

PICTORIAL GUIDE
TO THE
MAMMOTH CAVE,
KENTUCKY.

A COMPLETE HISTORIC, DESCRIPTIVE ^{AND} SCIENTIFIC ACCOUNT
OF THE
Greatest Subterranean Wonder of the Western World.

—BY—
A. D. BINKERD, M. D.

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THE MAMMOTH CAVE.

THE MAMMOTH CAVE is justly considered the most wonderfully picturesque natural phenomenon; the most extensive and enchanting subterranean cavern on the American Continent, and perhaps in the whole world.

The great traveler, close observer and descriptive writer, Bayard Taylor, says of the Mammoth Cave: "It is the greatest natural curiosity that I have ever visited—Niagara not excepted; and he whose expectations are not satisfied by its marvelous avenues, domes and sparry grottoes, must be either a fool or a demi-god."

The different avenues, grottoes, and communicating passages, already explored and known to the guides, number 225, and the sum total of their combined length exceeds 150 miles.

Many of these avenues are from 20 to 100 feet in width, and from 5 to 40 feet from floor to ceiling.

Some of the largest and finest have in some places a firm, smooth and even floor, affording safe and easy passage, while in other places the floor is rough, rocky or cavernous and not altogether free from danger.

Many of the communicating passages are low and narrow, and for short distances almost impassable, giving no suggestion of the wide and lofty halls, impressive domes and indescribable wonders to which they lead.

Since it is practically impossible for every tourist to wander through the entire extent of the cave, the choicest portions of it have been selected and put in order at great expense to be shown to visitors.

Boats must be repaired, bridges renewed, stairways and railings inspected and new ones constructed annually, for the convenience and safety of the tourist.

The cumbrous materials for all these very necessary improvements must be carried through tortuous passages and winding gorges to the distance of many miles from the entrance, involving an incredible amount of physical toil and commendable perseverance.

The improved parts of the cave, generally shown to visitors as the most attractive and interesting parts of it, can not all be seen by the tourist in one day, as this would involve a journey of more than 25 miles.

The most sublime portions, which no one should fail to see, are shown in two parts—involving what are known as the Long Route and the Short Route.

That part extending beyond the rivers to a point known as Cleopatra's needle, Croghan's Hall and the Mælstrom, nine miles from the entrance, involving a journey of eighteen miles and requiring from nine to twelve hours for its completion, is known as the Long Route—the transfluvial route.

Every rod of this long route is full of objects of interest capable of imparting valuable instruction. So attractive and varied is each new feature, and so pure and bracing is the never varying atmosphere that fatigue rarely reminds the tourist that he is mortal.

Last October a young bride in company with her husband and the writer, with "Henry" as guide, made the long journey of eighteen miles in nine hours without once complaining of fatigue.

A ticket of admission to the cave, including guide-fees, light, etc., for the long journey is three dollars.

That part of the cave first discovered nearest the entrance and fraught with historic interest, lying on both the right and the left side of the main cave, always accessible to the tourist summer or winter, and, indeed, the most awe-inspiring and sublimest portion of the cave is known as the Short route—the cisfluvial route.

The objective point in this route is the Star Chamber, less than two miles from the entrance.

Indeed no part of the Short route lies at a much greater distance from the entrance than does the Star Chamber. The whole distance traveled in taking the Short route does not exceed seven or eight miles, and the time consumed may be from four to six hours. The way is much smoother and the objects of special interest are grander and more impressive.

A ticket of admission, including guide-fees, lights, etc., for the Short journey is two dollars.

It is recommended on good authority that the visitor rest twenty-four hours after making one journey into the cave before making the other, whichever route he may take first.

If the visitor have both time and means at his disposal, we most heartily indorse the suggestion, on both physical and metaphysical grounds.

The best mental efforts can not be evolved while the physical forces are being taxed to their utmost.

To make the two journeys in rapid succession and gaze for a moment upon a bewildering profusion of diversified and pleasing objects, is like gorging the stomach with a surfeit of rich and spicy viands that can not be properly digested and therefore can not be assimilated.

Thought, the gastric juice of the brain, can not so quickly extend to each important object its

antiseptic influence and so fails to prepare it for assimilation.

Time is necessary for all things. Time is perhaps the most important factor combined with other agencies to make the comprehending of the Mammoth Cave possible.

The tourist may take first which ever route he may prefer.

Some take first the Short route, some the Long route. Many for want of time in this practical business and progressive age, take but one route, and so but smell the delicious feast which they leave for others to enjoy.

THE GUIDES.

An established regulation for the protection of the guides is clearly a necessity, as much so as is that of taking nourishment or sleep.

The regular hours for starting into the cave are 9 a. m. and 7 p. m.

An ample corps of long experienced and competent guides is always in readiness.

The guide who makes the long trip to-day makes the short one to-morrow, and thus the toil is somewhat equalized.

Just here it is pertinent to say a few words regarding these important and indispensable adjuncts to this greatest wonder of the western world.

We will speak of them in the order of their time of service and of their ages as nearly as we can.

Stephen was the first in the order of time. He achieved world-wide reputation as a guide, not less than for his daring discoveries and parrot-like mimicry of learned men. He was the first to cross the Bottomless Pit and to navigate the rivers. He acted as guide to Bayard Taylor, Prof. Silliman, Dr. Wright and scores of other scientists and travelers, the most learned men of his time.

Bayard Taylor immortalized Stephen by describing him as minutely as he did any part of the great wonder to which Stephen introduced him.

Stephen owed much of his brightness to his unique occupation. He was an apt genius, and by coming in contact with scholars from every country, he had gathered a vocabulary of scientific terms which he used with telling effect on all occasions. This from a colored man in that day was considered remarkable. Many who heard him supposed that he was thoroughly educated, while in fact the only language he understood was something like Father Schuyler's Volapuek in which all verbs come under one conjugation; all nouns under one declension.

You will see from the following, which we

copied from a marble slab, that Stephen died quite young:

**"STEPHEN BISHOP,
First Guide and Explorer of the
Mammoth Cave,
Died June 15th, 1859,
in his 37th Year."**

Many early visitors to the Mammoth Cave still retain a warm place in their affections for the memory of Stephen.

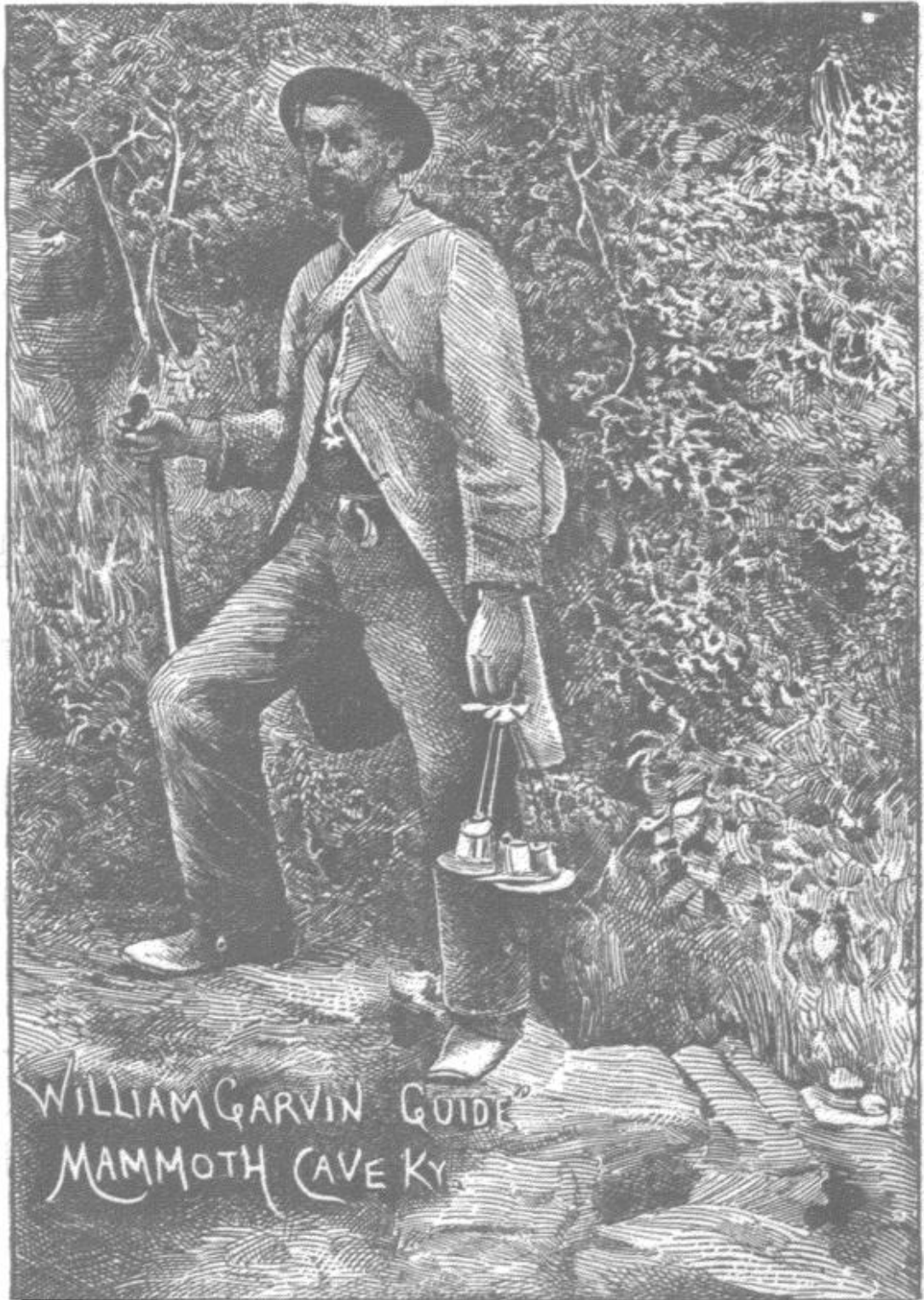
Next in order came "Matt" and "Nick" Bransford, brothers, and associates of Stephen.

Both these men were just as competent and faithful guides as ever entered the portals of that great wonder.

Matt guided the writer many times through the Mammoth Cave twenty-one years ago, and several times many years later.

We still retain a high estimate of his faithful service. His dryest of quaint humor upon occasions was all the more enjoyable. Matt had a perfect knowledge of the cave, and was therefore a safe and trustworthy guide, whom thousands will remember with a twinge of sadness, when they here learn for the first time that two years ago, Matt "joined that caravan that moves to the realms of shade," and is no more. His mantle descended upon the shoulders of his son "Henry."

“Nick,” the brother of “Matt,” is now quite aged, and almost superannuated. He still re-



mains around the Cave as one of its fixtures, and occasionally does duty as guide, and does so very acceptably.

William comes next. He is an elegant specimen of physical development, just in the noon-day of life. William is entitled to the credit and honor of the discovery of the Cork Screw, that beautiful, bewildering and spiral passage by which it becomes possible to escape the tribulations of a return passage through Fat-Man's-Misery.

William informs the writer that he was aided in the discovery of the Cork Screw by observing the movements of cave bats.

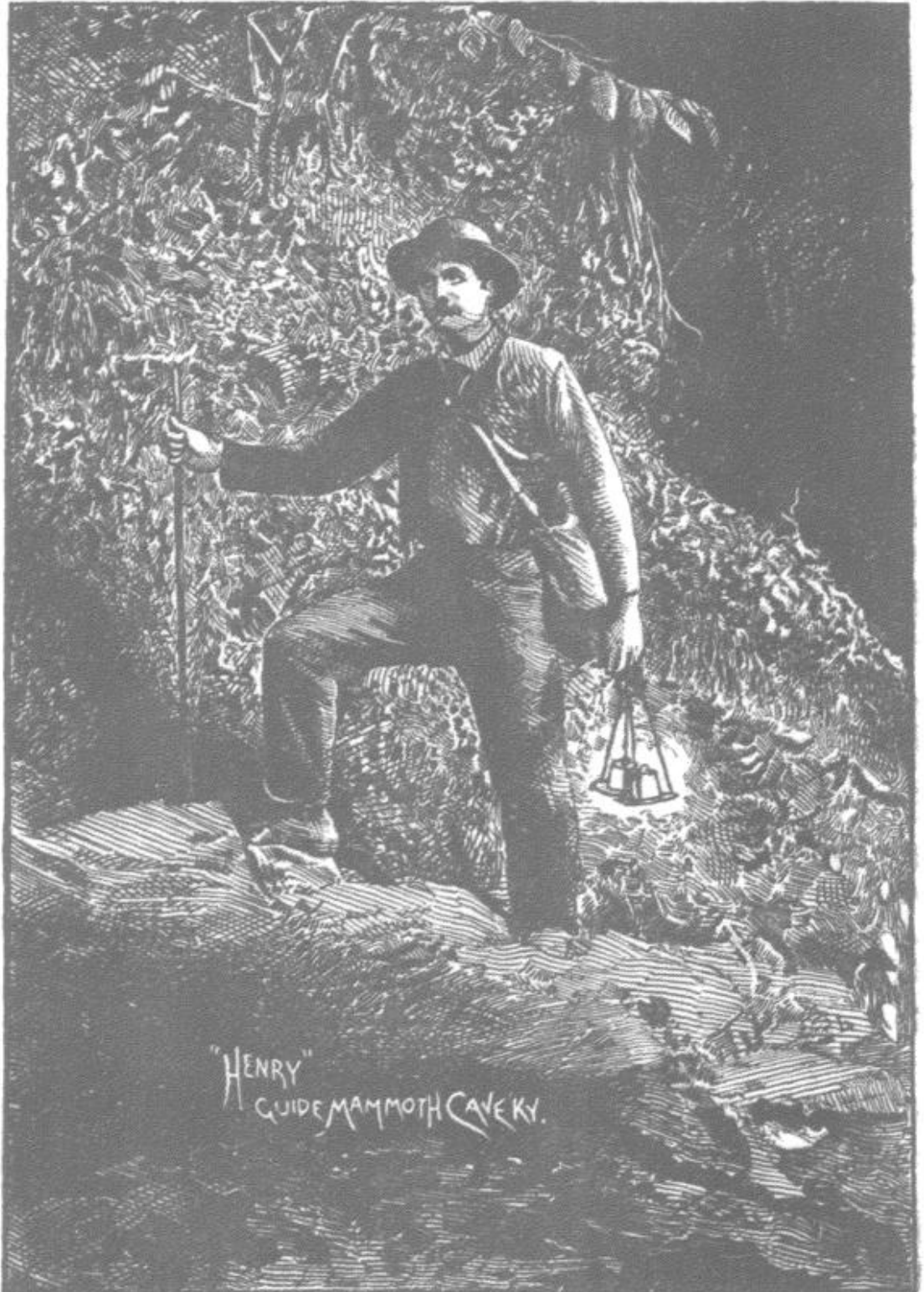
In his frequent passings in and out of the Cave, he occasionally observed these little vertebrates flying with reckless speed and suddenly disappearing in a small aperture far above the Kentucky Cliffs, near the Church in the Main Cave.

Quite as often he saw scores of bats, far beyond Fat-Man's Misery, shoot into Great Relief from some unknown passage, hitherto unexplored by mortal man.

Profiting by this hint the dauntless William hurled himself into the breach, wormed himself through the Cork Screw and proclaimed his great discovery to the world.

No one should fail to see the Cork Screw. It will enable him to both feel and see how tor-

tuous a passage may be. If possible, it is more tortuous than the crookedest street in Boston.



