

EARLY ACCOUNTS OF GOATCHURCH CAVERN, 1736 to 1874

by

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ABSTRACT

Two previously unpublished early accounts of Goatchurch Cavern have been found and are presented here. Firstly, there is a letter from Reverend David Williams to the Royal Society in 1831 describing a visit to the cave and secondly, an extract from the notebooks of James Parker, now held by the Oxford University Museum of Natural History, dating from 1865, which includes the earliest known sketch of the cave. In addition, other early accounts are examined and their sources are identified. These accounts provide a description of the extent of the then known cave. The origin of the name is discussed and what the accounts tell us of the early state of the cave is examined.

INTRODUCTION

Goatchurch Cavern (ST 4758 5822) is one of the most popular and frequently visited caves on the Mendips. It is situated in the West Twin Brook Valley in Burrington Combe on land owned by the Wills Estate. Cavers currently enjoy unrestricted access to the cave through two entrances. The lower entrance, known originally as the Back Door and later as the Tradesman's Entrance, was dug out by the UBSS in 1924 (Tratman, 1963); however, it seems likely that the upper entrance, simply known as Main Entrance, has always been open, certainly during the period for which written records exist, and quite probably for much longer.

At well over a kilometre in length, Goatchurch Cavern is by far the longest cave in the Burrington area. It is a complex network of generally phreatic and paragenetic floodwater maze passages developed in a narrow band of Black Rock Limestone less than 20 m thick (Farrant, *et al*, 2009). Farrant summarises the cave by saying that it consists of a series of strike-aligned phreatic conduits developed along no fewer than five distinct levels, connected by a multitude of vadose canyons that have often utilised, enlarged, modified and occasionally obliterated the original phreatic conduits. The picture is further complicated by collapse and sediment infill. A detailed description of the cave and its geomorphology is beyond the scope of this paper, but the early accounts of the cave presented here will demonstrate the history of ideas concerning its formation.

In the course of research into the history of Aveline's Hole (Boycott and Wilson, 2011), it was discovered that the manuscript of a paper given on behalf of Reverend David Williams to the Royal Society in 1831 (Williams, 1831a and b) covered 54 sides of paper, whereas the published version is considerably shorter. The manuscript (Royal Society Library Reference Number AP/15/13, here Williams, 1831c) was examined and transcribed. The relevant extract concerning Goatchurch is given here and it is hoped that a full transcript can at some stage be made available on the UBSS website. The main text of the notes refers to the caves of Uphill, Hutton and Banwell, described in Williams, 1831a and b, but in slightly more detail. The section relating to Goatchurch contains a great deal of unpublished material and covers seven sides, from page 27v to page 32¹. Williams, an amateur geologist and fellow of

¹ Shaw (1972) uses the nomenclature a and b for the front and back of a manuscript sheet, however the British Library convention is now to refer to the reverse of a numbered sheet as v, for 'verso', which has been adopted here.

the Geological Society, was rector of Bleadon and vicar of the parish of Kingston Seymour from 1820 until his death on 7th September 1850. A facsimile of the relevant part is reproduced in Appendix 2.

In addition, the Parker manuscripts listed in Shaw (1972), have been examined and found to contain four pages of description of Goatchurch Cavern, together with a sketch survey and data on the entrance passages. This section of the manuscript has been transcribed and is presented here for the first time, together with Parker's sketch plan. A facsimile of the manuscript is included in Appendix 3 of this paper; for the plan see Figure 2. James Parker (1833 - October 1912) was an Oxford publisher who spent his leisure time on archaeology and geology. He assisted William Boyd Dawkins and Ayshford Sandford in their exploration of Mendip caves, notably at Hyaena Den, Wookey Hole, Loxton Cave, the Uphill Caves and in Burrington Combe.

For the sake of completeness, all other known early accounts of the cave have been brought together so that, where possible, their sources can be identified and what they tell us about the state of the cave can be examined. The date of 1874 was chosen as an end point to this research as after that, accounts of the cave such as the one in the book *The Netherworld of Mendip* by Ernest A. Baker and Herbert E. Balch (1907) are reasonably easily available, whereas the earlier accounts are not.

THE ACCOUNTS

a) Manuscript version of John Strachey's unpublished *Somersetshire Illustrated*. Somerset Records Office Manuscript Collection DD/SH 107(1).

Goechurch is a Cave due S. from Langford fully as remarkable as Woky Hole but remote fro any Great Town & therefore not so much regarded -

This is the first reference to the cave now known as Goatchurch Cavern. It is in an unpublished manuscript written by John Strachey (1671 – 1743) for an illustrated history of Somersetshire that he intended to publish, but Strachey died before his ambition could come to fruition. The manuscript itself is not dated. The date of 1736 generally attributed to this extract is the earliest date that the volume could have been bound (Williams, 1987). The comparison with Wookey Hole gives some indication, although extremely vague, of what the interior of the cave was like, but the lack of further details makes it seem unlikely that Strachey had actually visited the cave himself. The comparison with Wookey Hole brings to mind large, well-decorated chambers, which is consistent with later accounts.

b) The unpublished journal of the Reverend John Skinner Volume 24 (1820).

On 3rd August 1820, the valley in which Goatchurch is situated was visited by the Somerset antiquary, diarist and archaeologist, Reverend John Skinner (1772 – 1839). Skinner's party, which included his friend Mr Cranch and their guide (named as Joseph Blunt in their excursion the following day to Butcome and Fairy Toot) had walked to the cave over Black-down and as a result, Skinner did not enter the cave, leaving that to Mr Cranch, but he did make a sketch of the entrance (Figure 1). This account is in a section of the diaries transcribed by Skinner's brother, Russell, who had more legible handwriting than Skinner himself.

