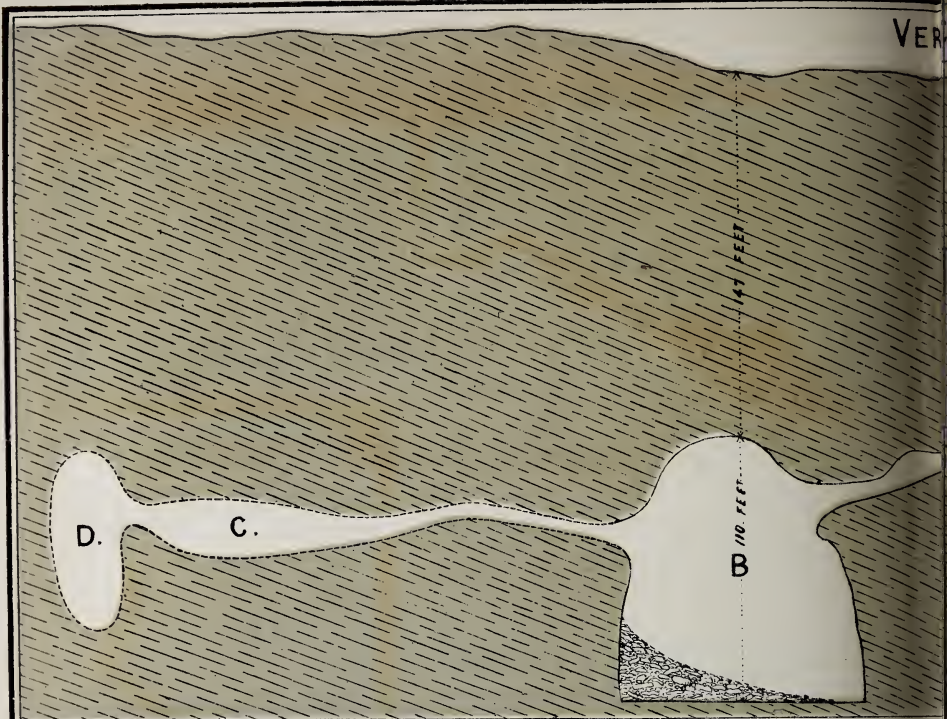


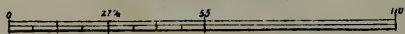
# THE LAMB BOTTOM CAVERN



## GROUND PLAN.

Scale.