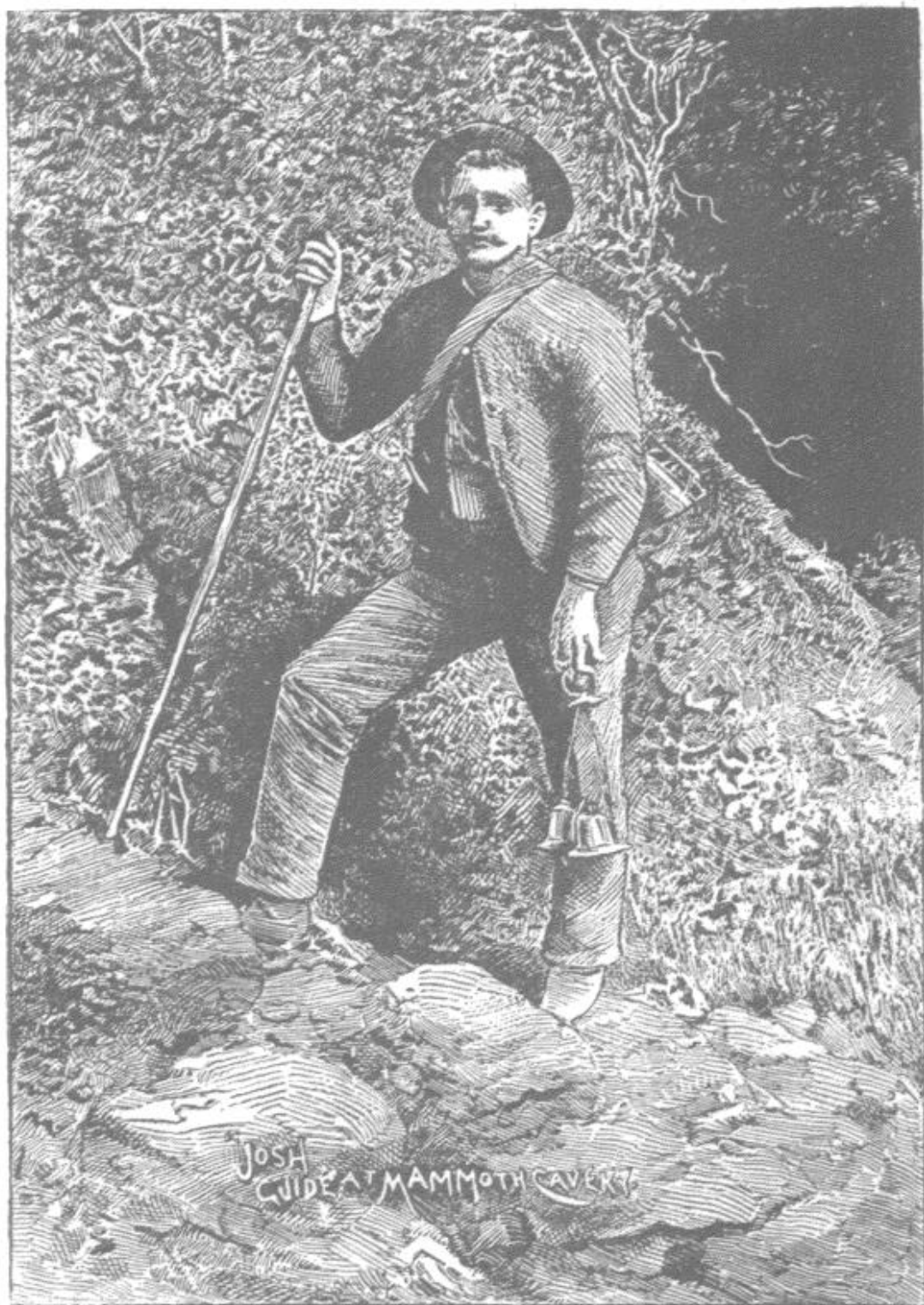
The practical result of William's discovery is that tourists in returning from the long journey may pass through the Cork Screw, and so shorten the walk and avoid a second passage through Fat-Man's-Misery.

Next in order is the inimitable "Henry" the son of "Matt," in whose foot steps he has trodden for more than a score of years, an acceptable and competent guide, perhaps not second to the immortal Stephen. Henry certainly knows more about the Cave than Stephen did. He has seen more of the Cave. He has come in contact with more visitors — scholars and scientists from every country. Henry acted as guide for the writer during his recent explorations. He is the walking Thesaurus of the Cave. He has an ample supply of witty sayings and irresistible drollery, coupled with the dry humor of his father.

In showing us through the Ball-Room twenty-one years ago, "Matt," the worthy father of Henry, while poking through the dust with his cane in search of old corn-cobs, where the cattle were fed in 1812 and '14, remarked that he "must bring in some more cobs, to keep the relic hunter from carrying off the ox-tracks," still preserved in the hardened dirt in this part of the cave.

While passing, last October, through this

same part of the Cave, Henry told us of the great meetings he had attended here while a



boy, and of the powerful sermons he heard preached from that rock up there still called the



pulpit. Baptists? we inquired. "No. Methodists! Too dry for Baptists," replied the versatile Henry.

There are several trustworthy and competent white guides who occasionally do duty in the busy season, but none of these have achieved the notoriety of the colored guides.

GEOGRAPHICAL LOCATION.

The Mammoth Cave underlies the intersection of the 37th parallel North, with the 9th meridian West.

It's well known entrance is found near the junction of Hart, Barren, and Edmonson Counties in South Central Kentucky, on the South side of Green river, 192 feet above the level of that stream, and about midway between Nashville and Louisville, nearly one hundred miles from either city.

The extensive and varied ramifications of the Mammoth Cave probably underlie portions of the three above named counties.

MEANS OF ACCESS.

The great trunk line of travel passing nearest this natural wonder is the Louisville and Nashville Railroad.

All its fast trains stop daily at Glasgow junction, eight miles from the Cave. Glasgow junc-

tion and the Mammoth-Cave Hotel are in both direct and speedy communication by telephone and by railroad. The old stage-coach from "Bell's Tavern" and from Cave City are things of the past. We remember them, not only for the tortures they inflicted upon us, but for the somewhat tedious novelty of the occasion.

The public endured them till the genius of progress has cured them.

The Mammoth Cave Hotel is conducted by the genial lessee, Mr. W. C. Comstock, and his no less genial corps of courteous and competent assistants.

The Hotel building is a primitive structure of the southern style of architecture.

There is something very charming about its six hundred feet of wide covered rambling veranda facing the inclosed angle of the building.

In front of this angle is a pretty lawn densely shaded by forest trees of great size.

It is a delightful spot, sunny and shady by turns. Here are drives and walks and the implements of games amid the finest Calladiums we ever saw. The golden rods, the asters the astringent diosperos, the crimson fruit of the cornus florida, the scarlet leaves of the sumac and the aromatic cedar lend a suspicion of their health-giving odors to the pure atmosphere of this health-giving place. The very

trees invite to "Hang there my verse, in witness of my love," as did Orlando for his Rosalind.

From the tall oaks are suspended swings, bearing to and fro with gentle and stately motion the fairest forms with well-turned limbs, in the gentle zephyr of evening twilight, rendered still more charming by the milk-white flood of Kentucky moonshine. It is a place to teach Bassanio which casket contains the picture of his fair Portia.

But we grow young again, and this comports not with paltry bread and butter, for even now is heard the bell calling to tea.

Immediately on the right of the entrance to this rambling old hostelry is the spacious dining room on the first floor, clean and well kept. Flies are scarce and mosquitoes are never seen here. Third floor and fourth floor never vex the visitor. Far to the right and far to the left, gives an air of romance, while it imparts a sense of comfort re-enforced by profound sleep near mother earth.

The tables are supplied with a great variety of the choicest and best the country or the city markets can afford. These are speedily and well prepared and attentively served.

Breakfast over : The ladies arrayed in cave costume assemble in groups on the veranda.

The bell is rung, the guide is summoned and now leads the way out through the garden, down the rocky ravine deeply shaded by the primitive forest of tall tulip trees, butternut, hickory, ash and oak.

Here the air is cool and bracing. Wild birds beguile the hours with their varied songs.

The sensation is unique and delightful—you will never again experience it. We catch new inspiration from each long, deep draught of the vitalizing element.

We approach the mouth of the cave without knowing or expecting it. Turning suddenly to the right we behold before us a yawning chasm 50 feet deep with irregular and precipitous sides.

This is the unpretentious portal to a world of wonders. The dense forest casts a deep shadow over it. Green ferns and climbing vines cling everywhere to the projecting rocks as if striving to cast some adorning drapery about their nakedness.

THE CASCADE.

A little spring of water pours a ceaseless stream of silvery beads from a shelving rock above the entrance and dashes it to spray in the chasm below.

This is now the only sound we hear. You may fancy that the monotonous hum of the

falling water, and the gloom of the thick overhanging foliage, render the place a fit habitation for gnomes.

The first emotions awakened at sight of this place are peculiar. A sense of chilliness is experienced as we descend a long flight of stone steps along the right wall into the air of the cave.

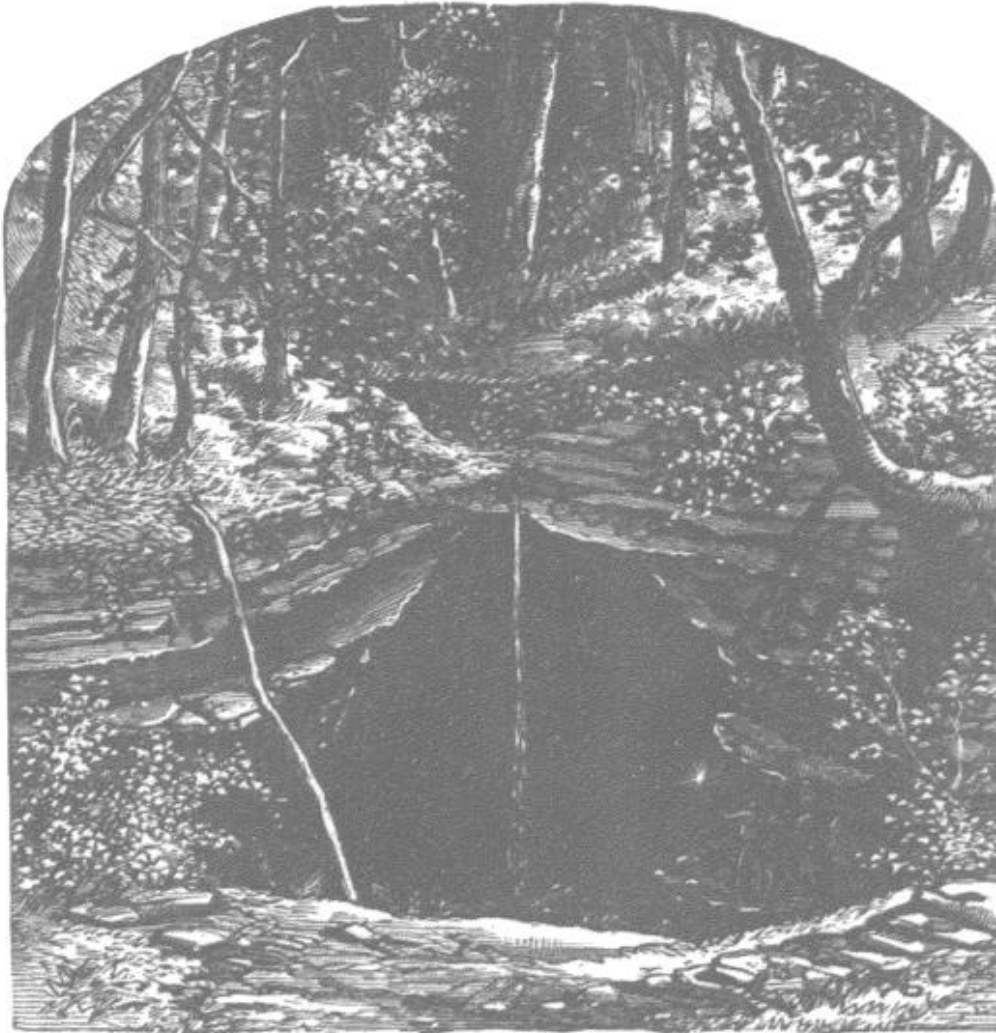
Now that we have brought you safely to the very threshold of the world's greatest wonder we will here tell what we next propose to do.

We propose to describe briefly and accurately each object in its proper order as it will be shown by the guides, from the entrance to the end of the short journey. This done we will conduct you back to the entrance again. In connection with our descriptive account we will also give a brief historic and scientific account of this natural curiosity.

THE SHORT ROUTE.

The deep chasm into which we have now descended is not the original mouth of the cave from which the waters that formed the cave emerged in prehistoric times.

The original mouth is the entrance to Dixon's Cave farther down the hill toward Green river. Dixon's Cave is now rarely visited. It is but a continuation of the main Cave.



ENTRANCE TO MAMMOTH CAVE.

THE PRESENT ENTRANCE.

This was formed by the breaking down of the roof at this point, before the cave was discovered by white men.

The little stream of water that still pours its tiny rill down into the chasm is probably responsible for the break in the original roof and for the existence of the present entrance.

WE LEAVE DAYLIGHT BEHIND.

As we pass along the right hand wall the guide hands each a lighted lamp, until all are supplied

We halt in front of the gate. The guide collects the tickets of admission, then unlocks that grim portal, passes all through into that mysterious silence, and palpable darkness, turns and locks out daylight, the busy world and all recollection of them behind us, nor do we ever once think of our previous existence till we return to daylight again.

THE NARROWS.

For the distance of forty yards or more beyond the gate there is a rude wall on each side extending from floor to ceiling. These walls were built by the miners who prepared Saltpeter here in 1812-14 under the employ of the United States Government. This improvement was doubtless for the purpose of enabling a span of oxen and a wagon to pass into the cave. The ceiling is not high enough in the narrows to admit of a tall person to pass beneath it without stooping.

When we have passed beyond the narrows the sense of going down hill is quite perceptible.

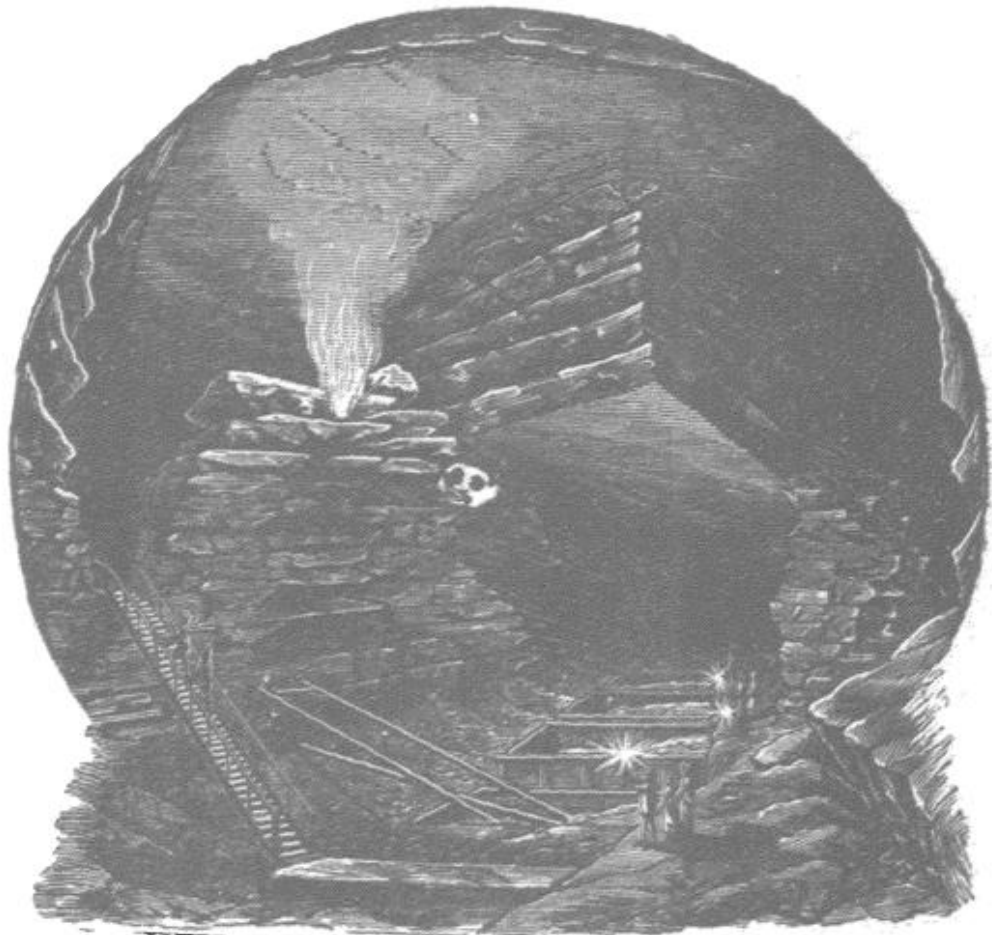
The ceiling rises in like proportion and the cave grows wider.

