

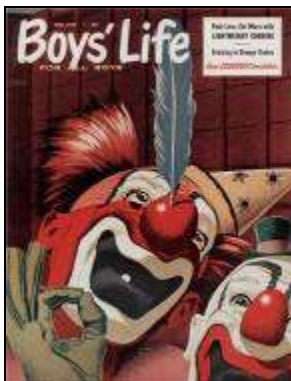


May 1951

"High Water!"

A few hundred feet inside the cave found us in absolute darkness... A hundred feet farther on we found ourselves wading nearly knee deep in a stream of ice cold water which came rushing toward us through the narrow tunnel we were following... Ronnie went up ahead, then came back to announce that the underground stream became a small lake with icy water waist deep.

A true adventure, accurate in description of a cave stream issuing from an interior spring.



June 1955

"Our National Parks"

We'll see the postcards in Chapter 55, Then Madam, You Should Go and See the Great Cave in Kentucky.



April 1957

"Terror in the Temple"

The boy in the village, half dead from the trip through the underground river, had done it. Driving with all he had left, Joe fought clear of the pool's embrace.

The harrowing underground river escape so favored by the type of authors who choose titles like "Terror in the Temple."



March 1960



"So You Want to be a Geologist."

For example, there are geologists who trace hidden underground water sources in regions having precious little water. One method of doing this is with a radioactive tracer. A water-poor area may have an underground river flowing beneath it. If engineers could plot the hidden course of the river, they could tap the underground water by installing pumping stations along the path. The geologist helps in this task by pouring radioactive material into a river at the point where it disappears underground. Then with radioactive detection instruments on the surface he follows the underground radioactive current and so plot the course of the river. Geologists do still other kinds of work equally exciting and helpful to men.

"Pouring radioactive material into a river at the point where it disappears underground." For further interesting experiments, the Scout needed the Gilbert Atomic Energy Kit.

We'll cover groundwater tracers in Chapter 49, Finding the Underground Rivers.



July 1961

"On the Cahokia Pilgrimage"

From the levee the trail winds through a quarry and past a falling spring, appropriately named Falling Springs, where an underground stream pours out about 50 feet up on the side of a bluff.

Nonfiction with a common error of nomenclature -- "underground river" again used where the correct term is "spring."



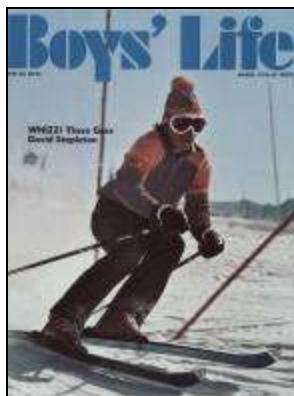
October 1975

"Hiking a Raft Down the Underground River"

The raft of inner tubes, canvas, and plywood lurched forward a few feet in the murky water -- then ground to a halt on the sandy bottom of the Salinas River.

"So this is why it's called an underground river," Brian Dana said. For the tenth time in 15 minutes Brian, Dan Dutra, and Byron Foster jumped from the deck of the raft and tugged on the craft's towropes.

A wry observer, Scout Brian Dana. We'll see, however, that the Salinas may have a deeper underground tie in Chapter 94, The Rio San Buenaventura.



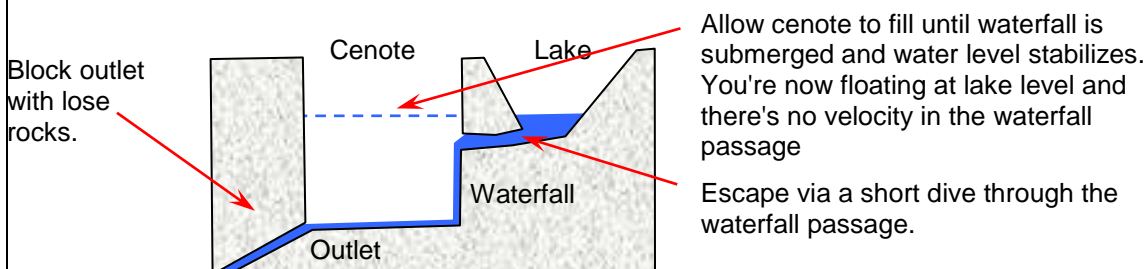
March 1976

"Down the Drain" by Zolton Malocsay

Cenote of the Spirits near the ruins of Tan-Ka in central Mexico.

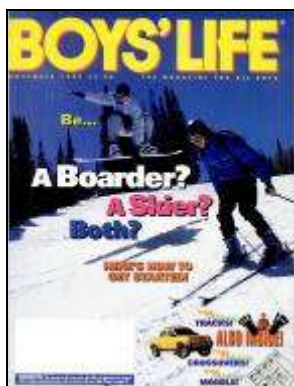
By the time I felt the current, it was too late. I lunged to get away, but the current had me, dragged me deeper under the ledge, into the dark, into the throat of some underground river. I clawed at the ceiling, but my fingernails couldn't hold in the slime. My tanks clonked and scraped, my knees hit rock, my elbows, and suddenly there was nothing but blackness and the rush of water.

The plot's standard Boys Club fare, but the Scout learns how to escape from a vertical-walled cenote having a waterfall from the wall fed by an adjacent lake.



Allow cenote to fill until waterfall is submerged and water level stabilizes. You're now floating at lake level and there's no velocity in the waterfall passage

Escape via a short dive through the waterfall passage.



November 1999

"Hawaiians on Ice"

Prussiking is a technique used to haul yourself up a rope using sliding friction knots. A longer rope has a loop for your feet on both ends; a shorter rope attaches a harness to your climbing rope...



Justin Leong prepares to practice his prussiking skills (see box above).to pull himself out of an underground river.

Factual report of a Scout excursion with misuse of "underground river" in lieu of "crevasse." We'll discuss glacial rivers in Chapter 42, Underground Rivers in Caverns other than Karst.

Although **George Ralphson** didn't write for Boys' Life, we'll include him in this chapter for his Boy Scouts adventure series, the characters of which embody the slogan "Do a Good Turn Daily."

To the Boys and Girls of America, in the fond hope that herein they will find pleasure, instruction and inspiration; that they may increase and grow in usefulness, self-reliance, patriotism and unselfishness, and ever become fonder and fonder of their country and its institutions, of Nature and her ways, is the cherished hope and wish of the author. -- G. Harvey Ralphson, Scout Master

Boy Scouts in Mexico, or On Guard with Uncle Sam (1911)
Boy Scouts in the Canal Zone, or The Plot Against Uncle Sam (1911)
Boy Scouts in the Philippines, or The Key to the Treaty Box (1911)
Boy Scouts in a Motor Boat: or, Adventures on the Columbia River (1912)
Boy Scouts in an Airship (1912)
Boy Scouts on Motor Cycles (1912)
Boy Scouts Beyond the Arctic Circle (1913)
Boy Scouts in California (1913)
Boy Scout Electricians, or The Hidden Dynamo (1913)
Boy Scouts on Old Superior, or The Tale of the Pictured Rocks (1913)
Boy Scouts on the Open Plains (1914)
Boy Scouts in Southern Waters (1915)
Boy Scouts on the Open Plains (1914)
Boy Scouts in the North Sea (1915)

Some of the Scouts' underground river adventures.

Boy Scouts in Mexico (1911),

"Water in wells comes from elevations before it gravitates to the bottom of the holes from which we pump it," Shaw declared, in defense of his suggestion. "There may be a reservoir here somewhere."

Boy Scouts in a Motor Boat (1912),

Jimmie was not at all averse to a swim, for he did not know how cold the water of the underground stream was. So he tossed his light across, seized the end of the rope Jack had used on his return trip, and leaped in.

Then his weakness made itself manifest, for he did not seem to have the power to force his way across in the face of the current. He hung on bravely, but made no progress. Jack threw off his coat and, taking hold of the rope on his side, dropped in and drifted down to the struggling lad.

Boy Scout Electricians (1913),

"Ned thinks there is an underground stream," Frank suggested, "and I move that we go find it while he is away."

Almost before the words were out of his mouth, the boy switched on his flashlight and disappeared in the opening. Frank and Harry were at his heels in a moment, and the three went crawling down an incline of about thirty degrees on their hands and knees.

Fifty feet or more from the opening they came to a chamber much larger than the cave in which they had stored the motor car. The flashlights showed a swift current lashing against broken boulders. A few paces below, the stream disappeared entirely, falling over a precipice with a sound which, in that confined space, reminded one of thunder.

"Say!" Jimmie shouted, speaking in Frank's ear in order that his words might be understood above the roar of the water, "they've set the stream at work down there and they've forgotten their oil can. Don't you hear the machinery creaking?"

From the depths of the stream somewhere below its plunge into unknown regions came the sharp, insistent creaking of an improperly cared for shaft. It sounded to the boys like the nerve-torturing screeches heard from the primitive horse cars in New York.

Frank sat down flat upon the ledge and turned his flashlight toward the point where the stream disappeared.

"We've got it!" he cried; "we've got it! If anybody should ask you, there's the hidden dynamo right down there, under that current!"

"Anyway," Jimmie went on, "I'm going out in there to see how deep that water is. If it isn't too deep, I can drop down to the boulder above where the water disappears, and get a peek into the chute it follows. I might be able to see if there really is anything except a waterfall below."

This plan gained the consent of the boys, and in a short time Jimmie dropped off the ledge and started to swim toward the boulder at the head of the drop. To his amazement, however, he found the water was only up to his waist, so he waded along quite comfortably, although the current was very strong.

Once or twice he slipped on the treacherous bottom and plunged head first into the water, but the rope always assisted him to his feet, and he went on until he came to the boulder which split the stream at the point of its disappearance. Perching himself upon the rock, he called out to Frank:

"There's a water-wheel down there, all right, and the water-wheel runs the dynamo."

For Scouts who demonstrate knowledge of underground rivers and carry out an appropriate conservation project, we suggest an Underground River merit badge, a combination of the Canoeing and Geology badges.



CHAPTER 24 GIRLS, TOO!

We'll start, as we did for the Boys Club, with serials and then catch some stand-alones. We can do it all in a single chapter, however, because as a whole, girls aren't as infatuated with underground rivers.

We include stories in which girls and boys together are main characters, rarely a problem for an egalitarian Girls Club. Boys Clubs, on the other hand, tend to post "No Girls Allowed" on their clubhouse door.

Girls Club Serials

Roughly half of Stratemeyer's publications were written for girls under a variety of pseudonyms, but only two of this category contain underground river episodes.

Laura Lee Hope is the pseudo-author of four series written for girls: the Bobbsey Twins, Outdoor Girls, Blythe Girls, and the Moving Picture Girls, 72, 23, 12 and 7 volumes, respectively. The Bobbsey Twins, were too young for the rigors of underground rivers and the three other girl bunches were into activities deemed more appropriate for girls of their day.

Hoop is also credited with a dozen Make Believe Stories, The Story of a Candy Rabbit (1920), being an example, and 20 Bunny Brown books, aimed at younger children.

Only in Hope's 14-book Six Little Bunkers is there mention of an underground river, and only by deferring to the authority of an elder male. From Six Little Bunkers at Uncle Fred's (1918)

"Well, you know there are engineers who make a study of all kinds of water: of springs, lakes, river, and so on," explained Uncle Fred. They are water engineers just as others are steam or electrical engineers. I thought I'd ask them for reasons for springs going dry. Some of them may know something about the water in Montana, and they can tell me if there are underground rivers or lakes that might do something to my spring."



Carolyn Keene's Nancy Drew Stories, 175 titles between 1930 and 2003, is still a library favorite, and here we have Nancy's sole adventure in subterranean waters, The Secret of the Forgotten City (1975). The title of the French edition, Alice et la Rivière Souterraine, speaks to our interest.

Nancy and the gang join an archaeological dig searching for lost gold. The mystery begins when a Native American visits Nancy in hopes that Nancy can help her translate the petroglyphs on some stone tablets.

"I believe I know where an underground stream supplies a small spring that is above ground.

"I think the underground stream runs through a mountain, but at one time no mountain was there. Over the centuries sand and dirt have blown across the area and formed a high covering over the stream."



Nancy was eager to see the place. "Maybe we can find clues to the treasure in the Forgotten City!"

In the field,

The person most delighted over Nancy's find was Wanna. She looked at the tablet, trying to decide what the petroglyphs meant.

Presently she said excitedly, "I believe these pictures prove my theory that there is an underground river with gold nuggets on its shores."

Nancy said she could hardly wait to start a search for the stream.

A bit later,

"We stop here," the young Indian student said a little later. "We'll walk down this hill to a water hole, which the Indians say is a spring bubbling up."

When they reached the spot, Wanna pointed out what appeared to be no more than a pool of water that came out of the mountain and ran back into it on the other side.

Wanna saw the looks of disappointment on the faces of her friends. "You expected more, I know," she said, smiling. "I believe that at one time this was a tributary of the Muddy River. By the way, now it's called the Moapa after the tribe of Indians that live nearby.

"I haven't quite figured out just what happened. Perhaps there was a great landslide, and the only spot where the water bubbled to the surface was right here. But that wouldn't have been enough for maybe a thousand people. So they moved out."

Nancy asked, "Do you think the Indians needed water badly and might have tried to tunnel into the river so it wouldn't stop running?"

"It's a fascinating idea, Nancy," Wanna replied. "Maybe someday we can find out. One thing I do know is that the well where the poor young man lost his life is very close."

"Let's not stand around talking any longer," Ned suggested. "Come on, fellows, we'll bring the tools down from the car and see if we can unearth this stream with the hidden gold plates."

The suspense mounts!

Nancy stayed there and took up one shovelful after another of the soil. No interesting items showed up. She kept digging deeper. In a little while the young sleuth reached a very wet place. Was this part of an underground river?

She called to Wanna, who came over. The geologist was excited.

"Nancy, I think you've figured out the direction of the underground stream. Apparently it wasn't straight."

Nancy discovers the river.

When the young sleuth reached the bottom she spotted an object in the wall of the watery tunnel opposite her. Wondering what it was, she tried to reach across. This was impossible.

"I guess the only way I can get there is to let myself out of this sling and reach over," she told herself, and slipped from the ropes.

Nancy was in the midst of wading across, when there was a rush of water through the tunnel toward her. It knocked the girl over, and the current swept her along into the foaming tunnel.

Nancy never panicked, but now she knew she was in serious trouble. If the tunnel remained as wide as it was, she might be carried outside and be able to save herself.

"But if the passageway gets too narrow to carry me through-" she thought. Nancy closed her eyes and prayed.

And what does he find?

Meanwhile Nancy had been swept along the tunnel. She had managed to keep her flashlight on and kept looking for a place where she could stop or find something she could cling to. At first she found nothing, and went on. The tunnel curved and was so narrow at times that she had to duck under the water to avoid being hit.

"I mustn't drown!" she kept telling herself.

Presently the tunnel widened and the roof sloped upward again. Her flashlight revealed a large square niche on one side. It was slightly above water level, and the young detective managed to drag herself up into it. To her delight and relief, the opening was high enough so she could stand up straight.

"Thank goodness!" she murmured.

Instead of wondering how she was going to get back, Nancy beamed her flashlight around the opening.

"What are these?"

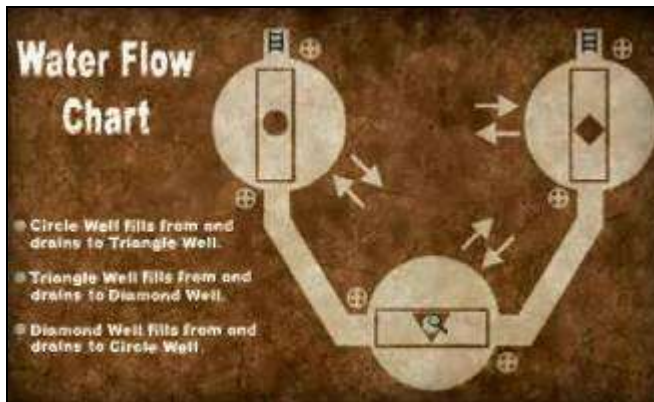
At the back of the opening was a smaller niche, which formed a sort of shelf.

"Something's lying on it!" Nancy thought, excited.

A couple of steps brought her to the spot. On it lay a bundle made of tightly woven twigs. Nancy lifted the fagot. It was small, but very heavy.

Though it's a post-Keene Nancy and we'll discuss computer games in Chapter 28, as any modern Girls Club would play Nancy Drew video games, we'll mention Nancy Drew, The Phantom of Venice. Nancy enters an underground room, dimly lit and lined with rusted pipes, gauges and dials. The door slams behind her and there's rushing sound of water pouring into the room. She's trapped! Has, after all these years, our heroine's luck finally run out?

Turn some valves, Nancy! And quickly!



As with the Boys Club serial market, Stratemeyer faced competition.

By virtue of output -- 800 books is no small matter -- **Enid Blyton** (1897-1968) was prolific. Blyton's early "The Prisoners of the Dobbadies" in The Enid Blyton Book of Fairies (1924), includes an underground river boat ride as the Dobbadies show their anger at Pamela and Peter's intrusion into their world, but things work out for the better.



The underground boating aspect of the tale is minor in itself, but as we will see, it's the inception of a theme to come.

"The Story of Orpheus and Eurydice" in Tales of Ancient Greece (1930), edited by Blyton, tells of "the black River Styx" to the "long, dark passages" of the Underworld.

Blyton's literary framework -- as was that most writers of her time -- was steeped in the classics. Charon's river was my no means new territory.

The Children of Kidillin (1940) is set during WW II. Tom and Sheila are sent from London to live with their cousins, Sandy and Jeanie, in Scotland where the boys become curious about stream gushing out of the hillside. Might it be possible to crawl inside and see where it leads? The river within the mountain leads to solution of a mystery!



Change the setting to Africa, and the Kidillin underground river isn't unlike the one within The Secret Mountain (1941). That's Mafumu below, who with Jack swims through a water-filled passage, having no idea of its length, twists and turns, constrictions and where it leads.



Fortunately for the swimmers, the underground river leads to a chamber which they proceed to explore.

Some 60 years later in a posting to the Enid Blyton Society, Ali from New Zealand (whom we suppose to be female by virtue of her hobby of scrapbooking) reflects on the adventure,

I remember in one of the books I read as a child (and the name escapes me at the moment), although it was set in Africa and there was a little African boy that the children befriended, anyway one of the boys was wading through an underground cavern in the mountain and needed to dive down and hold his breath and swim underwater. I think the description said that he was bursting for air by the time he emerged to find air.

I found it all very terrifying as a child, imagine if the roof of the cave hadn't lifted and he was in the pitch black with no air. In fact so terrifying that as a child I used to practice holding my breath in the bath just in case I should ever find myself in similar circumstances! (although I don't think I would have risked it.)

Chapter 38, Achluohydrophobia, is about the fear of underground waters and Chapter 99, Why Do We Believe What We Believe, will suggest that this sort of implant can become a visceral root of belief, but we'll leave it as simply a childhood memory for now. Adventure fiction can stick with us.

The Island of Adventure (1944) has gloomy underground island copper mine that extends from under the sea to a well on the mainland and the bad guys flood the whole system with Bill, Jack and Philip still inside!



In The Castle of Adventure (1946), Jack enters the Scottish castle via the chilly and claustrophobic underground stream, but the other children fail to notice that he's wet.

A mystery within a mystery, we can call it.



The African waterfall discovery would be echoed in The Valley of Adventure (1947) set in Austria. Two entrances are discovered into the mountain: a rock that pivots open and the cave from where the river escapes as a waterfall.

Fortunately Jack, Philip, Dinah and Lucy-Ann have a treasure map.



In The Secret of Killimooiin (1943), Peggy, Nora, Jack, Mike, Paul, Ranni and Pilescu see the Secret Forest from their blue and silver plane. There are no passes through the mountains and yet Jack sees smoke rising from the trees.

The only way in is via an underground river, which involves evading robbers, and that's as much of the plot as we'll recount.



Jack spoke at last. Ranni, where do you suppose this river goes to? It must go somewhere. If it was penned up in this valley, it would make a simply enormous lake, and it doesn't do that, or we should have seen it from the air, when we flew over.

Ranni sat and thought. It must go somewhere, of course, he said. Maybe it finds its way underground, as it did in the mountain. You think perhaps it would be a good idea to follow the river, Jack, and see if we can float away on it, maybe through a tunnel in one of the mountains, to the other side.

We'll go on now, said Ranni. He untied the raft and on they went again, caught by the strong current.

Can you hear that noise? said Ranni. I think the river makes a fall somewhere ahead -- maybe a big waterfall. We don't want to be caught in it. I can't get this raft out of the current.

Everyone jumped into the water. Paul was the weakest swimmer and big Ranni took him on his back. The raft went bobbing off by itself.

Pilescu helped Mike and Jack, but it was a stiff struggle to get to the bank of the swiftly-running river. They sat there, exhausted, hoping that no robber would come by, for they had no strength to resist anyone!

They walked on beside the river, over rough ground. The noise became louder and louder. Then they suddenly saw what happened to the mountain river!