55 FEET TO 1 INCH.



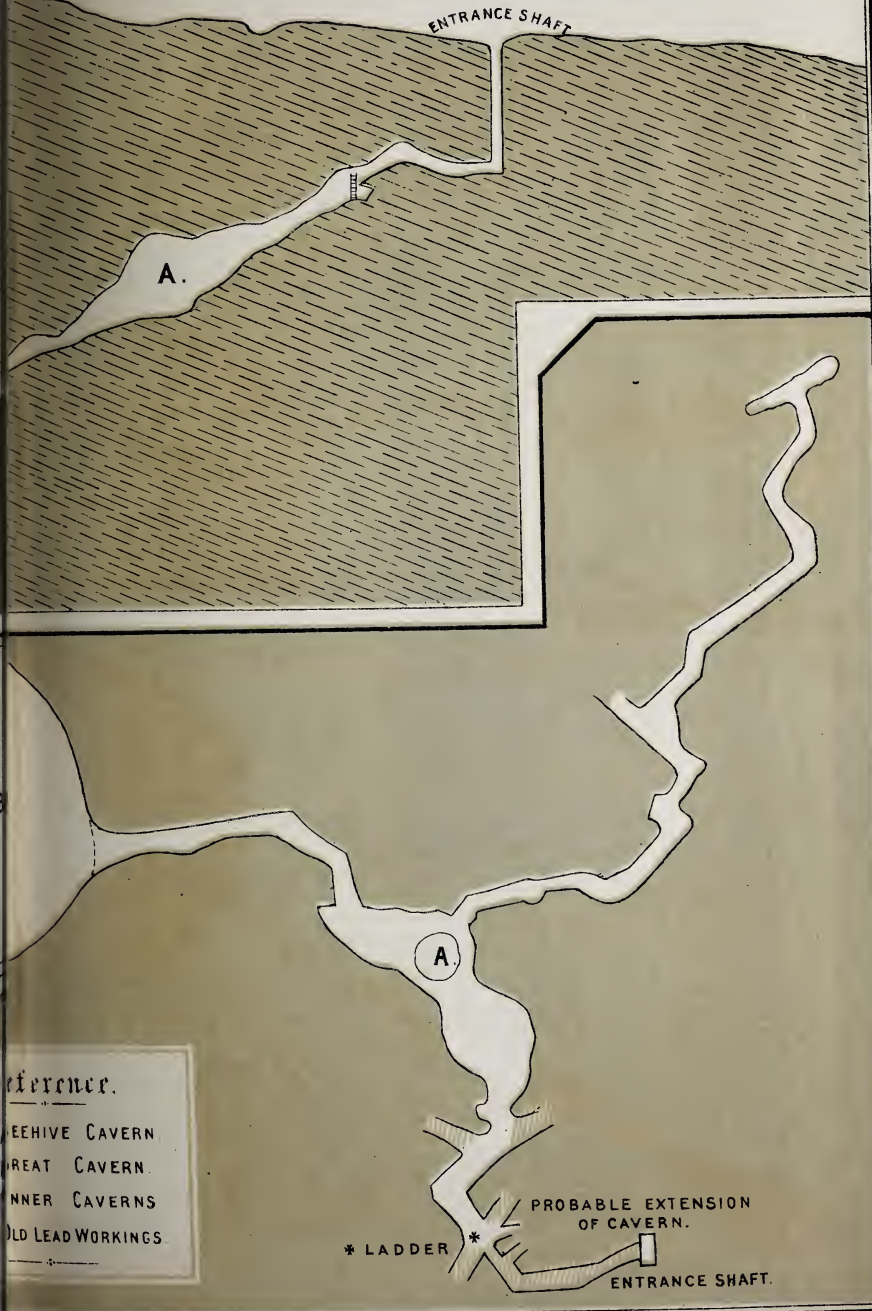
A.  
B.  
C.  
D.

# S AT HARPTREE, SOMERSET

TICAL SECTION.

Scale,

80 FEET TO 1 INCH.



ference.

BEEHIVE CAVERN

GREAT CAVERN

INNER CAVERNS

OLD LEAD WORKINGS

*Proceedings*  
*of the*  
*Somersetshire Archæological and*  
*Natural History Society,*  
1880, *Part II.*

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PAPERS, ETC.

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*On the Lamb Bottom Caverns at Garpree, Somerset.*

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BY J. MC MURTRIE.

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OF the many interesting subjects which the pursuit of geology opens out to us, there is perhaps none which possesses so great a charm for the ordinary student as the caves which abound along our coast lines, and amongst the principal mountain ranges of this country. The investigations of the geologist, ordinarily carried on in the clear light of day, are there extended far into the bowels of the earth, and the more difficult and inaccessible the exploration, the greater the romance by which it is surrounded. The physical structure of the caves themselves, the strata through which they pass, the agencies by which they have been formed, the stalactites which adorn their roofs, and the stalagmites which cover the floor, often embedding as they do the remains of whole races of animals which have long since passed away,—all these command our thoughtful attention, opening out a wide field for scientific inquiry.

The examples we possess in this country appear to be far less extensive than others of which we read in other parts of the world. Sir Charles Lyell, in his *Principles of Geology*, tells us that in the limestones of Kentucky, in the basin of the Green River, one of the tributaries of the Ohio, a line of underground cavities has been traced in one direction for a distance of 10 miles without any termination, one of the chambers being no less than ten acres in area and 150 feet high. Nothing hitherto discovered in our own country can at all compare with this; but amongst the ranges of Mountain Limestone which prevail in many parts of England, caves of considerable extent and great interest are frequently met with, and no where can they be seen to greater advantage than in the Mendip Hills in this county. The caves of Wookey, Cheddar, and Banwell possess almost a world-wide reputation, and are so familiar to all that nothing need be said on the subject here; but an important discovery was made in the month of June last, at Harptree in this division of the county, of a cavern, or more properly a series of caverns, which are new at all events to the present generation, and it has been thought a fitting opportunity to bring them under the notice of this Society.

