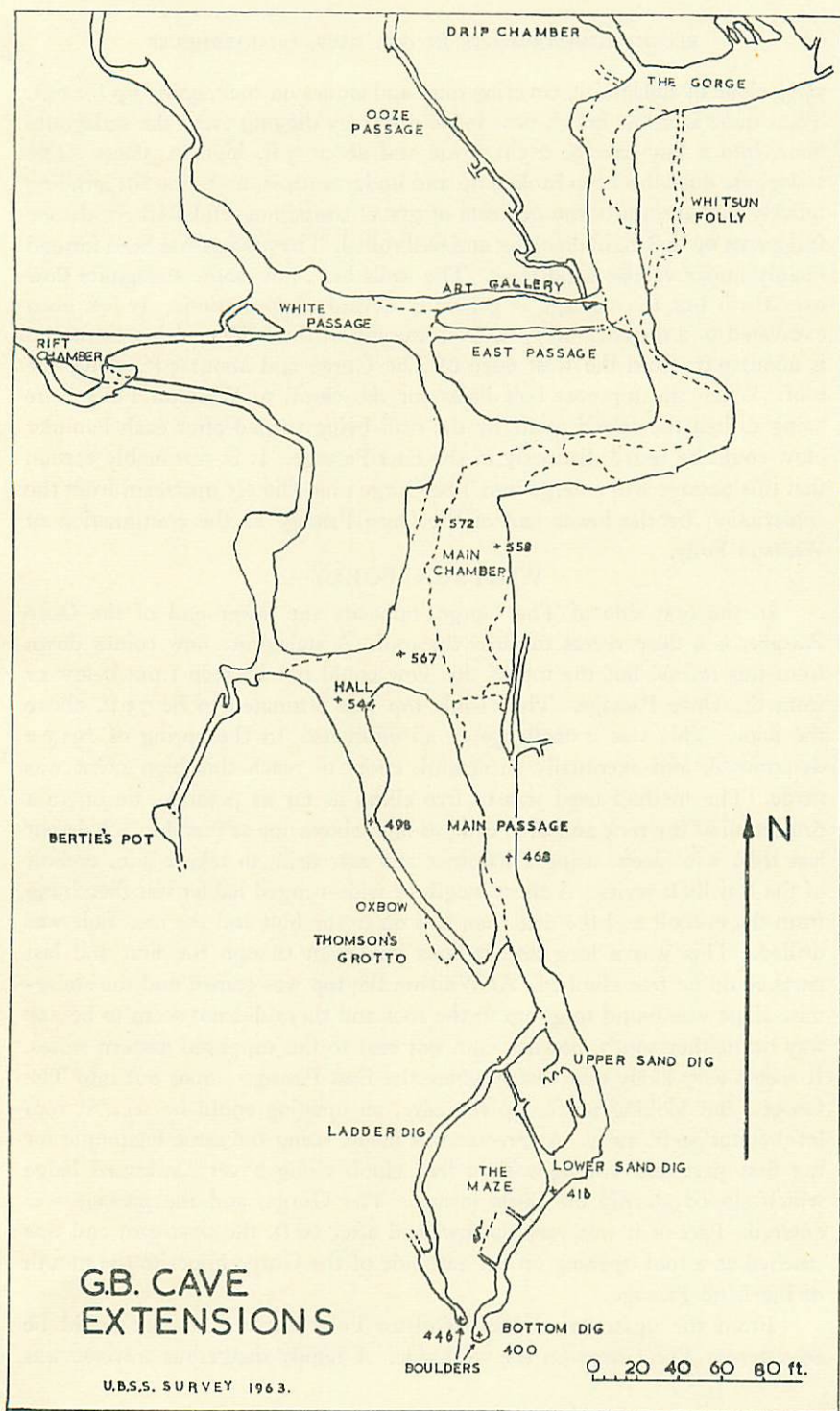


Fig. 9.

steep slope of stalagmite, covering mud and stones on rock, going up for 6 ft. Then there is a low crawl, now made easier by digging away the stalagmite floor, into a low passage 2.5 ft. wide and about 3 ft. high in places. The stalagmite floor has been broken up and underneath is, first, fine silt, grading quickly into stream-borne deposits of gravel containing Old Red Sandstone fragments up to 8 in. in diameter and well rolled. The passage has been formed mainly under vadose conditions. The walls have now some stalagmite flow over them but the passage is generally devoid of formations. It has been excavated to a distance of 77 ft. from the top of the ladder. Its present end is about 6 ft. from the west edge of The Gorge and about 5 ft. above the roof. When the topmost bolt holes for the climb to Whitsun Folly were being drilled the sound made by the drill being turned after each hammer blow could be heard distinctly in the East Passage. It is reasonably certain that this passage will emerge into The Gorge immediately upstream from the constriction by the lower end of the Ooze Passage as the continuation of Whitsun Folly.