They rounded a big rock and came to the place where fine flew. The great silver river rushed by them -- and then disappeared completely!

So that's what the robber meant when he shouted that we should soon be in the middle of the earth, said Jack. That water must go deep down into enormous holes and crevices among the rocks. I suppose it goes right under the surrounding mountains and comes out somewhere else as a river again. How amazing!

Chapter 24 -- Girls, Too!

The waterfall entrance idea would be re-used in Blyton's The Adventurous Four Again (1947), now back in England. Tom leaves his camera behind in the recessed cave and clambers through the waterfall hole when the current lessens. He finds a hidden cave full of boxes and inhabited by two men. When discovered, he escapes by dropping into the fast-flowing underground river that sweeps him out to sea, where he is cast onto a rock above where the river and sea met and "fought their eternal battle."



In The Five Go Off in a Caravan (1948), we're never sure where they are, but there's the obligatory secret passage and an enormous cavern in which wading is required.

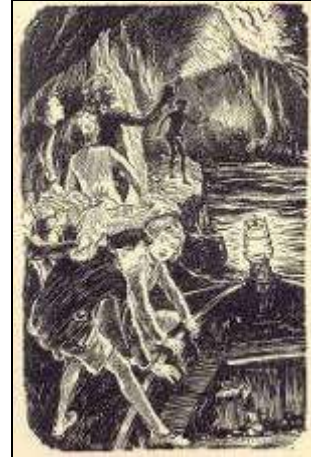
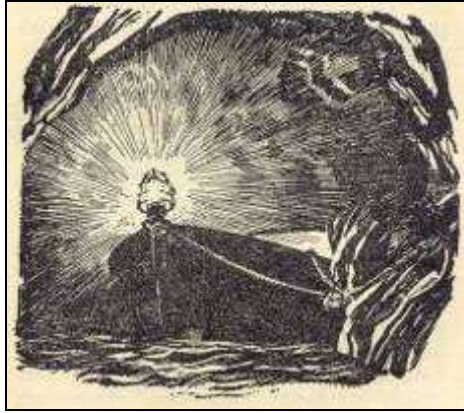


The same elements can be found in the cellar beneath Rockingdown Hall, where in The Rockingdown Mystery (1949), Barney comes across a hole behind a moving stone which leads to an underground stream, "black and gleaming." Men are at work, winching crates of smuggled goods along the channel.



We've had the The Island of Adventure, The Castle of Adventure and The Valley of Adventure. What's left?

In The River of Adventure (1955), Syria, Jack, Phillip, Dinah and Lucy-Ann sail down the River of Abencha to rescue Bill and Mrs. Cunningham who've been kidnapped by the wicked Raya Uma. The children discuss stalactites and stalagmites. Their indigenous guide saves them from certain death when their craft careens toward a waterfall, but veers underground at the last moment.



In Five Get Into A Fix (1958), the Famous Five are ill during the Holidays and are sent to recover at the Welsh farm of Mrs. Jones and her giant-like son, Morgan. Morgan's suspicious behavior leads the five to a cave and then to an underground river, via which magnetic metal deposits are being shipped.

Blyton's stories are about secret passages -- passages between castle walls, caves, routes to and from the sea, railway tunnels, the list goes on.

We're awed by the tally of those passages that contain underground rivers, but don't propose that we've found them all.



Again from the postings of the Enid Blyton Society, this time from the member, Sayantani,

Has it occurred to all you folks that Enid was quite obsessive about underground streams and rivers? She writes with such intense knowledge about these!

I for one am absolutely riveted by these descriptions of hers, especially, I found the climactic scenes in Rockingdown, Castle of Adventure, River of Adventure and Five Go Off on a Caravan fascinating; though Castle does strain the lines of credulity! Rockingdown's denouement of the stream under the house, accessed by a rocky tunnel through a trapdoor from the kitchen gives me goose bumps, as does the stuff in River.

Where exactly did she draw inspiration for such topography from?

The house Enid lived in at as a young woman had an ancient gallery and secret passages, but her fictional settings are clearly more than childhood recollections. A master of engagement, she propels us into flooding caverns that cause us concern, but reliably pop back to light by the final chapter.

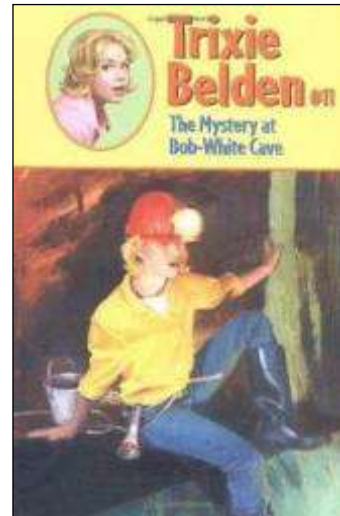
Although her works have been criticized for racism, sexism and snobbery, they continue to find new readers. "She was a child, she thought as a child and she wrote as a child," psychologist Michael Woods summarized the secret of her writing.

We differ with Woods, however, about writing like a child. What kid can write 10,000 words/day?

The Mystery at Bob-White Cave (1962), the Trixie Belden series, 19 volumes between 1948 and 1986, by **Kathryn Kenny**

The kids are off to the Ozarks to spend some time with Uncle Andrew. Trixie can't wait to explore some dark, damp, and most of all, mysterious caves, because she has another scheme up her sleeve. A national magazine is offering a reward to anyone who can find three "ghost cave fish." Nothing will stop Trixie from finding them -- not bats or wild cats or even a real ghost!

We'll learn about such fish in Chapter 50, Wrecks of Ancient Life.



And of course there's **J.K. Rowling's** Harry Potter, by no means a series aimed particularly at girls, but we'll include it here because females comprise the larger portion of the readership. Harry Potter and the Sorcerer's Stone (1997) being a starting point for those of studying underground waters.

They were in a narrow stone passageway lit with flaming torches. It sloped steeply downward and there were little railway tracks on the floor. Griphook whistled and a small cart came hurtling up the tracks toward them. They climbed in -- Hagrid with some difficulty -- and were off.

Harry's eyes stung as the cold air rushed past them, but he kept them wide open. Once, he thought he saw a burst of fire at the end of a passage and twisted around to see if it was a dragon, but too late -- they plunged even deeper, passing an underground lake where huge stalactites and stalagmites grew from the ceiling and floor. "I never know," Harry called to Hagrid over the noise of the cart, "what's the difference between a stalagmite and a stalactite?"

"Stalagmite's got an 'm' in it," said Hagrid. "An' don' ask me questions just now, I think I'm gonna be sick."

Harry Potter and the Half-Blood Prince (2005) is darker. Professor Dumbledore apparates himself and Harry to a seaside cliff where his wand illuminates a fissure, but fails to open opening a passageway. Divining its secret, Dumbledore cuts his arm, saying that Voldemort wishes those seeking his artifacts to be weakened.

The blood-spattered rock within it simply vanished, leaving an opening into what seemed total darkness. "After me, I think," said Dumbledore, and he walked through the archway with Harry on his heels, lighting his own wand hastily as he went.

An eerie sight met their eyes. They were standing on the edge of a great black lake, so vast that Harry could not make out the distant banks, in a cavern so high that the ceiling too was out of sight. A misty greenish light shone far away in what looked like the middle of the lake; it was reflected in the completely still water below. The greenish glow and the light from the two wands were the only things that broke the otherwise velvety blackness, though their rays did not penetrate as far as Harry would have expected. The darkness was somehow denser than normal darkness.

Fans weren't at a loss for discussion topics. Take, for example, the Bloomsbury U.K. edition's back cover where behind the Pensieve is a boat with a cavernous wall in the background.

What could this boat mean?

MuggleNet.com, the site for ardent Potter scholars, has more than 40 "Underground Lake" editorials.



And there will be the spinoffs. Harry Potter's World of Magic Theme Park -- not to be confused with Universal Studios' Wizarding World of Harry Potter, Orlando -- exists only in cyberspace. To play, one needs:

- Imagination, as was demanded by the books.
- A credit card.

Nestled in a hidden valley that repels Muggle intruders lies Godric's Hollow where one must boat-ride through a cave in search of the sorcerer's stone.

Girls Club Singles

While our list of non-series underground river books written for girls isn't as lengthy as the list for boys, it's indeed as varied.

"First Person Singular," by **David C. Murray** in the August 29, 1885, Graphic was by far too romantic for a Boys Club, but Victorian girls would have enjoyed picturing themselves in the craft to the right.

To exit from the caves is made by water, and the slow moving oars bumped the boat little by little towards daylight.



Mary E Bradley's Mizora, A Prophecy, A Mss. Found among the Private Papers of the Princess Vera Zarovitch (1889) is about an enlightened female society existing underground in perfect harmony, blessed with technologies permitting leisure for continuous education, genetic manipulation of crops and the manufacture of pure foodstuffs. But best of all, males are no longer biologically required. To enter Mizora, go to the North Pole and downward.

From the Princess' private papers,

I entered a broad river, whose current was from the sea, and let myself drift along its banks in bewildered delight.

While the Mizoran river has little literary uniqueness, its utilization by electrolysis is novel.

They separated water into its two gases, and then, with their ingenious chemical skill, converted it into an economical fuel.

There were several processes for decomposing the water explained to me, but the one preferred, and almost universally used by the people of Mizora, was electricity. The gases formed at the opposite poles of the electrical current, were received in large glass reservoirs, especially constructed for them.

I must not forget to give some notice to their water supply in large cities. Owing to their cleanly advantages, the filtering and storing of rain-water in glass-lined cisterns supplied many family uses. But drinking water was brought to their large cities in a form that did not greatly differ from those I was already familiar with, excepting in cleanliness. Their reservoirs were dug in the ground and lined with glass, and a perfectly fitting cover placed on the top. They were constructed so that the water that passed through the glass feed pipes to the city should have a uniform temperature, that of ordinary spring water. The water in the covered reservoirs was always filtered and tested before passing into the distributing pipes.

It's a high-tech waterworks, to be sure, given that the manuscript's more than a century old.

Grace Harlowe's Overland Riders on the Great American Desert (1921) by **Jessie Graham Flower** followed the Boys Club story line, even down to the hats. (See The Border Boys Across the Frontier illustration in Chapter 21.)

In selecting mounts for their desert journey, Grace Harlowe selects an "outlaw" pony. "Don't reckon you'll be able to stick on him," warns Hi Lang, the guide. Grace flings herself into the saddle and off they go!

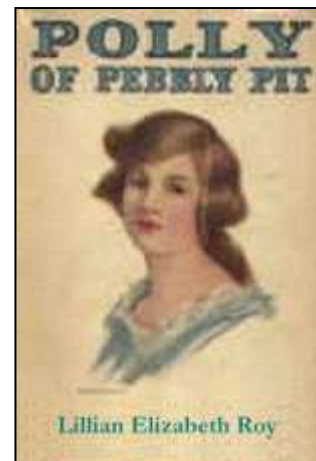
Early in the afternoon the guide began looking for water, now and then dismounting to search about for a tank, breaking in crusts of alkali, putting an ear to the ground to listen for the murmur of an underground stream, or feeling with his hands over several yards of hot sand in search of a cool spot that might indicate water.



Polly of Pebbly Pit (1922) by **Lillian Elizabeth Roy** surely sounds like a girls' story and indeed it is.

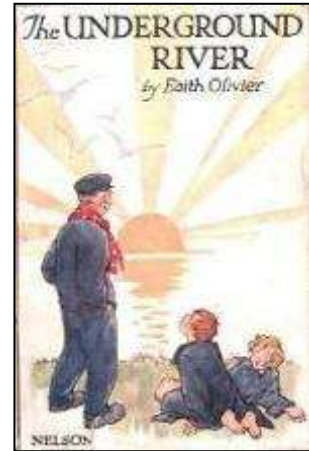
"Well, look out in front; there's a ledge cleft in the side of the mountain wall. Between it and the other lower ledge is a canyon that might be the one Montresor found on his up-climb. Yonder the slope meets the chasm and above is the steep sides leading to Top Notch Trail. Could not the land-slide have buried this wall and then a great wash-out have cleared it again? If we only had a gushing mountain stream pouring from the cliff-side the setting would be complete!"

Barbara gasped, but Polly clapped her hands. "Nolla, that's it! The subterranean stream we found in there. Some big upheaval changed its outlet, or maybe this gold vein runs clean through and Montresor's claim is staked opposite this side -- just where the river pours out. We must look over that side to-morrow."



Edith Olivier's first novel, The Love-Child (1927), a story of a neurotic, possessive spinster haunted by an imaginary child, was one of the genre of fantasy novels popular in the early 20th century. Most of Olivier's works drew on her affluent background and showed a curious interest in split personalities. Olivier is perhaps better known, however, for being a confidante and hostess in the her day's aesthetic, upper-class homosexual circles.

Scarcely noted in her biographies is her effort in children's literature, The Underground River (1928). She's labeled today as a feminist pioneer of unrealized literary potential.



Walt Disney's Snow White and the Seven Dwarfs (1937) is a film classic, the first full-length animated color feature with sound



Disguised as a stooped hag, the wicked queen poisons an apple by dipping it into a boiling caldron. Charon-like, she pushes off in her canoe down a subterranean waterway to deliver the slowing fruit to Snow White.

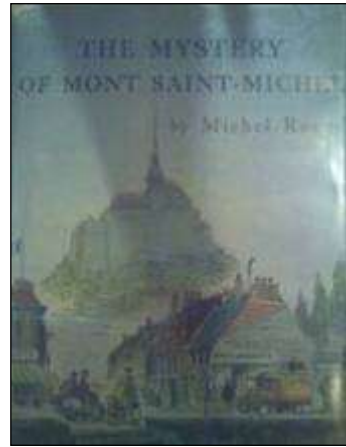
Chapter 24 -- Girls, Too!

In Henrietta's House (1942) by **Elizabeth Goudge**, Henrietta and her brother Hugh John go for a picnic where they encounter a sinister gatekeeper and an elderly gentleman who builds bowers in the forest for imagined Sleeping Beauties and a mysterious house fitted up just as Henrietta had dreamed. Hugh John finds an underground river and a boat and thus discovers a robbers' den.

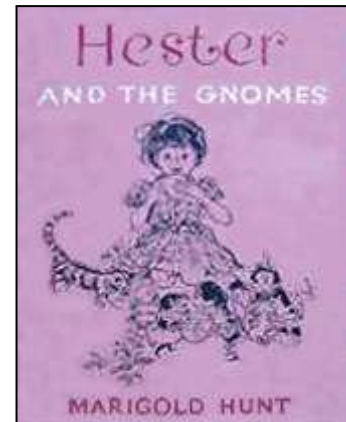
Given the helter-skelter plot, the reviews were surprisingly high-brow and positive, but as an underground river saga, it's probably not a keeper.



In The Mystery of Mont Saint-Michel (1955) by **Michel Rouze**, four French boys and one girl decide to explore the famous Mont Saint-Michel Abby, but are soon lost in a network of passages and caves. They avoid the rising water, provide themselves with light, fire and food and investigate in the legend that here once grew the great Forest of Cokelunde. Not an underground river, exactly, but underground tides.



In Hester and the Gnomes by **Marigold Hunt** (1955), when Hester's father drilled a well on his farm, he pierced the roof of the gnomes' underground river and the little fellows decided to journey to the upper world to set things straight.



In The Cave of Cornelius (1959), retitled The End of the Tunnel (1969) by **Paul Capon**, four children searching for lost Roman treasure stumble into a secret world beneath the earth which is inhabited by descendants of the very Romans whose treasure they have been seeking. These people, with their debased Latin and partly-archaic, partly-modern appurtenances, guard their secret and their habitat rigorously. Fortunately the children make contact with a contemporary who has long been held prisoner and all escape by a subterranean river route which eventually brings them out in Paris, via the catacombs.

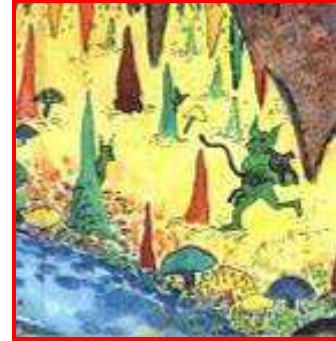
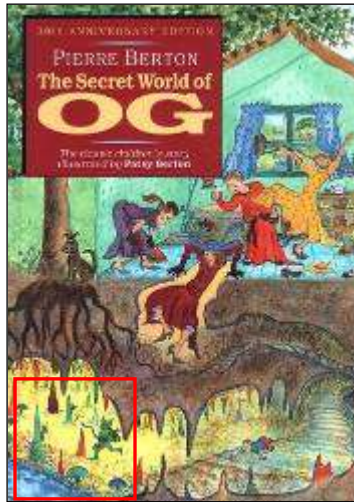
The Secret World of Og (1961) by **Pierre Berton** is about four siblings,

Penny, the leader,
Pamela, her common-sense sister;
Peter, whose life's ambition is to become a garbage man, and
Patsy, who collects frogs in her pockets

who set out in search of their baby brother,

Paul, better known as "The Pollywog"

who has vanished mysteriously from their playhouse. Accompanied by their fearless pets, the children descend through a secret trapdoor into a strange underground world of mushrooms, whose green inhabitants know but one word, "OG!"



Detail of the Ogian river from the 50th anniversary edition

In Beneath the Hill (1967) **Jane Louise Curry**, modern children met a boy from a Welsh/Irish fairy clan who've dwelt in America for centuries. When developers threaten to bulldoze the landscape, the magical folk release an underground river.

The company then retraced their steps, returning through the passage to the forking of the ways, where the lamp-lit stair climbed downward. A faint trembling beneath their feet told them that the river flowed below through a channel or some fissure in the rock. Its destination was the same as theirs -- the long galleries below -- and near where the stairway ended, it issued forth to flow beneath low banks through the series of dark chambers ahead.

Five or six of the Fair Folk waited for them at the water's edge. Two were kindling pine-knot flares, which had been flattened to flat disks of wood. Another held by a tether an odd round shell of a boat that Durwen promptly entered.



The others, except the three who had in charge the lamps and the boat, followed. Miggle did so most reluctantly, for every time she reached her foot out, the gap of dark water between the bank and low-riding boat grew larger. Not until the second rope had secured it, steadying it fast against the bank, did she succeed in climbing in.

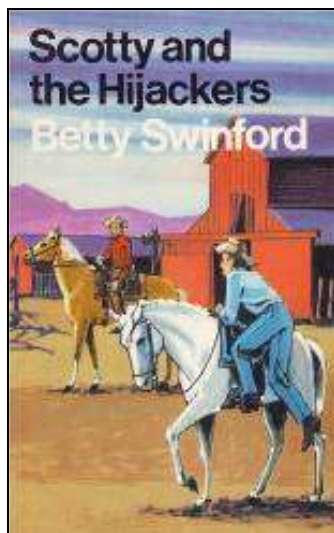
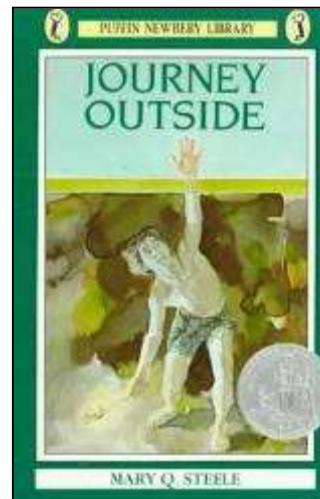
At once those left on shore set the wooden lamps afloat and freed the boat. Slowly, the wide and shallow scallop moved out into the swifter center of the stream, and there, set amid a flotilla of lights, it moved down the darkness.

"We seldom come below the level of the Great Hall," Durwen said, speaking over his shoulder. "These chambers have no passage but by water. They are cheerless and seem to have been roughly used, perhaps as storerooms..."

Maelin nodded. "There is an unhappy feeling here. At least it seems so to me. Through the water be sweet and the air clear, here -- even as below -- I sense the weight of the mountain pressing on my heart."

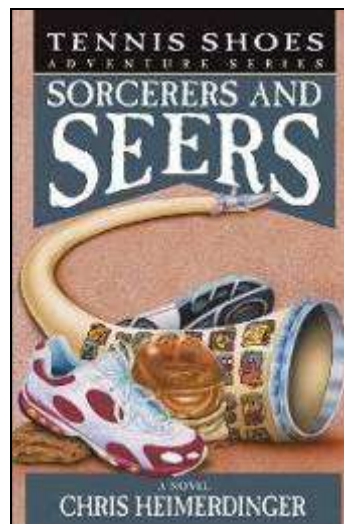
Mary Q. Steele's Journey Outside (1969) is about a boy, but it's not Boys Clubish. The Raft People live in darkness and travel a circular journey on an underground river. One boy finds his way outside and tries to learn as much as possible so he can ultimately lead his people to the Better Place.

What makes this story unique is the inside-out perspective. The inner world is the reader's world. The shadowed raft is the reader's home, the place he or she feels safe. In the best of Greek structure, it's a quest. A 1970 Newbery Honor book, this one's well written.