#### THE LOCALITY IN WHICH THE CAVES OCCUR.

To those who may not be familiar with the northern flank of the Mendips, it may be explained that along the base of that range of hills, from Litton to Yatton and Clevedon, there stretches a fertile valley, which receives and carries off the drainage of the adjacent country. Branching off southwards out of this valley, at frequent intervals, are numerous "combes" or ravines which stretch upwards towards the hills, and these in the rainy season become the beds of torrents which pour their waters into the valley below. One of the most romantic of these passes close to the village of East Harptree, and if the visitor will follow its windings upwards to where the valley loses itself amongst the hills, he will find



himself at Lamb Bottom, where the caves in question have been discovered.

There is nothing on the surface to indicate the remarkable natural phenomena which lie beneath, but there is much evidence of human industry in the débris of former mineral workings which abound in all directions, taking us back to a period of great antiquity. We are here in the heart of that mineral country once of so much importance as to possess a distinct code of laws of its own; and it might be worthy of the attention of this Society, to trace out more fully than has yet been done the history of this hill country, and of the people who once inhabited it. Passing by the Roman period, to which the Rev. Prebendary Scarth has devoted much time and research, we read that as early as the reign of King Edward the Fourth, "the occupacions of the Mynores in and upon the King's Majesty's Forest of Mendipp . hath been exercised . . from the tyme whereof man now living hath noe memorie," and from that time down to the close of the last century, the Mendips must have presented an appearance of busy life in marked contrast to the solitude which now prevails; but towards the beginning of the present century, either from dearth of mineral within easy depths, or from improved means of transport bringing into competition more favoured districts, the mining industry on the Mendips seems to have dwindled away, and the hardy race of miners who once flourished here has almost disappeared.

#### GEOLOGICAL POSITION OF THE CAVES.

The caves are situated in the Mountain Limestone on the northern flank of the Mendips, where its beds attain a great thickness and outcrop on the surface, but a little to the south it is covered by a thin deposit of Lias and New Red Sandstone. One of the Ordnance sections runs through Lamb Bottom from north to south, and I am thus enabled to lay before you a diagram, shewing on a large scale the structure of the hills from the valley

at Compton Martin to the level country around Wells.<sup>1</sup> To those who are acquainted with the geology of the district, I need hardly explain that the Mendip range is a good example of the true anticlinal form so familiar to geologists, but a reference to the diagrams will show you that local complications exist on this part of the hills. Instead of one continuous outcrop of the Old Red Sandstone along the centre, with the Mountain Limestone dipping uniformly north and south from it, as we find between Whatley and Masbury, the Old Red here makes its appearance only in isolated ridges, which cross the hills at an acute angle. The effect of this has been to destroy the typical anticlinal structure, the Mountain Limestone having been thrown into a series of folds with synclinal valleys, some of which the ordnance surveyors have endeavoured to show in the section now before you. Lamb Bottom would appear to be in the interval between the Old Red Sandstone elevation of North Hill, near Priddy, and the more extended ridge of the same formation at Black Down, so that while the prevailing inclination of the Limestone is northwards, passing beneath the Coal measures, there are subordinate to this local dips in all directions. The caves in question occupy therefore much the same position on the north side of the hills as the Cheddar gorge and caves do to the south of it, which may, or may not, have something to do with their origin.

#### HISTORICAL NOTICES.

Although these caves are new to the present generation, the original discovery of them is of considerable antiquity. The earliest account of them, of which we have any record, is contained in *The Philosophical Transactions and Collections to the end of the year 1700* (page 369), by a Mr. Beaumont, who is said to have visited the caves about the year 1660. Mr. Beaumont says:—"The most considerable of these vaults I have known on Mendip Hills is on the most northerly part of them, in a hill called Lamb, lying above the parish of Harp-

(1). See Ordnance section, sheet No. 17.