MINING EVIDENCES.

Numerous rude appliances, such as old iron-bound pump logs, large wooden troughs, and old leeching vats, large enough for pig-pens, are scattered along from the entrance to the distance of more than half a mile into the cave. These were used by miners 75 years ago. We cut into the planks with our knife and found them in a very good state of preservation after all these long years. One hundred years hence they may still be found here. In this dry atmosphere of unvarying temperature, decay of organic matter makes little or no progress.

BREATHING OF THE CAVE.

You will have noticed while passing along the narrows, just inside the gate, that a brisk current of wind plays a hazardous game with your lamp. This current blows outward in summer when the weather is very warm. In fall, winter and spring when the temperature outside is much lower than it is inside, then the current blows into the cave. Sometimes there is no current blowing either way, owing to uniformity of temperature both without and within the cave.



SALTPETER VATS.

THE FIRST VATS.

Here on your right you will observe two large pens in which the nitrous earth was leached after being treated with fresh water admitted from the entrance through one line of these old pump logs. Through the other line, the lixivium was forced out to the entrance by means of a hand pump and there evaporated to crystals.

A large quantity of wood ashes was necessary in the process of reduction in order to obtain the nitrate of potash or saltpeter. This salt

was then carted to Philadelphia where it found a ready market. \$20,000 per annum have been realized from this source alone.

THE ROTUNDA.

Next we enter the vestibule or rotunda. This is a large cavern at the beginning of the main cave. It lies directly under the dining-room of the hotel. Its dimensions bewilder the senses. It may be forty feet from floor to ceiling. Across the floor in the widest part is probably 150 feet.

The guide kindles a brisk light that you may judge of its dimensions.

AUDUBON'S AVENUE.

Leads off to the right. Legions of cave bats congregate in this avenue in winter. The leather-winged little animals cling to walls and ceiling, head downward, in bunches of many bushels like swarms of bees, and doze away their existence in a semi-torpid state in darkness and repose. Nothing of special importance is found in the Avenue. It is rarely shown to visitors.

THE MAIN CAVE.

Is four miles long, 60 feet wide and 40 feet high. Different portions of it are known by different names. The first mile is pretty straight,

then it turns sharply upon itself and the remainder is crooked as you could desire it to be. The sense of going down hill is still apparent. The floor is covered with a very dry, fine, heavy gray-colored earth or dust, but it will not rise in spite of much kicking nor will it soil a polished boot.

THE KENTUCKY CLIFFS.

On your left is a continuous ledge of rocks extending some eight or ten feet into the cave and perhaps ten feet high. The whole resembles very much the well known cliffs on the Kentucky River near Frankfort. Hence the name

PIGEON BOXES.

In the cliffs about four feet up the wall is a series of holes large enough to admit the hand. These holes were deftly carved out by the action of acidulated water, while all around, the rest of the wall is unaffected.

Similar phenomena are witnessed elsewhere on a grander scale.

THE CHURCH.

About a quarter of a mile beyond the rotunda we enter a second enlargement in the Main Cave. This has a gothic ceiling spanning the vast arch forty feet above our heads. The room is somewhat irregular and embraces an area of many thousand square feet.

On the left hand side there is a second projection some four or five feet high and wide enough to hold a stand and several chairs.

This is known as the pulpit, because from it the gospel was many times preached to vast assemblages below probably attracted thither by the novelty of the occasion. These old pump logs arranged in rows facing the pulpit are the pews. The whole of them would not rent for half as much as did a single seat in Henry Ward Beecher's church. Still they bear testimony that the Gospel was preached in the sunless caverns beneath the "dark and bloody ground."

THEATER GALLERY.

In the next considerable enlargement are several leeching vats, some of them full and some nearly empty. Considerable work was done at this point, judging from the appliances still found in this part of the Cave.

The two lines of pump logs are still retained in situ, the one above the other, supported by rude masonry.

Around the right hand side of this hall is a large gallery, high over our heads. This is known by the above name.

On your right, and well up toward the ceiling is a large opening leading off to an avenue of great beauty. In order to enter this opening

we pass over between the old vats, ascend a steep stairway of a dozen steps and continue up the slope some distance farther, where we find ourselves in the very old

GOTHIC ARCADE.

In this arcade we are introduced for the first time to stalactitic formations. These are pendant masses of alabaster hanging like icicles from the ceiling. Just beneath these pendant masses sometimes there is an upward growth of the same substance; this is known as a stalagmite. These growths frequently unite in the middle and become firmly cemented together. Pillars of great strength and architectural beauty result from these unions.

THE SEAT OF THE MUMMY.

On the left may be seen a niche in the wall in which the guide will tell you was found the body of a female of the Indian race. Near by is a smaller niche in which was found the body of a child. Both were well preserved and dressed after the manner of the aborigines.

The evidences upon this subject are so contradictory and vague, that we can say nothing new regarding them. As to who placed these bodies here, or when they were placed here, or where they now are, we are equally uninformed.

The guide will point out the spot known by the above name.

That the niches are still to be seen here can not be questioned, but that any mummies were ever discovered in them is not so clearly proven. Every place must have a name, and there must be some reason for it.

One writer has been wicked enough to inquire how these mummies got up a perpendicular wall at least a dozen feet high, to find the convenient niches ; so we will just leave the whole mummy business to explain its own discrepancies.

POST OAK PILLAR.

Here on the right is the first pillar we have yet encountered. It is probable a dozen feet high and a foot thick. The point of union of the stalactite growing downward and the stalagmite growing upward is clearly perceptible. This point is always a little nearest the lower end and is generally the thinnest part of the pillar.

Examine the base of this column and you will get some idea of the great eons of time in which the dust of this avenue has not been disturbed. This pillar was set up on the dust and rubbish as it lay of unknown depth without so much as clearing it away to secure a firm foundation.

Countless ages were consumed in the erection of this pillar, and probably countless ages have elapsed since it was completed. The cave is very dry in this part of it. There can be no growth where there is no water, but the drops must fall at such intervals as to allow each drop to dry, and the lime held in solution by it, to crystallize before the next drop falls;

Otherwise there could be no growth at all, but instead of a pillar, a hole would be dissolved into the soluble bicarbonate of lime, the formation into which this wonderful cave has been chiseled in the infinity of bygone ages.

MONUMENT HALL.

A portion of this avenue may well be called by the above name. Monuments are here erected to almost every State in the Union, as well as to institutions of learning and to foreign countries.

Kentucky has very justly the largest, for it extends from floor to ceiling. We seek out the Keystone State, add one mite and pass on.

THE REGISTER'S ROOM.

In this part of the cave the ceiling was originally white and singularly smooth and can not easily be distinguished from a plastered room.

It is most grievously vandalized by smoke and disfigured by names of animals.

GOTHIC CHAPEL.

This is an enlarged room of great beauty. The ceiling is supported by pillars, forming very fair gothic arches. Numerous pendant masses of stalactite formation everywhere dot the ceiling.

THE HORNET'S NESTS

Are specimens of this kind. Numerous objects will here be shown by the guides, to some of which some historic interest attaches.

OLD ARM CHAIR.

Jenny Lind, recently dead, sat down in this chair of alabaster, during her first and only visit to America, in her palmy days of song, thirty-six years ago.

Hundreds of visitors sit down in this same chair every year, just because Jenny Lind sat in it. The very rock of which the seat is fashioned is worn smooth by the left shoulder of the army of monkey mimics, and yet it is not recorded that one of them ever noticed the perfect figure of a female, upon which they now so thoughtlessly sit. Just step back and contemplate the figure for a few moments. Quickly you will see the head resting on the floor, while you sat upon the breast, the abdomen scarcely

concealed. It is a striking figure, and quite as distinct and perfect as Vulcan's head in the old smithy.

THE ELEPHANT'S HEAD

Might have justified the name before the trunk was knocked off. At present any other name would answer quite as well.

NAPOLEON'S BREASTWORKS.

On the right is a slanting rock that fell from the ceiling, making a kind of barrier that prevents approach to the wall. This was the Corsican General's means of defense.

THE HORNET'S NESTS

Have already been alluded to. There is a dozen of them scattered along the ceiling. A little beyond is the

BRIDAL CHAMBER.

To young people it is an interesting little story that suggested the name of this little group of columns. It runs thus: A romantic young lady was here joined to the partner of her choice, notwithstanding the solemn promise she made to her maternal parent, on the latter's deathbed, that she (the daughter) would not marry any man on the face of the earth. And she didn't.



THE BRIDAL CHAMBER.

Morton

LOVER'S LEAP.

Just beyond the columns now described, the floor is let down, while a spear of rock projects over the cavern below. It is a dreary place we care not to contemplate. So here we turn about and retrace our steps to the Main Cave.

As we pass back through this avenue of wonders, we survey again, with renewed interest, the Pillars of Hercules, the numerous pendant masses of alabaster, and the formidable stalagmites rising from below. We ponder over the measureless eons of time necessary for laying down these lime rocks to the thickness of 400 feet, at the bottom of a salt sea, in the carboniferous age of the paleozoic time, and then again, the time necessary for the subsidence of this salt sea, and then the still greater time required for the solution of this lime rock by both the mechanical and chemical action of acidulated water, by which these ancient halls were fashioned. Then must follow the slow process of building up again, pure alabaster forms—these fanciful figures—transformed from the bicarbonate of lime, first by the process of solution, then by the reverse process of crystallization. Each object appears to the thoughtful mind as being one of special interest, because associated with so great antiquity.

We confess to a feeling of chagrin at the evidences everywhere apparent of the lack of appreciation of the unique and beautiful in nature. Every smoked character and every broken stalactite upon the ceiling, represents an instance of violated trust. In the language of Horace Mann: "Every instance of a violated conscience, like every broken string of a harp, limits the compass of its music and mars its harmony forever."

DOWN THE STEPS.

We have now returned to the Main Cave at the point of departure. After going forward a short distance, we enter

THE BALL ROOM.

This is a fine, large room, but why so called we failed to learn. We are informed that in this room the cattle were stalled and fed during intervals of rest, while the miners were employed here. Cartwheel marks and ox-tracks, made seventy-five years ago, are still plainly visible in this part of the cave.

STANDING ROCKS.

Just beyond the Ball Room, on the left side of the path, are several large, thin rocks, standing on edge. These tumbled from the ceiling, thirty feet above. The momentum of these heavy

masses of matter, forced them into the dust and debris, which holds them erect to this day. The one next to the wall stands the nearer perpendicular. It is faced by a heavy ogee molding, giving it a kind of architectural appearance.

THE STATUE.

Just beyond the standing rocks, the guide halts, and bids the visitors go forward till they hear his call, then on turning and looking back toward the entrance a beautiful marble statue has burst suddenly and most unexpectedly upon the view. This phantasmagorical statue is a most perfect delusion. The longer you gaze, the more perfect it seems, and yet there is nothing whatever there. This pleasing deception may be explained as follows: There are several bends in this part of the cave. When you have passed along some distance and then look back, the two walls have approached each other, each wall forms the outline of one side of the statue, the white wall in the dim light beyond, springs out in a veritable statue, that will astonish and electrify you. Very few persons guess the secret of this phantasm, while the masses feel the spell of enchantment.

THE WATER CLOCK.

A continuous dropping of water at regular intervals, suggests the ticking of a long pendu-

lum clock. A little pool on our left receives the drops and gives forth the sound.

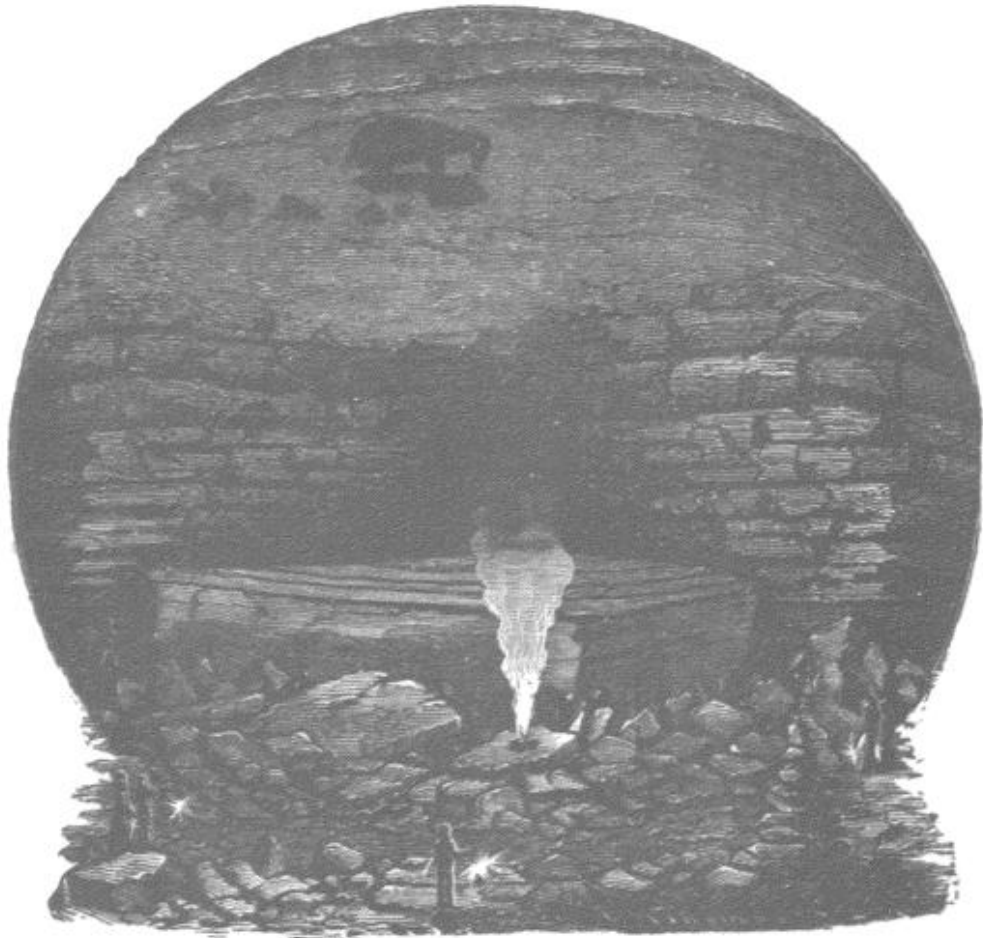
It is an interesting fact that this regular dropping has continued for many years, without perceptible variation in frequency, hence the name.

THE GRAND ARCH.