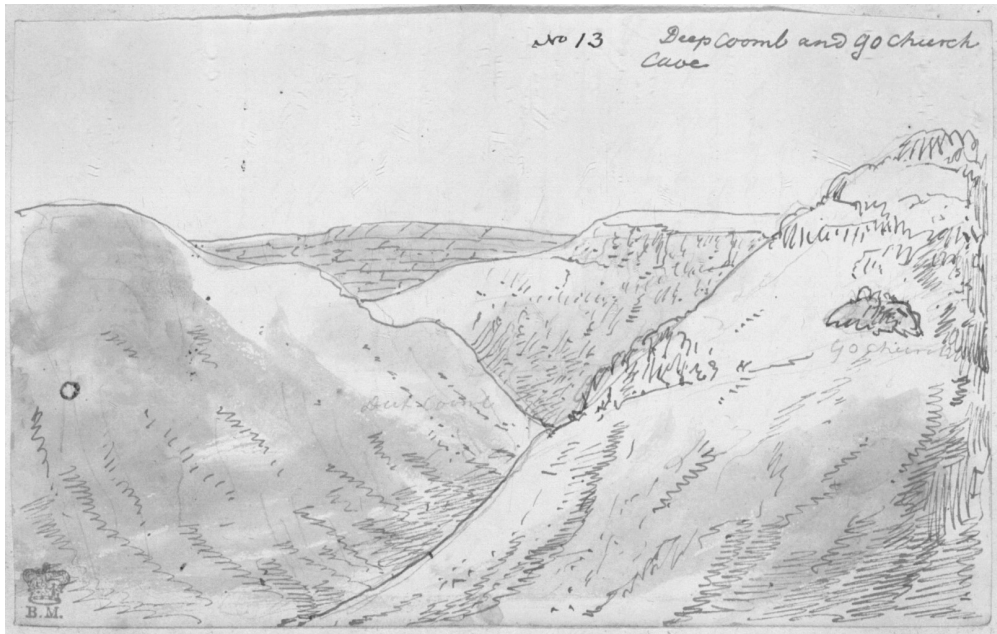


Figure 1. *Drawing of the entrance to 'Go Church Cave'*
 3rd August 1820 by Rev. John Skinner.
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After dinner we were induced by the representations of one of the labourers to visit a Cavern called Go Church Cave, which he described as being only a mile from Black Down Beacon; but we found by hard earned experience, it could not have been less than three over the heath, indeed, I was so completely tired when come to the spot, that I had not the heart to stoop down to enter the Cave's mouth, which opened on the side of a very steep declivity, descending into Deep Coombe, a narrow pass leading to Burrington. Two men employed in boring for Coal close at hand, accompanied our guide and the party; from the account they gave on their return, the Cave is not of large dimensions; but rendered interesting on account of the large stalactites hanging from the roof, which assume different forms, and acquire different denominations according to the fancy of the beholders. Why it derived its present appellation of Go Church, we could not ascertain: our guide informed us it had been used as a hiding place in former times, and perhaps in modern, by the smugglers, to which craft our informant might have probably himself belonged, as he seemed a very knowing fellow with a shrewd manner of asking questions and giving replies.

Skinner's reference to two men employed in "boring for Coal" is interesting as there is certainly no coal "close at hand" to the Burrington area. It is likely, therefore, that they were prospecting for coal rather than actually mining it nearby.

A second, undated, note in Skinner's own handwriting (Appendix 1, below) reads:

Go Church

I cannot well ascertain the meaning of the term Go Church, bestowed on the Cavern. Caer Life or Kirk in its primitive sense signified the strong hold ~~among~~ of the stones sometimes Careg implied itself a stone or rock vide Castle Careg in Wales and Castle Carreg in Somerset but what Go indicated I know not. Gob or Goblin was a Spirit might this not have been denominated the residence or the rocky fortress of the spirits.

c) Unpublished notebooks of William Beard, 18th April 1829 (Beard, 1829)².

10th March 1829	£	s	d
2 lbs of Candles 1 For Gotechurch	-	1	1

4th Burrington. 18th April 1829. Called Gochurch. Mr Williams with me.

William Beard, the son of a farmer at Banwell, was born on 24 April 1772 and died on 9th January 1868. He developed and curated the Bone and Stalactite Caves at Banwell. This entry provides a date for one of Williams' visits to the cave, and also shows that Beard probably visited more than once.

d) Delineations of North West Somerset by John Rutter (1829).

About half a mile distant, another of these curious places of sepulture was discovered, which was calculated to contain not less than one hundred skeletons; and higher up the combe, not far from Goatchurch, is

AN EXTENSIVE AND INTRICATE CAVERN,

but little known. Its entrance on the side of the hill is small, but on advancing, it is found more spacious, and presents magnificent masses of stalactite and of stalagmite. One of these is shaped like a throne, surmounted by a curiously formed canopy of fret work. A second descent of about twenty feet leads to another portion of the cavern, which opens into numerous ramifications, so intricate that even the miners, who reside in the vicinity, find it requisite to use twine as a guide for their return; the terminations of these passages have never yet been thoroughly explored. A stream of water runs across the floor of one part of the cavern, forming a waterfall at a great distance from the entrance. *

* Since the slight sketch of this cavern was written, Mr Williams has explored it, and discovered several fine specimens of bones of the bear, deer, &c. On and beneath the coatings of stalagmite, and intermingled with immense quantities of pebbles, diluvium, &c. Several later fissures branch off

² The authors have not seen the original notebooks and are here relying on unpublished notes made by the late Dave Irwin (c1996).

from the main one, and again expand into a labyrinth of collateral cracks and chambers; many of the latter being of great height, and hung with fine stalactites, which in some instances, are united into pillars reaching from the floor to the roof. The researches are continuing, and the result, will, at some future day, be made public.

The first cave mentioned here, referred to as containing the skeletons, is Aveline's Hole. From this account, it is unclear whether Rutter is writing about Goatchurch from his own knowledge of the cave or whether he is relying on the accounts of others. The reference to the stalagmite feature shaped like a throne suggests direct observation, but it seems unlikely that Rutter descended what is now known as the Giant's Steps, as from that point onwards the description reads more like a tale told to him by others. There is, however, no reason to suppose that Rutter was unable to visit the remainder of the cave as, at the time his book was published, he was no older than 35 and is not known to have suffered from any particular infirmity.

e) On the Caves and Fissures, in the Western District of the Mendip Hills by Reverend David Williams contained in the Proceedings of the Royal Society (Williams, 1831a).

In 1831, Williams wrote a paper for the Royal Society. This was read on his behalf on 2nd June, with Williams in the audience as evidenced by the handwritten journal of the meeting of the Royal Society (Journal Book of the Royal Society Volume XLVI for 1830 - 1833, p 301). A summary of this was published in the Royal Society Proceedings (Williams, 1831a) and was also printed in the Philosophical Magazine (Williams, 1831b). The summary contains only eight lines on the Burrington caves, of which two appear to relate to Goatchurch³:

In the upper caverns, remains of the bear, elk and polecat, were discovered; the two former evidently of the extinct species.

From the full manuscript of the paper, at (f) below, it is clear that these lines do refer to Goatchurch as there Williams gives more detail of the finding of "the jaw and bones of two bears, the jaw and the core of a horn of a young Elk, or large species of stag, and a head, jaws, part of the remains of a polecat."

f) On the Caves and Fissures, in the Western District of the Mendip Hills (Williams, 1831c).

Williams' unpublished manuscript of his paper was lodged with the Royal Society. The following extract relating to Goatchurch has been transcribed. This includes deletions, where legible, as strikethroughs. Insertions written on the reverse of the previous page have been placed as intended. Insertions written above the line with a caret have been inserted in square brackets [] for clarity. Plans were mentioned at various places in the manuscript, but have not been traced, if indeed they still exist in the Royal Society Archives.

The upper cave in this comb, called "Go Church" * is the most extensive, varied and

³ Professor Buckland (1832) wrote a letter to Roderick Murchison commenting on this paper which is on microfiche at the Devon Record Office. It contains no specific reference to Goatchurch.