tree. Much ore has been formerly raised on this hill, and being told some years since that a very great vault was there discovered, I took six miners with me and went to see it. First we descended a perpendicular shaft about 10 fathoms, then we came into a leading vault, which extends itself in length about 40 fathoms; it runs not upon a level but descending, so that when you come to the end of it, you are 23 fathoms deep, by a perpendicular line. The floor of it is full of loose rocks; its roof is firmly vaulted with Limestone rocks, having flowers of all colours hanging from them, which present a most beautiful object to the eye, being always kept moist by the distilling waters. In some parts the roof is about 5 fathoms in height, in others so low that a man has much ado to pass by creeping. The wideness of it for the most part is about 3 fathoms. This cavern crosses many veins of ore in its running, and much ore has been thence raised. About the middle of this cavern on the east side lies a narrow passage into another cavern, which runs betwixt 40 and 50 fathoms in length. At the end of the first cavern a vast cavern opens itself. I fastened a cord about me and ordered the miners to let me down, and upon the descent of 12 or 14 fathoms I came to the bottom. This cavern is about 60 fathoms in circumference, about 20 fathoms in height, and above 15 in length; it runs along after the raikes, and not crossing them as the leading vault does. I afterwards caused miners to drive forward in the breast of this cavern, which terminates it to the west, and after they had driven about 10 fathoms they happened into another cavern, whose roof is about 8 fathoms, and in some parts about 12 in height, and runs in length about 100 fathoms."

Subsequent writers have also referred to these caves, their information having probably been derived from the earlier account already given, which some have quoted rather inaccurately. In Collinson's *History of Somersetshire*, under the heading of East Harptree, and in Rutter's *Delineations of*

*Somersetshire*, at page 192, they are briefly described, the account given by the latter being very imperfect.

In Buckland and Conybeare's *Observations on the South Western Coal district of England*, published in the transactions of the Geological Society in 1824, the authors briefly state that "in Lamb Bottom is a cavern mentioned by many writers. It is not now open, but appears from a description of it given in Maton's *Western Tour* (vol. ii. page 132) to be rather an old mine than a natural cave." Neither of these writers, however, can have seen the caves, and the opinion here expressed is entirely erroneous.

#### HOW THE CAVES WERE DISCOVERED.

There can be little doubt that the original, like the recent discovery of these caves, occurred in the course of mining operations, no natural entrance having yet been traced. The locality now called "Lamb Bottom" appears to have been known in the 16th century, as "Lambden," or "Lambden on Mendip," and mining was carried on there at a very early date. It is frequently mentioned in the local court rolls; and the records preserved at the Public Record Office contain a historical incident which deserves a passing notice. It would appear that in the 20th year of the reign of Queen Elizabeth, one "Thomas Windesor" having been attainted of treason, an inquisition was held at Shepton Mallet to ascertain what lead mines at Lambden on Mendip the said Thomas Windesor claimed to have. The depositions then taken proved that Windesor held shares in a number of "gruffs," or mines, in and around Lambden, and that in particular he held three sixteenth parts in the mine called the "hard gruff," which shares were subsequently forfeited to the Crown.

In the course of these early mining operations the caves in question were doubtless met with; but with the close of the active period of mining, the shafts which formed their only access must have got closed, and they appear to have been lost sight of for several generations. Within the last few



years, however, the enclosure in question, together with a large adjoining territory, has been taken by Col. Bolton and Mr. T. J. Bewick of London, who have been carrying on important explorations which it is hoped may lead to the revival of a long lost industry, and believing these caves would throw light on the object of their research they determined to find them. Omitting details, which have already appeared elsewhere, we may state briefly that with the aid of Captain Nichols, the mineral agent, their efforts were crowned with success, and in the month of June last they had the gratification of rediscovering the caves which had not been entered for nearly a century.

#### DESCRIPTION OF THE CAVES.

Having heard of these caves through a brief notice in a local paper, the writer has had the advantage of visiting them on two occasions, first with the Bath Field Club, with Rev. H. H. Winwood, and afterwards, with more time available, to obtain material for the present paper. To those whose acquaintance with caves has been derived from places of popular resort, where all rough places have been made smooth, this may appear easy enough, but such persons can form little idea of the difficulty and adventure attending the earlier exploration of such a cave as this. It has all the freshness however of a new discovery, and brings its own reward in the advantage of seeing every thing in a perfect state of nature, which show places can never possess.

In order to convey a clear idea of these remarkable caverns, diagrams have been prepared from actual survey, including a ground plan and vertical section, to which I would now direct your attention.<sup>2</sup> The approach to them is by means of a perpendicular shaft, about 2 feet square and 55 feet in depth, which the explorer requires to descend by a series of ladders fastened to the shaft side, or by bucket and windlass as may be preferred. On reaching the bottom a narrow passage leads

(2). See Diagrams.

away through the "old men's" workings, sloping gently at first, then more abruptly, the "cheeks" of the vein getting gradually closer together until it is difficult to force a passage through, and at a distance of 20 yards a short ladder leads into the first part of the cave. Up to this point there can be no question that the path traversed has been formed by the hand of man, but the explorer can have equally little doubt, when he reaches the foot of the ladder, that he has entered the domain of nature.