Scotty And The Hijackers (1971) by **Betty Swinford** adds a Christian slant. An energetic preteen gallops into western adventure. A wrecked plane, an underground river -- these and other stirring encounters teach Scotty to ride with God.

Though Scotty is indeed a boy, this one isn't a Boys Club saga -- though Scotty's buddies might benefit by reading it.



Sorcerers and Seers (2010), a Tennis Shoes Adventure by **Chris Heimerdinger**, is for Mormon girls and boys. A group of teens go spelunking in Frost Cave, and after falling into an underground river they find themselves in the land of the Nephites.

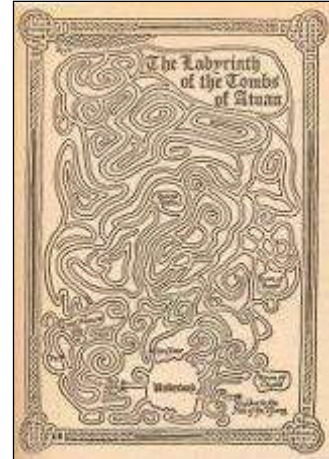
That it's the land of the Nephites would be important to Mormons, as we'll learn in Chapter 94, The Rio San Buenaventura.

Chapter 24 -- Girls, Too!

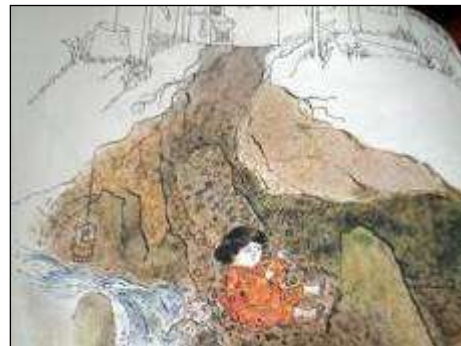
The Tombs of Atuan (1972) by **Ursula LeGuin** is about Tenar, a girl taken from her home by the Nameless Ones to be the Priestess Ever Reborn. At 15, she first enters the tomb beneath the Throne to learn the paths within the Labyrinth.

The spider web of stone-walled tunnels underlay all the Place and even beyond its walls; there were miles of tunnels, down there in the dark.

While exploring the Labyrinth, she is startled to meet the young wizard Ged who is searching for the broken ring of Erreth-Akbe. She first takes him prisoner and then hides him until the Nameless Ones become angry. In the upper left corner of the map is the river by which the two make their escape in Ged's boat as the Labyrinth collapses in an earthquake.



The Funny Little Woman (1973 Caldecott winner) by **Arlene Mosel** takes place in an underground world occupied by the ferocious Onis who made the funny little women cook for them. When she tried to escape via the underground river, the Onis swallowed all the water and she was stuck in mud. When they began to laugh, however, they spit out the water and she made her way home where she became the richest person in Japan.

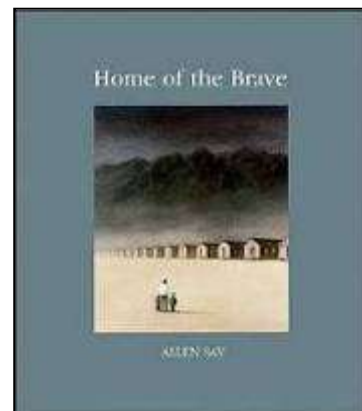


In the same series, the opportunistic barbarian Malak, who is not above lying, stealing, threatening or bullying, has the ability to divert an underground river into the Sleestak egg caves if they don't pay tribute.

In Escape into Daylight (1976) by **Geoffrey Household**, Carrie and Mike are kidnapped and imprisoned beneath a ruined abbey. The only escape is via twisted passages and of course an underground river.

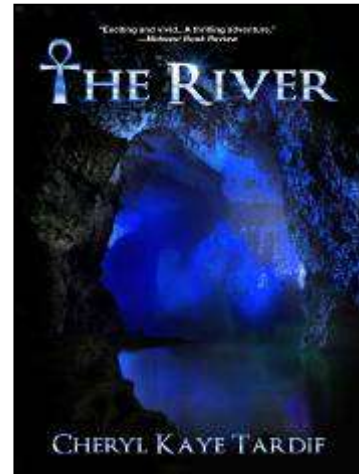
Home of the Brave (2002) by **Allen Say** is aimed at grades 5 to 8. From its synopsis,

This picture book for older readers starts as a classic time-travel adventure: a young man hurtles down the rapids in a kayak, is swept into an underground river, and emerges to find himself in the desert, near what he thinks is a ruined Indian reservation. He meets children with name tags, Japanese Americans like himself, who live in an internment camp, and he finds his own name tag there. "Take us home!" the children cry, but thundering voices and blinding lights shoot from the watchtower.



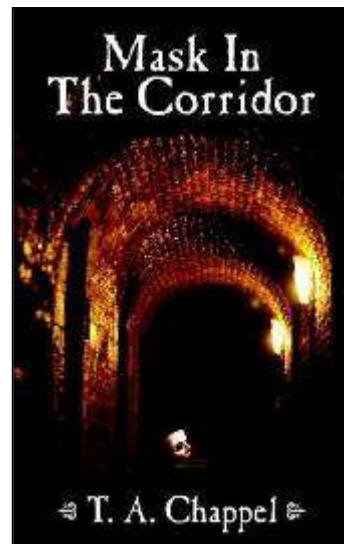
Here's a synopsis of **Cheryl Kaye Tardif's**, The River (2005). Seven years past, Professor of Anthropology Del Hawthorne's father and three of her friends disappeared near Canada's Nahanni River. When one of the missing stumbles onto the university grounds, alive but barely recognizable and aging before her eyes, Del is shocked, and even more so when the man rambles about a secret river and time travel. Then he tells her that her father is still alive!

Del travels to the Nahanni where she finds a secret channel that plunges into a subterranean technologically-advanced world of nanobots and uncovers a conspiracy that threatens us all. Will humanity be sacrificed for the taste of eternal life?



And then there's Mask in the Corridor (2006) by **T.A. Chappel**.

The wooden floor creaked under her. There were a few loose boards and she could hear the sound of fast-moving water beneath her. Rapids? The underground river? she wondered. Suddenly, the floor below her split open and Jillian fell through screaming. She landed, scared stiff, on a suspended rope bridge, which was rotted in some places. She held on for dear life and looked down in horror at the swiftly moving dark river, illuminated by her halogen lamp. Petrified, her knuckles white from gripping the rope, she looked around the cave and could faintly see an outline of daylight streaming into the cave, farther down the river... Jillian looked ahead to see where the bridge led to, maybe she could crawl to the other side, but all she saw was just another dark tunnel and the rope bridge didn't look very safe... Suddenly, she felt it move under her and got a better grip of it just in time as the rotted remains of the bridge broke. She found herself swinging on a very thin cord forty feet above a swiftly moving river.



The Boys Club may now be the Boys and Girls Club, but bad writing is still bad writing.

The Magic Medallion (2006) by **Mary Cunningham** is a time travel adventure in which Cynthia and Gus are swept into an underground river while searching a Southern Indiana cave for a lost medallion. An excerpt:

I went flailing into the water the split second Cynthia reached out to grab me. I couldn't see what happened to her, but the scream I heard and the following splash said it all.

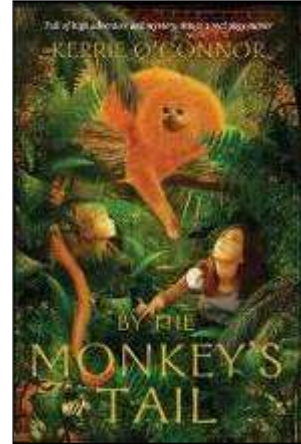
The current seemed to be moving faster and faster. I tried unsuccessfully to grab onto the rough ledge, but instead, I floated deeper and deeper into the cave.

I helplessly tumbled over and over in the blackness and thought about the irony of the swimming trophies and scout badges I'd collected over the past three summers. Hmmmphh. A lot of good that did me!

With every breath, I gulped more and more water. A feeling that I probably wasn't going to get out of this alive swept over me, and at the same time I wondered if Cynthia was faring any better. For some reason, it was comforting to know that she was probably going to drown with me...

Yep, I'm dying all right...there's the bright light I've heard about. I was being pulled straight toward a small glow in the distance as a feeling of peace began to take over. That peace didn't last long, though, as my ears picked up the deafening roar of a huge waterfall...a real one this time! I started paddling backwards as fast as possible but couldn't fight the current and started falling and falling and falling. Moments after I heard screams telling me that Cynthia was falling too, I landed face down in the water. Gathering the strength to look up, I couldn't believe my eyes. We were in a river outside the cave.

In By the Monkey's Tail (2006) by **Kerrie O'Connor**, Lucy, Ricardo and their Telarian friends outwit the soldiers oppressing civilians in the world of Telares. The young protagonists battle an underground river, take part in a desperate chase and attempt a daring rescue.



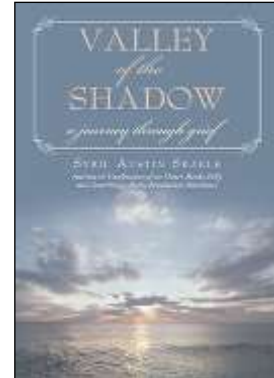
The Young City, The Unwritten Books (2008) by **James Bow** addresses that perplexing question, what happens when the future becomes the past? Rosemary and Peter fall into an underground river and are swept back in time, to Toronto in 1884. As the days turn to weeks, then months, they begin to wonder, what if they can never return? Then someone brings them a watch powered by a battery made in Taiwan!

Valley of the Shadow: A Journey through Grief (2009) by **Sybil Austin Skakle** has a romantic theme, something no Boys Club would allow.

The receding water's strong vortex sucked Cody backwards down the hole in the middle of the pond. One hand wavered above the water for a moment and then vanished.

Otho walked back to the camel and got a length of rope. He called Norm over to his side. Before Norm knew what was happening, Otho had tied the rope around his waist.

Otho looked down at him and said in his sternest voice, "Walk down to the edge of the hole and see if you can spot Cody."



Norm slowly trudged forward. Slowly he waded through the mud until he reached the opening and cautiously looked down the hole. He yelled back over his shoulder, "It drops about thirty feet to a subterranean river which flows rapidly to the east, but there is no sign of Cody."

Norm yelled, "Cody," a couple of times but there was no answer. He looked at the others and said, "He must have been washed away by the underground river. It looks fast."

Kristi's brown eyes were desolate... She started crying, "I never even told him that I loved him!"

Otho went over, put his arm around her, and said, "Done worry, he'll be all right. You watch and see he's a survivor. He'll show up somewhere, somehow."

Nevertheless, in his heart, Otho had his doubts.

Even if he survived a thirty-foot fall, could he survive a turbulent underground river?

Final Thoughts

It's been a free-wheeling, these chapters of juvenile literature review. Some of the works have been well crafted and some have been taxing, but all draw us into spaces where only the author knows the exit.

Before we exit the library, however, we can make a brief pass through the passages we've quoted in our several chapters on fiction. While our sample is not random, of course, a word count reveals something of the impressions the authors wished to convey. Here are a few comparisons:

Words signifying darkness e.g., dim, shade	Words signifying brightness e.g., brilliance, sparkle	2:3
Words signifying largeness e.g., great, ceaseless	Words signifying smallness e.g., small, tiny	2:1
Words signifying quickness e.g., rapid, sudden	Words signifying slowness e.g., slow, sluggish	4:1
Words suggesting negativity e.g., monstrous, dread	Words suggesting positivity e.g., fantastic, splendid	3:2

The quintessential tale: the adventurer embarks on an illuminated underground river, sees awesome sights and rushes onward, barely escaping misfortune.

Here are a few of the fictional rivers' common attributes.

Unlike a river on the terrestrial surface, underground waters have an arch of stone. While such closed space shouldn't affect any adventurers but those in aircraft -- which indeed we have noted -- the roof remains a barrier to freedom. A voyager on an underground river is a captive.

As a current is prone to do, these rivers propel the adventurers onward. The option to turn back is lost and what's ahead isn't foretold.

Homer's River Pyriphlegethon was of fire and Dante's River Phlegethon was of blood. The rivers of more-recent writers, however, are of -- well -- just water. Familiarity helps us board the boat. We know how a craft rocks as we shift our weight, how it spins as it shoots the rapids, how it may capsize where the channel is deepest. It's real.

For similar reasons, the underground oceans of fiction are reasonably free of sea monsters and the like, objects of danger which might enliven a normal adventure under the upper stars. Entering into the earth to face just the nemeses above ground isn't much of a yarn.



Illustration adapted from Howl's Moving Castle (2004)

CHAPTER 25 UNDERGROUND RIVERS IN THE COMICS

And what Boys Club doesn't read comic books?

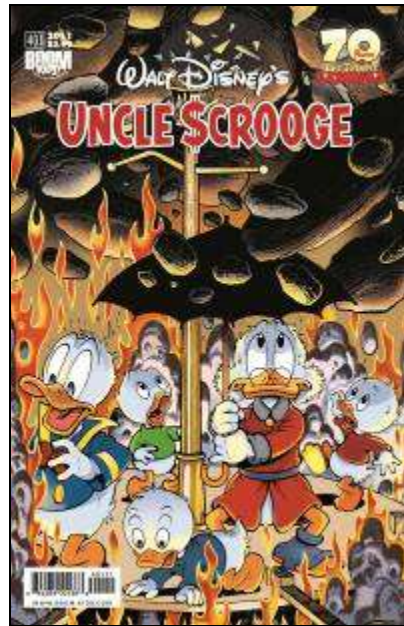
We'll begin with some familiar anthromorphized critters.

We might anticipate that Mickey Mouse would be involved in subterranean escapades, but the more adventurous of the extended duck family are Uncle Scrooge and the nephews Huey, Dewey and Louie.



"Speedy Pokington's Secret"
Junior Woodchucks, July 1975

A savvy Woodchuck uses a subterranean river to win the mountain marathon.

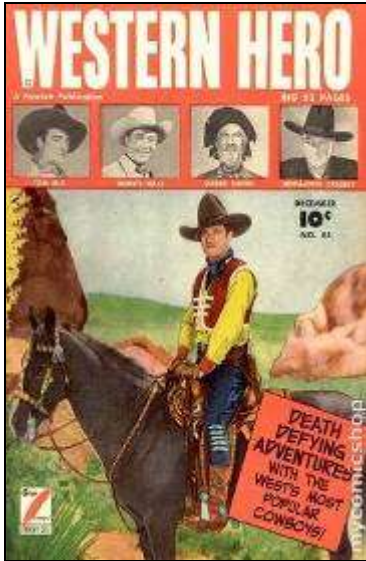


"The Universal Solvent"
Uncle Scrooge # 401, 2011

Scrooge McDuck finds a way to bore to the planet's core using a solvent that condenses everything but diamonds. After the boys explain the potentially catastrophic impact of this act -- it will cause the globe's destruction -- all go down the shaft to retrieve the chemical.

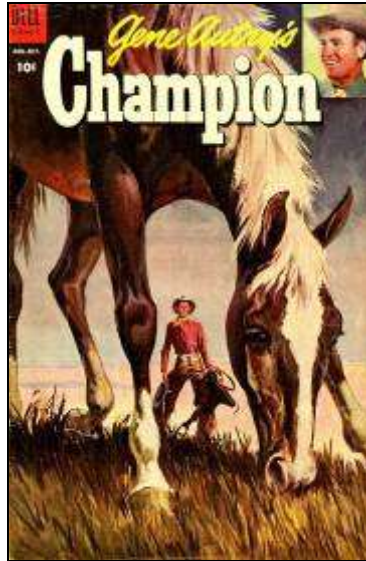
Cowboys

We'll look at several comic book cowboys, most of them also being Western movie idols. Underground rivers play a role in cowboy yarns, but not the campfire variety.



"The Underground River"
Western Hero # 85
December 1949

The first cover is Tom Mix, star of more than 300 films between 1910 and 1935, all but nine of which were silent features. As he died in 1940, his underground river saga was posthumous.



Champion
Comic Series, 1951-1959
Television Series, 1955-1956

Champion was Gene Autrey's horse, but he didn't need the singing cowboy for his own comic. In "Lost River," episode 5 television version, an underground river can save Champion's herd from a fatal drought -- but only if he can find it.



"The Caveman Indians"
Tomahawk # 71
November 1960

While exploring for new hunting grounds Tomahawk, a cowboy-type of Revolutionary War times, and young Dan are caught in a landslide and fall into an underground river. After making it ashore, they are captured by Caveman warriors. Can they escape?

Lone Ranger Chewing Gum allowed a trading-card sized underground river adventure. We'll retype the 1949 saga, as the card's a bit hard to read.

A deafening roar and the Lone Ranger and Silver were catapulted by sliding rocks into an underground river! Swimming with the current, the man and horse were whisked around a bend in the cave. It brought them into a torch-lit room. Four men were tugging at a chest, one of which had just been blasted away. When they saw the swimming figure, two of them drew a bead on him. While hot lead danced overhead, he swam underwater. Soon, the river shallowed. As he emerged, out of sight of the gunmen, he stepped on something that clinked. Spanish doubloons! The blast had blown gold pieces right through the rock! The fortune that Senor Lopez was said to have secreted on his property! He looked at the rocky bank. A chink of light! He stood on Silver's back and lassoed a stalactite. By this means he pulled himself up through the opening. "Drop the gold and reach!" he shouted at the desperadoes from his vantage point. "That dynamite charge was too strong for your own good! But it saved the day for Lopez," he added.



And no cowboy list would be complete without the King of the Cowboys, Roy Rogers. We'll limit ourselves to just one of his comic book adventures, "River of Gold," in which Roy helps the FBI.

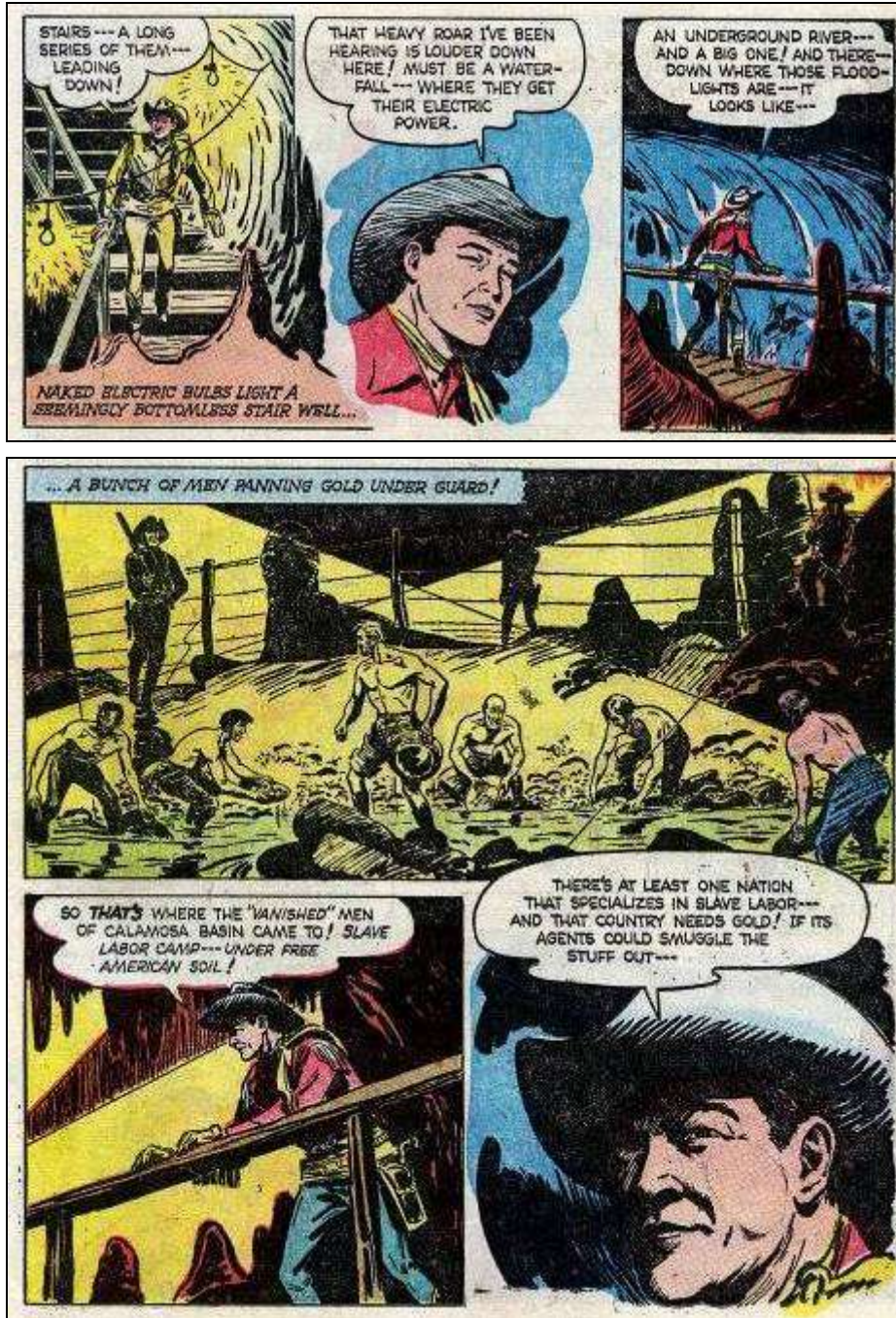


"River of Gold"
Roy Rogers Comics # 48
December 1951



The front cover, Roy looking into the sun. The back cover, on the other hand, shows Boys Clubs what a cowboy rides, other than his horse.