All the way from the entrance to this point, we have traveled sharply down hill. In other words the original cave is less filled up here, and consequently the arch of the roof springs higher over our heads, giving the whole a sublimity and impressive grandeur not heretofore observed.

THE GIANT'S COFFIN.

At this point the cave becomes suddenly widened. The floor is covered with great masses of rock that have fallen from the ceiling. We half suspect, too, that many of these rock masses have been forced here by the mighty floods that have rushed through these caverns with almost resistless power, in the long ago. One very large mass of rock, probably forty feet or more in length, stands well up, and, when viewed from a certain point, bears a striking resemblance to a large coffin.



GIANT'S COFFIN.

PICTURES ON THE WALL.

In this part of the cave the walls and ceiling are covered with an incrustation of gypsum and the black oxyde of manganese—in short, they are particolored. Many pictures will be pointed out to you here, quite as perfect as some we have seen wrought by amateurs on perforated card board. The whole menagerie will be explained to you by the guide. As each animal is pointed out, you will determine for yourself

whether it resembles most the thing named, a whale or a weasel.

WE LEAVE THE MAIN CAVE.

Here we turn to the right, pass around the foot end of Giant's Coffin, and creep down an uninviting hole leading to the

DESERTED CHAMBERS.

We really cross over beneath the main cave; descend a flight of stairs, and after a grievous amount of stooping, we enter the

WOODEN BOWL.

This is a low room of irregular outline, forty or fifty yards across the rough, uneven floor. The ceiling is probably ten feet high in the middle, gradually sloping down in all directions. A wooden bowl is said to have been found here by the first man that explored this particular room. Whether the bowl was placed here by Indians, who may have known something about the cave, or was carried here by water, is not known.

BLACK SNAKE AVENUE

Puts off from this room in both directions. It bears this name because of the color of the walls and of its serpentine course. No snakes of any kind are ever found in the cave.

MARTHA'S PALACE.

This is a cone shaped opening carved into the solid rock that forms the roof over our heads. In all this region the slow work of rock carving is still going on.

The little drops of water, falling at such intervals that they may be counted, are the assiduous agents by which these wonderful domes and numerous pits are fashioned.

We next creep down a most uninviting passage to the right and soon congregate around a little pool of drinkable water, where we quench our thirst at

RICHARDSON'S SPRING.

The water drips from the ceiling and wells up from the bottom and runs through a little rill from the wall. The convenient dipper, after serving all, is again hung up by inserting the handle into a crevice in the ceiling, and we pass on into the

ARCHED WAY.

This is high enough to permit you to stand erect. You now move forward without obstruction until the guide shouts, "Careful on your right." You will observe a wooden railing

placed here to prevent any one from straying into

SIDE-SADDLE PIT.

The guide now lights a taper and lets you see how high Minerva's Dome extends upward, then drops it into the cavern beneath. You now bend over the railing and watch the spiral descent until it drops upon the floor, we do not know how far below. A sense of dampness and the presence of vegetable mold are observable here. We have descended to a point not far from the level of Green River.

We turn to the right and go still lower. We descend a steep, but firm, wooden stairway into the

LABYRINTH.

This very tortuous passage leads toward almost every point of the compass. It is a narrow gorge, with fantastically carved walls, honeycombed and nodulated in most inimitable forms. Presently we ascend a second stairway and descend a third. A magnificent spectacle here awaits us, for we are standing by the window-like opening of

GORIN'S DOME.

The strongest lights we have at command give us but an imperfect idea of the bewildering

dimensions of this wonderful dome. Not the least wonderful feature of this dome is the great stone curtain that extends to within probably twenty feet of the floor below. So striking is the similitude that the very folds of the curtain might seem to shake as you move your lamp from side to side. We are of the opinion that this curtain is not of stalactitic formation, as stated by Mr. Hovey. The very low and damp situation is not favorable for stalactitic formations. The water may still be heard dripping in the dismal depths. The beautiful curtains we see are probably the original limestone rocks upon which were executed these fantastic carvings by the agency of acidulated water.

Running water, when slightly acidulated, will dissolve, take up and carry away the bicarbonate of lime in the dark, but it will not precipitate anything held in solution in the dark. It requires the agency of light to produce this result, as may be shown at Yellow Springs, Ohio; at the Hot Springs, in Arkansas, and even at the common chalybeate springs all over the country. Neither stalactite nor stalagmite will be formed until the water evaporates sufficiently to allow the lime held in solution to crystallize.

We throw a lighted taper down into the chasm below, but we fail to get any idea of its

dimensions or of its beauty. It simply impresses us with its overpowering grandeur. From top to bottom it is probably near two hundred feet. The distance from side to side can not be easily measured, nor can we even guess correctly. An opening has been found to communicate with the bottom of this dome, but it is not often traversed. It is never shown to visitors. We now retrace our steps; pass up one stairway, down a second and up a third, to the point of departure. Here we turn to the right and pass over the

BRIDGE OF SIGHS.

Now we are fully prepared for it; that dismally stale joke that the joke fiend never fails to inflict upon everybody save Indians not taxed—"Bridge of Small Size!" There it comes! He wisely refrained from uttering it till he had passed over, lest an avenging Providence might hurl him into the Bottomless Pit, over which the bridge leads.

THE BOTTOMLESS PIT

Has been robbed of its chief horror by the discovery of a bottom some thirty or forty feet below the bridge. We light a taper and hold it up and look into the darkness that hangs like a pall over that pit. Then the guide drops a



THE BOTTOMLESS PIT.

lighted taper down into the yawning chasm, and we look after it and sigh, for there are a few features not wholly bereft of all that is horrible, down in that abyss.

SHELBY'S DOME

Hangs in all its darkness and sublimity over that pit, each being the counterpart of the other, for the dome adds depth to the pit and the pit adds height to the dome.

PENSACOLA AVENUE.

We now pass forward in this wonderful avenue, beneath Snowball Arch, and observe many beautiful things in the excrescences on the wall. We pass over some very rough piles of rock, some of which were probably forced here by water while some fell from the ceiling.

THE GRAND CROSSINGS.

This is a wild portion of the avenue. Four avenues meet at this place, or, rather, one cuts across and down into another beneath it, showing a kind of cross here. Unmistakable signs of hydrostatic pressure are visible all along this part of the hall.

Here we retrace our steps and leave

REVELER'S HALL

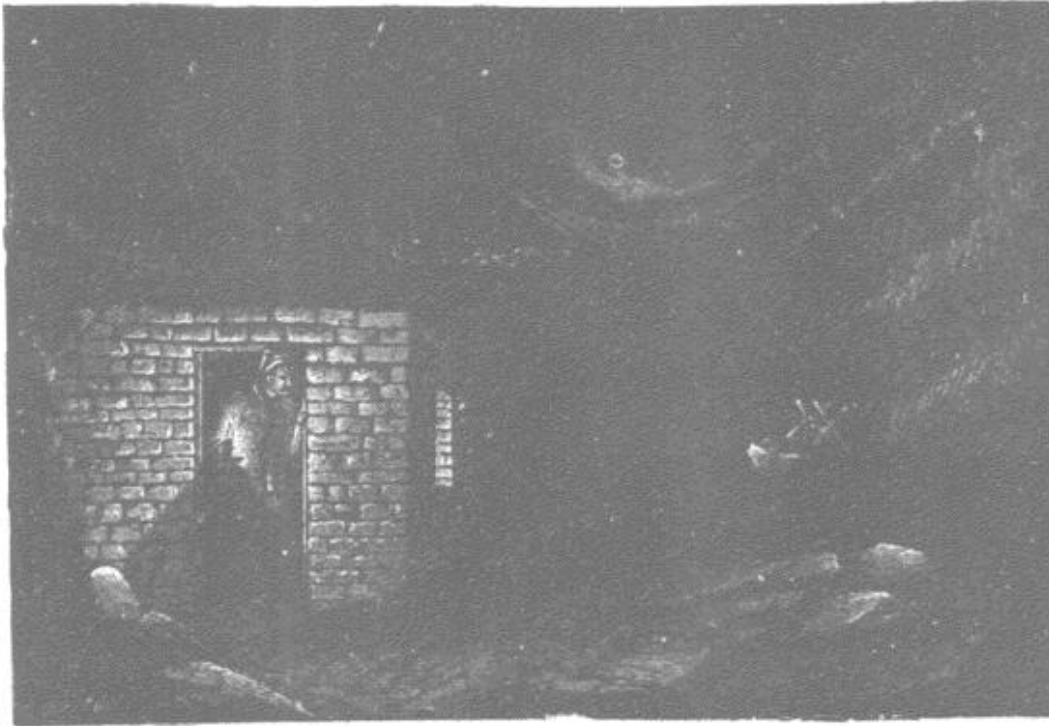
Behind us, "grand, gloomy and peculiar," and press forward, over the Bridge of Sighs, past the Bottomless Pit and Side-saddle Pit, take another drink at Richardson's Spring, climb up the Steps of Time and enter the Wooden Bowl, from which we presently emerge into the Main Cave, right behind the Giant's Coffin, facing Garfield's Monument. No more stooping on this journey. We can now stand up at full height and expand in every direction, for the ceiling is forty feet above us.

THE ACUTE ANGLE.

We have now reached a point where the Main Cave turns sharply upon itself but still retains its immensity. The floor is rough and rocky. The dust is here very dry and heavy.

STONE HUTS.

Close to the left hand wall stands a stone hut, about fourteen feet wide by eighteen or twenty feet long and eight feet high. Further along is another, still larger, with the rear wall tumbled in. No windows were necessary. We observe the same peculiarity in the log houses in Arkansas and Texas. where it is not near so



STONE HUTS.

dark. The roofs and floors of these huts have disappeared. They were probably appropriated for the construction of stairs, bridges, railings and so forth. They would not decay in this dry atmosphere.

These stone huts were erected for the accommodation of a dozen or more consumptives, who, in 1843, resorted to the cave, hoping to derive benefit from a prolonged abode in a dry atmosphere of uniform temperature. They remained in the cave from September to January. The experiment was not a success. Some of them died here; the rest, not benefited, left the cave, and all died soon after dwelling in the less bracing atmosphere of the outer world.

The absence of sunlight is not conducive to animal health or organic life. Trees of various kinds were planted around these huts and carefully irrigated, but they budded not nor did they grow. The writer saw many of the sapless remains of these trees in the cave at his first visit, more than a score of years ago.

A short visit to the cave may be conducive to health—at least it is not known to be detrimental to health—but a prolonged stay in the cave, surrounded by palpable darkness, is prolonged suicide.

Some forms of cerebral disease or ophthalmic affections might, possibly, be benefited by a few day's sojourn in this dark, quiet nether world.

THE STAR CHAMBER.

This very interesting natural phenomenon is found a short distance beyond the Deserted Village. It is probably one hundred yards long, forty to sixty feet wide, and, maybe, forty feet high. No claim is here made for accuracy of measurement. This chamber has, however, preserved its characteristic entablature, frieze and cornice complete on a very grand scale.

In the dim light of our lamps all estimates of distance must be mere guess work. All the essential properties and conditions are here present for producing the most delusive effects.

One of the most charming deceptions anywhere to be met may be enjoyed here while fully conscious that the whole is a very counterfeit presentment of nature's self. The concave ceiling is covered with a dark incrustation of iron and manganese, bespangled with bright, shining crystals of gypsum, the plane of whose surface is set at various angles. By this arrangement, according to a well known law of optics, one ray of incidence will produce a thousand rays of reflection, all of which converge to a point in the eye of the observer. At every considerable remove of the light a new constellation is presented. The guide now seats the company on a bench near the right hand wall, takes all the lights and moves slowly away. Night's sootbag is a white spot compared to the utter darkness that prevails while the guide is going through a secret passage beyond our view. He reappears from behind a rock throwing the light upon the vaulted ceiling. The dim distance is now transformed into a blue firmament of immeasurable depth, everywhere twinkling with myriad stars of every magnitude, brightness and splendor. Off to the right is a pterygoid plate of gypsum which sends a blazing comet across the sky.

Though we are perfectly conscious of the true status of the situation, it is not easy to

realize that we are not gazing thousands of miles into space instead of against a solid rock only a few yards above our heads. As we gaze and wonder the sky seems to recede and the illusion is complete. The guide here manipulates the lamps so as to throw the shadow of a projecting rock slowly upon the ceiling in imitation of a cloud overspreading the sky, and so simulating an approaching storm, which does not break upon us, for the clouds disappear and the stars flash out again in all their splendor.

This culminating point of the Short Journey is, perhaps, the most solemnly grand and impressively sublime spectacle to be seen in the cave. No one who has witnessed it will forget the strange spell it put upon him, nor would he forget the pleasure he enjoyed in contemplating this unique phenomenon.

The guide here closes the entertainment by drawing the curtain, and then treating us to an original sunrise, accompanied by the crowing of cocks and the yelping of dogs in a mimic rat catch, in which the versatile Henry shows himself an accomplished ventriloquist.

This closing entertainment can not be adequately described. The scenic effect defies description. It is a play that must be witnessed. We might go much further in this direction, but we do not choose to do so. We can not profit-

ably partake of every course through the entire bill of fare.

We will now retrace our steps toward the entrance. We pass in order, first, the Stone Huts, then we double the cape at the Acute Angle, take another look at the Fixed Animals and the Giant's Coffin, then toil up the Gentle Slope, pass the Water Clock, the Statue, the Second Hoppers, the Standing Rocks, the Ball Room, the Church, and finally to the Rotunda.

Here we may linger a few minutes and look at these Mushroom Beds. In 1882 a company of capitalists expended several thousand dollars in demonstrating that mushrooms can not be profitably grown in the Mammoth Cave. This we fully suspected long ago.

The absence of sunlight is fatal to phænogamic life. This was amply demonstrated in the case of those trees that were planted near the huts. The absence of moisture must be equally fatal to the cryptogamia, to say nothing of the temperature in the cave, which is quite too low at 54° to 59° Fahrenheit for organic health and growth. Every one must have noticed the absence of organic forms of vegetable origin in the cave.

THE AGARICUS ODORATUS

Is probably the kind of mushroom that was here tried. This well known edible cryptogam was largely used as an article of food by the ancient Greeks. It was largely cultivated in the district or province of Agaria in ancient Greece. Hence the generic name.

There is nothing of special interest to detain us here any longer. We next recognize the walls of the Narrows and perceive the current of air blowing into the cave, by which we anticipate a fall of temperature outside. Soon the dim light of the outside world brings into view the iron gate, which Henry unlocks. We soon pass out and stand by the little stream whose sound is singularly magnified. For a short time the shadows and colors are strangely intensified. If you look into the eye of your fellow tourist you will observe that the pupil is much enlarged as the result of the prolonged effort to catch every ray of light. The effect is somewhat similar to that produced by the application of a solution of atropia to the eye.

The stimulus of sunlight will, sooner or later, reduce the pupil of the eye to its normal condition, when all things will assume their natural appearance again. So ends the Short Journey.

THE LONG JOURNEY.

Promptly at the hour of 9 o'clock a. m. we start again; this time with a supernumerary carrying a well filled lunch basket, to be discussed in Washington Hall beyond the rivers.

The profound and refreshing sleep generally enjoyed in this quiet place has fully prepared us for the eighteen miles tramping, creeping and floating we are destined to perform before we return to daylight again.

In making the Long Journey we are obliged to follow, for one mile and a half, the same path we followed in making the Short Journey yesterday.

Hence we start in the same direction, out through the garden and down the rocky ravine in the deep shade of this charming old forest, where the Sabbath stillness of "Sleepy Hollow" prevails the year round.