The present shaft may not be exactly the same as that by which Mr. Beaumont descended. In the opinion of Mr. Nichols, the original approach was probably more direct, by a shaft now partially visible immediately above the short ladder last described; but in any case Mr. Beaumont must have entered the cave itself at the same point we now do, for his description afterwards agrees exactly. Although at first sight we appear to have entered the extreme point of the cave, a closer examination discovers a narrow passage so choked with rubbish as to be inaccessible, but which if cleared out may lead to further discoveries. There are also one or two small lodes here, the mineral from which has been extracted, but these are easily distinguishable from the windings of the cave itself.

Proceeding onwards in a downward direction, we traverse a vaulted passage with Gothic roof fretted with stalactite, the floor being either covered with stalagmite or soft brown mud. Near this point two other lodes have evidently crossed the cave, and a portion of the débris from them lies piled upon the floor; but the old miners must have had a kindly regard for these caves, which we in our generation do not always possess, for it is surprising how little injury has been done in the course of mineral workings, which seem to have intersected them at numerous points. Before going far we turn sharply round to the right, and should notice the smoothness with which the walls of the cave have been rounded off, as if

by the action of water, although other agencies may also have been at work. A good opportunity is here afforded of examining the roof, in which I was curious to ascertain whether any crevice or slip existed which might throw light on the original formation of the caves, but for the most part I saw no trace of these.

The cave now gradually widens out and increases in height as we approach the point *A* on the diagram, where we find ourselves in what is certainly the most beautiful, although not the largest, of the series of caverns I am endeavouring to describe. It is tortuous and irregular in shape, so that it is not all visible from any one stand-point; but from where it widens out as we approach, to where it again diminishes into a narrow passage, it measures about 100 feet in length, and in the centre it attains a height of over 30 feet. While the principal chamber here curves gently round to the left, another branch of the cave strikes off to the right, so that this forms a centre from which three passages radiate, and exactly at the point of junction the floor is completely blocked by a stalagmite of gigantic dimensions—so exactly resembling a bee-hive, that it has given that name to the chamber in which it occurs.

It is probable this may have been formed upon a ground-work of fallen blocks of Limestone, but these have been so cemented together, and so completely coated with a covering of stalagmite, as to form a perfect cone, which strikes the eye of the visitor who approaches it for the first time. Standing on the summit of this cone, and casting his eye around upon the scene which here presents itself, no one can fail to be impressed with its wondrous beauty. From pointed roof to polished floor the walls are draped and bossed, and grotesquely ornamented with stalactites in endless variety of form and colour, and when illuminated by a strong artificial light the effect is dazzling beyond description.

It may be remarked that although the path by which we have approached has been steadily downwards, and is sug-

gestive of some brawling underground torrent, no water is now visible beyond an occasional dropping from the roof; so that if this ever formed a water channel its supply must have been intercepted and turned in some other direction. I examined the floor of this cavern very carefully, and generally found beneath a layer of stalagmite a thin bed of reddish-brown earth lying on the Limestone; but in order to show the structure of the floor with any exactness, it would be necessary to cut sections across it at a few points, which would require both time and labour. In no case was any trace of tooth or bone detected, the only fossils observed being a few stems of encrinite; but when it is remembered that the exploration of Kent's Hole, and other caves, has been the work of years, it would be idle to speak with any confidence of the result of two short visits.

Turning to the right out of the Bee-hive Cavern at *A*, we now enter a different branch of the cave, which is for the most part more narrow and tortuous than that we have hitherto traversed. The inclination is still inwards, and at first the passage is fairly lofty, but we soon come to a contracted part through which it is scarcely possible to crawl. Once through this, the opening becomes larger again, and in proceeding inwards the floor is found to be covered with a layer of the soft red earth or clay already described, which points to a considerable flow of water through this channel at some former time. The deposit is deepest in the middle, being rounded in the centre like a well formed road. At a distance of 60 yards from the Bee-hive Cavern, this passage terminates in a small cross chamber of some little height, the floor of which is five or six feet deeper than the passage by which it is approached.