As for where the River of Adventure takes Roy, we can read the source material.



Boys Clubs, too, help defeat Communism.

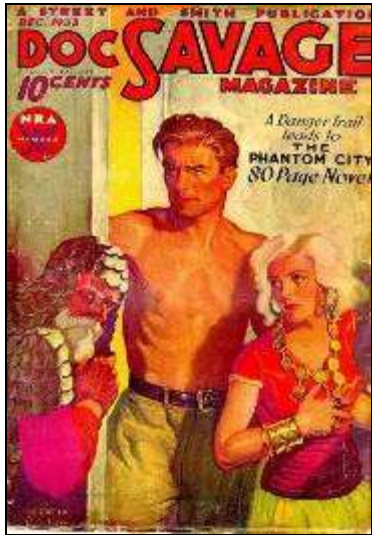
But underground rivers aren't all beneath the range and there are heroes other than those with six-shooters.

Heroes

Even aerial ace Smilin' Jack (2:14, January 1942) can't avoid underground rivers when he flies into a storm causes his ship to crash on an island where the native savages mistake him for Powder, who it seems has visited before and agreed to marry the Chief's daughter. Despite his protests, Jack is engaged, but at the final step of the wedding ceremony -- a drink from Mystery River -- Jack sees that the stream flows from a cave, dives in and escapes to the ocean.



Doc Savage was well acquainted with underground rivers.



"The Phantom City"
Doc Savage Magazine # 10
December 1933



"The Mystery of the
Underground River"
Doc Savage Comics # 20
Oct. 1943



"The Hell Reapers"
Doc Savage Magazine
CC series # 2
Oct. 1975

"The Phantom City," abode to an ancient race of white-haired people and said to possess a fabulous trove of platinum, is deep in the lethal desert of the Arabian desert, reachable by a nerve-wracking journey down an underground river.

"The Mystery of the Underground River, or Murder at the Old Red Mill" is a Nick Carter story, a detective who padded Doc's comic book series. This was the final issue.

In "The Hell Reapers," Doc cuts through the polar ice cap, only to be caught in a deadly whirlpool and emerge into a radiation-lit subterranean land, home to mysterious lizard-folk. The villain Rutter, a mutant seeking his fortune exploiting the uranium. When Rutter goes berserk, blasting the caverns, a rock fall blocks the outlet of the underground river and the subterranean world begins to flood.

In "On the Planet Mongo," Flash Gordon, March 18, 1934, Flash, Dale and Thun are swept away by the underground river. Thun is knocked unconscious and washes up on a rock, just as Dale is pulled underwater. Flash dives in to rescue her, and is seized by green scaly Shark Men wearing air helmets.

Chapter 25 -- Underground Rivers in the Comics



A page from the Flash Gordon # 10 reissue of 1938, 39 and 40 Sunday strips.

Flash fights his way an underground river and encounters a monster. The others pull him to safety when his lifeline goes slack.



Chapter 25 -- Underground Rivers in the Comics

We of course met Tarzan in Chapter 21, More Boys Club Serials, but let us reintroduce him as a character with comic-strip adventures not conceived by Edward Rice Burroughs. To the right, a frame from March 16, 1941.

He fought his way to the underground channel which would lead to safety -- or death!

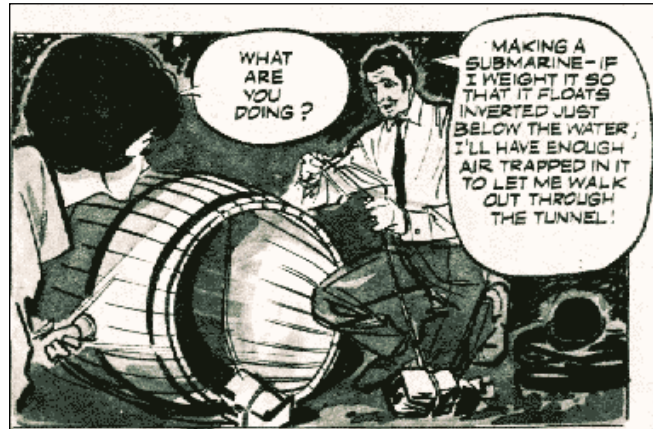


Most typically, comics became TV shows, but in some cases, the order reversed.



"Seeds of Destruction," The Avengers in TV Comic # 894, February 1969.

Steed and Tara King find explorer Sir Edmund Whittington held prisoner in a cave. As the roof begins to collapse, the three are trapped with an underground river before them, not a problem when Steed constructs a makeshift submarine from a barrel.



These are but extraordinary human heroes, however, as they lack supernatural powers. The ones with extra endowments, the superheroes, that is, have their underground river challenges even more taxing.

Super Heroes



"Underground River"
Tad of the Tanbark Heroic
Comics # 1
August 1940



"The Cat-Man Strikes Back"
Detective Comics # 318
August 1963



"The Hulk and Sub-Mariner
vs. the Avengers"
Avengers # 3
January 1964

Tad of the Tanbark shows the peril of another underground river.

An encounter with Batwoman results in Cat-Man falling hard for the beautiful heroine and inviting her to join him as "the king and queen of crime." Batman and Robin discover their adversary's true identity and trail him to an underground catacomb, where Cat-Man seems to perish when he plunges into a raging underground river. Cat-Man will of course arise decades hence, as super villains rarely die.

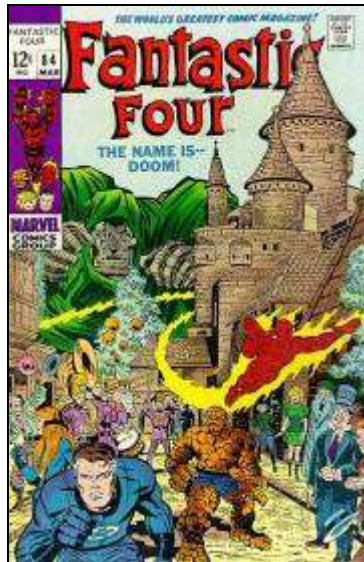
And while we're on the subject of Tad, here are the April 24, May 1 and May 8, 1938, newspaper comic. Tad of the Tanbark, it seems, has a propensity for underground river escapes.



In Avengers # 3, Iron Man uses his magnetic resistors to send a surge of boulders at the Hulk, but the green giant uses a cactus to fight back. Meanwhile, the Wasp and Giant-Man -- who has shrunk to the size of an insect for cross-country travel -- go subterranean, where they enlist the aid of an army of ants to redirect an underground river to collapse the ground under the Hulk.



"War in a World of Darkness"
X-Men # 34
July 1967



"The Name is Doom!"
Fantastic Four # 84
March 1969



"The Man Who Wanted Forever"
Swamp Thing # 3
March 1973

The X-Men use an Atomic Powered Earth Borer to follow Tyrannus to his underground palace. Angel, Marvel Girl and Iceman pop out in a cavern bathed in an emerald glow where Mole Man leads them into a trap where they are overcome by mists from an the underground river Lethe. The name should be familiar.

In the Fantastic Four comic, a poor Latverian attempts to escape Dr. Doom via a hidden tunnel in the catacombs of Castle Doom and swimming an underground river to the open sea

Wandering the halls of Arcane's castle, Swamp Thing falls through a broken flagstone and into an underground river. Meanwhile, Lt. Cable, who has tracked the Swamp Thing to this Balkan village, meets Abigail Arcane and all three face a mob of angry villagers.



"Night of the Troll!"
Thor # 238
August 1975

Ulik leads Thor to an underground river. Elsewhere, Orrin gets involved in a grape picker's strike. Back in the caverns, Ulik tells Thor his plan: take care of Zotarr while he attacks Geirrodur.



"Sign of the Beast"
Wolverine # 62
November 1990

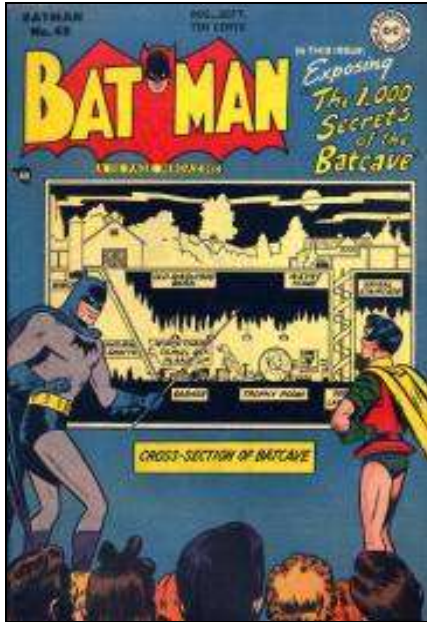
Wolverine causes a foe to burst into flame, then causes an underground river to geyser and douse the fire.

But let us get to some of the more familiar super heroes.

Wonder Woman might not seem to be a Boys Club subject, but bathing suits help. In "The Judgment of Goddess Vultura," Wonder Woman # 25, September 1949, as Etta -- a short, overweight college student -- and her girls swim through the underground river to rescue Wonder Woman, they feel something pulling them underwater!



To quote Eta, "Woo, Wool!"



Batman #48, August-September 1948
Behind Batman's right shoulder is labeled, "Natural Grotto."



In the same issue, Wolf Brandt, the first criminal to find his way into the Batcave, drowns in the underground stream.



Detective Comics #311, January 1963

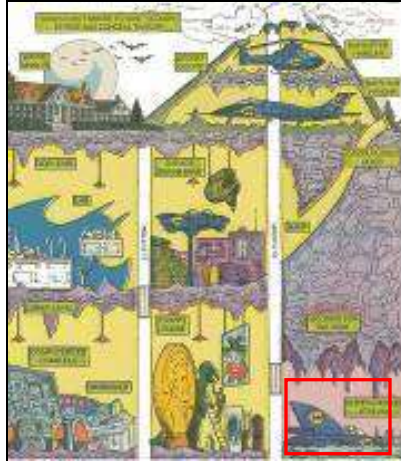
Batman and Robin trail Cat-Man to an underground catacomb, where their adversary seemed to perish when he plunges into a raging underground river.



Batman #6, February 2012

Batman discovers the dark beating heart of a sinister organization and uses his knowledge of Gotham's water supply to breach the white marble base of a fountain and dive into the underground river below.

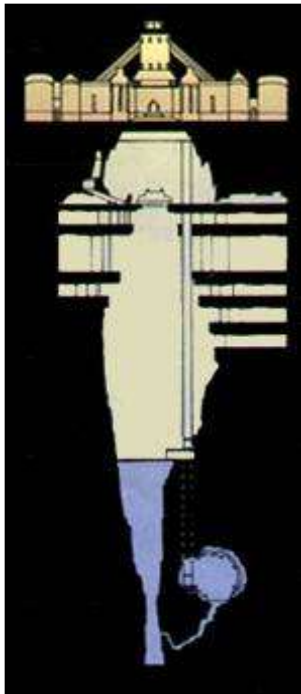
The Batcave underground river is sufficient for hydro-electric power and docking the Batboat.



The Batcave layout from DC Comics 1985 Who's Who.

Shown next are elevations of a yet more complex subterranean fortress, the underground river being at sea level and a submarine port 26 meters yet lower. The Batcave entrance to the right resembles a more-natural karst formation.

Wayne Manor
Central Grotto
Labs/Library
Training Area

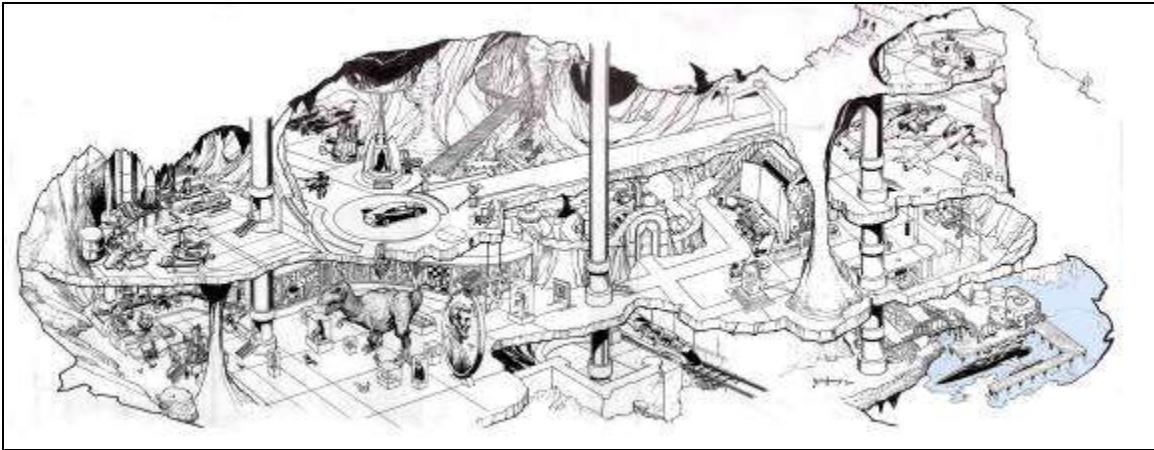


Ground Level	200 feet
Main Level	150 feet
Sub-Level 1	138 feet
Sub-Level 2	114 feet
Sub-Level 3	96 feet
Sub-Level 4	84 feet
Sub-Level 5	55 feet
Sub-Level 6	sea level



The mouth of the Batcave, featuring the Batmobile, Batplane and Batboat, as modeled by T 'N' T Hobbies' Science Fiction & Fantasy Model Gallery

Another rendition of Batman's subterranean complex. The river is indicated in blue.



Guest appearances of one superhero within another's story (at least between those of the same comic book empire) are common. Here's an educationalist's assessment of one involving Robin and Batman, Spiderman and Wonder Woman and an underground river.

By ages 9 and 10 children are able to develop appropriate secondary elements for each of the new primary functions, so that there are two or more well developed episodes. Thus, in one fairly elaborate story, Batman and Robin are in a haunted house. Robin falls through a trapdoor into an underground river, but manages to signal for help and Batman rescues him. Then they hear a scream, think it is a girl in distress and run up to the attic to rescue her. They discover that the scream has come from Spiderman, who throws an extra strong spider net over them, and says that he intends to kill them and run off with Wonder Woman in the Batmobile and live in the Bat Cave. Batman says that he needs a special key for the Batmobile and Bat Cave and when Spiderman comes to get it, they overcome him and put him in jail. The step to embedding true subplots within the primary story structures is not made until later. -- J.A. Appleyard, Becoming a Reader, The Experience of Fiction from Childhood to Adulthood (1991)

And just as we saved Roy Rogers to close our list of cowboy idols, we've saved the best for last to close out our superhero list.

It's a bird! It's a plane! It's Superman!

The longest-running Superman adventure involving an underground river involved the River Koehaha, the legendary Stream of Ruthlessness said to be in Colorado whose waters have the power to wash away the consciences from those who "drown" in it, causing them to become nefarious.

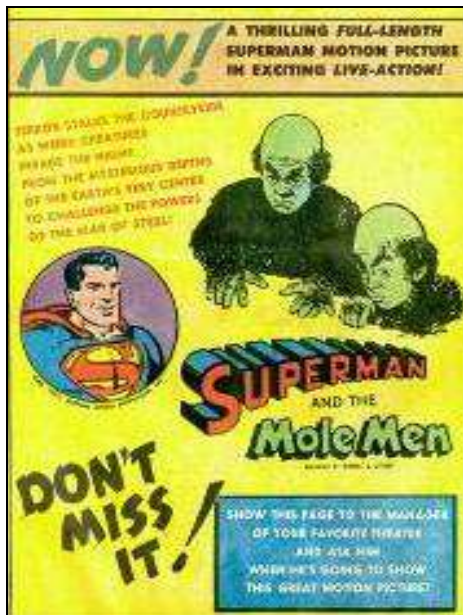
In "5 Drowned Men," All-Star Comics # 36, evil-doer Calvin Stymes takes revenge on five ex-fraternity brothers who traumatized him by immersing them in Stygian waters. Accordingly, the Justice Society of America must deal with five brand-new master criminals. In a mega-star comic book spectacular, Superman, Batman and Wonder Woman assist the JSA in capturing Stymes, but there's more to come!



Superman manages to send the Koehaha underground, but the waters will reemerge in 1984 when Infinity, Inc., a younger group of superheroes, alternatively fights against and joins with the older superheroes, depending upon who's been "drowned." It requires a time machine and the Infinity, Inc. # 3-10 series to sort things out and to dispatch the latest villain, Ultra-Humanite.

"5 Drowned Men"
All-Star Comics # 36
 August-September 1947

Here are a few of the Man of Steel's quicker underground river adventures.



Superman and the Mole Men (1951)



The Kid who Saved Superman (2009) by Paul Kupperberg



Superman #154, March 2000

A computer virus allows Brainiac 13 to travel from the 64th century to the present and transform Metropolis into a futuristic ultra-city of his design. Collapsing infrastructure is repaired under the citizens' feet. Sewers become pristine waterways patrolled by genetically engineered creatures who consume waste. A homeless man finds a rubber dinghy and reinvents himself as a new Charon.

But what is Brainiac's intent? Surely not to steal all the world's electricity!

In Superman and the Mole Men (1951), an oil well breaks through to the center of the earth and the Mole Men ascend, causing a wave of hysteria that only Superman can quell.

The Superman animated series, "The Beast Beneath These Streets," November 19, 1988, is set in a part of Metropolis buried a hundred years ago where Morpheus makes a machine that allows him to steal the powers of animals. The evil physician lures Superman to his lair and throws the super hero into an underground river, but Superman reverses the polarity and gains his powers back.

Hakeem Bennett, a Brooklyn special education student who won an essay contest, was made the title character of Paul Kupperberg's The Kid who Saved Superman (2009). A bit of the action,

Splash! Hokeem sputtered and coughed. The cold, rushing water of an underground river swept hem deeper into the cave. His arms flailed wildly, reaching for something to grab.

"Help!" he called out.

When the cave floor split open, Hakeem had fallen into the frigid water. The river rushed along and spilled through a hole in the cave wall. It poured out into a large underground pool, carrying Hakeem like a leaf caught in a storm.

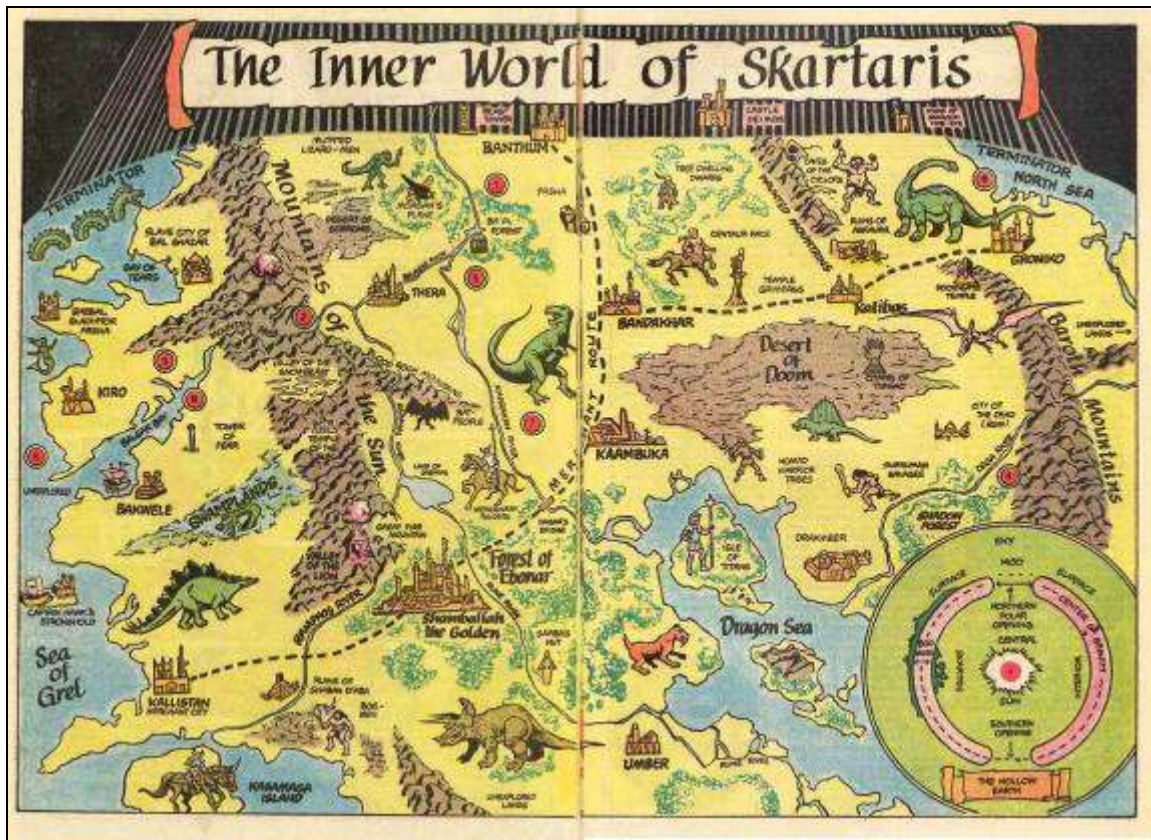
In Skartaris, a comic book series debuted in 1975, US Air Force pilot Travis Morgan discovers through a North Pole entrance the inner-surface land of Skartaris where a miniature sun is suspended within our hollow globe. A moon orbits this sun, shadowing areas of Skartaris from time to time.