Presently we stand again by the flat rock, gazing wistfully down at the entrance. We recall the emotions of yesterday. Reassured that this is not a dream, we pass again down the long flight of rude stone steps, turning toward the right wall as we descend. Here we receive again our well trimmed lamps, take a last lingering look at the daylight, and press forward to the iron gate, yield up our tickets and then dis-

appear into the dreamy mysteries of the nether world.

THE TEMPERATURE OF THE CAVE

Is uniformly not far from 54° Fahrenheit. As the temperature outside is this morning 76°, a strong current of air is rushing out through the Narrows toward the entrance. So have a care with your lamps, lest you may be suddenly left in utter darkness.

The guide has made thoughtful provision for every emergency. An ample supply of matches, Bengal lights and oiled rags make his outfit for the day's requirements.

We pass on, at moderate speed, through the the Narrows, the Rotunda, the Church—keeping in the Main Cave. We do not ascend the steps leading to Gothic Avenue on the right, but we press on through the Ball Room, over the ox-tracks and cart-wheel marks and take another look at the Standing Rocks. We feel a peculiar satisfaction in viewing a second time some of the strange things we saw on the previous day.

A little reflection, after a sound sleep, sobers the mind and aids the judgment. A clear conception of the cold facts will disrobe many curious things of at least a portion of their enchanted garments. These thoughts fill the mind as we pass through that part of the cave whose

mechanical outline, when viewed from a certain point, brings out that optical illusion—the phantasmagorical statue—the “Woman in White.”

We press forward with a sense of going down a gentle slope, till presently we stand, the only living members of a strange menagerie, at the foot of the Giant’s Coffin, one mile from the entrance.

At this point we turn sharply to the right and leave the Main Cave by creeping down a low, uninviting passage, just behind the Giant’s Coffin. This passage leads to the Deserted Chambers in Blacksnake Avenue. These chambers are on a lower level than is the Main Cave.

We make several abrupt descents, as we pass and re-pass three several times beneath the Main Cave before we reach Side-saddle Pit.

We are now traveling back toward the mouth of the cave, but far below the level of the entrance. We are still on the same track of yesterday, as described in the Short Route. You will observe we do not turn off to the right into the Labyrinth beyond Side-Saddle Pit, but we keep forward, turning a little to the left, pass over the Bridge of Sighs, spanning the Bottomless Pit, and follow the Arched Way till we enter a wild, irregular cavern known as

REVELER'S HALL.

At this point we make a new departure and enter upon scenes not described in the Short Route. Instead of following the more pretentious and inviting Pensacola Avenue, we turn to the left and creep cautiously under a large, flat rock, known as

THE SCOTCHMAN'S TRAP.

By some frightful commotion among the rocks, perhaps ages ago, the most elaborately ornamented portions of the cave came near being veiled from human sight. The huge stone cover, that would have blocked up this passage to the rivers had not the apex of its angle caught against the wall, still leans over the opening at an angle of forty-five degrees. We cast a suspicious glance at this arrested dead-fall as we descend the declivity and hasten into

THE VALLEY OF HUMILITY.

Here we do a grievous amount of stooping, recalling some of the characters in "*Dante's Inferno*." Suddenly we enter a new passage at right angles. This is high enough to permit us to stand upright. The portion leading to the right is called

BUNYAN'S WAY.

This may be followed for miles of tortuous windings that only weary and perplex the explorer, by bringing him into the old path again, without discovering anything of special interest.

That part leading to the left is known as

BUCHANAN'S WAY.

This may be followed for a long distance with no better results. We choose, however, to follow it about forty yards, where we turn off at right angles into that "mill of the gods"—that torment of obesity—

FAT MAN'S MISERY.

This unique passage is near one hundred yards long and from sixteen to twenty-two inches wide. The channel proper is twenty-eight to thirty inches deep. The roof rock is from three and a half to five feet above the bottom of the channel. Before this channel was cut there was a lateral cleft between the two layers of rock, extending several yards on either side of the lowest portion of the under layer.

In seeking out the lowest portion, the water pursued a most tortuous course for thousands of years, until it had silently chiseled out this nar-

row passage to a nearly uniform width and depth, in which the very ripple marks are preserved in stone of unique pattern. The bottom and sides are smooth but not even. They are the waters of a storm driven sea, in miniature, transformed into stone.

Two persons can not pass each other in this channel. Indeed, it is difficult enough for one person to pass, and if he exceed certain prescribed limits it becomes the needle's eye through which the very fat man may never pass, though heaven lay beyond. The largest man that ever passed through this channel weighed $282\frac{1}{2}$ pounds, but the guide had to come to his aid, and even then, as the fat man himself declares, the rocks had to bend a little. In such desperate straights a man's word may not be safely questioned, so, rather than let him perish just where he would shut off so much beauty from the leaner world, we indorse the statement—with a mental reservation. The peculiar feature of this channel is a study for the scientist, who never hastens through it. Indeed, the fattest dullard shows a tendency to linger in its narrowest portions.

Suddenly we emerge into a high, open space, known as

GREAT RELIEF.

Now it is relief, indeed, to be permitted to extend the limbs and expand the lungs to their fullest extent and capacity.

Overhead are some peculiar phenomena, dependent upon the different degrees of solubility of the rock.

ODD-FELLOW'S LINKS.

These represent a portion of a chain stretched across the ceiling and adherent to it. The likeness is very complete. The discoloration of the links shows the presence of iron in the rock which resists the action of water. Many interesting forms will be pointed out in this part of the Long Route. The most important of these forms are found in the

BACON CHAMBER.

As the water rushed into this chamber through several passages, the effect was somewhat like that produced by the whirlpool below Niagara Falls. The resulting commotion forced the water against the ceiling and thus dissolved out, in time, some wonderful forms, which resemble rows of hams of meat suspended from the ceiling.

Four blind people visited the cave some years ago. They were extravagant in their expressions of appreciation of the beauties and wonders of the cave.

On being shown into the Bacon Chamber, these blind visitors recognized it at sight, and declared that the likeness seemed to them very striking.

This may seem phenomenal to those who are skeptically inclined, but you will remember that blind people can see in the cave, by the aid of their lamps, quite as well as the blind fish that always live in the cave.

RIVER HALL.

Darkness that is palpable and stillness that is painful pervade this gloomy region perpetually, except when the lamps of an exploring party shed their feeble light in these lofty halls, or when the swollen rivers dash against the rocks with sullen roar. The water may rise forty feet in this hall. Such a rise will, for a short time, prevent the navigation of Echo River. The statement that the water in the cave is subject to sudden tidal fluctuations is not based on facts. The water in the cave rises and subsides as Green River rises and subsides.

From the Bacon Chamber we retrace our

steps in River Hall. The guide will point out the

OHIO AND MISSISSIPPI RIVERS

And the Atlantic Cable; whether Bennet's or another line he does not mention, and no one asks the question.

THE DEAD SEA.

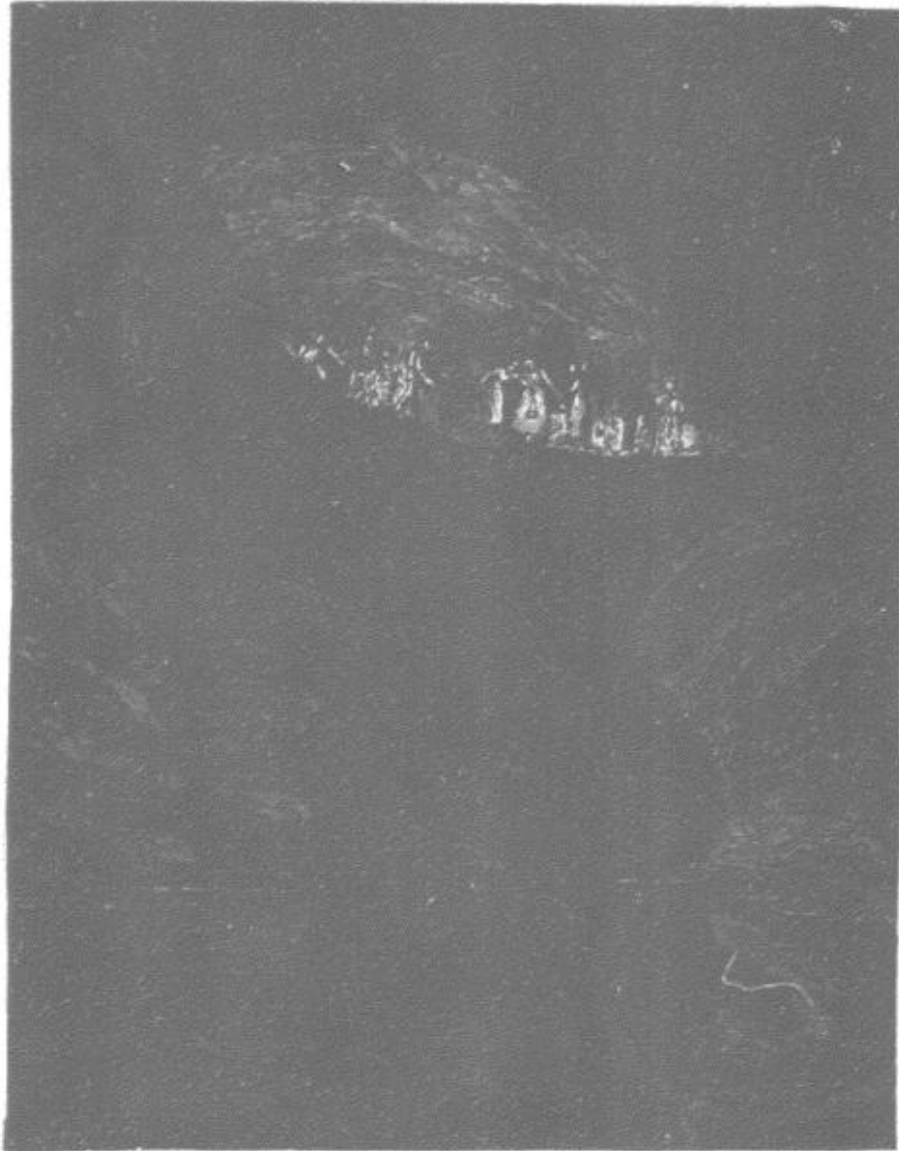
This dismal looking pool lies far below our feet. If we hurl a stone down into its mysterious depths, as almost every one is tempted to do, there follows a responsive thud that awakens a legion of slumbering echoes. These waters are never stagnant or foul but always pure and fresh. At low water the Dead Sea is twenty feet deep. At one place we may approach near its surface and almost feel the strange gloom that hovers over it.

THE RIVER STYX

Is in some way connected with the other rivers in the cave. Its depth, width and length depend upon the stage at which measurement is made.

THE NATURAL BRIDGE.

This is a limestone arch, spanning the stream far above the water at low stage. We cross over this bridge. It is well to be very careful



THE RIVER STYX.

here, as we may find a slippery place, or a low ceiling beneath which we must stoop in passing.

The next point of interest is

LAKE LETHE.

We reach this point after crossing the bridge and descending a steep stairway to the level of these mythological streams or pools in River

Hall, where thick, dreary darkness surrounds us; the dark gray rocks on all sides and over us, and at our feet lies a pool of fresh, sweet water never rippled by the breeze.

Moored by a stake driven into the sand is a little boat, into which we step and are ferried safely to the other side.

At some seasons the water is so low that we pass over on the dry sand and do not need a boat till we reach Echo River.

You will here observe the magnificent cornice all along this dreary hall. It lacks only the owl's complaining to the moon, to suggest some baronial castle of the middle ages.

SHAKESPEARE'S HEAD.

Two hundred yards from Echo River up on the left hand wall, and nearly opposite the Snow Clouds, is a very clever likeness of the tragic poet. Any one who has ever seen the immortal bard will recognize even in this dim light the truthfulness of the picture. It is not a silhouette, nor a bass relief, but a very clever intaglio.

One might imagine that the irate Ignatius had seized the reckless poacher who "knew little of Latin and none of Greek," and jammed his head into this solid rock, in his Herculean effort to make the world believe that the "Sweet

Swan of Avon" was Bacon, and not Shakespeare.

THE GREAT WALK.

Our path now leads over undulating sand deposits, many of them very large. In some of these the sand is fine and white, in others it is coarse and red.

These heavy deposits of coarse sand indicate the force of the current when the rivers are high.

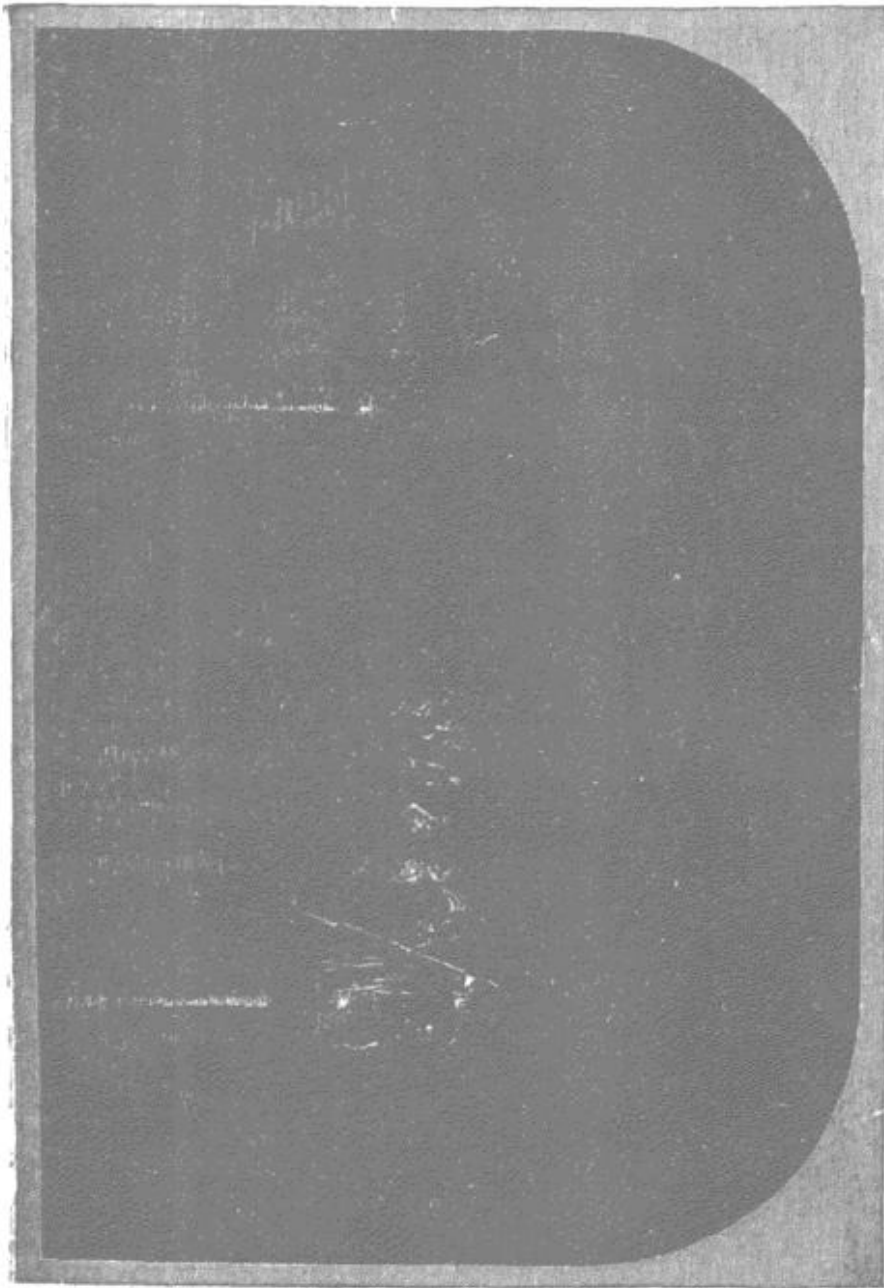
All along this grotto the ceiling is high over our heads, not less than thirty, and in some places more than forty feet. It seems probable that the water began to flow between strata of these soluble limestone rocks ages ago, cutting away the under rock and leaving the upper, which now forms the roof over our heads.