WHITSUN FOLLY

In the east side of The Gorge, opposite the lower end of the Ooze Passage, is a deep recess towards the roof. A stalagmite flow comes down from this recess, but the top of this flow could not be seen from below or from the Ooze Passage. The visible top was estimated to be 75 ft. above the floor. This was a challenge to all climbers. In the spring of 1959 a determined, and eventually successful, effort to reach this high point was made. The method used was to free climb as far as possible, tie on to a projection of the rock and then drill, as high above one as possible, a hole not less than 2 in. deep, using a hammer and star drill, to take a $\frac{3}{8}$ in. eyebolt of the Rawlbolt series. A short length of wide-runged ladder was then hung from the eyebolt and the drill man tied on to the bolt and the next hole was drilled. This was a long and tedious job, even though the first and last parts could be free climbed. At Whitsun the top was gained and the stalagmite slope was found to go up to the roof and there did not seem to be any way on neither south, downstream, nor east to the supposed eastern series. It seems very likely that this is where the East Passage comes out into The Gorge. But looking north, up the cave, an opening could be seen at roof level about 30 ft. away. A traverse was made, using the same technique for the first part and ending with a free climb along a very awkward ledge which sloped steeply outwards towards The Gorge, and the passage was entered. Part of it was very narrow, and after 60 ft. the upstream end was reached as a roof opening on the east side of the Gorge opposite the mouth of the Mud Passage.

From the upstream end of Whitsun Folly another passage could be seen across The Gorge on the west side. A highly dangerous traverse was

made across The Gorge just below the roof along a vague sort of ledge where the roof steps down a bed. For the spectators, breathless below, this was a most exciting episode. It was a very fine piece of climbing, demanding not only skill but very considerable courage. The passage was entered and followed for about 30 ft. to where it became too narrow. It was shown to be the roof-level top of the upward sloping rift where Drip Chamber is entered from the Mud Passage a few feet from the west side of The Gorge.

It was now clear that Whitsun Folly and the Art Gallery were both parts of an older high-level vadose system used by the stream before The Gorge was cut. It was also clear that the East Passage was part of this system and in all probability a continuation of Whitsun Folly, and so it was not worth while continuing to dig out the choke.

LADDER DIG

The passage had originally been entered by assembling a sectional iron ladder in the Main Passage and raising it from there. The old dig was restarted in 1960. It is a high-level passage opening about 25 ft. above the floor of the Main Passage and 35 ft. down-stream from the mouth of the Oxbow. Pitons and Rawlbolts were used to get up to the passage again. A fixed iron ladder is now in place. An examination of the roof at the entrance to this passage shows that it was an original channel, as the large half tube in the roof of the Main Passage turns abruptly into the Ladder Dig passage, which is, in fact, a primary passage before The Gorge, the Main Chamber and the Main Passage were cut to their present depth.

The earlier work had consisted of digging down through the stalagmite floor of the passage where this floor met the roof. The stalagmite was very tough and thick just here, 30 ft. from the entrance. In 1960 work was concentrated on tunnelling under this floor, digging out the compacted silt and gravel. At 10 ft. a cross-passage was reached. This is obviously the upper end of the Lower Sand Dig, and the passage continues across the Ladder Dig passage heading for Thomson's Grotto, which lies just off the Oxbow. The filling beneath the stalagmite was silt and sand with gravel and quite large blocks of limestone and Old Red Sandstone and there were many pieces of an old stalagmite floor included in the filling. These were not arranged in any sort of order. The next move was to break up through the floor, which was now the roof. The stalagmite here broke up easily, and immediately above it was an air space and a way on. This was on Jan. 4th, 1961. The extension is 80 ft. long. It starts with an awkward crawl over a rough stalagmite floor, which has pieces of an older floor embedded in it, and there is evidence along the route of the existence formerly of pools. Many fine straw stalactites hang from the roof and there are two pillars to be avoided. The passage trends south-west and then nearly south.

After 30 ft. of crawling there is a climb up over massive stalagmites into a superbly decorated chamber, in which the formations have already been seriously damaged by careless visitors. The chamber is 25 ft. long by 7 ft. wide at floor level and at first 9 ft. high, decreasing towards the far end. Sloping back and up over the point of entry is another stalagmite blocked passage. This could eventually connect with Bertie's Pot. The great glory of the chamber is the immense number of nearly white heligmites growing up from the ledges and out from the walls and the many long straws hanging from the roof (*Plates 6 and 7*).

From the end of the chamber a passage continues. It is a crawl at first. Then a low chamber 10 ft. \times 8 ft. is entered. The floor is stalagmite over mud and boulders. At the far end several great slabs have fallen from the bedding plane roof and the only way on would be to dig down through this floor in the hope of finding an open passage beyond. Originally the decorated chamber and the part beyond contained pools. These were carefully searched for fauna, but no animals or insects were found. The main pool was drained by digging through the thin stalagmite covering the mud.

Along the entrance passage, and also in the pretty chamber, were found the skeletons of a number of bats. Some of the bones were partly cemented into the stalagmite. The bones represent three species (see Appendix), but their presence is hard to explain. The passage is 1,500 ft. from the entrance and about 400 ft. below the surface. Yet the bats obviously flew into this part of the cave. Other entrances to the cave may have been open in the past, but they are not much nearer than the present one. The bats must anciently have flown in before the passage was finally sealed off in all directions by stalagmite.