Chapter 25 -- Underground Rivers in the Comics

We, of course, are most interested in the hydrology, and indeed we find oceans to sail, but they're rather standard adventure-book seas.



Here's the map of the underworld, its seas, lakes and rivers and its golden metropolis filled with advanced Atlantean technology, Shambhala, an underground destination we'll not visit until Chapter 77. Note the Hollow Earth cross-section in the corner.



All in all, Skartaris is an amalgamation of Symmes' cosmology, Burroughs' Pellucidar, Admiral Byrd's aerial detour, Jules Verne's adventures of exploration and any number of hackneyed spinoffs we've perused in earlier chapters.

And of course there's the quirky Dr. Who. From TV Comic, Dr. Who "The Dalek Revenge" January 24, 1976,

Entombed by the Daleks, the Doctor, Sarah-Jane and Ticon have followed the course of an underground river which they hope will get them to the surface. With no way back, they leap

into a vast whirlpool which the Doctor considers might be a natural siphon. As their lungs begin to fail, so do their senses or reality. For they suddenly seem to be shooting upwards.



The artwork of Daredevil #9, February 2012, is unabashedly Charonic (Chapter 34, Twenty-Five Centuries of Subterranean Portraits), but as Daredevil is a superhero, not an aged and morose boatman, we include him here.

And Just Regular Girls

Even an underground river isn't going to stop a determined kid. From "The Adventures of Patsy," September 1-3, 1943.

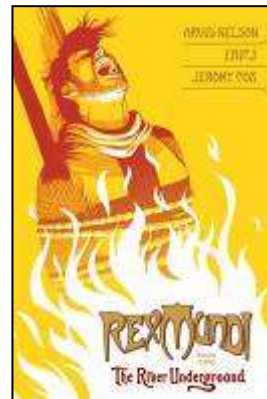


The Future

And where is comic book culture heading?

It's heading to graphic novels.

Rex Mundi is a comic book miniseries set in a 1930s Paris where magic is real and kings and Popes are still in power. In Book 2, The River Underground (2005), Dr. Julien Saunière follows the trail of conspiracy that extends to the walls of Jerusalem during the first crusade.



Though the comic book media migrates between paper and film, the plots rely on standard settings, that of an underground river being very much a favorite.

CHAPTER 26

RADIO DAYS AND SATURDAY MATINEES

Underground rivers tend to meander toward studios, albeit radio, television or cinema. This chapter deals with fast-paced radio, television and B-grade cinema adventures, often serialized, aimed at the Boys Club audience.

We'll try not to repeat what's elsewhere in our journey. Illustrations in Chapters 17 and 18, chapters about English and Continental fiction, included scenes from film adaptations. Many books cited in the chapters dealing with juvenile fiction were reworked into radio, television and movie releases. The name-brand funny-page characters of Chapter 25 are regularly marketed in multimedia formats. In Chapter 64, The Grand Tour, European Sewers of Distinction, we'll hawk cinema tickets appropriate to our settings. Thus this chapter's bigger than just this chapter.

Radio Days

Any up-to-date Boys Clubhouse would of course have had its clubhouse radio.

Flash Gordon never seemed to be far from underground waters. From the Flash Gordon radio episode of April 27, 1935,

Flash Gordon and Prince Thun, with Dale between them, dash into the secret passage beneath the idol. The way becomes steeper. They slip and fall. Down! Down! A hundred feet or more into a whirling underground river. They're swept along down a raging current and over a falls into a lake. With the powerful strokes of a champion swimmer, Flash sets out for the shore, towing Dale by the hair. They reach the shore, and as Flash reaches down to drag Dale to safety, {We hear her scream.} she screams and disappears beneath the calm surface of the lake, clutched in two powerful green, scaly arms. With no thought of his own safety, Flash Gordon dives to Dale's rescue [Water sounds] and finds an adventure stranger than any which has gone before.

The November 15, 1939, episode of Captain Midnight, "Chuck Falls into Underground River," begins,

Last time, you remember, Chuck Ramsey, accompanied by Patsy Donovan and the Mexican boy Pablo, were exploring the interior of the cave in which Patsy and her mother had been taking shelter. They found an underground river and in following along its shore, approached a roaring waterfall.

As we anticipate from the title, Chuck falls in, but as he's a member of the Captain's Secret Squadron, he's saved and the adventure continues.

As Secret Squadron members ourselves, we have our own Captain Midnight decoder.



Master Code X-25

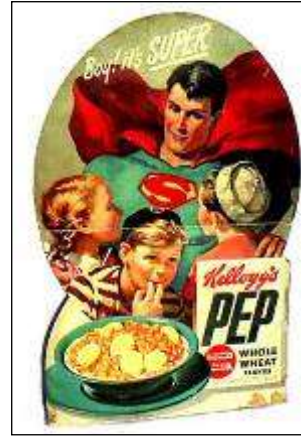
21	26	15	2	17	3	17	11	21	26	15		17	10	20	2	17

To decode, set X on the inner wheel to match 25 on the outer, as in the photo. 21 corresponds U. 26 is N. Carry on, Secret Squadron Member.

The Adventures of Superman radio show that aired from 1940 to 1951 had numerous underground rivers.

On March 4, 1946, Jimmy Olsen falls into an underground river on the moon where hundreds of yellow eyes gleam from the darkness. This calls for a friend.

On September 9, 1948, Jimmy almost drowns in an underground river when his canoe sinks. He finds the Silver Buffalo, but is frozen in place! Only one can save him!



In the February 7, 1942, Adventures of Red Ryder radio serial "Trouble on the Shogono Trail," Little Beaver nearly drowns as he investigates cattle being rustled through an underground river.



The FBI in Peace and War featured a clattering teletype to notify listeners that justice was near. The September 23, 1948, broadcast was "The Underground River," but as the episode is no longer available, we don't know why.



The November 6, 1951, episode of Mysterious Traveler, "Behind the Locked Door," is set almost entirely in the dark, depending on sound and plot to foster a sense of menace

A professor, his assistant Martin, and their Native American guide discover a cave deliberately blocked with stones and blast their way in. There they find the remains of a wagon train which the professor deduces was forced into the cavern by attackers who then sealed the mouth.

In the honeycombed maze is an underground river with fish bones piled along its banks.



When the guide flees and is found clawed to death, the professor grasps the horrifying possibility that the trapped wagon train had found the river and their descendants, blind with other senses magnified, yet survived.

Flashlights fail and the scientist is likewise killed. Martin is attacked soon thereafter, but regains consciousness with "a heavy, calloused hand" washing his face. Desperate, he jumps into the river and his savior jumps after him. Martin again passes out and when he wakes a second time, he and the creature are on a sand bar on the Colorado River.

The story of terror, perfect for radio. The twist at the end is the only possible effective ending.

In "The Unknown," Family Theater, September 16, 1953, a reporter and a fading socialite descend by cable beneath the Pyrenees and trek along an uncharted passage until they encounter an impassable underground gorge.

The woman: *What do you think is down there?*

The man: *More limestone.*

The woman: *No, there's something more. There's mystery in all that blackness... All my life, I've been running, I've been afraid. Now I know it's got to stop.*

Against her partner's protestations, she lowers herself into the darkness, pursuing the distant rumble of an underground river. Then something appears which she describes in unmistakably religious terms.

The woman: *Oh, Dick you should see!... A huge cave, back under the shelf. It's like a cathedral!"*

The man: *Can you see the river?*

The woman: *No, but I detect a little spring, sort of a, sort of a tiny little waterfall, bursting out of the rock. It looks almost like a fount. Oh, Dick. I've got to go in there!*

Perhaps it's an allusion to the fount of Exodus 17:6 (Chapter 4, The Cross). In her own way, she finds what she was seeking -- the courage to live.

Gumshoes must deal with counterfeiters who duck underground. From the December 6, 1956, Dick Tracy strip, the underground river escape tunnel known only to Rodney.



B-Grade Cinema

A Boys Club of years past would never have missed the Saturday matinee at the Bijou.

Harry Houdini starred in The Master Mystery (1919), a 15-part film serial released simultaneously with the novel of the same name in which Quentin Locke, scientist, agent of the US Department of Justice and escape artist extraordinaire, takes on a band of criminals and a metal robot, "The Automaton," which has been robbing inventors of their patent rights.



The fiendish plan was simple -- to hang him and then to cut the rope. His body would go hurtling down to the subterranean river below and be carried out to sea.

The hypnotist reversed the lever. The trap-door closed. Locke was dragged beneath the rope and it was adjusted around his neck.

Even in this awful moment his sole thought was of Eva. Would they throw her, unconscious, down the same yawning trap?

With a crash the trap was sprung, with the pit yawning beneath it. Struggling, striking, grappling with his assailants, Locke managed to hurl three of them to their deaths in the underground river below.

Horror-stricken at the fate of their companions, the other emissaries stepped back, when, to add to their confusion, Zita, with remarkable strength for so frail a girl, lifted the stand of mirrors and hurled it among them.

The Perils of Pauline (1933) was a serial remake of the 1914 silent original. In the episode "Dangerous Depths," Pauline and Warde are seized by Bashan, but manage into a side room and lock the door. Unable to open the door again, the two try another way out—only to have the floor collapse beneath them, dumping the pair into an underground river.



Arthur Conan Doyle received deserved credit in Chapter 17, Underground Rivers in English Fiction, but we should also include him in regard to Saturday matinee movie features, The Triumph of Sherlock Holmes (1935) based on his Valley of Fear (1914) being an example.

Holmes, facing into retirement, takes on one last case to catch the elusive Dr. Moriarty and almost succeeds, but Moriarty falls into an underground river, so he could have survived.



Western Justice (1935), featuring Bob Steele as Ace, a lawman who disguises as drifter, and a cave with a secret tunnel and a good deal of mayhem. Ace dynamites open the "underground river" which the bad guys have sequestered to deny Red Fort, Arizona its water supply.

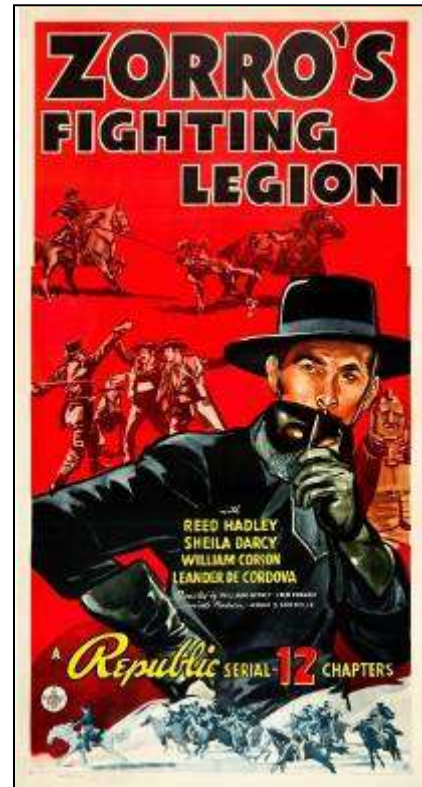
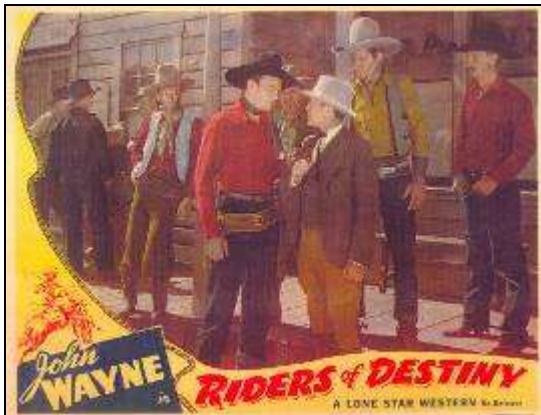
Bob sings "Desert Breeze," a song featured in his earlier films and to be featured again.



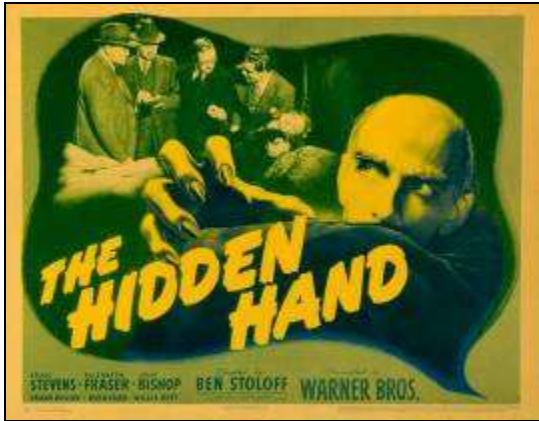
In Chapter 3 of the 1936 movie serial of the Flash Gordon saga cited in Chapter 25, *Underground Rivers in the Comics*, Flash and Dale fall through a trap door into an underground river, where Flash fights with Shark Men who wear silver bathing caps even on land. As the events do not carry forward any plot implications for the rest of the serial, the episode appears to have been inserted to get the serial's length up to the prescribed 13 chapters, and possibly to show Buster Crabbe's prowess as an Olympic swimmer.



In episode 8, "Flowing Death," of *Zorro's Fighting Legion* (1939) serial, Zorro manages to disembark just before the runaway stage crashes into a ravine. After more close calls, Zorro enters the mountain hideout of criminal Don del Oro. To flush out the masked intruder, del Oro has his henchmen move boulders to unleash a raging underground river.



The plot of *Riders of Destiny* (1933) is standard, but the stunt-work for John Wayne is noteworthy and an above-ground river is created when a well leading to an underground is dynamited.



The Hidden Hand (1942)

There is the mansion, which is a maze of hidden passages, sliding panels and trapdoors. Turning the hands of the clock activates a trapdoor underneath and dumps one into an underground river.



Superman and the Underground World (1943)
in Technicolor.

Landing on the shore of an underground lake, Lois and Henderson lose their barge to the current and are captured by a race of cavern birdmen. Who will zoom to their rescue?



Chapter 11 of the Columbia serial The Desert Hawk (1944), "The Underground River" in which "flashing cutlasses doom the enemies of the hawk!"

A couple of B-grade Durango Kid Westerns,



Bandits of El Dorado (1949), being a quintessential Boy's Club movie, needed only a male cast. In hunting the villains, our hero Chuck Starrett poses as one himself, shooting the forewarned Texas Ranger captain with blank cartridges. Now a "wanted killer," Chuck gains entrance to the hideout of the bad guys through a trap door into an underground river.

"Come and Get Your Dinner" is performed by Smiley Burnette with Mustard & Gravy

In The Monster That Challenged the World (1957), an earthquake has led to the hatching of eggs belonging to a prehistoric giant mollusk. The hatchlings escape into an aquifer, emerge from the Salton Sea and proceed to terrorize the citizens of California's Imperial Valley.

The problem is finding them all before they escape to the ocean. The scientists must locate the underground river that leads to the slimy predators' nest.

Selections of the film's music were reused in King Kong vs. Godzilla (1962).



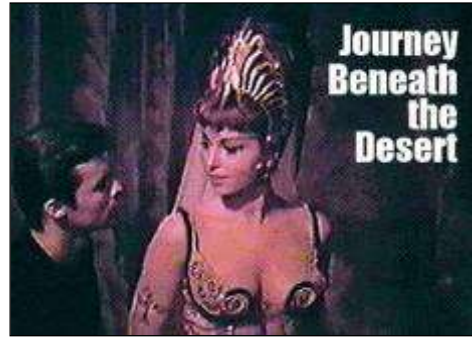
Trail of the Rustlers (1950), a Durango Kid saga starring Steve Armitage, is also about bad guys (the Mahoney gang, in this case) conniving to deprive a community (residents of the Rio Perdido (Lost River) Valley) of its "underground river."

Smiley Burnette sings "Shoot Me Dead for That One" with Eddy Centro and the Roundup Boys.



Journey Beneath the Desert (1961) begins with bad weather forcing a helicopter to land in an atomic testing range in the Arabian desert where the crew notices a local going over a waterfall.

When they pull him to safety, he takes them captive and leads them down to Atlantis, which turns out to have sunk into the sands of the desert, not the Atlantic. In the escape sequence, heroes battle guards and flee via an underground river. The photo suggests why Boys Clubs liked the movie.



Gone may be Saturday matinee at the Bijou, but there's the television.

In the 1974-77 TV series Land of the Lost, Rick Marshall, his son Will and daughter Holly are rafting the Grand Canyon when they are caught in an earthquake. The Colorado River dives into the earth's interior, and down the trio plunges!

The theme song,

*Marshall, Will, and Holly
On a routine expedition
Met the greatest earthquake ever known.
High on the rapids
It struck their tiny raft.
And plunged them down a thousand feet below.
To the Land of the Lost.
To the Land of the Lost.
To the Land of the Lost*



Animations

The previous chapter dealt with frame-by-frame comic strips and comic books. We'll now progress to animations.

We'll start with an animation of better quality, however, Disney's Fantasia (1940). While the Sorcerer's Apprentice setting isn't subterranean, per se, the lighting and the stairs suggest that the broom-brigade is flooding the basement. Mickey had brought upon himself an underground river.



"Hare-Breadth Hurry" (1963) opens as a typical Wile E. Coyote and Road Runner cartoon, until Bugs Bunny slows enough to reveal his identity and explain why he is in the cartoon instead of the Road Runner. In using his wits to outwit the Coyote, Bugs draws a line in the road, at which Wile stops. Bugs then draws a second line, but as Wile steps in between the marks, the bottom falls out from under that segment dropping Wile E. Coyote into an underground river and Bugs runs off.



The underground river as a gag is a metaphor not anticipated in Chapter 30.

Not derived from a book or comic strip, the Thunderbirds series is pure TV, which is to say, wasteland.

In "Terror in New York City," aired in 1965, Thunderbird 2 is inadvertently incapacitated by an experimental high-speed Navy strike vessel. When an operation to move the Empire State Building goes awry and the building collapses, the Navy allows Thunderbird 4 to hitch a ride on the same ship to find an underground river and rescue a reporter trapped beneath the wreckage.



Brian : *I've been studying Manhattan Island, Mr. Tracy. Its base is solid rock. Underground streams do exist, but they've never been considered a threat.*

Mr. Tracy: *Does that wash out your underground river theory?*

Brian: *No, it's possible that over the last hundred years, the minor streams have eaten.*

Mr. Tracy: *What are you getting at, Brian?*

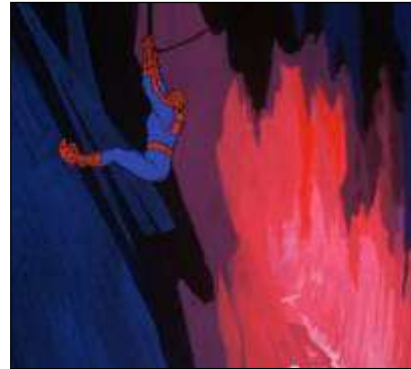
Brian: *Well, no recent surveys have been carried out. It's got to be a difficult task to locate the river.*

Mr. Tracy: *I see. Already a touch and go whether the Thunderbird 4 can arrive in time. Now the rescue could be delayed even further!*

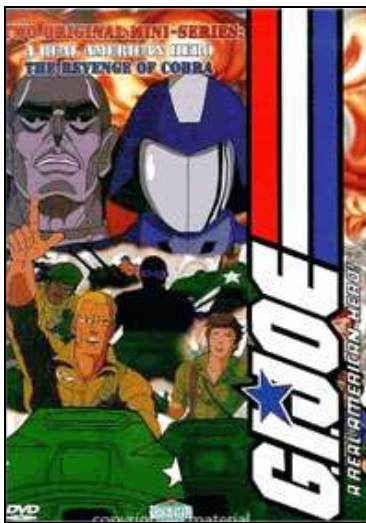
In the Spider-Man TV series (1967) "Cloud City of Gold," Peter Parker and his professor are flying over the Andes when the plane crashes. The professor, pilot and navigator all survive but there's no sign of young Parker. Just as they notice that they're trapped in a hostile jungle with menacing natives watching their every move, Spider-Man comes to the rescue. After building a raft to getting caught in a whirlpool, Spider Man leads them into an underground river. But watch out for the bats!