* So called from a tradition that the caverns run beneath Burrington Church, as Kents Hole received its name from a still more absurd story, that a dog went in there, and came out in Kent—
 beautiful, in this District, or in any part of Mendip that I have ever seen. Wookey Hole and Banwell, much suffer materially in comparison with these interesting and splendid series of fissures. After entering by a low and inconvenient aperture, which is scarcely observable in the flank of the Hill, you find yourself at once in a long, wide and lofty gallery forming a kind of ante chamber from which by a vertical descent [of about 30ft] we approach the range of fissures below. But this anteroom nature has adorned with a profuse and lavish hand – B fan-tastic [ciful] and [apparently]

(Insert this at B)

B Its huge blocks and masses of stalagmite breasting out from the sides of the fissure, are connected with each other by curtain work of the most fantastic drapery;-

highly sculptured, masses of ~~stalagmite~~ this deposit of many tons weight project from the walls, from their vastness defying the battery of sledges ~~that~~ which in other places have perpetuated such havoc- over their bold abutments, is a fanciful and curiously wrought drapery, like the neatly plaited folds of a curtain. This beautifully ~~and brilliant~~ translucent garniture, which nature has been elaborating in her subterranean recesses from the epoch of the Hills elevation to the present period, has been cruelly despoiled since my first visit to this place, by the neighbouring miners, who finding their sledges of no avail against the huge masses, have blasted them with gunpowder – much of the lighter fret-work, appears to have been removed long since. In some places the stalactite from above has united with its stalagmite beneath and formed a solid and beautiful pillar; in others a perfect union has not been effected, owing to the unevenness and declivity of the pavement beneath, which has caused the carbonaceous {sic calcareous?} (written above in another hand) matter to slope and sink away, or to form a broad based mammillary hillock. The greater part of the floor consists of a thick crust of the same stalagmitic infiltration ~~matter~~ Leaving this upper chamber, we descend vertically about 30 ft and attain a lofty, winding avenue, which conducts us at its termination to a perfect labyrinth of wide and lofty fissures, so ramifying and extensive, ~~yet~~ [and] inculcating [with] each other at various intersections ~~distances~~ that without a clue or a compass, a stranger would inevitably lose himself. As I passed along the above mentioned avenue ~~and at the bottom of the main fissure,~~ my attention was arrested by a considerable accumulation of rhomboidal fragments of old red sandstone:-immediately ~~below~~ (before) me, was a barrier of stalagmite almost blocking up the passage and reaching so near the roof, that I could scarcely drag myself through. On breaking thro' the crust [which was at least a foot in thickness,] I found it concealed a large heap of coarse sandy loam, thickly interspersed with pebbles, and rounded stones. On further examination, I discovered the jaw, and bones of two bears, the jaw and the core of a horn of a young Elk, or

large species of Stag, and a head, jaws, part of the remains of a polecat. They are all remarkably well preserved, & exhibit no appearance of having been rolled or gnawed. These with the immense quantity of diluvium in which they were imbedded, were doubtless introduced at the point marked [blank] on the plan, as the detritus ran so far up to land [in this direction] that I could perceive the roots of the furs and other plants coming thro' it- The remains found here hitherto bear but a small proportion to those which properly belong to the respective animals they refer to; tho' I have searched since with two or three men for several days, carefully and laboriously, I have not been able to discover more. Yet when I see the immense quantity of pebbles and diluvium around me, ~~I feel I have more re~~ and the extensive and precipitous fissures & chasms on every side, I feel I have more reason to congratulate myself on those I possess, than to lament the absence of others I cannot find. The remainder were probably dispersed & reduced to atoms in the deeper vaults of these Caverns, by the first influx of the impetuous elements. It is possible also that the few Bears or other carnivora who used this place as a Den, kept near the entrance, for they would infallibly have broken their necks * had they attempted to traverse the dark and precipitous fissures below. The rhomboidal + fragments and pebbles of the old sand stone, were evidently washed in by the diluvial influx from the adjacent [?????] H#H, the intermediate space, called Black Down, (between the Northern and Southern flank of the limestone chain.) being occupied by a highly elevated ridge of this formation, and consisting as it were the Hills axis.

* And this may have been the case [here] as Professor Buckland suggests to have happened to the animals whose remains were discovered at (Place name illegible) for this must once have been a perilous region

+ The angular points of all the rhomboidal fragments were rounded, many of them were perfect pebbles, and were very abundantly distributed throughout the diluvium

The origin of these Caves, appears to me to be attributable to the agency of these disturbing forces, which at some period, had broken up the crust of the Globe elevating some regions into hills and mountains, & creating rifts and fissures throughout the solid strata, by which their imprisoned gasses, escaped – These chasms or vents would thus exist in a greater or less degree, in the ratio to the forces employed. The interior of all the Caves & fissures I have witnessed bears witness evidence also to both a violent, and a slow and imperceptible agency [/ action] of water; subsequently] for no fresh rent could present the appearance of basins hollowed out by attrition, acute angles rounded, (and raw) and rough surfaces [/ and truncated edges] smoothed and abraded- [/Illegible of] illegible these agencies, I think are illustrated strongly at this latter place. The immense accumulation of Diluvium, and the absence and dispersion of the greater portion of the animal remains, would alone confirm the former; while the millions of the illegible and portions of the vertebral column of the illegible (so perfectly in relief on their rocky bed, that you are perpetually tempted to detach them with the finger) testify to the latter –Thus while [/ atmospheric agency and] the water, charged with

carbonic acid [/ the latter percolating the strata] has eroded the lime & softer materials of the stone, it has not acted on any of these mineralised organic remains, nor does it appear to have reduced the surface or substance of the rock, but to a very inconsiderable extent, considering the immense lapse of time, during which it has been acting on it.

Williams' manuscript provides evidence that the earlier mention of an unnamed cave in the paper read to the Royal Society does relate to Goatchurch. As well as his detailed account of what he saw in the cave and his thoughts on the means by which the cave was formed, this account is also interesting for the reference to the ubiquitous folklore theme of secret passages connecting two distant points which have been traversed by an animal or, in some cases, a piper.

The description of the parts of the cave that Williams visited can be compared with a reasonable degree of accuracy to its present condition. The rhomboidal fragments and the sandstone pebbles he mentions can still be seen at a number of points.

g) *The History and Antiquities of Somersetshire* by Reverend William Phelps (1836).

Higher up the comb is situated another cavern. Its entrance is on the declivity of the hill, by a small opening, which becomes larger as you advance into it. The interior presents an extensive mass of stalagmite covering the floor, and stalactites of the most varied forms are pendent from the roof. A portion of the rock represents a throne, the fretwork of stalactite forming its decorations. A second descent of about twenty feet leads to another portion of the cavern, which opens into numerous ramifications, so intricate, that the miners themselves find it necessary to have a piece of cord as a clue, lest they miss their way back from its inmost recesses. A stream of water runs across the floor. In this cavern bones of the bear, deer and other animals were found, covered with a coating of stalagmite, immense quantities of pebbles, and gravel. Several lateral fissures lead off in different directions.

Phelps has clearly drawn his description of the cave from Rutter, although he has somewhat simplified the language.

h) *Camden's Britannica and the Family Topographer* by Samuel Tymms (Tymms, 1832 and 1842).

Goathurst, near the church, a very intricate cavern;

Goathurst is actually a small village in the Quantock Hills, about three miles from Bridgwater at NGR ST 255 345. The name appears to be a typesetting or transcription error of some kind. The use of the words 'intricate cavern' indicates Rutter as the likely source of this information.

i) *A Topographical Dictionary of England* by Samuel Lewis (1840).

There is also another capacious cavern in the parish, which owing to its intricacy, has been but little explored.

Again, Rutter is the likely source for this entry.

j) Wells Journal, Saturday 12th September 1863.

At Goatchurch, in the same Combe they also found, 56 feet underground, and beneath about six feet of earth and stalagmite, a flint flake, close to the molar, of an extinct species of bear.