In ten minutes slow walk from the Lethe Lake we reach the

ECHO RIVER.

This wonderful stream is in some respects the most interesting phenomenon in this part of the cave. Its water has a temperature of fifty-four degrees, and at some seasons the bottom may be distinctly seen at the depth of twenty feet or more. In the widest part it is probably one hundred and fifty feet across. It is navigable for the distance of more than half a mile.

ECHO RIVER.



A RIDE ON ECHO RIVER.

As we now approach the water, we find here several substantial boats, with comfortable seats along the sides, each large enough to hold a dozen persons. We step into one of these boats and arrange ourselves along the two sides. The

guide unties, pushes off, and manages the craft. As the boat moves gently along, you may observe the perpendicular wall on the right, supporting the roof forty feet above our heads. The roof descends gradually as it extends back from the river, till it meets the gradually rising sandy floor.

When we have reached the arch, the river seems to have come to an end. There is a rocky passage leading to the left, by which we may go around the river. This is known as

PURGATORY.

We do not choose to disembark and follow this passage. On our right is a low arch, probably three and a half, certainly not more than four, feet high. Into this arch the guide directs our boat, shouting "low bridge." By stooping we pass safely under this arch, and direct the course of the craft by placing our hands against the rocks over head. After going two or three lengths of the boat, the rocky arch springs far over our heads. Now we observe the peculiarity for which this river and grotto are so justly famous. It is not, properly, an echo that follows every utterance of sound. It is something far more enchanting and musical than echo. We are not familiar with anything like it elsewhere, hence we can not describe it. We might say it

is an uninterrupted series of cadences, gently intensified till the climax is reached, at which point the force begins to diminish, the cadence is prolonged, the harmony and sweetness are sustained till the last trill dies away in the distance, too ethereally fine for adequate description. Again and again we repeat the experiment, only to be more and more enchanted by the result and more hopelessly puzzled in our efforts at description. A single voice is converted into an orchestra. "Annie Laura" and the "Last Rose of Summer" have afforded many fine bits of phonation when very slowly rendered here.

No one who has experienced this elysian sense of sound can ever forget it. It is soft, sweet music in far-off Paradise.

The water is pure and sweet, and has no perceptible current. It is never foul or stagnant.

We have now reached the landing at

CASCADE HALL.

This is a large, irregular and rocky cavern. Here we step out of the boat, and the guide ties her securely for our return trip.

The sound of falling water greets our ears. A small stream, not thicker than a gentleman's cane, issues from an opening in the ceiling and disappears among the rocks on the floor. This is the wildest and most romantic cavern beyond

the Styx. It has an area of a quarter of an acre, irregular and picturesque on every side. The floor is almost impassable with rocks and rubbish that have fallen at intervals from the ceiling or were washed here by hydrostatic pressure. It is a fit habitation for the gnomes who have until recently held unenvied and undisputed possession.

SILLIMAN'S AVENUE,

Seven or eight yards wide, from eight to twelve yards high, and one mile and a half long, begins at this hall. This avenue was named in honor of Prof. Benjamin Silliman, Jr., who explored this cave in 1850.

Prof. Silliman devoted much time and attention to the study of the blind fish found in this cave. Dr. Dekay first described these blind fish in 1842 under the name of "*Amblyopsis Spelæus*," by which name they are known to the scientist.

This avenue has many points of interest for the casual explorer.

The floor is very irregular, and at places almost impassable, owing to portions of the ceiling having tumbled down from time to time many centuries ago.

Either wall has a well defined cornice of

shelving rock near the roof of the cavern, which gives it a heavy architectural finish.

On each side of this Avenue little passways put off, wind through the rocks, and finally terminate in the avenue farther along.

WELLINGTON'S GALLERY.

This is the first point to which your attention is called. It is merely a landmark, and contains nothing of special importance.

DRIPPING SPRING,

A pool of water receiving its supply, drop by drop, from the ceiling. It serves to quench the thirst of the tourist.

THE INFERNAL REGIONS.

This part of the cave being low, it is subject to overflow, and the floor does not dry out promptly after the water subsides.

The path being rocky, uneven and slippery, may induce you to sit down suddenly and ponder over the appropriateness of the name. Profanity not allowed!

THE SEA SERPENT

Is a tortuous crevice cut into the rock overhead. It will not especially interest you. The guide may call your attention to the Valley Wayside Cut, but this has no claims upon your sympathy.

THE HILL OF FATIGUE

Appeals to you for renewed muscular effort. Here occurs a sudden turn in the direction of the avenue, producing a very fair representation of the stern of a ship. This is known as the

GREAT WESTERN.

You may even fancy down among the rubbish a monster rudder, turned hard aport.

THE VALLEY OF FLOWERS.

Here the excrescences of gypsum discolored by streaks of iron, resemble an avalanche of rare and delicate flowers. When we first saw this singular phenomenon, a score of years ago, it was white as alabaster and very beautiful. In spite of every precaution, it has suffered mutilation at the hands of the ever curious tourist. It has also become much darkened by the lamp-smoke of numerous visitors.

THE RABBIT

Is much too large and lacks ears, but the pose of the animal is perfect, and the *repose* profound.

OLE BULL'S CONCERT ROOM.

When the tall, acerb Scandinavian visited the cave many years ago, he carried his violin with

him. He treated the company to some matchless diapasons on Echo River, and also in this part of Silliman's Avenue, which still bears his name. Here the name of the avenue is changed to that of

PASS OF EL GHOR.

For the distance of a mile and a half, El Ghor is a distorted labyrinth of beautiful and surprising sights; now narrow and lofty, now flattened out between horizontal strata of limestone, whose broken edges assume the most remarkable forms. Here is a little vestibule with moldings and friezes of the gothic style of architecture; beyond is a Cretan labyrinth of the most singular and uncouth proportions, terminating in a series of ramifications leading to several tiers of avenues.

We will mention a few of the many objects of interest that crowd upon us here.

HANGING ROCK.

This is a large rock, resting upon one point that saved it from falling to the floor.

THE FLY CHAMBER

Receives its name from a profusion of specks of black gypsum upon the walls and ceiling, resembling myriads of flies in repose.

TABLE ROCK, OR SHEEP SHELTER,

Is twenty feet long, and projects eight or ten feet into the hall near the floor. It is two feet thick.

VICTORIA'S CROWN.

This is six feet across, and stands up ten feet above the floor. It is a very correct likeness of a crown—hard and stony as royalty itself.

CORINNE'S DOME.

This is an interesting spot, everywhere beautified with a profusion of rock blossoms that defy description.

BLACK HOLE OF CALCUTTA.

An opening near the left side of the pass, not deep nor dangerous, but quite too rough to tumble into merely for fun.

HENDERSON'S REST.

This is a good place to stop for a little while if you are not in any particular hurry. So you may take seats on these rocks for about ten minutes. Just ahead of us you see a steep flight of stone steps, leading to an upper gallery. These steps replace a tall ladder that formerly admitted us to

MARTHA'S VINEYARD.

Now we ascend these steps, and follow the passage leading gradually upward till we reach a large vine firmly adherent to the wall, extending from the base to the top, where it supports a dense mass of foliage and clusters of grapes of wonderful size, "their rich tint of blue and violet shining through the water that trickles over them. The plump, shining fruit, forever ripe and forever unplucked, clusters so thickly together as to hide the leaves of that subterranean vintage." After all, we are left to draw upon the imagination in the dim light of our lamps, for all this is but stone, deceptive as the apples of Sodom.

WASHINGTON HALL.

A little way beyond the vineyard the course of the grotto turns toward the left and becomes more level on a higher plane. Here we enter Washington Hall, a beautiful circular dome, nearly one hundred feet in diameter. The subdued color that lingers everywhere in spite of our lamps gives the hall an air of great antiquity.

It is the custom of tourists to dine in this hall. Fragments of broken bottles sparkle in the dim light on every side.

While we discuss the contents of the lunch.



WASHINGTON HALL.

basket—such as ham-sandwiches, cold stewed chicken, boiled eggs, sardines, cake, etc.—the guides trim and fill the lamps with oil, which is kept here in bottles until they become broken; hence the numerous fragments of glass in this part of the cave (?) Other reasons might be

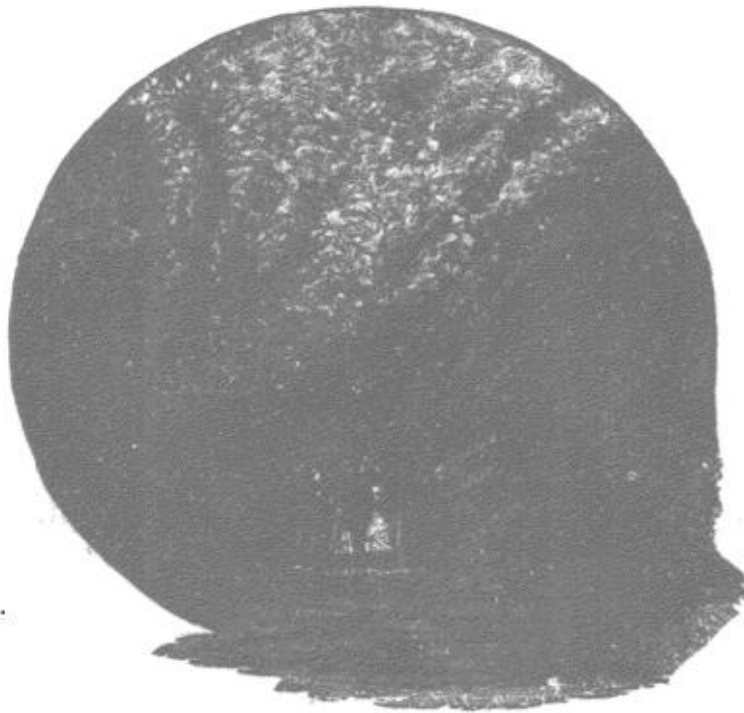
assigned by malicious persons for the presence of these fragments of glass.

We do not care to linger over our feast, since a sense of chilliness reminds us that we had better resume our journey.

We next enter into a most beautiful hall, known as

CLEVELAND'S CABINET OF CRYSTALS.

This has no reference whatever to the Chief Executive, nor his auxiliary officials. It was named in honor of the great minerologist. The first point of interest is the



SNOWBALL CHAMBER.

SNOWBALL CHAMBER.

The walls and ceiling are dotted over with bunches of gypsum, resembling very much the

marks of snowballs that had just been hurled against the wall.

For nearly one mile this hall is one prolonged series of sparkling surprises.

THE DIAMOND GALLERY

Simply surpasses description. The walls, ceiling and floor are everywhere incrustated with frost work, sparkling with gems of the first water. Every movement of your lamp only multiplies the countless host of shining points. The effect is dazzling. The variegated and brilliant display surpasses anything we have yet seen.

MARY'S BOWER

Is fifteen feet high and forty feet in length. The walls and ceiling are covered with white rosettes and trailing fringes of fibrous gypsum.

THE CROSS.

Two crevices overhead, intersecting each other at right angles. These crevices are ten inches deep and from six to ten feet long. Each crevice is lined with flowers of gypsum.

MAMMARY CEILING.

Nipple-shaped projections of unique pattern and spotless purity, hang in pendant masses over

head, suggesting the objects after which they are named.

THE LAST ROSE OF SUMMER.

This is a large solitary rosette, almost perfect in shape and fully ten inches across. When we first saw this oulopholite, it was white as snow, but now it is a trifle smoked by the lamps of the thousands who have gazed upon it with emotions of unutterable delight.

BACKUS' GLORY,

A little alcove, lined with nodules of gypsum resembling grapes. St. Cecilia's Grotto, Diamond Grotto and Charlotte's Grotto are all too brilliant and enchanting to be described.

THE FLOWER GARDEN.

Here is a conservatory of inorganics, stocked with the indigenous flora, as well as with rare and costly exotics.

White roses and sunflowers, daisies and lilacs, the convolvula arvensis and the feathery chalices of the cactus, hang in bewildering profusion from the crevices.

Tons of fibrous gypsum, white as wool, are scattered everywhere among the rocks and stowed away in the interstices.

We have gazed upon this profusion of daz-

zling brilliants and sparkling gems till the senses have become bewildered and our cupidity excited. We furtively seize one of the finest, when, so like the rest of us, they are soft and not what they seem. Finally we leave them with a lingering sense of selfish regret because we can not take them with us. Though they possess no value in themselves, they would aid us in dazzling and captivating the rest of mankind.

Yon dreary pile rising in the dim distance is known as

THE ROCKY MOUNTAINS.

We climb the rocky side till we have reached the summit and gaze down into the Dismal Hollow beyond. Upon the very highest point stands

CLEOPATRAS' NEEDLE.

This is a stalagmite thirty inches high and ten inches in diameter, a translucent alabaster pillar, with a depression like a bird's nest in its apex.

In ascending to the top of this pile of rocks, so unceremoniously jumbled together, we have climbed to a great height. A vast dome extends far above our heads, reaching probably very near to the surface of the earth. In support of this theory we might mention the numerous signs of animal life, such as rat and mice tracks and

brown colored crickets here clinging to the wall. Immediately on our right is

CROGHAN'S HALL.

On the right of this hall is a deep pit, some fifteen to twenty feet across. This is known as the

MAELSTROM.

Openings to avenues may be seen down the sides of this pit. The place was generally shunned because of its forbidding and dangerous appearance.

In 1859, Willian Cortland Prentice, by the aid of his young friends, made a descent into this pit and partially explored its mysterious depths.

He was lowered by means of a rope in the hands of trusted friends, who drew him up again at his bidding.

Several accounts of this daring adventure were published at the time.

It has been made the thread of a spirited narrative poem by the Rev. George Lansing Taylor, from which we append an extract further along in this work.

END OF THE CAVE.

Though this is called the end of the cave, it is but the end of the long journey; or rather it

is the point at which we begin to retrace our steps toward the entrance. We have not measured the distance, and therefore we do not know how far we are from the entrance.

It is generally concluded that Cleopatra's Needle stands nine miles from the entrance by the route we have traveled.

This estimate must be very nearly correct, based upon the rate of speed and the time consumed in traveling over it.

We have now made a long journey over a rough and perilous road, and we are consequently somewhat fatigued. So after a little rest we begin to retrace our steps and pass somewhat more rapidly backward through the various parts of the cave, lingering only at points of greatest interest.

No amount of interest, however well sustained, can render mortals oblivious to fatigue. The first few miles on the return trip are passed over in comparative silence. The guide calls halt and orders rest more frequently. The languor vanishes imperceptibly as we discuss anew many points of interest that we had passed too hastily.

At the furthest point we reached we were much nearer the entrance, in direct line, than we will be when we shall have reached Martha's Vineyard, several miles on our return. From

Martha's Vineyard to the entrance of the cave the general direction does not deviate very much from a straight line.

In this nether world of darkness we are utterly unconscious of direction as we are of the flight of time or change of season. Whether it be day or night, summer or winter, it is all the same to us, so long as we are beyond the reach of sunlight or change of temperature.

While the outer air contains four parts carbonic dioxyde in ten thousand, the air of the cave contains only about two parts, and the most delicate reagents have failed to detect the presence of ozone.

Thus we have the most favorable conditions for prolonged physical effort with the least amount of fatigue. Two hours' shopping will produce more soreness and fatigue than four hours' journeying in the cave. We believe, too, that the quiet of the cave exerts a powerful influence in the conservation of force.