The Spider man episode "Menace from the Bottom of the World" is more karstic. Peter Parker investigates a seismologist's claim of detecting subterranean voices in an unknown language. Using his spider-hearing, Peter determines that these are the people responsible for a recent bank disappearance. Donning his red costume, Peter races to the next target on the evil-doers' list, sees it disappear into the ground and descends into the sinkhole to investigate.

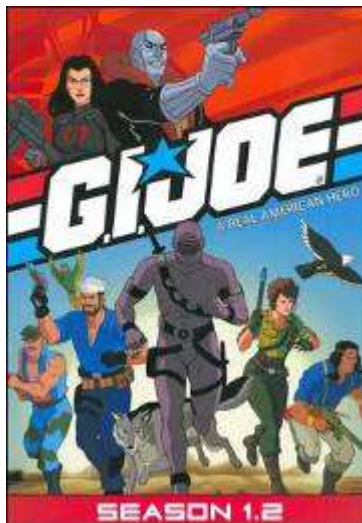


G.I. Joe's propensity for large-caliber shoulder-fired weapons is rivaled by his reliance on underground rivers. The TV covers are from DVD releases.



"Battle on the Roof of the World"
G.I. Joe, September 13, 1984

Spirit saves Storm Shadow from drowning while escaping from an underground river. In return, Storm Shadow allows Spirit to keep the fragment of the Weather Dominator.



"Cobra Soundwaves"
G.I. Joe, October 17, 1985

Trapped in a tunnel, the Joes blow a hole leading to an underground river and drift to an exit. To rescue the Sheik, they can't fly into the Cobra base, but the river runs beneath their target.



"Into Your Tent I Will Silently Creep"
G.I. Joe, November 20, 1986

Cross Country activates a booby trap that opens a trap door, through which he falls into an underground river and is sucked into a whirlpool.

A quote from the 1984 issue: "This ain't the Tunnel of Love." -- Shipwreck and Gung-Ho before sledding into an ice tunnel. We'll cover those topics in Chapter 42, Underground Rivers in Caverns other than Karst, and Chapter 66, Amusement Parks.



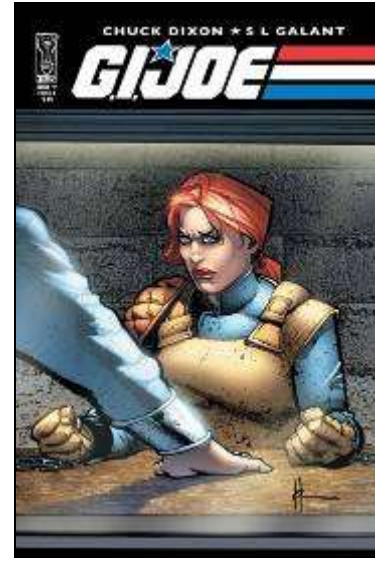
"Slam Dance in the Cyber-Castle!"
G.I. Joe #150, 1994

A brainwashed Junko Akita swordfights Storm Shadow to the edge of a cliff, but before she strikes the fatal blow, Billy yells that she's about to kill the man she loves. She stops, but deciding that she can't live with her damaged psyche, throws herself into the underground river below.



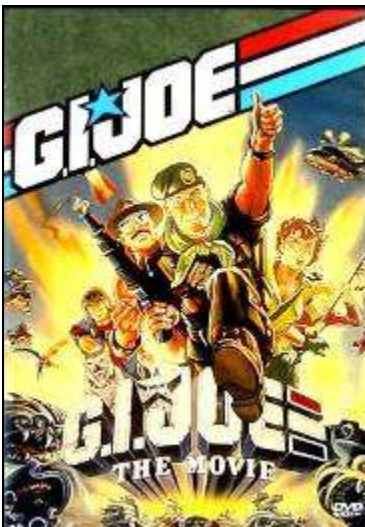
G.I. Joe: Master & Apprentice
2 #4
May 2005

The same adventure retold a decade later. As noted in Chapter 21, More Boys Club Serials, remarketing a past plot has long been standard business practice.



G.I. Joe #7
July 22, 2009

Shipwreck takes the mini-submarine Remora for a test run from its underground river station, but encounters trouble with the port tank. A mysterious figure jumps into the water to right the stricken sub. It's Cover Girl!



G.I. Joe: The Movie (1987), an animated film.

Tunnel Rat finally does something useful, and finds a tunnel leading to the underground river that the Drednocks are planning to seal so spores don't enter.

The 1996-97 Jungle Cubs animated series was based on the Disney feature film The Jungle Book (1967) but with youthful animal characters.

The Middle Jungle was a hidden area with only one entrance, the Cub House throne. When the snake-like leaver is pulled, the throne moves to reveal the doorway to the underground river.



In Duck Tales, The Movie, Treasure of the Lost Lamp (1990), Scrooge and lads take a wild underground river ride out of a crumbling temple. Once they're back in sunlight, one of the youngsters remarks,

I don't mind doing that again, now that we know we can live through it.

To the right, Scrooge and nephews ascending Niagara Falls via a secret underground river revealed in Chapter 50, Wrecks of Ancient Life.



As to why Scrooge and nephews so often find themselves in such waterways, perhaps it's because they're themselves an active Boys Club.

Big Budget Movies

Today's entertainment industry is more opulent. Boys Clubs no longer bike to Saturday afternoon double features hosted by a local celebrity -- not infrequently titled "Captain" -- who leads them in rousing cheers. They're driven to a posh cinema complex for PG-13s. The showings may be no more entertaining than those of a simpler era, but they cost more. We'll mention a few that feature underground rivers.

Willy Wonka & the Chocolate Factory, the 1971 the film adaptation of **Roald Dahl's** Charlie and the Chocolate Factory (1964) is a florid funhouse full of trick doors and underground rivers. Whereas Dahl's book remains a favorite of boys and girls alike, the movie was scripted with unruly boys in mind.

Wonka's chocolate river is a tunnel described by reviewers as a "psychedelic nightmare filled with screaming skippers and decapitated chickens."



As humankind nears extinction, a scientific remnant flees deep underground in City of Ember (2003) by **Jeanne DuPrau**. But their power supply is failing and it's up to three young adults to take a roller-coaster ride down the underground river, over the waterfall and when the boat stops, they see the natural world, the sky and the moon. The photo is from the 2008 movie.



Script by **David Goyer**, screenwriter for Batman Begins (2005),

Wayne climbs down a jagged rock crevice. Air blows in his face. The crevice widens into a low-ceilinged chamber. Wayne hears the rush of water. He crouches, advances through the low chamber. It turns downwards, steeper. Wayne carefully slides on his back, lowering himself into limitless black.



Wayne stands. A roar of water now. He reaches into his coat, pulls out a chemical torch, cracks it, throwing light into a vast cavern.

An underground river, a jagged ceiling, far above, which as Wayne peers, starts to move. Bats explode from the ceiling. Thousands descend, screeching, attracted to the light. Wayne instinctively crouches, but as they swirl around him terrifyingly.

Wayne rises to his feet amidst a cyclone of bats, watching flutter blackness with profound calm.

And he knows the symbol he must use.

King of California (2007) is about pursuit of a purported cache of Spanish gold buried under the L.A. suburbs. An ancient map and modern surveying equipment lead to stones on a golf course with etchings matching those recorded in a conquistador's journal. Marking off distances inside a Costco store, the searcher jackhammers into the display floor and using scuba equipment from the discount store shelves, plunges into an underground river in search of the loot.

Quantum of Solace (2008), the 22nd James Bond film, Agent 007 uncovers a conspiracy to steal the Bolivian water supply. While surviving the intended land acquisition by air, Bond is shot down, but skydives into a sinkhole where he discovers the subterranean dam constructed for this evil purpose.

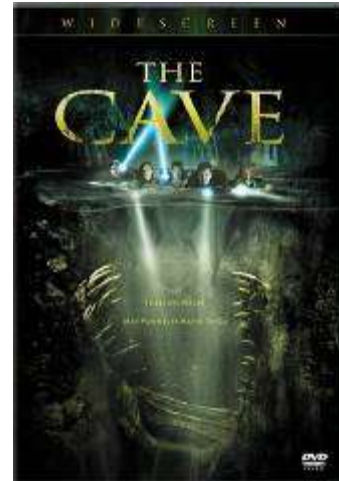


Detective Dee and the Mystery of the Phantom Flame (2010) features Hong Kong superstar Andy Lau as the sleuth charged with unmasking the mastermind behind a series of spontaneous human combustion murders, c 689.

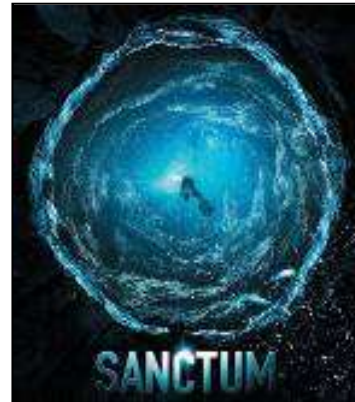
To the right, Lau ventures on an underground river,



And we have the claustrophobic movies. In The Cave (2005), underwater explorers are summoned to Romania's Carpathian Mountains to investigate a mysterious river. Cutting-edge breathing gear gets unpacked, camaraderie and budding romances develop, and then everyone becomes trapped in the depths where monsters begin to pick off the cast, one by one.



In Sanctum (2011), cave divers trapped when a portion of the cave system collapses face a life or death struggle as they seek a route through unexplored recesses of the cavern.



Sanctum opens with a promising note "inspired by true events," the story being loosely based on that of the 1988 exploration of the southern Australian Cocklebiddy 6.5-kilometer underground river system in having three sumps.

The real-life Sanctum explorers were several kilometers into the tunnels when the entrance collapsed due to rainwater accumulation. Seven explorers escaped immediately. Thirteen were trapped deep inside as water slowly filled the rock traps. Thanks to a handheld radio, those who'd escaped provided mapping support to those yet within. After a 24-hour ordeal, an alternative passageway was found and within another 6 hours, all got out safely.

Conclusion, The Underground River in Fiction

In this chapter, we've made but a small point: the entertainment industry regularly pipes underground rivers in our direction.

In the larger perspective -- ten chapters worth, actually -- we've compiled hundreds of works ranging from foundational works of modern fiction to the ephemerality of pop culture. Thus, let us return to the question raised at the beginning.

What commonalities of literary device have we discovered in our bibliographic sojourn?

Our impressions may relate to myth (Chapter 1), metaphor (Chapter 30 ahead), psychology (Chapter 38) or our need for belief (Chapter 99), but here, perhaps like the bulk of our writers, we'll be more pedestrian. What are the repetitions?

For the fledgling author seeking a well-trod, marketable path, we suggest a few.

Fictional underground rivers tend to serve one of two purposes:

- As entry to a place of adventure, sometimes at the wish of the protagonists, sometimes (and perhaps more often) as the result of a mishap.
- As exit from the above. Deus ex Machina: a boat moored on the subterranean bank. The tale ends again in daylight.

Fictional underground rivers tend to have common attributes:

- Illumination of some sort. A tale requires an envisionable setting.
- Rapids, perhaps Class III. A plot must never drag.
- An absence of inverted siphons (Chapter 46). Few protagonists carry air tanks.
- Stream banks suitable for disembarkation. Options for on-the-water action are limited.
- Precious stones and phototrophic vegetation. Awesome scenery over blasé.
- Hydraulic implausibilities, particularly in terms of mass and energy conservation. Where does the water end up and what makes it get there?

Fictional underground rivers tend to elicit particular emotions.

- Isolation. We're alone in a dark environment.
- Introspection. There's time to ponder.
- Fear. What omen lurks around the next bend?
- Inevitability. The tunnel's path is not of our choosing.

The list is by no means complete, but perhaps the suggestions can serve as a revisable framework as we pursue our own forms of fiction.

CHAPTER 27

SUBTERRANEAN WATERBODIES

We'll begin this chapter by noting our propensity to assume that what lies below resembles what we know above. To wit, "On the Cause of Fresh Water Springs, Fountains, &c.," American Journal of Science and Arts, July 1828, by Joseph Du Commun.

It seems that streams, rivulets and rivers under ground, are as numerous as on the surface of the earth, that they join together to form main streams, and that they are all directed towards the sea, where they empty at various depths, we may suppose also that there are lakes various in extent.

Or let us quote from "The Artesian Well," Western Rural and American Stockman, February 22, 1894.

Creeks and rivers on the surface of the earth traverse scores and hundreds of miles. Then why not the same under the surface? That subterranean streams, some of them of large volume traverse underground channels with almost as little obstruction as on the surface has been proven beyond doubt... How numerous and of what volume subterranean rivers may be down deeper in the earth than the well auger has ever penetrated, of course we cannot now know.

In the same vein, we cite The Earth: A Descriptive History of the Phenomena of the Life of the Globe (1872) by Elisee Reclus.

Like a captive, joyous at seeing the light once more, the water which shoots forth from the somber grotto of rocks sparkles in the sun, and careers along with a light murmur between its flowery banks.

By means of these natural gulfs it is possible to reach the subterranean streams, and to give some account of their system, which is exactly like that of rivulets and rivers flowing in the open air. These streams also have their cascades, their windings, and their islands; they also erode or cover with alluvium the rocks which compose their bed, and they are subject to all the fluctuations of high and low water.

The current gradually hollows out vast cavities, the ceilings of which fall in, and are carried away by the water almost in single grains. Where beds of hard stone oppose the flow of the rivulet, all it has done during the course of centuries has been to hew out one narrow aperture. This succession of widenings and contractions, similar to those of the valleys on the surface, forms a series of chambers, separated one from the other by partitions of rock. The water spreads widely in large cavities, then, contracting its stream, rushes through each defile as if through a sluice.

We'll cite this eminent geographer's perspective in a number of chapters, but we can't refrain from adding the aside that he was also poster-boy, so to speak, for the Anarchist movement in its turn-of-the century heyday.

Elisee Reclus, "Anarchism, An Address Delivered at South Place Institute, London," July 29, 1895



The International Library of Technology: A Series of Textbooks for Persons Engaged in the Engineering Professions and Trades or for Those Who Desire Information Concerning Them 36, 1903 notes that underground lakes and rivers have their own watersheds in the manner of lakes and rivers above.

Each of these underground lakes and rivers -- for these waters may possess both characters -- has no doubt its own watershed or area of absorption whence it is recruited, but the utmost uncertainty exists as to what the bounds of these areas may be. It is impossible to make gaging and surveys.

Which is not to say that there are no differences in appearance from the upper world.

College Physiography (1914) by Ralph Tarr and Lawrence Martin,

Underground rivers differ widely from surface rivers in many important respects. The underground valley is a rock-walled and rock-roofed cavern; its form and direction are irregular and unsystematic, as are its tributaries; there is little broadening by weathering; there are no floodplains and no deltas, for the sediment load is slight; and, since solution is the prime factor in the development of the underground course, the life history of the cavern valley is wholly unlike that of a surface valley.

Drawing these thoughts together,

The principals of hydraulics and hydrology are the same, under or upon the earth's surface.

The manifestations may seem rather alike.

This chapter deals our propensity to categorize waterbodies we can't see with the same labels we use to categorize waterbodies with which we are well familiar, labels such as "river," "stream," "lake" and "sea."

We'll first deal with what's real, but because fiction's also part of our journey, then see where this takes us when to move to waterbodies of the imagination.

Terminology

Let us establish some terminology.

Water	Characteristics	Nomenclature
Liquid we might scoop in a bucket.	Appreciable velocity, substantial discharge, somewhat linear waterway, perhaps wadeable.	Underground Stream
	Appreciable velocity, minor discharge, somewhat linear, swimmable or boatable.	Underground River
	Negligible velocity, substantial surface area, somewhat circular in area, boatable.	Underground Lake
	Negligible velocity, extensive surface area, too wide to see across, tides and storms.	Underground Sea
Within porous media	Wet sand, mud or fractured rock.	Groundwater

Magnitude is all that differentiates "underground stream" from "underground river," and "underground lake" from "underground sea." As it's an issue of perception, not physical behavior, we'll lump the first pair as "underground river" and the second as "underground lake." We'll deal with groundwater in Chapter 39, Hydrogeology.

Though there would be implications for exploration, in this chapter we'll not differentiate between waterbodies having a free upper surface and those wholly confined within a conduit. An "underground river" could thus be pipe-like or it could be a channel meandering along the floor of a larger cavern.

A "cave" is a cavity in the earth large enough for a person to pass through and deep enough for total darkness. As for how many caves there are, it depends on who's doing the counting.

Caves in the United States

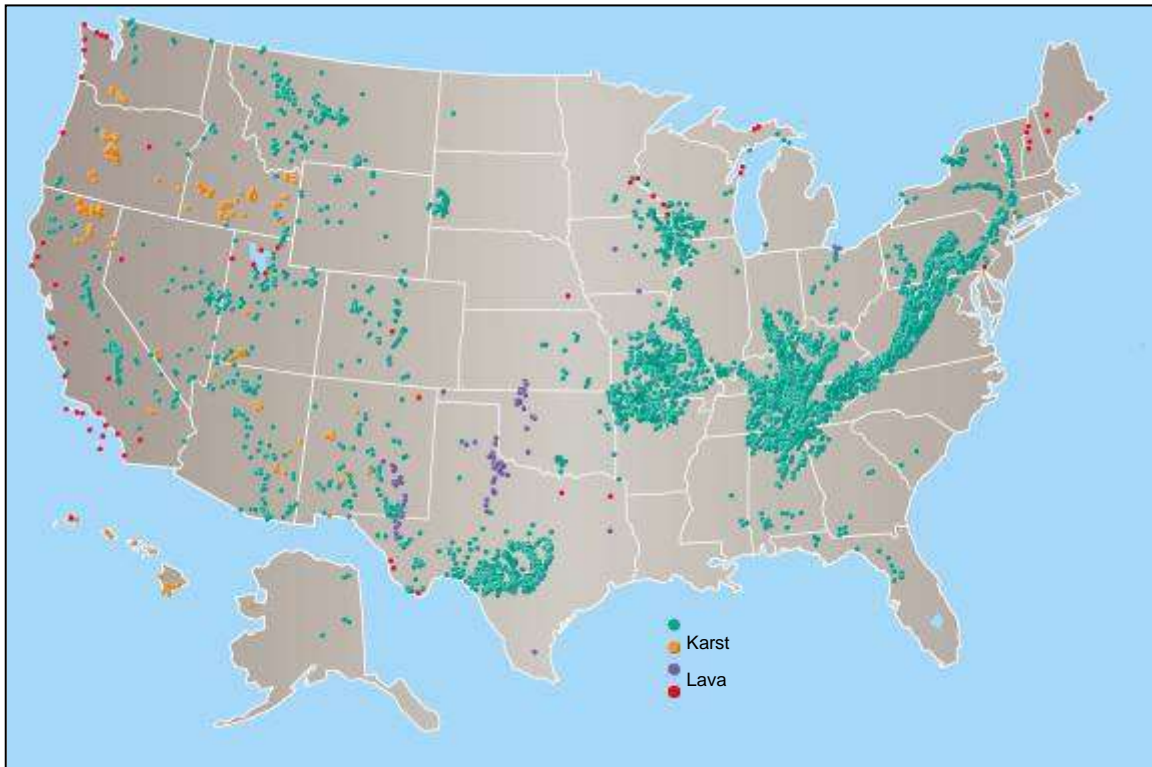
45,000	"Distribution Map of Caves and Cave Animals in the United States," <u>Journal of Cave and Karst Studies</u> 61:3, December 1999 by David C. Culver, Horton H. Hobbs, Mary C. Christman and Lawrence L. Master
17,000	<u>Geology of Caves</u> (1992) by W.E. Davies and I.M. Morgan
11,000	National Speleological Society of America

Cave density tends to increase when the count is done by state or local entities.

8,400	Caves within Tennessee
6,000	Caves within Missouri

The American cave count is a few tens-of-thousands, but beyond that, it depends on who's doing the count and how they're defining a cave.

The National Speleological Society of America map indicates where caves tend to be found.



Caves are classified as "wet" or "dry," but again it's a bit subjective. "Wet" can be taken as having ponded or flowing water. Others define "wet" as caves experiencing ongoing feature formation, which is basically to say that a drip is qualification enough. In either case, the designation may depend upon how deep a cave is penetrated; caves which first seem to be dry may evidence water in deeper recesses.

How do such cave surveys pertain to subterranean streams?

The vast majority of caves are the result of karstification.

Every karst cave is the product of flowing water, rarely with channelized characteristics in the initial stages, but increasingly likely conduited with the passage of time.

The vast majority of caves thus have some sort of "underground river" genesis.