William Boyd Dawkins, Ayshford Sandford and James Parker began exploring the Caves of Burrington Combe in 1863 following completion of their work at the Hyæna Den at Wookey Hole. The full report of their activities was not published until 1865 but a report of the 15th Annual Meeting of the Somersetshire Archæological and Natural History Society appeared in the *Wells Journal* and is the first report of their finds in Goatchurch.

k) An extract from the unpublished notebooks of James Parker entitled “On the Structure of Bonecaves”. (*Oxford University Museum of Natural History. Parker Archive, Mss 9.a.*)

This is the text of part of a lecture read on 5th June 1865, possibly to the Ashmolean Society (Parker 1865a and Shaw 1972, item 601). The last five pages describe Goatchurch from the entrance, down Giant’s Stairs and along The Traverse to the Dining Chamber. This area of the cave is also represented in an accompanying sketch plan (1865b) (Figure 2), although the plan appears to go a little further into the cave than the description or measurements, possibly reaching as far as the Terrace.

The pages referring to Goatchurch have been severely trimmed, but some of the missing words have been entered in pencil in Parker’s own hand, and most of the text has been transcribed below. An indication has been given in brackets when a word has proved impossible to decipher.

The plan includes four cross sections of the Entrance Passage at points A, B, C and D. The passage from the Giant’s Stairs has been drawn over the section at C, and a fifth section is either unlabelled or too faint to read.

Parker MSS 9 a, f 25 – 29 (Shaw item no 601) refers to the plan and measurements in Parker MSS 7c1 and 7d1 (Shaw item nos 606 and 607).

The italicised sections of the first two words are hidden by a clip holding the pages together on the scan of the document. Marginal notes are shown on the facsimile in the appendix but have been omitted here for the sake of clarity as they do not add any new information to the text. They can, however, be seen on the facsimile reproduced in the appendix to this paper.

Goatchurch

Burrington

From the entrance which is very low leaving only space to crawl, and which is usually from the influx of rain illegible several inches depth in mud. The line of passage is in a direction 20° S. of E. for about 36 feet horizontal - falling about 5 feet – Here the mud gradually ceases, and the sheep which take refuge here, seem with cunning to penetrate no further, so that the work [crossed out word illegible] of moving along on hands & knees is less

disagreeable. Here too the roof is higher, caused by the fissure not being so filled up as it is when nearer to the surface. From this point (A) the descent is somewhat more rapid, ~~but and and~~ for about 45 feet in distance the passage leads 25° S. of E. and falls about 12 feet. Then there is a little change from point B to point C – a distance of 65 feet. The direction is 10° S. of E, and in the whole distance the fall is less than 15 feet. At this point it is necessary to halt. – The fissure is visibly extended further but it is so covered with stalagmite and becomes so narrow [Page 26] after some 10 or 12 feet that further progress in this direction is not practicable. The probability is that the fissure ceases near to this spot. On the left hand past the point B. a hole may be observed. The stones falling from the rock have probably filled it up and without removing them passage is impossible. It is probably a cross fissure into ~~one of~~ the main fissure below which we shall have to traverse. At the point C. however the means of communication are still ~~accessible~~ open. A rope attached to the remnant of a stalagmite stool facilitates ~~materially~~ somewhat the descent. But more so the ascent - the former can be managed if there is light beneath to point out the place for the feet - indeed *facilis descensus - sed revocam gradum*⁴ - here the rope is of great service. The first step involves sliding over a rock covered with stalagmite and alighting on one or two? portions of a fallen rock lying below; the angle is rather more [Page 27] rapid than 45°. ~~Heigible~~ from the first landing stage (D) to the bottom of all. Several rocks which have fallen in the fissure ~~and have formed steps which~~ render, the descent comparatively easy - Across the angle which is about 35°. the distance is 27 feet giving a horizontal distance of about 22 feet and a fall of about 15 feet. The direction ~~passage winds somewhat~~ ~~its upper~~ of this cross fissure changes from 60° E of North at the upper part to 30° E of North at the lower - -

From this point we gain a parallel fissure with the one above. ~~In the same series of fissures without doubt but~~ Whether a lower part of the same are fissures or not is not proved. By the remains of cross fissures here and there it is probably another fissure but one in the same series. For about 50 feet it runs nearly level ~~Heigible~~ but from that point it begins to rise at an angle of 10°.

In this fissure ~~during the~~ is an accumulation [Page 28] of loamy soil introduced perhaps by water but ~~Heigible~~ rather by percolation from the surface. ~~By per~~ ~~?????~~ by the running stream differing much from that found in the larger Wookey Hole in ~~Heigible~~ character

During ~~Heigible~~ an examination which was made of this material in Aug 1863 when a couple men were employed to dig over this soil the only remains brought to light were a flint implement, and a bears tooth. ~~The contemporaneity of these~~ is No argument however can be built upon this fact. Doubt has been thrown upon the actual finding of the flint and the tooth may well have dropped from the jaw of the bear which Mr Beard had in his museum and

⁴ This closely resembles a quotation from Virgil's *Aeneid*: *Facilis descensus Averni; sed revocare gradum, superasque evadere ad auras. Hoc opus, hic labor est.* Tr; The descent into Hell is easy, but to recall your steps, and re-ascend to the upper skies, forms the difficulty and the labour. Book VI lines 126-129. This book appropriately deals with *Aeneas* consulting the Cumæan Sybil and journeying into the underworld.

which with other remains of bear were found at a lower level - (so far as can be gathered) in this same cavern.

It is remarkable however to observe here the nature of the fissure - the walls are perfect as either side - being almost parallel and as an average 2 to 3 feet apart. Throughout the fissure inclines [Page 29] at the same rapid angle [blank] °. To the NE.

At the point F although the passage is in many respects similar it is enlarged somewhat and the sides are more uneven, and ~~there is a presence of~~ more stalagmite has formed on the rock. Moreover the direction is now due West.

From the sketch plan and the above description it is clear that Parker descended the Giant's Steps and reached the area of the cave now known as the Traverse. The description corresponds closely with that part of the cave as it is known today and indeed the "remains of the stalagmite stool" around which Parker belayed his rope to facilitate the descent and ascent of the Giant's Steps has almost certainly been identified. This particular formation is possibly one of those damaged by miners (Williams, 1831). In his account, Parker references the work carried out in the cave in 1863 by Boyd Dawkins, although the latter is not mentioned by name, but the date on which the works took place and the reference to the finding of the flint seem to conclusively tie that reference back to Boyd Dawkins.

1) On the Caverns of Burrington Combe by William Boyd Dawkins (1865).

The Goatchurch Cavern. On passing down the combe, and ascending the lower of the two Twin-brook Ravines, we come to by far the largest cavern with which I am acquainted in the Mendips - that locally known by the name of the Goatchurch. Like all the other large caverns in the district it has its legends. The dwellers in the neighbourhood, who have never cared to explore its recesses, will tell you that a certain dog put in here found its way out after many days at Wookey Hole, having lost all its hair in scrambling through the narrow passages. At Cheddar the same legend is appropriated to the Cheddar Cave. At Wookey, the dog is said to have travelled back to Cheddar. Some eighteen years ago, while exploring some limestone caverns at Llanamynech, on the English border of Montgomeryshire, I met with a similar legend. A man playing bag-pipes is said to have entered one of the caves well provisioned with Welsh mutton. And after he had been in some time his bag-pipes were heard* two miles from the entrance, underneath the small town of Llanamynech. He never returned to tell his story. The few bones that are found in the cave, are supposed to be those which he had picked on the way. This is doubtless another form of the dog story; both owe their origin to the vague impression which most people have of the great extent of caverns. - an impression more creditable to their common sense, than the deliberate theory advanced by several savants in a recent lawsuit, that Wookey Hole Cavern had no possible connection with the swallow holes at Priddy.