It is obvious that some crevice must exist here for carrying off the water, but the floor is covered with mud and débris, and nothing else is visible. In one corner of the chamber there is a vein of ore, which has formerly been worked. In returning



to the Bee-hive Cavern I examined the roof at many points, and could trace a thin joint running upwards at certain places, but nothing else was visible, except its Gothic form, and the stalactites which more or less adorned its walls.

From the Bee-hive Cavern the path leads steeply down to the left, and so completely does this great stalactite fill up the floor, that there is little room to pass on either side, care being required in climbing past it to prevent an awkward slip on the smooth floor. The cavern soon diminishes to a mere passage, and at one point becomes so contracted as only to leave room to crawl; but it enlarges again, and becomes very steep as it enters the great cave at *B*.

This gigantic cavern, which is probably unrivalled in this or any other part of England, is rudely circular in form, and about 100 feet in its greatest diameter. It is dome-like in shape, and, approaching it as from an elevated gallery, the visitor is struck with a feeling of awe and amazement as he looks down into its dark recesses, and upwards to its lofty roof, its rocky sides standing out in bold relief amid the surrounding gloom. From the gallery to the bottom of the cave is a depth of 77 feet; and the total height from the floor to the apex of the dome cannot be less than 110 feet. In all probability the cave was originally deeper than I have stated, for the floor is piled up with immense blocks of Limestone which have fallen from the roof; and this débris seems to have accumulated most on the opposite side to that by which we have approached, from which it slopes downwards beneath our feet, where the cave attains its greatest depth.

The descent, it must be confessed, is far from pleasant, differing little from that described so graphically by Beaumont 200 years ago. The explorer having put one leg through a loop in the rope, is made fast to it by a cord tied tightly under the arms, and, thus equipped, he is, with the help of five men, lowered over the precipice, the rope passing over a pulley fixed near to the edge—but not near enough to prevent it from

chafing uneasily on the projecting edge of the cave. He has to scramble over this edge as best he can, and, once past it, finds himself spinning round in mid-air, after the manner of a turnspit, without anything in reach to guide his downward course. On reaching the bottom he finds the irregular blocks of Limestone covered, for the most part, with stalagmite, which has cemented them into a firm mass; and where shallow pools of water exist, it seems to have crystallised into beautiful forms resembling coral. In other parts the floor is covered with a red, muddy sediment, and in one corner there is a considerable depth of *débris*, which has apparently come from the entrance to another cave, to be presently referred to. Much excavation would be required to prove of what the floor consists, but there are probably beneath the loose *débris* swallets or passages communicating with other water channels which drain these hills. At present the cave is comparatively dry, but it must be remembered this is an exceptionally dry season, and it will be interesting to find out what water flows there after heavy rainfalls.

The view of this immense cave, seen from below, when illuminated by a powerful light, is one never to be forgotten. The roof, although not so rich in stalactites as the smaller caves, is fretted over at intervals; and beneath the gallery by which the cavern is approached its sides are draped in heavy folds of stalactite, as we have seen ice accumulate under a waterfall in winter.

Clambering up over the muddy *débris* already referred to, and mounting a steep ladder placed at the top, one finds an entrance to a third large cave, referred to by Beaumont, which has only been fully explored within the past week. It is approached with difficulty by a very contracted passage, one part of which is evidently artificial, and is doubtless the driving done by Beaumont. The floor ascends—proving that this branch may at one time have delivered its drainage into the Great Cavern.

I have shown the levels approximately on the section by the dotted lines, but this part of the section does not profess the same degree of accuracy as the rest, which is from actual levellings. Proceeding onwards we enter an oblong cavern, about 65 feet in length, 10 feet in width, and of considerable height. In this instance there is every appearance that the cave has been formed in the line of a chasm in the rock, resembling a mineral lode; but its smooth unchiselled sides, and stalactite roof, prove it to be purely natural. Separated from it by a contracted neck at the inner end is an extension of the same cave, which the explorer must approach with caution, for he suddenly finds himself on the edge of a chasm, which, from the sound of stones thrown down, is probably 30 or 40 feet in depth, with a similar height over head, and 20 feet in width; but this has not yet been fully explored, and no further openings have been found in that direction.