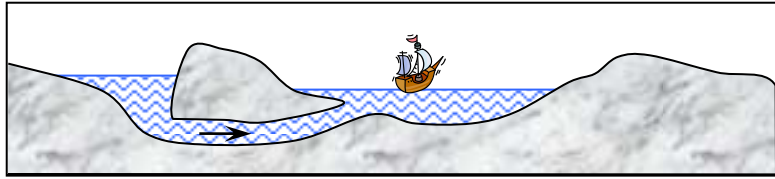
It may be difficult to associate a conduit intercepted in well-drilling with an identifiable source or outflow. Surface features may be obscured and/or the subterranean network may be too vast. There most likely is, however, or has been, some sort of cavern involved.

"Cave River" and "Underground River" or "Cave Lake" and "Underground Lake" thus tend to be sometimes-interchanged labels.

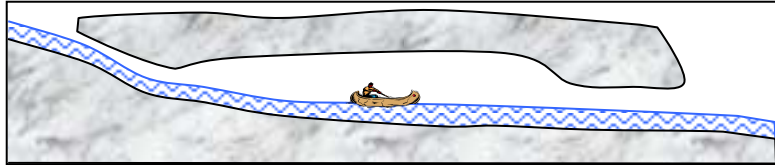
Cave Rivers

Let us consider four alternatives of how a cave river might operate.

In a cave completely water filled, flow is in the direction of hydraulic head, the combination of pressure, and elevation.

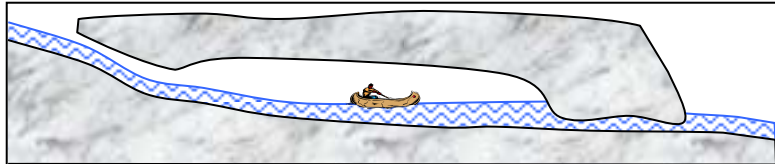


What though, if the cave's not filled?

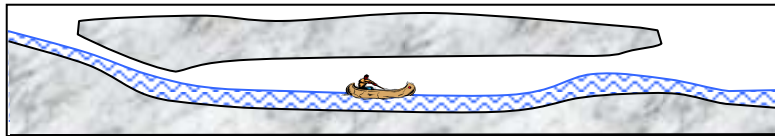


For cave rivers, there's no problem if it's all downhill.

There's no problem with the fluid mechanics, that is, but there may be problems for the boater.



An uphill exit isn't physically impossible. Sufficiently-rapid flow can shoot up an adverse slope for a short distance, though not to the flow's initial elevation. The kayak ride would be a quick one



Chapters 17-26 contain a wealth of fictional underground rivers. Blyton's The River of Adventure runs a river into a cavern. Wright's The Hidden Tribe runs the river back to daylight.

In the real world, outflowing caves substantially outnumber inflowing ones, and through-flowing ones are rarer yet, but as we will see in chapters to follow, all three exist. All observe the same mechanical rules that govern a river that's not beneath a lid.

Fictional underground river rides tend to be through exhilarating whitewater laced with menacing boulders. To protract the plot, there are also beaches upon which to recover after close calls.



As we'll note in Chapter 40, Karstology, real-world underground rivers indeed can be steep, and as suggested the photograph of Grotte de Vallorbe, Switzerland, rough.

Cave river fiction is not totally fictional, other than the explorers always emerge.

Cave Lakes

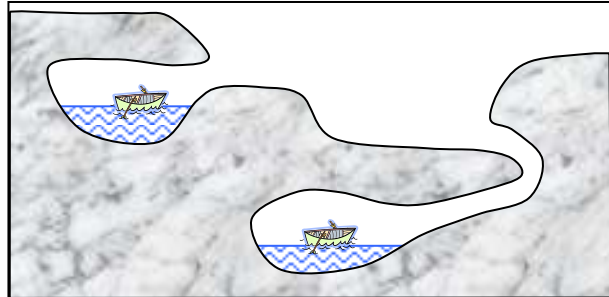
What differentiates a "cave river" from a "cave lake?"



The distinction tends to be one of perception: the former moves quickly and the latter moves imperceptibly. But as cave waters are more often quiescent than running, it's not uncommon for a still body to be called a "river" because of its narrowness.

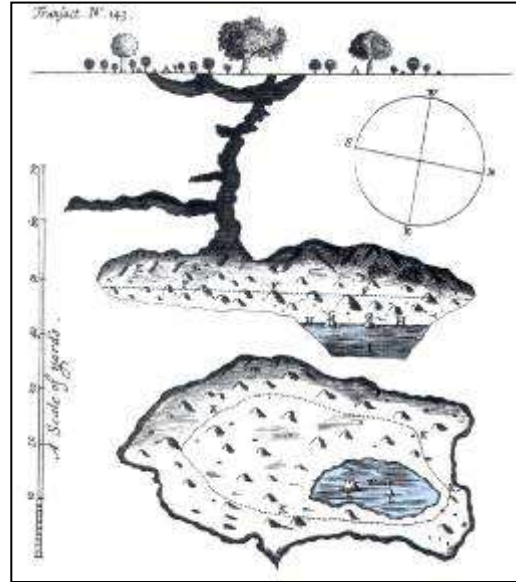
For tourist draw, "river" also sounds more exciting.

We didn't illustrate an admission booth at the cave mouths, but as noted in Chapters 52 and 53, there's often a fee for the rowboat.



Cave lakes (as do all lakes) have one or more inflows, sometimes from the cave mouth, but more often as infiltration from above. Cave lakes likewise have one or more outflows. Those higher than the surrounding terrain can drain through the cave mouth, but most maintain water balance by seepage and evaporation. Lakes below the surrounding land surface drain through the floor to a lower water body and perhaps lose a little water by evaporation.

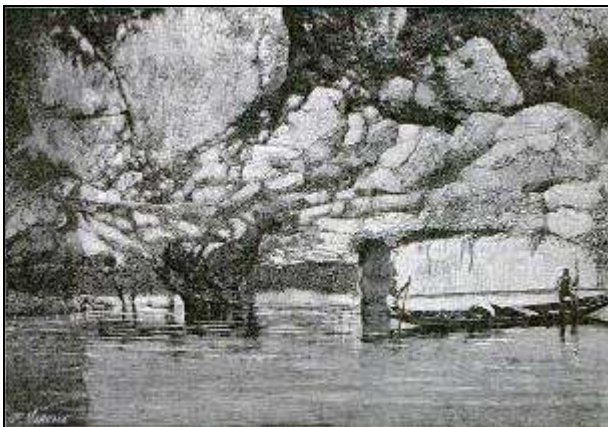
For an early illustration of a cave lake, we have Robert Southwell's plan and section of Pen Park Hole in Glocestershire in Philosophical Transactions of the Royal Society, 13, 1683.



For another cave lake description, one in which the "lake" nature was a revelation, we've Paul Raymond's "Subterranean River Midroi" by Popular Science, June 1896, describing the French caves of the Vercors. The magazine editor must have ruled, however, that "river," with its connotation of current, made a better headline.

Starting to explore this river on August 28, 1895, and carrying our instruments, our photographic apparatus, and our boat, the Microbe, with considerable difficulty across the slippery clay bottom, we passed into a gallery about thirteen feet long and ten feet high, contracting in some places to a few inches, which offered nothing of special interest. About one hundred and fifty yards farther on we came to a lake, where my progress had been stopped in a visit made to this place the year before. Launching the Microbe, we proceeded on our way to the unknown. We advanced between walls smooth and polished by the water upon this new Styx, which had a uniform depth of about ten feet. After a few turns the lake became narrower; an arcade, and then a second, rose before us -- the Gate of Mycenae, as we called them, standing at the entrance to the second gallery. This was the end of the lake, and for the present, of our sail.

There exists, in effect, in the very heart of the Gausses, a considerable and eminently variable reservoir of water; it is a real lake, and through the thousand fissures, through all the meshes of this interior region, flow the waters of the plateau, sometimes by the vent of Rochemale, and sometimes, and only when rains are abundant and when the vent is not sufficient for its task, by the River Midroi.

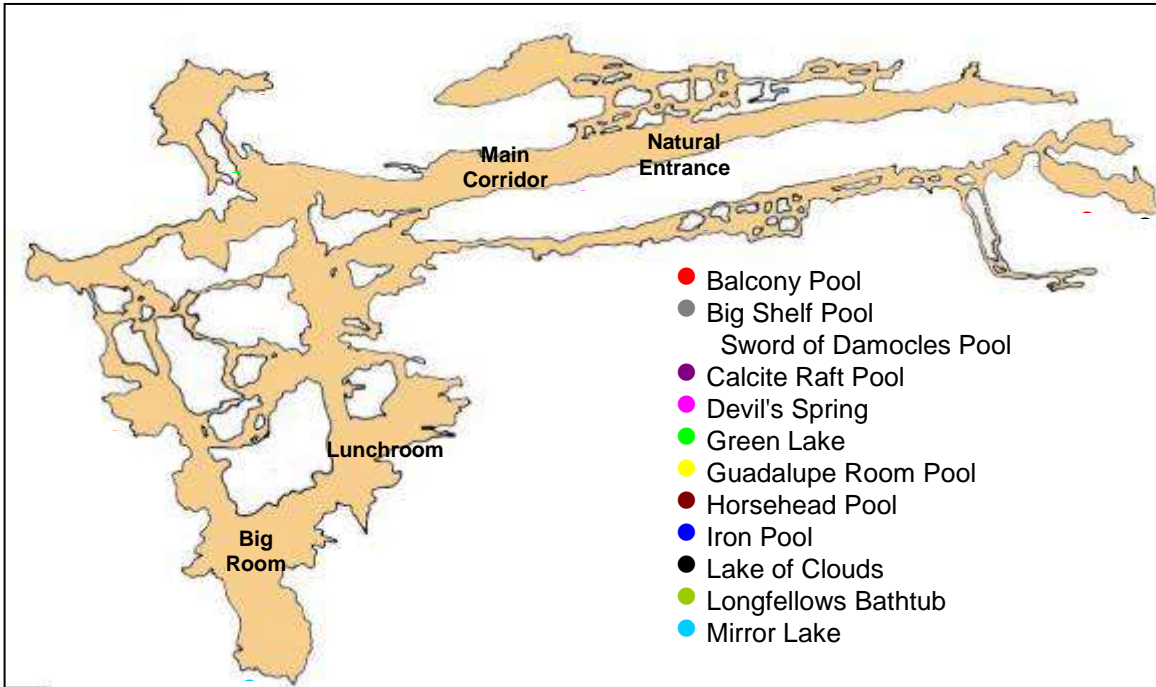


The Subterranean River Midroi



At the lower end of the "cave lake" category would be "cave pools," ponded waterbodies too small to merit "lake" designation.

New Mexico's Carlsbad Caverns National Park -- not the product of carbonic acid solutioning, but rather that of sulfuric acid -- provides an illustration of such pools. The only water in the caverns is meteoric seepage along joints, bedding planes and interconnected pores. Though some waterbodies are designated "lakes," none are more than a meter or two across.



Green Lake



Devil's Spring (which isn't a spring)



Mirror Lake

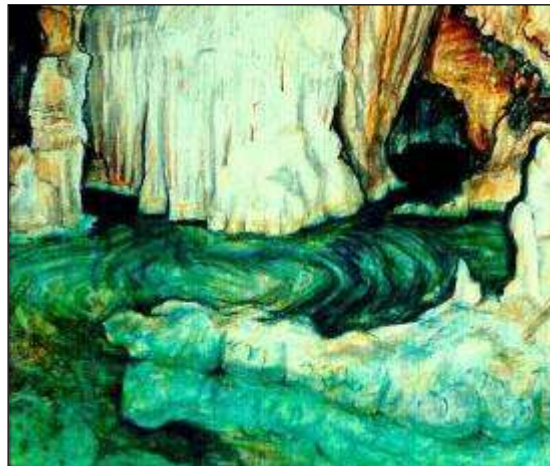


Lake of the Clouds

At the lowest point in the cavern, 300 meters below the surface, Lake of the Clouds is 3 meters deep, has no apparent drainage, and its level remains nearly constant. The regional groundwater table is some 30 meters lower.

Mean residence times estimated from bromide tracer loss range from less than a year for Rookery Pool and Devil's Spring to 16 years for Lake of the Clouds.

In the 1940s, when the military was testing the feasibility of Carlsbad Cavern as an emergency fallout shelter, Green Lake was observed for ripples caused by a nuclear bomb test hundreds of kilometers away. None appeared.



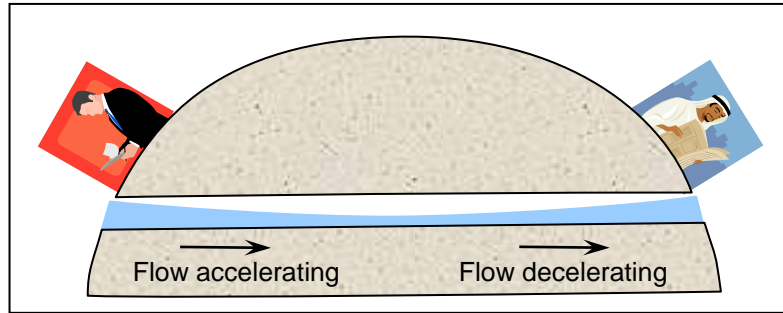
Carlsbad artwork by Kimberly Simon

The Fall of Water

A cavern extending entirely through the earth is old-hat in Boys Club fiction and likewise old-hat to physics students. To be discussed in Chapter 48, Subterranean Geophysics, the earth's interior temperature reaches several thousand degrees and the pressure approaches 300 million times greater than that on the surface, but we'll ignore the practicality our ride..

The nearer we are to the earth's center, the smaller is the pull of gravity. If we pour frictionless water down a shaft that passes from one side of our earth to the other -- the trip's known in physics as the Gravity Express -- the water will arrive at zero velocity on the other side -- China being the proverbial destination -- in 42 minutes, having accelerated to 7900 meters/second at midpoint, a calculation communicated by Robert Hooke to Isaac Newton. Unless it's grabbed at China, the water will fall back to where we poured it and then again descend.

If we don't want to pour water to China -- Saudi Arabia may be a better market -- we can drill a tunnel accordingly and the journey will still take 42 minutes. Rather than as free fall, however, our frictionless water will flow along the side of the tunnel nearest the earth's center.

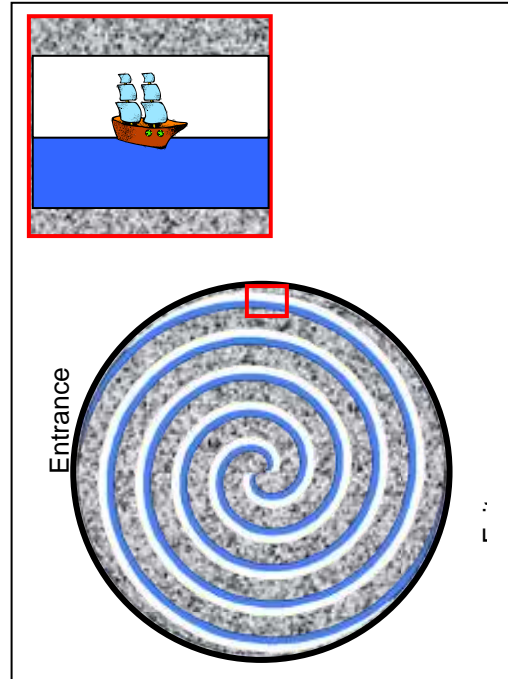


We ourselves may, of course, not wish to jump into the trans-global shaft, even with theoretical assurance that we can exit at zero velocity in the Orient.

We'd prefer to sail through the earth on an underground river. For safety's sake, we'd also prefer that the river velocity and wave characteristics not change throughout the journey. To maintain the current's downward speed as the pull of gravity dwindles, we'll thus need a steeper and steeper channel. When we head upward to the exit, we'll correspondingly want the channel slope to flatten as gravity returns.

A channel in which radial slope varies inversely with the radius will do the trick, other than at the center where the equations explode. The boat ride before and after this singularity should go reasonably well.

Regarding the principal of material conservation -- we've two gravity-flowing channels and nowhere for the inflow to accumulate -- we employ the Greek philosophers' concept of the Great Abyss.



The nearer we are to the earth's center, the less an object weighs. In some adventure fiction, vegetation at the earth's center grows gargantuan under the lesser gravitational pull. At the center, an object has no weight whatsoever.



Illustration from Verne's Journey to the Center of the Earth

Burroughs addresses the gravitational question in At the Earth's Core (1914). Perry, inventor of the subterranean prospecting machine speaks,

For two hundred and fifty miles our prospector bore us through the crust beneath our outer world. At that point it reached the center of gravity of the five-hundred-mile-thick crust. Up to that point we had been descending -- direction is, of course, merely relative. Then at the moment that our seats revolved -- the thing that made you believe that we had turned about and were speeding upward -- we passed the center of gravity and, though we did not alter the direction of our progress, yet we were in reality moving upward -- toward the surface of the inner world.

Had Perry stopped lecturing, he'd have been close. The center of gravity of a hollow sphere's not, as he claims, half-way through its shell, but the experience of passing through a center of gravity is reasonably portrayed.

Unfortunately, Perry keeps lecturing.

It is very simple, David. The earth was once a nebulous mass. It cooled, and as it cooled it shrank. At length a thin crust of solid matter formed upon its outer surface -- a sort of shell; but within it was partially molten matter and highly expanded gases. As it continued to cool, what happened? Centrifugal force burlled the particles of the nebulous center toward the crust as rapidly as they approached a solid state. You have seen the same principle practically applied in the modern cream separator. Presently there was only a small super-heated core of gaseous matter remaining within a huge vacant interior left by the contraction of the cooling gases. The equal attraction of the solid crust from all directions maintained this luminous core in the exact center of the hollow globe. What remains of it is the sun you saw today -- a relatively tiny thing at the exact center of the earth.

Perry (a la Burroughs) has been to the library, we presume, as the central sun idea, we recall from Chapter 15, dates at least back to the 1700s.

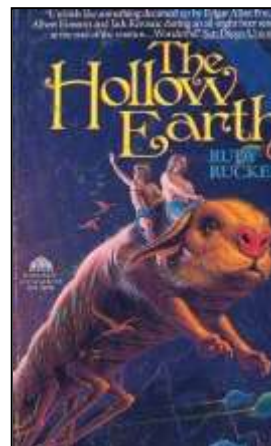
Ja, a subterranean, is a doubter.

That is ridiculous, since, were it true, we should fall back were we to travel far in any direction, and all the waters of Pellucidar would run to one spot and drown us. No, Pellucidar is quite flat and extends no man knows how far in all directions. At the edges, so my ancestors have reported and handed down to me, is a great wall that prevents the earth and waters from escaping over into the burning sea whereon Pellucidar floats.

You live upon the underside of Pellucidar, and walk always with your head pointed downward?... And were I to believe that, my friend, I should indeed be mad.

An inventor's unrestrained babble vs. a local's staid provinciality. A humorous moment in Tarzan's territory, but we don't have to delve deep into our own history to find us arguing much the same positions.

Rudy Rucker's The Hollow Earth (1990) is set in 1836. Mason Algiers Reynolds leaves his family's Virginia farm with his father's slave, a dog, and a mule. Branded a murderer, he finds sanctuary with his hero, Edgar Allan Poe, and together they embark on an extraordinary Antarctic expedition to the South Pole, the entrance to the hollow earth.



Edgar Allan Poe? The Antarctic? As we've noted in earlier chapters, the Symmes thread is well woven into American literature. Rucker's plot is hardly original, but it's a clever way to introduce a Boys Club to American history. Of interest to us, however, is Rucker's attention to fluid mechanics.

There were large droplets of water everywhere-some as big as peaches, some as big as pumpkins. In the moist air, they condensed like dew. But in these near-weightless conditions, the water drops were free to merge and grow to unearthly size. I drank several of the smaller ones. The bigger, head-size drops held tiny fish with stubby fins like legs. Our passage knocked the drops loose, and they slid down to merge with drops closer to the jungle's inward edge, the larger drops sliding into the sky and falling all the way to the center, there -- I supposed -- to be cooked to vapor and sent back.

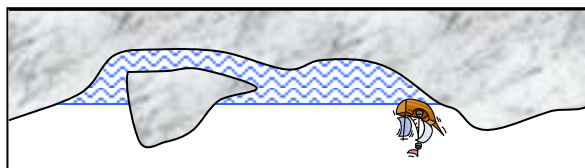
What better way to fish than to reach into the waterballs?

We came on the biggest waterball yet -- a monstrous trembling sphere the size of a barn, hemmed in on the upward side by vines and tendrils and cradled on the inward side by the crotch where a huge dead branch stuck out of a living tree. Peering into the water, I could make out some of those stubby-legged fish I'd seen before, only these fish were plump and a foot long. I slipped out of my clothes and pushed into the water, my new knife in one hand. The fish scattered. I swam across the waterball, stuck my head out for air, then swam back. One of the fish got right in front of me. I swam at it, trapping it against the surface, but just as I lunged with my knife, the fish jumped out of the water. I came out after it only to see the fish flopping its way up through the air, using its little finlegs to push off from every branch it passed. Maybe later it would creep back into this big glob, or maybe it would find another. Let it be.