The Goatchurch Cave opens upon the east side of the ravine, and about 120 feet above the bottom of it. After creeping on all fours through a narrow passage with a rather steep descent westward, you suddenly find yourself in a stalactitic chamber of considerable height and size, with a floor

inclined at about 30°. Two vertical holes lead from this chamber; the first to the left hand about thirty feet from the bottom, leads into a passage of some length, which formerly opened into the passage next described; the second, also on the left side, and close to a huge barrel-shaped stalagmite, is a small, vertical hole, which leads into a horizontal passage, nearly at right angles to the first chamber, and due east and west, just large enough to admit of a person walking with ease. At certain places there are vertical fissures running at right angles to it, and formed by the decomposition of the limestone in the lines of the joints. At its further end are five branches, leading into some ill-defined chambers partially stalactitic, but in the main filled with loose bare cubical masses of limestone. Two of these lead into a chamber, at a much lower level than the horizontal passage, and into which we obtained access chimney sweep fashion, by letting ourselves down a steep fissure of considerable depth, which crossed the passage at a short distance from the five branches. This chamber was large with a sloping floor. At its lower end on passing through a narrow passage, we came into a second, also of very considerable height and length, and with its floor covered with masses of limestone. Leading out of this to the right was a most beautiful stalactitic chamber, a rival on a small scale to that at Cheddar. At its further end were two small holes, just large enough to admit a person's body, into which we were tempted by the sound of water. Down one of these we slid into a third very large chamber, which must be of very considerable height, though the loose cubical masses of limestone, some of enormous size, with which it is filled, diminish the effects considerably. The fissure through which we passed was very nearly vertical, being at an angle of 83°. At the bottom of the chamber we found a small stream of water flowing parallel to the dip of the limestone, 58° N.E. It is doubtless the same stream which disappears in the ravine a little above. By aneroid measurement, the stream in the cavern is eighty feet below the place where it disappears in the ravine. The water also had lost ten degrees of heat in its passage, being 49° in the cave and 59° out of it. The great coolness indeed of the water, makes me think that a streamlet of considerable subterranean length must join the Lower Twin-brooks, between the points of disappearance in the combe and re-appearance in the cavern. In all probability the water flowing underneath Burrington Combe, joining with these, forms the stream which gushes forth in great volume at Rickford. The air in the cave, which passed in a current downwards, was 59°, or 5° cooler than that outside. Some eighteen feet below the stream there are two or three small passages intersecting one another as usual. At right angles, but difficult of access on account of the unstable dangerous position of the large blocks of limestone. One of these which we freed from the stalactites that barred our progress, led into a small chamber. The lowest portion of the cave was eighteen to twenty feet below the stream, and two hundred and twenty feet below the entrance of the cavern.

On returning we discovered a second entrance to the lower chamber, much more accessible than the first. By the former indeed it is almost impossible to ascend. We found on accidentally mistaking the passage and attempting this ascent, that it is far too narrow for the use of hands or feet. And alternate elongation and contraction of the body, while clinging to the little

sharp fossils standing out from the surface, is the only method of accomplishing it.

In the horizontal passage, immediately below the first vertical descent, we found that the stalagmite had been broken, and the earth disturbed, except in one spot, a few feet only in area. Mr. Beard, here, as at Aveline's Hole, had forestalled us. Among other remains, he obtained a fine tusk of *Elphas primigenius*, out of this place. On setting men to work at the undisturbed portion, we obtained only a molar of *Ursus*, and a piece of flint of precisely similar form, though rather larger than those used by the Australians to barb their spears, and like them when used, it has the sharp cutting edge splintered and worn. They were embedded in the usual red earth which contained stones, and underlayed a stalagmitic crust of from one and a half to two inches in thickness.

There can be but little doubt in my opinion, but that the organic remains in the cave have been like those of Liege, described by Dr. Buckland's great antagonist, Dr. Schmerling, introduced by water from some higher level; and the date of the introduction must have been during the period of the spelean bear and the mammoth. As such therefore, the ossiferous deposit is of greater age than those of the other caverns which we examined in this combe. This was the last cavern we explored.

* If Signor Pierotti, the author of a book lately published on Jerusalem, had ever heard of this legend, he turned it to profitable account by sending his bell-man and drum-man through an unknown passage under the plateau of the Temple, while he traced its course above by sound of bell and drum.

Boyd Dawkins' account is taken from his own observations and is the first long, detailed published description of the cave.

m) *Geological Magazine*. A report of an excursion in 1865. (Winwood, 1865).

A report from the newly formed Bath Natural History and Antiquarian Field-Club of their Geological Excursion on 11th August 1865, was published in the *Geological Magazine* although no report was published in their own Proceedings. They arranged several other excursions to Burrington (21st April 1874, 25th May 1875 and 17th June 1890) which mention the caves but this is the only record of a descent. On one of the excursions Goatchurch is referred to as Goathurst Cavern as in Tymms 1832 and 1842. The Mr Dawkins referred to here is William Boyd Dawkins.

In illustration of his theory of the action of water inside caverns, Mr Dawkins conducted the party, or some at least of those who were sufficiently bold to venture, into the intricate windings of the great Goat Church Cavern, and there pointed out the gradual process of wearing away which is now going on. In one of the many chambers lately excavated by Mr Dawkins, he showed the spot where he discovered a flint flake associated with the tooth of an extinct animal.

Although Parker casts some doubt on the matter of the flint said to have been found in the cave, this account in the *Geological Magazine* provides a record of Boyd Dawkins pointing out the spot where he states he found the flint, and as the reasons for Parker being dubious about the flint are not given, it is impossible to ascertain the truth behind the reference to this single man-made implement from the cave.

n) William Boyd Dawkins, *Macmillan's Magazine*, 1870.

This is an identical account to (l) above

o) William Boyd Dawkins, *Cave Hunting*, 1874.

A précis of the description at (l) above confirms that Boyd Dawkins explored the cave in the company of Mr Ayshford Sandford and James Parker, and includes the following new observation:

The cave is the resort of numerous badgers. On hiding ourselves in one of the transverse fissures, and throwing our light across the horizontal passage, these animals ran too and fro across the lighted field with extraordinary swiftness, and had it not been for the white streaks on the sides of their heads, which flashed back the light, they would not have been observed. Though they are rarely caught, they must be abundant in the neighbourhood.

DISCUSSION

What's in a name?

The first reference to the cave by Strachey (of unknown date but prior to 1736) gives the name as 'Goechurch', but no explanation the derivation of this name is given. Nearly a hundred years later, Skinner, writing in 1820, describes a visit to Deep Combe (now known as Burrington Combe), and refers to the cave he and his party were taken to as both 'Go Church' and 'Go Church Cave'. It is clear from Skinner's description of his visit that the name Go Church Cave was used by one of their guides, but Skinner's attempt to ascertain the origin of the name was unsuccessful, although he did speculate on this in a separate entry, comparing it, for no apparent reason, to the word 'careg' and then indulging in a flight of fantasy by adding a 'b' to the word 'go' and introducing goblins to the mix, to conclude, no doubt wholly erroneously, that the name 'might have denominated the residence or the rocky fortress of the spirits'. This note, bound into the same volume as the main account of his visit is in Skinner's own handwriting (Skinner, 1820).

In 1829, Rutter describes 'an extensive and intricate cavern' as being 'not far from Goatchurch'. This is clearly Goatchurch Cavern, but Rutter's account introduces the possibility of a separate place bearing that name; however no such name has been identified on any map, other than in conjunction with the cave. The first 1885 1:2500 Ordnance Survey map marks the entrance to 'Goatchurch Cavern' but there is no other entry of that name.