#### PROBABLE ORIGIN.

Having described these caverns at some length, it only remains to consider their probable origin, and, unfortunately, this is a branch of the question on which I am able to throw the least amount of light. If the floors of the different chambers are ever excavated, and all their windings fully traced out, we may be in a better position to form an opinion; but at the best the origin of caves is attended with a good deal of mystery.

Sir Charles Lyell says, in his *Principles of Geology*:—"There are some caverns, especially in Limestone rocks, which, although usually if not always connected with rents, are nevertheless of such forms and dimensions, alternately expanding into spacious chambers, and then contracting into narrow passages, that it is difficult to conceive that they can owe their origin to the mere fracturing and displacement of solid masses;" and nowhere can these words be more literally true than in the example before us.

The same author, in his *Elements of Geology*, has so ably summarised the various theories on the formation of caves, that I cannot do better than quote the following passage:—“Each suit of caverns, and the passages by which they communicate the one with the other, afford memorials to the geologist of successive phases through which they must have passed. First there came a period when the carbonate of lime was carried out gradually by springs; secondly, an era when engulfed rivers or occasional floods swept organic and inorganic débris into the subterranean hollows previously formed; and thirdly, there were such changes in the configuration of the region as caused the engulfed rivers to be turned into new channels, and springs to be dried up. The quarrying away of large masses of Carboniferous and Devonian Limestones, near Liége, in Belgium, has afforded the geologist magnificent sections of some of these caverns; and the former communication of cavities in the interior of the rocks with the old surface of the country by means of vertical or oblique fissures, has been demonstrated in places where it would not otherwise have been suspected, so completely have the upper extremities of these fissures been concealed by superficial drift, while their lower ends, which extended into the roofs of the caves, are masked by stalactitic incrustations. The origin of the stalactite has been explained by the eminent chemist Liebig. Mould or humus, being acted on by moisture and air, evolves carbonic acid, which is dissolved by rain. The rain water, thus impregnated, permeates the porous Limestone, dissolves a portion of it, and afterwards, when the excess of carbonic acid evaporates in the caverns, parts with the calcareous matter, and forms stalactite. Even while caverns are still liable to be occasionally flooded such calcareous incrustations accumulate, but it is generally when they are no longer in the line of drainage that a solid floor of hard stalagmite is formed on the bottom.”

Following out the line of thought suggested by Lyell, let



us apply it to the case before us. There probably existed during the elevation of the compact Limestone of the Mendip range an extensive series of fissures, communicating with each other, and existing at first as fissures only, into which the drainage of this upland country emptied itself. There is abundant evidence of this on Mendip in the swallets which are met with in all directions, draining hollows which would otherwise be lakes; and where these swallets are overlaid by sand, gravel, or clay, we find their presence marked by funnel-shaped depressions, of which the Devil's Punch Bowl is a notable example. From these fissures the drainage found its way to the low country much as at present, only that the adjacent valleys not being so deep then as now, it had found its exit at higher levels; or it may have emptied into the sea, which, in certain geological periods, appears to have washed the base of the hills, possibly flowing up into these same fissures with the rise and fall of each tide. This constant action of water, carried on through successive ages in certain channels through which it naturally ran, and from which it occasionally dropped headlong into deeper channels—as in the Great Cavern at Lamb Bottom—this, aided by the dissolving action of carbonic acid, which Liebig has so well described, is sufficient to account for these cave phenomena, although we may be unable to trace out the special features of each individual case.

There is just one other theory which has occurred to me, and does not appear to have been noticed by others.

Where anticlinals have been formed, it is very common to find lodes or fissures which are wide at the surface, but in descending gradually wedge out. In the elevation of a compact mass, the outer rings naturally part asunder in the way described, and this is a common occurrence on the Mendips. Is it not possible that in synclinals, such as shown on the Ordnance section, the same thing may exist in a reversed form, the V shaped fissures being wider beneath, and thinning out upwards?

It is at least possible that *some* caves may be accounted for in this way.

How caves like Wookey and Banwell afterwards received the bone deposits, of which we have heard so much, it is unnecessary now to speak, neither teeth nor bones having been found in the caverns I have described. The excavation of the floor of the Great Cave, if ever undertaken, may yet reveal some hidden natural exit leading to the low country; but unless this should be found, bone deposits are not likely to be met with in the Lamb Caverns.

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