It is the testimony of hundreds who have made the long journey, with but little inconvenience, though in not very robust health, that half the distance traveled in open air has produced more fatigue and even prostration.

Be this as it may, we are abundantly satisfied with the result of our most careful observations, repeatedly made, that the purity of the air

and the uniformity of temperature afford the most favorable conditions for prolonged physical exertion.

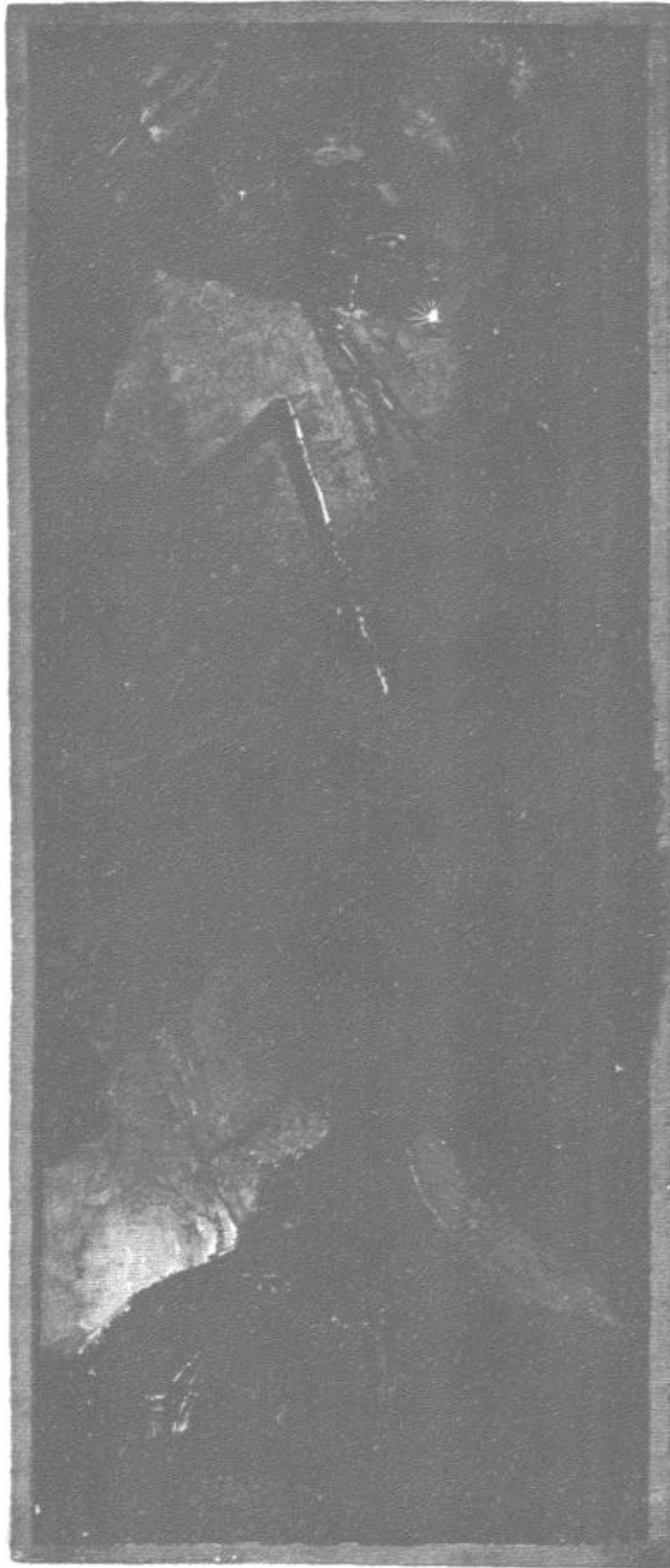
We have now retraced Cleveland's Cabinet, the Pass of El Ghor and Silliman's Avenue. While we are surveying again the wild dimensions of Cascade Hall, we inspect closely a little pool of limpid water separated from Echo River by a temporary bridge rudely constructed of stone. Here we observe a number of eyeless fish about three inches long. As to color, they are either an olive brown or transparent. They rest on the bottom till disturbed by the movement of the water, to which they are very responsive. Whether they take cognizance of sound any more than light will most probably be decided in the negative. It is very evident that the sense of touch, upon which they mainly rely for safety, has become exceedingly acute in these low forms of life. Though we might talk and hold our lamps near the water, they would dart away only when anything was thrust into the water. For want of a net we did not succeed in catching any eyeless fish or eyeless crabs.

The naturalist has acquainted us with the very singular fact that these blind fish are viviporous, while other fish generally and the eyeless crabs are oviporous.

THE RETURN TRIP ON ECHO RIVER.

We now step into the boat again, and avail ourselves of this opportunity for taking a good rest. The guide thrusts his paddle into the water and we move off slowly beneath the high ceiling spanning this mysterious river.

Again we attempt to study sound, and discover that this cave has a dominant pitch of its own, with which it is in sympathy whenever that pitch is struck ; then the very air is full of music of which we can give no analysis. We try shouting, singing, pounding and splashing in the water ; every impact is followed by its countless blendings of reverberation. The chorus and the octave produce prolonged swells of harmony that captivate the soul. This noisy demonstration is generally kept up till we approach the arch, beneath which we pass by stooping. We suddenly appear in the capacious hall with ceiling high over our heads. Here we step ashore and secure the boat for the next party, and complete the remainder of the journey on foot. We take up the line of march over the Great Walk, over the Natural Bridge, through River Hall, and, in order to shorten the journey and cheat Fat Man's Misery, we pass to the right of the Bacon Chamber, ascend into



THE CORKSCREW.

THE CORKSCREW,

And return to consciousness high up in the Kentucky cliffs, not far from the Rotunda. We are now so completely recuperated physically that we almost wish we had returned by the longer way of

FAT MAN'S MISERY.

After taking another look at the magnificent Rotunda, we press out through the Narrows, pass through the gate and stand in daylight again.

If the day be warm or sultry, we will linger in the cool air that blows out of the mouth of the cave, or ascend the long flight of steps very slowly till we become accustomed to the new conditions of environment into which we have entered.

Above all, the walk up the hill to the hotel should be accomplished very leisurely. Sound sleep and complete restoration of physical force are pretty sure to follow.

If the visitor could be persuaded to remain here, in this most healthful place for a whole week, he would find plenty of objects of very great interest to visit that would amply repay him. Then after sleeping soundly and thinking profoundly for several days over what he had seen, he should take just one more trip into the

cave and revisit the points with which he was most profoundly impressed.

When all the fairy visions of a half-realized fact, like a fit of intoxication, have disappeared, when the novelty of enchanting romance has had time to appear in the role of a commonplace affair, then we can stand unbiased, face to face, with a cold natural fact, and philosophize deliberately upon cause and effect, and account for the phenomenon on scientific principles.

We have now accompanied you with much care over the Short Journey and also over the Long Journey. We have traveled with you, in the aggregate, through the mysterious recesses of this nether world not less than twenty-five miles. Vast as this distance may seem, it is less than one-tenth part of the entire extent of the Mammoth Cave, as known to the guides and to others who have made the cave a study.

Thanking you, dear reader, for your kind attention, we will here dismiss you at the end of the Long Journey.

DISCOVERY AND OWNERSHIP.

Though the Mammoth Cave was first discovered and partially explored by white settlers within the memory of men now living, strange to say the testimony as to the date of discovery

is vague and conflicting. Some writers put it as early as 1802, and others as late as 1809.

Most probably it was discovered by white men sometime within the first decade of the present century.

In a letter addressed to W. Stump Forwood, M. D., Philadelphia, dated Glasgow, Kentucky, February 9, 1868, Mr. Frank Gorin, a former proprietor of the cave, says: "It was discovered in the year 1809, by a man named Houchins, by running a bear into it." This testimony is perhaps the most direct and reliable of all we have seen on the subject.

No question hinges on priority of discovery.

Its importance and extent were not known for some years after its discovery, as the records show that a man named McLean bought the cave and two hundred acres of land for \$40. This is nothing very strange, since the records show, also, that one Peter Minuit once bought the island of Manhattan, on which the City of New York now stands, for \$24.

After changing hands several times, the Mammoth Cave and its accumulated territory of nearly 2,000 acres fell into the hands of Dr. William Croghan.

The doctor, being unmarried, left no heirs to inherit his estate. He died in 1845, having directed by will that the estate should be man-

aged by trustees for the benefit of his eleven nephews and nieces, seven of whom yet survive.

Its slowness in becoming a prominent place of resort, and the preservation of the ancient landmarks around the cave, are largely owing to its joint ownership by the legatees of the childless doctor.

When the last beneficiary shall have died, the property will probably be sold by a decree of court. A different regime may then be inaugurated here. For one, we would be very sorry to see this long row of buildings with its six hundred feet of wide, covered veranda removed, though a palatial modern edifice of six hundred rooms were to take its place.

Visitors to the cave come from all parts of all countries. They may be numbered by thousands annually.

Shortly after the publication, in 1869, of our first book, descriptive of this great wonder, a party of four hundred visitors arrived at the cave in one day.

On the 4th of July, a year or two later, a party of five hundred and sixty persons visited the cave. All these guests were hospitably entertained and amply served during their visit to this interesting and most delightful place.

GEOLOGY

Of the Cavernous Regions of Kentucky and Adjoining States.

The question will doubtless arise in the mind of some visitor to the cave, "what geological age of the world has made it possible for such immense caverns to exist within its formation?" Since this formation is evidently comparatively recent, we may find its place by exclusion.

It can not be the Lower Silurian era, for the Trenton Limestone of that era is not capped by eighty feet of sandstone, as is the formation in which the Mammoth Cave exists. It can not be in the Hudson River or Cincinnati group of the Lower Silurian, for the limestone of that group is not sufficiently soluble, if even it were continuous in formation, which it is not.

No period of the Upper Silurian era contains the necessary conditions for such extensive erosions, so we see that it belongs to neither the Lower nor the Upper Silurian era, but to some later formation.

The Devonian era is equally destitute of all the necessary conditions for the formation and existence of a cave of such magnificent proportions. We must seek higher and later.

In the Subcarboniferous period of the Carboniferous age, we find the mountain limestone

which underlies Southern Kentucky and several adjoining States, such as Indiana, Missouri, Tennessee and probably several others.

The Subcarboniferous limestone of the Carboniferous era of the Paleozoic time, is the geological formation in which the Mammoth Cave of Kentucky, and probably most of the other important caves of the world, exist.

Mr. Shaler, the State Geologist, is responsible for the statement that 100,000 miles of open caverns exist beneath the surface of the subcarboniferous limestone in Kentucky.

At least 8,000 square miles of this cavernous limestone underlies the southern part of the State. This cavernous limestone varies in thickness from ten to 400 feet, in which might be fashioned the loftiest dome yet discovered in Mammoth Cave.

No trace of dynamic disturbance is found in these rocks. Every traveler must have noticed the absence of running streams of water, and the great number of depressions or sinks in the surface of the earth all through Southern and Central Kentucky. In some places these number one hundred to the square mile. Some are always dry, while others are perpetual pools of standing water.

The fact is, the water has eroded this soluble limestone and found channels far beneath the

surface of the earth. It has established a system of underground drainage.

The soldiers of the late war will remember the enormous springs of fresh, drinkable water around which they camped in Southern fields. These are the outlets of great bodies of water that flow through subterranean rivers in this subcarboniferous limestone.

There are about five hundred caves, large and small, known to exist in Edmonson County, Ky.

The writer has visited, in addition to the Mammoth Cave, Dixon's Cave, Horse Cave, Indian Cave, White's Cave, Proctor's Cave and Diamond Cave. All these are evidently branches of the same series, formed in the same way, in the same substrata of carboniferous limestone, the undermost and oldest period of the Carboniferous era of the Paleozoic time.

The discoveries made during the last forty years of the extension of avenues, warrant us in saying that the possible discoveries yet to be made, may surpass in beauty and magnificence all that has yet been seen of what is considered the most extensive and majestic cave in the whole world.

HOW THE CAVE WAS FORMED.

It may be supposed that the rock in which the cave is formed is soft and friable. This is

not the case. This rock, being a very pure bicarbonate of calcium, is exceedingly hard and very solid, with a specific gravity of 2.735. When freshly broken it is of a whitish gray, or stone color, smooth and firm, with numerous glass-like crystals in it.

Thus far we have not observed in it any trace of petrified animal substances.

Traces of iron are found in the deeper portions of the cave. The iron resists the solvent action of water, and hence the peculiar cornice-shaped forms in River Hall and some other portions, especially the honeycombs of the Labyrinth.

The agencies that formed the cave are both chemical and mechanical.

Fresh rain water running over this limestone will dissolve it, take it up in solution and carry it away. The process of solution sets free a portion of carbonic dioxide; this acidulates the water and thus enables it to perpetually reproduce the conditions on which erosion depends. The running of the water is the mechanical part of the process, by which the chemical agent is continuously produced. Thus the work goes perpetually and automatically on.

MISCELLANEA.

Nearly all the numerous ramifications of this

great network of a cave lie to the south and east of the entrance.

Another point worthy of notice is that there is but one known entrance to this entire series of caverns. Though no other opening is known, it must not be inferred that no such thing exists. The ventilation of the entire cave is most perfect and thorough throughout its entire extent, a matter of the utmost importance to the safety and comfort of the visitor.

In passing through the Gothic Arcade, the rumbling of a train of cars passing overhead serves to locate that particular part of the cave, as the new railroad from Glasgow Junction to the cave passes over it.

There are many points of special interest not shown to visitors, because of the danger and impracticability of the way leading to them. Of some of these we would speak in a general way, giving our own views and also the views of others who have visited them before we did.

AUDUBON'S AVENUE.

When we have reached the Rotunda we may, instead of keeping forward in the Main Cave, enter an obscure little path, now dropped out of the fashion altogether. One part of this path possesses unusual attractions for the naturalist. Countless thousands of bats have taken

possession of an enlarged cavern, wherefore it is known as

THE GREAT BAT CHAMBER.

Here swarms of these chyroptera cling head downward to the walls and ceiling in bunches of many bushels. Notwithstanding they are mammals, they impart a sensation of cold to the touch, and may even inflict a severe wound, followed by acute pain, as the writer can testify, in spite of their semi-torpid condition.

What they feed upon is not so easily settled. Some of them must remain here many months without going out of the cave, as but few of them are seen outside at the same time.

It was formerly believed that they spent only the winter here ; but we have never visited their apartment at any season without finding great numbers of them. We will find plenty of them in the Rotunda for any experiment we may wish to make. The proper way to take hold of one of them is to seize the fur and skin just behind the ears, between the thumb and finger. Its black, velvety coat is finer than any seal of St. Paul's Island. Its perfect color will set at defiance the chemistry of London or Paris.

You may now inspect it closely at will. Blow into its face, it will shrug up its shoulders, move its wings lazily and perhaps utter a feeble cry.

Their eyes are as large as a cambric needle's head ; these they persistently close when brought near the light of your lamp.

We carried one of them out of the cave and examined it by daylight. After learning what we wished to know, we threw it up into the air thinking it would fly, but it only spread its wings and used them as a parachute, lit gently on the ground, and did not exhibit vitality enough to appreciate its freedom.

These bats are very small—not more than one inch and a half or at most two inches long, measuring about six or seven inches across the expanded wings.

Though they are small they can inflict a severe wound. Repeat the blowing and they will open the mouth, curl up the nose derisively, and display a perfect set of the most beautiful and delicate teeth, similar to a cat's, and sharp as a needle.

These little animals belong to the type *vertebrata*, class *mammalia* and order *carnivora* or *insectivora*.