Beard's diary for 1829, gives 'Gochurch' as one word rather than two and also introduces the alternative spelling of 'Gotechurch', which does not appear anywhere else. William's paper, two years later in 1831, has 'Go Church' as two words. Williams is the only person other

than Skinner who advances an explanation for the name, saying in a footnote, that it was ‘so called from a tradition that the caverns run beneath Burrington Church’, although his scepticism about this origin is clear when he refers to ‘a still more absurd story’ whereby Kent’s Cavern receives its name because of a dog that ‘went in there, and came out in Kent’. As previously notes, such stories of subterranean passages followed by dogs, ducks, chickens and occasionally pipers, are ubiquitous in folklore, as alluded to by Boyd Dawkins in his description of the cave.

Phelps, writing in 1836, does not name the cave and simply refers to ‘another cavern’. The reference to ‘Goathurst’ by Timms in Camden’s *Britannia* is believed to be wholly erroneous, as stated above. By the time Boyd Dawkins is writing in 1865, the name seems to have become settled as either ‘the Goatchurch Cave’ or ‘the Goatchurch Cavern’, by which name it has been known as to the present day, but it is clear that it cannot be stated with any certainty from where this name derives. Equally without provenance is the note by D.J. Irwin (Irwin, 2005) that the cave is ‘known to the local villagers as the Goacher’.

Unless any new information is found, it is unlikely that the true source of the various names will be known.

What do these early accounts tell us of the cave?

The earliest evidence for the size of the main entrance at a particular point in time comes from Skinner in 1820. He states that it was necessary to stoop down to enter the cave

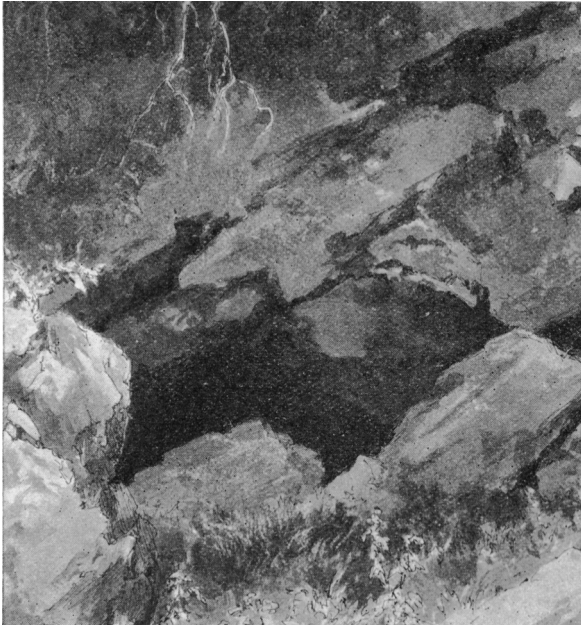


Figure 3. *Entrance to Goatchurch Cavern, from a sketch by E.T. Compton.. After Knight, 1915.*

and, as he was tired from a long walk over the hills, he stayed on the surface, leaving the exploration of the interior to his friend, Mr Cranch. Skinner made a sketch of the valley, including the entrance to the cave. This is captioned No 13 Deep Coomb and Go Church Cave and under his drawing of the entrance the words Go Church are very faint, but can still just be made out. Unlike some of Skinner’s other sketches, including those of the entrance to Aveline’s Hole (see Boycott and Wilson, 2011), there is no figure given for scale but instead he makes specific reference to the need to stoop. In common with his other artistic work, sketch no. 13 appears to be a reasonably accurate depiction of the West Twin Brook Valley, shown at a time before a considerable growth of trees altered the appearance of both this valley and Burrington Combe from being a largely bare limestone upland into the tree-covered valleys that are familiar to modern visitors.

The small circle that appears on Skinner's sketch on the opposite hillside to the entrance is believed to be a mark transferred by accident from a sketch on the previous page. The temptation to refer to this as a blot on the landscape has proved irresistible.

So far as the interior of the cave is concerned, it is necessary to rely on a second-hand account given to Skinner by Mr Cranch. The cave is described as "not of large dimensions; but rendered interesting on account of the large stalactites hanging from the roof". From this it seems likely that Cranch went no further than a short way inside the entrance passage.

Rutter, writing nine years later in 1829, describes the cave as "extensive and intricate" and although he refers to the entrance as being small, it then becomes "more spacious" and he says it contains "magnificent masses of stalactite and stalagmite". One of these formations is said to be shaped like a throne. A recent visit to the cave by the authors to check the accuracy of these early accounts has found a likely candidate for this particular formation close to the end of the entrance passage. He describes a second descent of "about twenty feet" (curiously his account makes no mention of any first descent, although other writers do refer to the entrance passages as sloping) that leads into the lower part of the cave. It is clear that the descent being referred to here is the part of the cave now known as the Giant's Steps, although later writers give the depths as 30 feet, which is more accurate. From this point, as noted above, Rutter's description takes on the aspect of a story told to him by others rather than the product of his own observations, however it does present a short picture of the extensive and intricate cavern he refers to in capital letters at the beginning of his account. His footnote brings in the first mention of animal bones being found in the cave by Williams.

So far as the entrance is concerned, Williams' paper of 1831 refers to "a low and inconvenient aperture, which is scarcely observable in the flank of the Hill", and Parker, writing just over 30 years later, states that it was "very low leaving only space to crawl". From these early accounts, an impression can be formed of the size of the entrance, and in addition, Parker states that the entrance was muddy after rain and refers to sheep taking refuge in the cave. His account does not relate whether he actually saw sheep or merely the evidence of their time spent in the cave. Boyd Dawkins (1865) refers to "creeping on all fours through a narrow passage", which is in keeping with the previous accounts.

Francis A. Knight visited the cave in 1867 and in his later book (Knight, 1915) says that the entrance was formerly very picturesque, "arched over with a low brow of rock, under which the explorer had to crawl on hand and knee". His book includes a sketch of the entrance by the noted Alpine artist Edward Theodore Compton, son of Theodore Compton, author of the book, *A Mendip Valley*, and a contemporary of Knight. Although the publication of this book is technically outside the time period covered by this paper, this is mentioned here as it records a visit made by Knight during the period with which we are concerned.

The entrance was later enlarged and gated in 1901 by the landowner, James T. Gibson, who opened the cave to the public for a brief period, but this venture did not last long. A postcard postmarked June 1903 shows the entrance to the cave and the gate (Irwin, 2005). Although the gate no longer exists, it is possible to identify what changes have taken place since this photograph was taken, and these differences, plus other man-made changes to the interior of the cave, will be examined in detail in a future paper.

CONCLUSIONS

It is not known when the entrance to the cave was opened. Strachey's mention of it in 1734 implies that the cave was accessible then. Skinner's sketch of the valley in 1820 shows the entrance as being open although no scale for the dimensions of the passages was given.

Consideration needs to be given to whether palaeontological and archaeological evidence can shed any light on the question of for how long the cave entrance has been open. Rutter (1829) refers to excavations in the cave by Williams and the discovery by him of "several fine specimens of bones of the bear, deer, &c." In Williams' published account (1831, a and b) he refers to remains of bear, elk and polecat being in the "upper caverns". The name of the cave was not mentioned in that account, but Williams' letter to the Royal Society in 1831 makes it clear that the cave concerned was Goatchurch Cavern. However, these remains are likely to have entered the cave through stream deposits at a lower level in the valley, so their existence cannot be used to further the question of whether the main entrance has always been accessible.