The Ladder Dig is one of the older passages in the cave and is probably contemporary with the roof-level series of Whitsun Folly, the Art Gallery and the East Passage. In the Main Passage below the Main Chamber, the roof has had developed in it a large half tube. This tube turns first into the roof of the Oxbow. A later, or perhaps contemporary, development takes the half tube into the Ladder Dig. This passage had already had a long history before the Main Passage was cut down or at least while that passage was not functioning. There is not only stream-borne fill in the Ladder Dig but this had been sealed with stalagmite, later broken up, re-sorted and the passage again filled and again sealed with stalagmite. The sequence of events in this passage is: (1) Excavation firstly phreatic and secondly vadose, with the Main Passage little if at all cut down. (2) Introduction of fill to a level a few inches above the present stalagmite floor. (3) Stagnation and total loss of stream and subsequent or consequential formation of stalagmite covering. (4) Re-excavation by a vadose stream, which broke up and partly removed the old deposits. This phase did not last long enough for the water to remove



PLATE 6

(Photograph: D. Patmore)

G.B. Cave. Ladder Dig Extension. Helictites and Heligmities.



PLATE 7

(Photograph: D. Patmore)

G.B. Cave. Ladder Dig Extension. Heligmites. The larger specimen is about 3 in. high.

completely the broken pieces of the old floor. (5) A second stage of filling. (6) A second stage of stagnation and flowstone formation. It was probably about now that the Main Passage had been cut deep enough to take all the water. (7) The present stage of post-glacial rejuvenation of the Main Passage has not affected the Ladder Dig passage, which was already fossilized before the choke in the Main Passage was formed, for there is no evidence in the Main Passage of there ever having been a filling up to the level of the Ladder Dig.

UPPER AND LOWER SAND DIGS

No work has been done on the Upper Sand Dig. The water is now turned into the Lower Sand Dig and this is usually a sump. At the cross passage indicated in the 1951 survey it is possible to turn left, south-west, into a series of very tight joint controlled passages. One set turns south towards the first passage on the right beyond the point where the Main Passage narrows. In this latter passage water comes in from the Lower Sand Dig and plunges down 10 ft. into a very narrow passage to reappear, when the flow is high, in the Bottom Dig. If the flow is small the water gets away at a lower level.

THE BOTTOM DIG

This may be said to begin where the Main Passage suddenly narrows. The whole of this passage has been dug out for a distance of 75 ft. Many tons of material have been removed. Most of it is fairly loose stuff with much Old Red Sandstone and limestone mixed in with the gravel. Part of the roof is more or less solid rock and part of it is choke material cemented with stalagmite. At 45 ft., after a short crawl, there is a steep slope down under a rock or very large boulder in the roof. This hollow was originally a pool, and still is whenever the stream flow is high. Usually there is a sump here all through the winter months. Below the mud and gravel floor of the pool are either immense boulders or solid rock with narrow, about 2-in. wide, channels in it. An explosive charge placed below the water in one of these channels proved very effective in making a way for the water to escape. It is now usually possible to dig here in the summer months. The south wall of the pool chamber is solid rock but the passage continues to the right and is here about 3 ft. wide between the rock walls. After this right turn there is a mass of very unstable material. Some of this has been removed and entry gained to a small boulder chamber. Periodic flooding has produced considerable changes here since the chamber was first entered. Working in this chamber is still rather a hazardous occupation.

The survey shows that the end of the Ladder Dig and the Bottom Dig are only a few feet apart horizontally and about 30 ft. vertically. But it is possible in the boulder chamber to see along and up through the boulders

for about 12 ft., and it seems very probable that the Bottom Dig is coming in under the floor of the end of the Ladder Dig and the boulder ruckle is the same. If so, then an original route and a present day-route for the water have met, and this enhances the likelihood of there being open passages beyond. It is worth noting that under flood conditions water never rises in the Bottom Dig more than a few feet above the pool near the end.

APPENDIX

THE BATS

Three species were identified by Dr. R. J. G. Savage. All are living species and all are found in Britain. They are Bechstein's Bat, Long Eared Bat and Whiskered Bat. Mr. Peter Bird states that Bechstein's Bat "is the rarest of British bats. Its centre of distribution is in Hants and the Isle of Wight—but there are odd records from southern counties. . . . it is found in southern Scandinavia and over much of Europe. . . . it seldom goes far from trees or bushes and the presence of its bones in quantity would indicate a woody or bushy environment."

"The Long Eared and Whiskered Bats sometimes hibernate in caves. . . . both usually desert caves in summer. . . . the Long Eared is probably one of the commonest bats in Somerset." Both have a wide distribution throughout Europe and Asia and parts of Africa.

REFERENCE

CRICKMAY, J. H., and BENDALL, R. A., 1951, "A Survey of G.B. Cave, Charterhouse-upon-Mendip", *Proc.*, Vol. 6, 174-186.