ROCKY HALL

Is a high opening on the left, half blocked up with great rocks that have tumbled from above. Notwithstanding the roughness of this passage it may be followed for two miles, but it is doubtful if we should feel rewarded for the

trouble should we attempt to explore it. It is not open to visitors.

We will keep on in the Main Cave and describe a few points of interest beyond the Star Chamber, the farthest point to which we led you on the Short Route. The next point to which we will call your attention in the Main Cave is the

FLOATING CLOUD CHAMBER.

This is a magnificent hall a quarter of a mile long, corresponding with the Star Chamber in width and height.

The appearance of floating clouds is produced by the scaling off of black gypsum, exposing the white surface of sulphate of calcium or sulphate of soda beneath. The effect of this illusion is very charming. The clouds seem to float from the Star Chamber over the Chief City. Next in order we enter

PROCTOR'S ARCADE.

This wonderful tunnel sustains the reputation of the Main Cave for its astonishing features and the magnificence of its exhibits. It is said to be one hundred feet wide, forty-five feet high and three-quarters of a mile long. We did not make any measurements here. Though in the dim light afforded by our lamps these dimen-

sions seem quite moderate, we must not forget the deceptive effect of a pure atmosphere and the liability to be mistaken.

As to the general contour of the walls and ceiling there can be no doubt. The ceiling is smooth and even and the walls are vertical, as if built by a mason to a plumb-line. When this hall is well lighted up by numerous lights, we shrink into insignificance. The descriptive powers of Seneca could not do it justice.

KINNEY'S ARENA.

This hall, one hundred feet in diameter, contains a curiosity concerning which there has been much speculation. It is a stick of wood, several inches thick and three or four feet long, projecting out of the ceiling, slanting downward, many feet above the floor.

The first step toward a rational solution of the problem would be to procure a piece of the wood, by sawing it off, if not petrified. If it were found to belong to the ancient family of conifers then the solution of the problem would not be as difficult as it at first seemed.

A tree of the non-deciduous forests of ancient times might easily find its way into the ocean. Becoming saturated, it would eventually sink to the bottom, where it was covered by the slowly forming bicarbonate of lime and hermetically

sealed. When the process of erosion had reached the branches of this tree it uncovered one of them, and here it is in sight, while the trunk remains imbedded in the solid rock overhead.

WRIGHT'S ROTUNDA.

This is a large hall beyond the "S" bend. It is said to be four hundred feet in its shortest diameter. This may safely be divided by two. The striking feature of this rotunda, beyond its great size, is its level ceiling and uneven floor.

On one side the floor is ten feet, and on the other side it is several times ten feet lower than its flat ceiling.

In the eastern part of this rotunda is

NICHOLAS' MONUMENT,

A column four feet in diameter, extending from floor to ceiling.

This column was erected in honor of Nicholas Bransford, the oldest cave guide now living, still to be found in the vicinity of the cave, where he still acts as guide, on occasions, in the busy season.

THE GREAT ISLE.

This is an immense pillar around which the Black Chambers extend, and beyond which this branch of the cave extends nearly half a mile.

FOX AVENUE

Is about five hundred yards long and communicates with the "S" bend from Wright's Rotunda. Some distance beyond the rotunda the Main Cave sends off several avenues. That leading to the left enters the Black Chambers—so called because the walls and ceiling are covered with a crust of black gypsum. This part of the cave is gloomy enough to suit the man who drowned his dog by fastening a loaf of bread to his neck before heaving the dog overboard. That wretch should be banished to the Black Chambers for the remark he made in extenuation of his act, viz: "We do our own baking now!"

Two avenues put off here. One communicates with the Fairy Grotto. This is nearly a mile long and contains a fine collection of stalagmites. The other leads to Solitary Cave, at the entrance to which there is a cascade, known as

THE CATARACTS.

At this point the surface water enters the cave in the rainy season.

THE CHIEF CITY.

This is, perhaps the largest portion of unsupported roof yet discovered. Its area has been estimated at several acres. It is at least

two hundred feet across and forty feet high, without pillars to support the grand arch. The floor is covered with piles of rock that present the appearance of the ruins of an ancient city. A short distance beyond is

ST. CATHARINE'S CITY.

Here the Sims' Pit branch puts off to the right and leads back toward the Cataract, while the Blue Springs branch puts off to the left. The *Main Cave* leads forward to a point near Martha's Vineyard, on the Long Route. It has not been explored to any great extent beyond this point, so we are obliged to retrace our steps to other parts of the cave.

From the Bacon Chamber there is a low, obscure passage leading off to the southwest, and terminating in

THE MAMMOTH DOME.

This dome is the largest, grandest and most perfect of the whole series. It is not far from the Great Bat Chamber. It is said to be more than two hundred feet high. It is viewed from a terrace forty feet from the bottom. It resembles Gorin's Dome, but is many times larger.

THE EGYPTIAN TEMPLE.

A portion of the Mammoth Dome is known



THE EGYPTIAN TEMPLE.

as the Egyptian Temple, which, too grand for description, must be seen to be appreciated.

WELCOME AVENUE.

A new passage has been discovered since our first visit to the cave. This leads from Blacksnake Avenue to Silliman's Avenue. By this avenue, if it could be made passable, a long distance could be saved in returning from Croghan's Hall. The Rivers and Fat Man's Misery might thus be avoided on the return trip. Being dangerous and impassable it is never shown to visitors.

SOLITARY CHAMBERS.

These lie up not far from the Chief City. They contain nothing of special importance and are never shown to visitors.

MARION'S AVENUE

Leads off to the right from Cleveland's Cabinet, and extends to Portia's Parterre, Paradise and Zoe's Grotto, not far from the Chief City. All these parts of the cave are rich in fibrous gypsum and sparkling gems of soft crystals that show to the best advantage when beyond our reach.

STEPHENSON'S AVENUE

Puts off from Cascade Hall southward and passes under our path, terminating at a point not far from the Rocky Mountains. This is rough and uninviting and is not shown to visitors.

SANDSTONE MOUNTAINS

May be found opposite Croghan's Hall, near the remote end of the Long Route.

Most probably the cave here reaches near to the surface of the earth, as a portion of stone has tumbled down to form the pile of rubbish, on top of which is found sandstone.

FRANKLIN AVENUE.

This is a remote extension of the cave terminating in Serena's Arbor, not far from Echo River, though more than five miles must be traversed beyond Echo River before reaching it.

SERENA'S ARBOR

Is a beautiful cavern, twenty feet in diameter and forty feet high. The walls and ceilings are highly ornamented with crystals and opaque stalactites. These, being sonorous, give out a musical tone when struck by the hand. This is called the "Music of the Cave" The fiend who first called this doleful "Hark! from the Tombs" music must have been very bilious.

At this very remote point we are less than two miles from the mouth of the cave, but we have traveled more than nine miles from the entrance in order to reach it, and we must, consequently, travel more than nine miles to get back to daylight again.

While we are here, and before returning, we will take another view of Croghan's Hall, in which we find the Maelstrom.

In this rough, irregular pit, of unknown extent, we can see the entrances of various galleries, leading off in different directions at different depths, showing distinctly that the whole of this subcarboniferous limestone may be honeycombed to its entire depth of four hundred feet or more, with caverns at different elevations, down to the level of Green River, with which the waters of the cave communicate.

This was partially demonstrated by the descent of William Cortland Prentice, as described by Rev. George Lansing Taylor, in the poem entitled

THE MAELSTROM.

“Down! down! down!
Into the darkness dismal;
Alone! alone! alone!
Into the gulf abysmal,
On a single strand of rope;
Strong in purpose and in hope;

Lighted by one gleaming lamp,
Half extinguished by the damp.
Swinging o'er the pit of doom,
 Into the awful stillness,
 And the sepulchral chillness,
Lower him into the Maelstrom's deeps,
 Where nature her locked-up
 Mysteries keeps.
 Lower him carefully,
 Lower him prayerfully,
Lower and lower and lower,
Where mortal hath never been before ;
Till he shall tell us, till he shall show
The truth of the tales of long ago,
And find by the light that the lamp shall throw,
If this be the entrance to hell or no !”

In descending the adventurer encounters a waterfall or cascade, which is thus fantastically described :

“ But, behold ! from rocky wall,
 Circling round the shaft below,
Spouts a crystal waterfall ;
 All its coarseness,
 All its hoarseness,
When he sees how fair their source is,
Vanish, till, by aid of vision,
Sounds infernal grow elysian.
Now he swings near the side
Of the weird and wondrous tide,
Where its limpid billows slide,

And its sheets, descending, glide,
Veiled in whiteness, like a bride ;
Glistening where his lamp is beaming,
Sparkling, flashing, glittering, gleaming,
Like a shower of diamonds streaming
From the lap of nature, dreaming ;
Streaming downward, passing quickly,
Sprinkling now upon him thickly,
From the fissure far above him,
As if all the Naiads love him,
With so rich a love and tender,
That they shower baptismal splendor,
Floods of jewels for his visit.
Is't a flood of gems? Or is it
That their kisses almost drown him?"

Enchanted by the weird beauty of these fearful depths, the young hero still demands to be lowered :

“ Into the dark profound,
A deep that near did plummet sound ;
Still he descends,
And anxiously bends,
Gazing down in darkness that never ends,
Whose dimness,
And grimness,
And darkness,
And starkness,
And deepness,
And steepness,
And deadness,
And dreadness,

More fitful are made by his lamps sickly redness ;
 Till, checked by sudden shock,
 He stands on solid rock,
 Ninety and a hundred feet
 From the friends who hold that cable ;
 Will they lift it, are they able,
 Face to face once more to greet ? ”

* * * * *

“ He enters a hall,
 A hugh nich in the wall,
 Where echoes unnumbered respond to his call,
 From a roof that impends
 Where a gallery extends,
 Till, bounded by distance, in darkness it ends. ”

* * * * *

‘ Now along its spacious flooring,
 Eager, pleased, he roams exploring ;
 O’er obstructions, through wide chambers,
 Onward still he wends and clammers ;
 Stalagmitic cones and masses
 Glitter everywhere he passes—
 Glitter through the gloom like glasses ;
 Shapes of beauty forming slowly,
 Arches, shrines and altars holy ;
 Groups of columns polyhedral,
 Like some rich, antique cathedral ;
 Nature’s grand and gloomy glory,
 Fairer than the fanes of story.

Thus he wanders,
 Roams and ponders,
 Through this gallery of wonders,
 Till, a rocky barrier rising

To an altitude surprising,
All across the chamber closes,
And effectually opposes
All his efforts to get o'er it,
And he stands repulsed before it;
Yet he sees the cave extending
Onward till in distance blending
With the darkness, as if Nature
Were resolved to hold some feature
Hidden still from mortal creature."

These skipping verses are thus vigorously closed, with, as might be expected, a promise of future greatness and glory for the hero of this daring adventure :

"Down in that depth where no other has trod,
Where writing was none, save the writing of God,
Was graven a name
By the glimmering flame
That shall live on the record of fame."

William Cortland Prentice, son of the famous paragrapher and journalist George D. Prentice, of Louisville, Kentucky, the hero of these verses, espoused the Southern cause and was killed in an attack on the town of Augusta, Kentucky, in 1862.

In strolling around the cave last October, one morning early, we discovered, in a field, the workshop of the aborigines, where they manu-

factured spearheads and darts of flint, or non-crystallized quartz.

Numerous chips of flint were scattered all around. Among these were broken and unfinished darts, showing unmistakable signs of human agency in their forms of construction. Unbroken lumps of flint were also found from which chips had been broken off.

Whether these were made by Mound Builders or by a still earlier race will probably never be definitely determined.

That flint darts were manufactured at the place above referred to will not admit of a doubt. The finding of stone darts is not an uncommon thing, but to find such quantities of chips mingled with broken and partly finished darts is of more rare occurrence. I call attention to this fact, hoping that it may at least be of interest to archæologists, if not to the general tourist.

In closing this volume we introduce the following poem, by George D. Prentice, entitled

“THE MAMMOTH CAVE.”

“ All day, as day is reckoned on the earth,
I’ve wandered in these dim and awful aisles,
Shut from the blue and breezy dome of heaven,
While thoughts, wild, drear and shadowy have swept
Across my awe-struck soul, like specters o’er
The wizard’s magic glass, or thunder-clouds
O’er the blue waters of the deep. And now

I'll sit me down upon that broken rock
 To muse upon the strange and solemn things
 Of this mysterious realm.

All day my steps
 Have been amid the beautiful, the wild,
 The gloomy, the terrific. Crystal founts
 Almost invisible in their serene
 And pure transparency; high pillared domes
 With stars and flowers all fretted, like the halls
 Of Oriental monarchs; rivers dark
 And drear and voiceless as oblivion's stream
 That flows through death's dim vale of silence; gulfs
 All fathomless, down which the loosened rock
 Plunges until its far off echoes come
 Fainter and fainter, like the dying roll
 Of thunders in the distance. Stygian pools,
 Whose agitated waters give back a sound
 Hollow and dismal, like the sullen roar
 In the volcano's depth; these, these have left
 Their spell upon me, and their memories
 Have passed into my spirit, and are now
 Blent with my being till they seem a part
 Of my own immortality.

God's hand

At the creation hollowed out this vast
 Domain of darkness, where no herb nor flower
 E'er sprang amid the sands, nor dews, nor rains,
 Nor blessed sunbeams fall with freshening power;
 Nor gentle breeze its Eden message told
 Amid the dreadful gloom. Six thousand years
 Swept o'er the earth e'er human footsteps marked
 This subterranean desert. Centuries

Like shadows came and passed and not a sound
Was in this realm, save when at intervals
In the long lapse of ages, some huge mass
Of overhanging rock fell thundering down,
Its echo sounding through the corridors
A moment, and then dying in a hush
Of silence, such as brooded o'er the earth
When earth was chaos. The great mastodon
The dreaded monster of the elder world,
Passed o'er this mighty cavern, and his tread
Bent the old forest oaks like fragile reeds
And made earth tremble; armies in their pride
Perchance have met above it in their shock
Of war, with shout and groan and clarion blast,
And the hoarse echoes of the thunder gun;
The storm, the whirlwind, and the hurricane
Have roared above it, and the bursting cloud
Sent down its red and crashing thunderbolt;
Earthquakes have trampled o'er it in their wrath,
Rocking earth's surface as the storm-wind rocks
The old Atlantic; yet no sound of these
E'er came down to the everlasting depths
Of these dark solitudes.

How oft we gaze
With awe or admiration on the new
And unfamiliar, but pass coldly by
The lovlier and the mightier! Wonderful
Is this world of darkness and of gloom,
But far more wonderful yon outer world
Lit by the glorious sun. These arches swell
Sublime in lone and dim magnificence,
But how sublimer God's blue canopy

Beleagured with his burning cherubims,
Keeping their watch eternal. Beautiful
Are all the thousand snow-white gems that lie
In these mysterious chambers, gleaming out
Amid the melancholy gloom, and wild
The rocky hills and cliffs and gulfs, but far
More beautiful and wild the things that greet
The wanderer in our world of light—the stars
Floating on high, like islands of the blest;
The autumn sunsets glowing like the gate
Of far off Paradise; the gorgeous clouds
On which the glories of the earth and sky
Meet and commingle; earth's unnumbered flowers,
All turning up their gentle eyes to heaven;
The birds, with bright wings glancing to the sun,
Filling the air with rainbow miniatures;
The green old forest surging in the gale;
The everlasting mountains, on whose peaks
The setting sun burns like an altar flame;
And ocean, like a pure heart rendering back
Heaven's perfect image, or in his wild wrath
Heaving and tossing like the stormy breast
Of a chained giant in his agony."

THE END.