Figure 4. *Postcard showing the gated entrance to Goatchurch Cavern c.1901.*

From the collection of P. Rose.

In 1864, William Boyd Dawkins explored the cave and found remains of cave bear (Boyd Dawkins, 1865) and he states that a molar of bear and a fragment of flint were found embedded in the red earth under a thickness of about two inches of stalagmite. These discoveries are said to have taken place at the point where Beard "obtained a fine tusk of mammoth". It appears likely that these items were found in the area of the Traverse. This fragment of flint is the only humanly modified object believed to have been found in the cave. This flint is not believed to indicate any human occupation of the cave, and is more likely to have been washed

into the cave, and, for unspecified reasons, Parker did not believe that the flint was a true find, although the entry in the *Geological Magazine* does provide some secondary evidence for the finding of the flint in the cave. In addition, Parker thought that the bear molar could have fallen out of a bear jaw found lower in the cave by Beard and Williams.

As all the early accounts describe the entrance in broadly similar terms, a picture emerges of a low entrance through which it is necessary to stoop or enter on hands and knees and this is consistent with Skinner's sketch. On the basis of all the available information, it seems reasonable to conclude that the entrance to Goatchurch Cavern has always been passable by humans, but beyond that, it cannot be stated with any certainty how the animal bones or the flint entered the cave. There are at least four small passages leading towards the surface on the side of the valley so it appears a safe assumption that the material entered the cave through one of these rather than through the entrance passage.

Despite various flights of fantasy on the subject of the name, unless any new sources of information are found, it is unlikely that the true origin of the name will be known. The stories surrounding this do provide some further evidence for the almost ubiquitous belief in the existence of secret tunnels of unknown length, usually connected with well-known places.

Few surveys of Mendip caves are known from before 1900, although one of the earliest in the world is John Aubrey's sketch elevation of Long Hole (Boycott, 1992a and b). This was probably drawn around 1670, although not published until 1982 (Fowles and Legg 1982). Parker also mapped the Hyaena Den at Wookey Hole before 1863 (Boyd Dawkins, 1863) and drew a longitudinal section and some cross sections of the further reaches of Aveline's Hole (Parker, 1865c). Sketch elevations of the latter, drawn by Henry T. Aveline in 1843 (Boycott and Wilson, 2012) and Boyd Dawkins (1865) also exist.

The sketch plan of Goatchurch by Parker appears to be one of the earliest plans of a Mendip cave known to exist. The earliest published plans are probably those of Lamb's Lair and Wookey Hole made in 1904 by Troup and Balch and published in 1907 (Baker and Balch, 1907), and the UBSS surveyed Goatchurch in 1921 (Cooper, 1921). Parker's drawing of cross-sections is noteworthy, although he was by no means the first to do this as cross-sections were drawn of the Grotte de Rouffignac when this was mapped by the civil engineer Nicolas Brémontier in 1765 (Allou, 1822).

Boyd Dawkins, and presumably Parker, used a prismatic compass, steel measuring tape and an Abney level (Boyd Dawkins, 1874 p435,) although whether they used the Abney level underground is unknown. The Goatchurch survey has been checked on site. The drawing and lengths are accurate although it must be borne in mind that only one survey station can be identified (the stalagmite stump at the top of the Giant's Steps). The compass bearings are, however, not so accurate, especially on the steep sections of the cave, and are notoriously difficult to read with a prismatic compass and in proximity with a steel tape. It is noteworthy that the recording of the data is inconsistent, for example 70° W of N and 20° N of W are identical, and the plan deteriorates as they progress into the cave. The data has been transcribed in Appendix 4.

It is a widely-held belief that the all too evident damage to the cave, particularly in the upper series, can be laid at the door of cavers, both in terms of accidental and deliberate damage. However, whilst the polishing effect created by the passage of generations of cavers, particularly those receiving their introduction to the sport, is evident throughout the cave, it seems likely that much of the large-scale damage to formations, particularly in the entrance passage, is in fact the work of miners. That the existence of the cave was known to local miners is clear from Skinner's journal entry in 1820 as he states that "Two men employed in boring for

Coal close at hand, accompanied our guide and the party...”. No mention is made at this stage of the cave having been worked by miners and it is not known whether this was the first time the cave had come to their attention. Nine years later, their explorations of the cave, aided by the use of twine to guide their return, are mentioned by Rutter.

The activities of miners in the cave are evidenced by Rutter’s mention of their use of twine as a guide for their return during their explorations. In addition, the exploitation of the cave by miners is confirmed by Williams. When describing the entrance gallery, Williams refers to it as having defied “the battery of sledges which in other places have perpetuated such havoc” and he goes on to state that the cave formations have been “cruelly despoiled since my first visit to this place, by the neighbouring miners, who finding their sledges of no avail against the huge masses, have blasted them with gunpowder-” (Williams, 1831c). Unfortunately, we do not have a date for William’s first visit. Beard’s diary records a trip to the cave in Williams’ company on 18th April 1829, two years before the date of the 1831 letter and it is always possible that this was his first time in the cave. What is clear is that the damage started sometime before 1831. Although there are industrial uses for calcite we are unaware of any use at the time that limestone would not have fulfilled, and the amount available in Goatchurch makes it unlikely that it was being extracted for those purposes, but it is certainly possible that it was being taken for ornamental purposes. Skinner’s diaries for August 2nd 1820 record that calcite was being offered for sale at Cheddar:

This place [Cheddar Cliffs] of late has been so much visited, that strangers are every where annoyed by groups of women and children offering spars, or parcels of Cheddar Pinks for sale; some are very importunate, as they continue following their visiters in an unpleasant manner;

The entrance area of Goatchurch contains considerable evidence of large-scale removal of calcite in various places, and it seems reasonable to conclude that this is a result of the work by miners in the cave rather than the activities of cavers, and although cavers cannot be exonerated of all blame for the state of the cave it is likely that they are not quite as guilty as often charged. The authors intend, along with others, to conduct further work on the modifications made to the cave by man and it is hoped that this will shed some light on the areas in which Williams conducted his archaeological investigations and on later work in the cave by the Society that lies outside the scope of the current paper.

ACKNOWLEDGEMENTS

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APPENDIX 1.

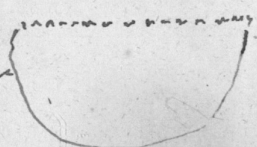

EXTRACT FROM THE JOURNAL OF THE REVEREND JOHN SKINNER

© British Library Board Add. Mss. 33656

Go Church

I cannot well ascertain the meaning of the term Go Church, bestowed on the Cavern. Caerlik or Kirk in its primitive sense signified the Strong hold ^{of} the Stones sometimes Careg implied itself a stone or rock vide Castle Careg in Wales and Castle Careg in Somerset but what Go indicates I know not gob or goblin was a Spirit might this not have been denominated the residence or the rocky footstep of the Spirits a little way from hence at the entrance of Burrington Combe is the remarkable Cavern in which so many skeletons were found not many years ago. and since that period Mr Williams of Bleadon on examining the place more minutely discovered a flint Hatchet apparently used in Sacrificing and a small Saw made of a thin flint knotted thus I have described this as well as the Stone Hatchet at Careg

Elsewhere

APPENDIX 2.

EXTRACT FROM WILLIAMS' UNPUBLISHED 1831 MANUSCRIPT

Royal Society Centre for History of Science Reference number AP/15/13.

28

The upper Cave in this Cavern, called "Go. Church,"* is the most extensive, varied and beautiful, in this District, or in ^{any} part of Spanish that I have ever seen. Grotto Hole and Banwell, much suffer materially in comparison with these interesting and splendid series of figures. After entering by a low and inconvenient aperture, which is scarcely ^{obscure} observable in the flank of the Hill, you find yourself at once in a long, wide and lofty gallery, forming a kind of antechamber, from which by a vertical descent ^{of about 30 ft.} we approach the range of figures below. But this antechamber Nature has adorned with a profuse and lavish load ^{B.} of fanciful ~~and~~ ^{abundantly} highly sculptured, masses of this deposit, ~~of many tons weight, project~~ from the walls, from their vastness defying the battery of sledges ~~that~~ which in other places have perpetuated such havoc - over their bold abutments, is a fanciful and curious by wrought drapery, like the neatly

* So called from a tradition that the cavern
 was below Bursington Church, as Beato
 Hole received its name from a still more
 absurd story, that a boy went in there, and
 came out in Beato —

(Insert this, at B)

B. Its huge blocks and masses of Galazomite
 breasting out from the sides of the fissure,
 are connected with each other by curlicue
 work of the most fantastic drapery.

striped folds of a curtain. This beautiful ²⁹
~~and translucent~~ translucent garniture, which
 nature has been elaborating in her stubborn
 manner deeper from the epoch of the hills' ³³
 elevation to the present period, has been
 cruelly despoiled since my first visit to
 this place, by the grumbling miners,
 who finding their sledges of no avail against
 the huge snags, have blasted them
 with gun powder - much of the lighter part
 work, appears to have been removed long
 since. In some places the strata from
 above has united with its stalactite
 beneath, and formed a solid & beautiful
 pillar; in others a perfect union has not
 been effected, owing to the unevenness and
 declivity of the ~~base~~ ^{calcarenous} beneath, which
 has caused the carbonaceous matter to
 slope and sink away, or to form a broad
 based mammoth ^{hillock} hillock. The greater
 part of the floor consists of a thick crust
 of the same ^{stalactite infiltration} ~~matter~~. Leaving this upper
 chamber, we descend vertically about 30 ft.

no appearance of having been rolled or gnawed.³¹
 These with the immense quantity of detritum
 in which they were imbedded, were doubtless
 introduced at the point marked on
 the plan, as the detritus ran so far up to
 land, ^{in this direction,} that I could perceive the roots of the
 ferns and other plants coming thro' it —
 The remains found here hitherto, bear but a
 small proportion to those which I hope by
 belong to the respective animals they refer
 to; tho' I have searched since with two or
 three men for several days, carefully and
 laboriously, I have not been able to dis-
 cover more. Yet when I see the immense
 quantity of pebbles and detritum around
 me, ~~I feel I have more~~ and the extensive
 and incipient fissures & chasms on every
 side, I feel I have more reason to congratu-
 late myself on those I possess, than to be-
 moan the absence of others I cannot find.
 The remainder were probably dispersed & reduced
 to atoms in the deeper vaults of these
 caverns, by the first influx of the impenetr-
 -ous element. It is probable also that the

* And this may have been the case ^{here}, as Professor
 Buckland suggests to have happened to the
 animals whose remains were discovered at
 Ouse hole, ^{for} this must once have been a most
 perilous region.

+ The angular point of all the rhomboidal fragments were
 rounded; many of them were perfect pebbles, and
 were very abundantly distributed throughout the distribution

9.27

22 feet } $\begin{cases} 60^\circ \text{ E of } N \\ \text{then rapid down } 45^\circ \\ 30^\circ \text{ E of } N \end{cases}$ ~~down~~ - from the first landing
 to E stage (D) to the bottom of all several rocks
 fall = 15 feet which have fallen in the fissure and have fallen
~~down~~ which reads, the descent comparatively easy -
 across the angle which is about 35° . The distance
 is 27 feet giving a horizontal distance of about
 22 feet - and a fall of about 15 feet - The ^{direction} ~~direction~~
 of this cross fissure changes 60° E of
 passage ~~reads~~ ~~correctly~~ the upper part from 60° E of

~~to E~~ ~~to F~~ 113 feet 70° N of N
 to F north at the upper part to 30° E of North at the
 lower - -

run = 10 feet From this point we gain a parallel
 fissure with the one above. ~~In the same~~
~~series of fissures without doubt~~ ~~but~~ Whether a
 lower part of the same or fissure or not is
 not proved. - By the remains of cross fissures
 seen and then it is probably - another fissure
 but in the same series - For about 50 feet -
 it runs nearly level - ~~with the~~ but from that
 point it begins to run at an angle of 10° .
 - In this fissure ~~there~~ is an accumulation

9. a. 28

of loamy soil introduced perhaps by water but
^{by percolation}
~~or~~ rather ^{up} from the surface. ~~by per~~ ^{found} than by
 the running stream differing much from that ^{found}
 in ^{the larger} Wootton Hole in ~~the same~~ character -

During ~~some~~ ^{an} examination which
 was made of this material in Aug. 1865 when
 a couple men were employed to dig out this
 soil the only remains brought to light were
 a flint implement, and a bears tooth. ~~The~~
~~contemporaneity of these is on no argument however~~
 can be built upon this fact - (Dauell has been
 known upon the actual finding of the flint and
 the tooth may well have dropped from the jaw of
 the bear which Mr Beard had in his Museum
 and which with other remains of bear ^{found} were ^{found}
 at a lower level - (so far as can be ascertained)
 in this same cavern -

It is remarkable however to observe the
 nature of the fissure - the walls are perfect ^{as well} as
 side - being almost parallel and at an average
 2 to 3 feet apart. - Throughout the fissure inlets

9.a.29

at the same rapid angle $^{\circ}$ to the NE -

At the point F. although the passage is
 in many respects similar it is ^{is} enlarged somewhat
 and the sides are ^{are} uneven, and there is ^{is} ~~is~~
 34 feet ^{due West} ~~due West~~ ^{to G} presence of many stalagmites has formed in the
 run = 10 feet ^{over} - Nowhere the direction is now due West.

APPENDIX 4.

JAMES PARKER'S SURVEY DATA
FROM GOATCHURCH, 1865

7d1	distance	direction	fall or rise	
Entrance to A	33 36 feet	20° S of E	Falling 5 feet	NB
A to B	41 44 feet	25° S of E	" 12 feet	
B to C (Stalag stump)	63 65 feet	10° S of E	" 15 feet	
From Stump to D	21 14 feet	10° N of E	falling at angle of 47°	
From D to E	27 22 feet	60° E of N	falling at angle of 35°	
	very narrow then	30° E of N		
E to E*	47 feet	70° W of N	about level	
	The cave now runs along line of dip			
E* to F	66 feet	20° N of W	rising 10 feet	
to G	34 feet	due W	rising 10 feet again	
Descend	18 feet	NE	angle of 45°	
"	18 feet	15° S of E	angle of 45°	
"	4 feet	40° W of North	with a fall of 10 feet	
Then NW to SE				
		NW to SE		

NB: reducing angles not sufficiently allowed for in long distances
Goatch: Burrgrt.

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