Rucker's excursion exceeding the limits of credibility notwithstanding, the author is reasonably correct (for a Boys Club author, that is) regarding waterballs. Motionless mist would indeed remain suspended in air, surface tension coalescing the droplets into larger spheres. This isn't an underground waterbody, actually, as much as it's a world of reverse bubbles, but the fishing makes good reading.

It's one thing to spin an engaging adventure for a Boys Club; it's another to pawn the model as actual science, Cyrus Teed of Chapter 15, Hollow Earth Geophysics, being a case in point.

According to Teed; we're on the concave inside of a shell, our heads pointing to the center with centrifugal force thrusting us outward.



A hollow earth could indeed be twirled such that a Niagara at a particular latitude on the inner-shell cascades outward in the shape of the gravitational Niagara with which we are familiar, but an inner-earth waterfall situated at a lower latitude will fall more quickly. At the poles, the waterfall won't fall at all. The figures below suggest how a cascade of the same discharge,

approach velocity and drop might appear to the hollow-earth Ecuadorians, Americans and Eskimos.



Waterfall near equator



Waterfall at mid latitude



Waterfall near pole

Waterfalls of our solid earth are inspirational, but not as awesome as if their trajectory depended on location.

Connections between the Inner and Outer Earth

Capt. Seaborn, whom we encountered in Chapter 15, knew from Symmes where he was sailing when he passed around the verge and into the inner earth. Symzonia (1820) is thorough regarding the subterranean civilization, but not much in the way of hydrology.

We ascended the river, the banks of which, and all the country near them, appeared like one beautiful and highly cultivated garden, with neat low buildings scattered throughout the scene.

The collection The Pacha of Many Tales (1835) by Frederick Marryat tells of blue-skinned descendants of Vasco da Gama, but the author also knew Greek philosophy. "Last Voyage" explains the hollow earth.

There is a universal balance throughout nature, and everything finds its level. There is order, when there appears disorder -- and no stream runs in one direction, without a counter stream, to restore the equilibrium.

Unsatisfied as we may be with hollow-earth physics, we commend Marry for recognizing that the conservation of mass must be satisfied in any system.

John Uri Lloyd's Etidorhpa (1895) documents the adventure of a man who joins a secret and nefarious society for the purpose of publishing the organization's beliefs and rituals. When he does so, the society kidnaps him, transforms him into an old man and sends him off in a 1500-kilometers/hour magnetic boat into the earth's interior.

I find it hard to realize that water can be so immovable. I supposed the substance before us to be a rigid material like glass, perhaps.

There is no wind to ruffle this aqueous surface, -- why should it not be quiescent? This is the only perfectly smooth sheet of water that yon have ever seen. It is in absolute rest, and thus appears a rigid level plane.

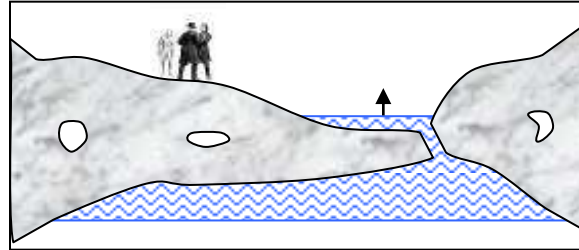


The surface of this lake lies as a mirror beneath both the ocean and the land. The force effect that preserves the configuration of the ocean preserves the form of this also, but influences it to a less extent, and the two surfaces lie nearly parallel with each other, this one being one hundred and fifty miles beneath the surface of the earth. The shell of the earth above us is honeycombed by caverns in some places, in others it is compact, and yet, in most places, is impervious to water. At the farther extremity of the lake, a stratum of porous material extends through the space intervening between the bottom of the ocean and this lake. By capillary

attraction, assisted by gravitation, part of the water of the ocean is being transferred through this stratum to the underground cavity. The lake is slowly rising.

At this remark I interrupted him, "You say the water in the ocean is being slowly transferred down to this underground lake less by gravity than by capillarity."

"No," he replied; "I am telling you the truth. Have you never heard of what men call artesian wells?"



"Yes, and" (here I attempted in turn to become sarcastic) "have you never learned that they are caused by water flowing into crevices in uplands where layers of stone or clay strata separated by sand or gravel slant upward. The water conducted thence by these channels afterwards springs up in the valleys to which it has been carried by means of the crevices in these strata, but it never rises above its source."

To my surprise he answered,

"This is another of man's scientific speculations, based on some facts, it is true, and now and then correct, but not invariably. The water of an artesian well on an elevated plane may flow into the earth from a creek, pond, or river, that is lower than the mouth of the well it feeds, and still it may spout into the air from either a near or distant elevation that is higher than its source."

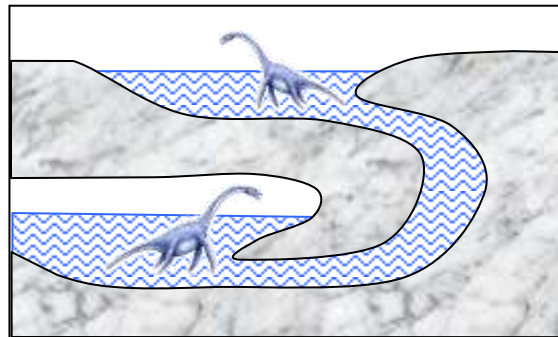
Lloyd's artesian well works as shown to the right; the water wheel we've added to profit from perpetual motion. We met the capillary subterranean engine hypothesis in Chapter 10. Capillary force can indeed draw water somewhat above the hydrostatic surface, but cannot expel water from the tube's upper end.

We needn't worry, however, as "This is another of man's scientific speculations, based on some facts, it is true, and now and then correct, but not invariably"

"Etidorhpa" is "Aphrodite" spelled backwards. But why would the goddess Aphrodite (Venus to the Romans) allow her name to be reversed? Perhaps, we speculate, because the underground river itself flows backwards?

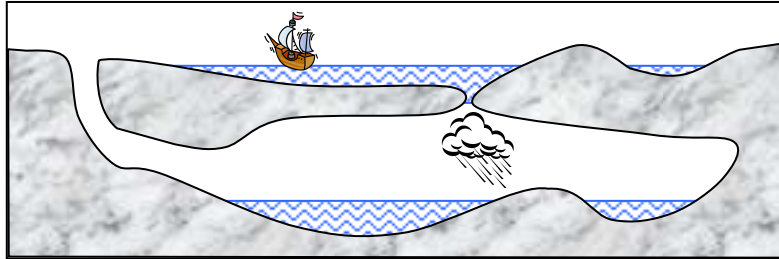
In "Dick and Dr. Dan, or The Boy Monster Hunters of the Bad Lands," Happy Days, March-May 1900, Dick, Charles and a Native American called Dr. Dan encounter plesiosauri in Wyoming. But where do the creatures come from?

From a lake connected by an underground river to a greater lake under the earth!



Dinosaur appearances twice save the two from the hands of sinister Martin Mudd, but why the Wyoming lake doesn't drain is never explained. As we will note in Chapter 69, Wyoming groundwater law is more sensible than that of other western states, but apparently the same can't be said for the state's physics.

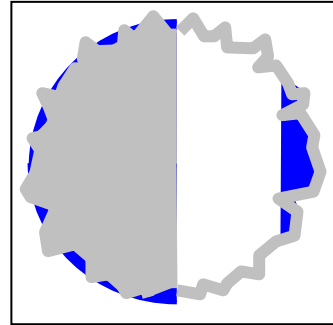
Precipitation might reach the lower world through a leak in the roof. We include a tunnel for verification.



Subterranean Seas

Chapters 17-26 include a variety of interior seas. Later in this chapter we'll introduce the idea of contrapositionality, but now we need only to note that these interior waterbodies sprawl about their fictional worlds much as do the seven seas in our own.

The diagram's left semicircle shows waters arbitrarily distributed on a gravitational sphere. Within the spinning hollow sphere on the right, islands align about at a single latitude, north and south.



We need not opine regarding the effect of lunar gravity on an underground sea, as we're provided detailed information in William A. Taylor's *Intermere* (1901). A shipwreck survivor is carried to the ancient country under the Antarctic where he's instructed in technology, economics, government including term limits, equal distribution of wealth, and motivation for scientific advancement.

More to our interests, however, is the subterranean sea.

Many rivers, limpid and sparkling, coming through level and spreading valleys, and from almost every point, contribute their waters to the mere.

The current of the mere is phenomenal -- not violent, but distinctively marked. Twice within every twenty-four hours it sweeps entirely around the oval, affecting one-half of the mere as it moves. With the early hours of the morning and evening it sweeps from north to south throughout the eastern, and with noon and midnight through the western half of the sea.

This current may be described as anti- or trans-tidal; that is, the general water level falls or is lowered on the side where the current runs, and rises correspondingly in the opposite half.

The effect is this: From 6 a.m. to 12 noon and from 6 p.m. to midnight, throughout the eastern half, the tide runs in from those rivers falling in from the east, and correspondingly rises and moves inland in those falling in from the west, and then the current flows north on the western side from 12 noon to 6 p.m. and from midnight to 6 a.m., so that for half the time the rivers on either side ebb or flow into the sea, and for the other twelve hours rise and flow to the interior, east or west as the case may be.

The effect of this is singular indeed, or it was to me. The rivers appear to run inland from the sea a part of the time, and then run from the landward into the sea for twelve hours, or an equal period, while the sea itself appears to be a subdivided river forever flowing in an elongated circle along the opposite shores.

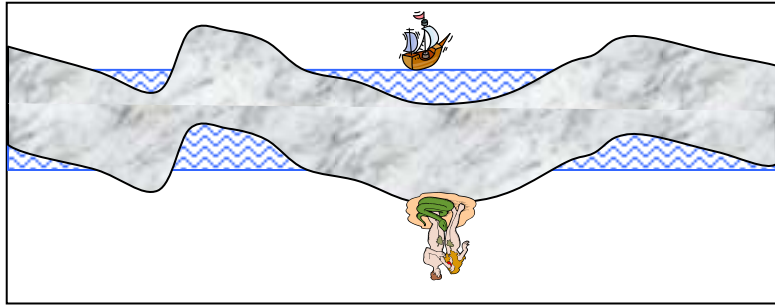
As the observer concedes, the phenomenon is rather "singular."

Contrapositioned vs. Non-Contrapositioned Topography

In an inner world hydrographically contrapositioned to our own, our land lies above its waters and their waters, below our land.

William Miller envisioned a contrapositioned variation of the Symmes model in The Sovereign Guide, A Tale of Eden (1898).

The inner Eden is inhabited by various peoples spread out in continents that correspond in placement to the seas of the outer world.



Eden yet exists on the underside, though overgrown, as does the tomb of Adam and Eve. Unfortunately for biblical archeologists, those sites are under our oceans.

For geographies on either side of a shell to be contrapositioned, the shell's thickness must be the same everywhere, one side dipping where the other humps.

Muddock's The Sunless City (Chapter 22) describes contrapositionality as Flin pilots his submarine into a bottomless lake and through a hole lined with gold.

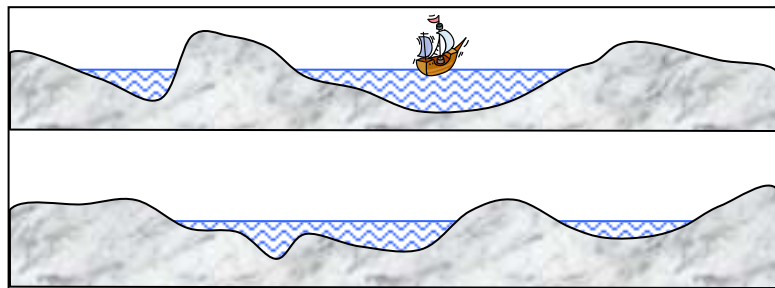
It is a well-known fact, ladies and gentlemen, that we live upon a globe; that is, on the external crust of a huge ball. There is one thing which science has proved beyond all doubt, and that is, that this ball is not solid but hollow... and I say that in the center of the earth are subterranean rivers and buried seas.

By the light of science it has further been revealed to us that the crust of the earth upon which we stand in no part attains a greater thickness than fifteen miles; and it is stated as a scientific truth that if we could dig down to that depth, and break through the inner surface of the crust, we should come to fire. I assert that that is a monstrously absurd theory; that we should do nothing of the kind, but that we should break in upon a new world, a new race of beings. That we should find a land of beauty and fertility; that we should find rivers, seas, mountains and valleys. The inequalities of the bottoms of our valleys will form mountains there; and our mountains will be their seas. Like unto a pudding-mold, whereon the fruit and flowers are convex on one side and concave on the other.

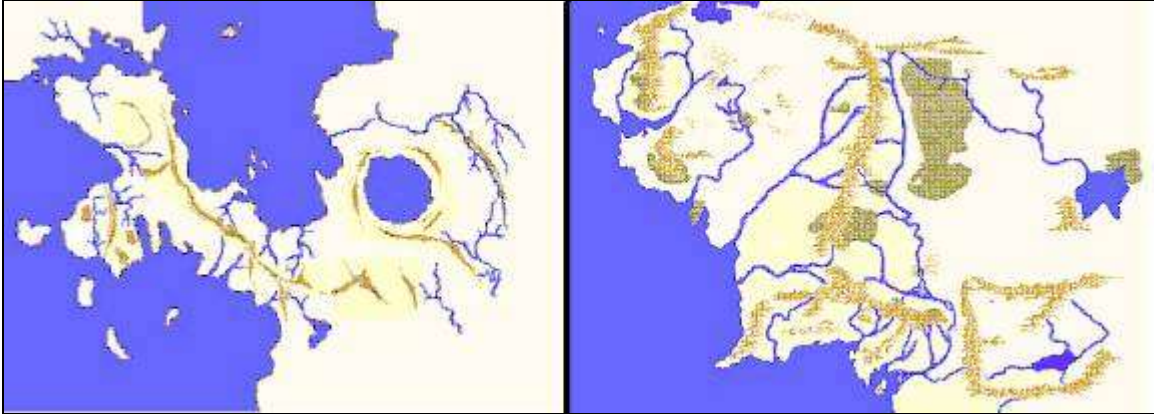
We thus could call this model the "Pudding Mold Layout." Lining the hole with gold seems excessive, but we'll give it more thought in Chapter 87, Underground Rivers of Gold.

By "non-contrapositioned topography," we mean that the underground topography bears no correspondence to the landforms above.

As Gardner arbitrarily painted the interior of his patented hollow globe (Chapter 15), it was non-contrapositioned.



Burroughs and Tolkien strove to preserve subterranean geographies from novel to novel. The hydrologic maps of Pellucidar and the Middle Earth are derived from the respective sagas.



Of hydrogeographic interest is the similarities. Both include enclosed basins. The circular water body in Pellucidar is the Polar Sea. Tolkien's world has two inland seas, the Rhun and the Nurnen. Both sagas are set on peninsulas transected by mountain ranges, barriers to be crossed by the heroes. Both worlds are endowed by multiple rivers which provide a means of transport when the characters need to move along.

Tolkien's imaginary world is clearly non-contrapositioned to ours. With Burroughs, the evidence is inconsistent. Maps derived from Burroughs' series -- there being several -- suggest no geographical correspondence between Pellucidar and our own earth, but the author explicitly wrote with a contrapositioned scheme in mind.

At the Earth's Core (1914)

"Look," he cried, pointing to it, "this is evidently water, and all this land. Do you notice the general configuration of the two areas? Where the oceans are upon the outer crust, is land here. These relatively small areas of ocean follow the general lines of the continents of the outer world."

"We know that the crust of the globe is 500 miles in thickness; then the inside diameter of Pellucidar must be 7,000 miles, and the superficial area 165,480,000 square miles. Three-fourths of this is land. Think of it! A land area of 124,110,000 square miles! Our own world contains but 53,000,000 square miles of land, the balance of its surface being covered by water."

Tarzan at the Earth's Core (1929)

When one considers that these land and water areas upon the surface of Pellucidar are in opposite relationship to the same areas upon the outer crust, some slight conception of the vast extent of this mighty world within a world may be dreamed.

The land area of the outer world comprises some 53,000,000 square miles or one-quarter of the total area of the earth's surface; while within Pellucidar three-quarters of the surface is land, so that jungle, mountain, forest and plain stretch interminably over 124,110,000 square miles; nor are the oceans with their area of 41,370,000 square miles of any mean or niggardly extent.

Emerson's The Smoky God implies that the inner- and outer-world are reversed, at least in the proportion of land to sea.

About three-fourths of the "inner" surface of the earth is land and about one-fourth water. There are numerous rivers of tremendous size, some flowing in a northerly direction and others southerly. Some of these rivers are thirty miles in width, and it is out of these vast waterways, at the extreme northern and southern parts of the "inside" surface of the earth, in regions where low temperatures are experienced, that fresh-water icebergs are formed.

The "three-fourths" should actually be seven-tenths, but that's minor.

Contrapositioned topography does not imply contrapositioned rivers. The greatest river of a world contrapositioned to ours would drain that sphere's Pacific continent eastward from mountains paralleling our upper-world Mariana trench.

Our Mississippi would appear as a minor embossed ridge along the bed of the subterranean American sea.



Conclusions

No geophysical theory or literary fantasy of subterranean adventure seems to be without water. We can't conceive of an interior world that's dry. We'll explore the "why?" of this in Chapter 99, Why Do We Believe What We Believe?

Let us summarize the myriad of subterranean water body possibilities we've seen proposed.

Underground waters could be in an ordinary cave, on the inner side of the earth's shell or even on an inner globe.

The behavior of underground water might mimic that with which we are familiar, could be different in issues of scale, e.g. fall faster or slower, or could behave in bizarre fashion.

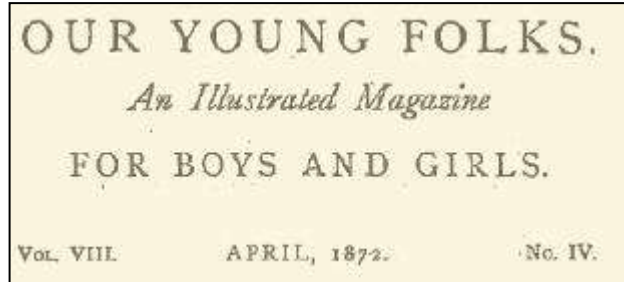
We've no paucity of possibilities to ponder.

CHAPTER 28

VIRTUALIZING THE IMAGINED: UNDERGROUND RIVERS IN GAMES

We will begin our look at underground river games with an example of how things have changed.

Find the hidden words in the April 1872 Our Young Folks, An Illustrated Magazine for Boys and Girls entertainment.



Underground Rivers. Two rivers flow under the first sentence and one in each of the others.

1. <i>They do not speak Portuguese in England.</i>	8. <i>In Latin we easily write egomet or ego; not so easily in Greek.</i>
2. <i>I like to eat ham, especially with eggs.</i>	9. <i>Grindstones are at par, honas far dearer.</i>
3. <i>In no part of China is tea not sold.</i>	10. <i>There in a barn on a steep, high hill.</i>
4. <i>Pride everywhere falls to the ground.</i>	11. <i>They brought myrrh in each hand, and spice, and frankincense.</i>
5. <i>Alum is sour, I think, and disagreeable.</i>	12. <i>We had our own carriage the evening.</i>
6. <i>They make vinegar on neglected floors in France.</i>	13. <i>He is, with heart, hands, and pens a co-labor with me.</i>
7. <i>I hate to drum. I am inveterately opposed to noise.</i>	

Though titled "Underground Rivers," this game might not play well today, if for no other reason than that modern boys and girls have little knowledge of geography.

The answers:

1. Don, Seine	8. Oregon
2. Thames	9. Rhone
3. Oporto	10. Arno
4. Dee	11. Rhine
5. Missouri	12. Douro
6. Garonne	13. Pensacola
7. Miami	

which leads us to admit that today's adults also don't have that much knowledge.

So we'll not dwell on word games, but more on to board games.

Author of Winnie-the-Pooh, A.A. Milne, in his collection of essays, If I May (1921),

Just before the war I came across the ideal game. I forget what it was called, unless it was some such name as "The Prince's Quest." Six princes, suitably colored, set out to win the hand of the beautiful princess... The Blue Prince, who is now leading, approaches the ninety-sixth milestone. He is, indeed, at the ninety-fifth. A breathless moment as he shakes the die. Will he? He does. He throws a one, reaches the ninety-sixth milestone, topples headlong into the underground river, and is swept back to the starting-point again

It's something for an Edwardian parlor, perhaps.



Below are results from Reading at Risk, A Survey of Literary Reading in America, Research Division Report #46, National Endowment for the Arts (2004).

Trends in Book and Literary Reading, Percentage by Group

Age	1982	1992	2002
18-24	59.8	53.3	42.8

According to the 2008 Pew Internet Project's Teens, Video Games, and Civics, 99 percent of boys and 94 percent of girls play video games. Younger teen boys are the most likely to play games. Boys play more often than girls, but 35 percent of daily gamers are female.

The once-readers of the works in Chapters 17 and 18, or even 20-24, are today playing video games.

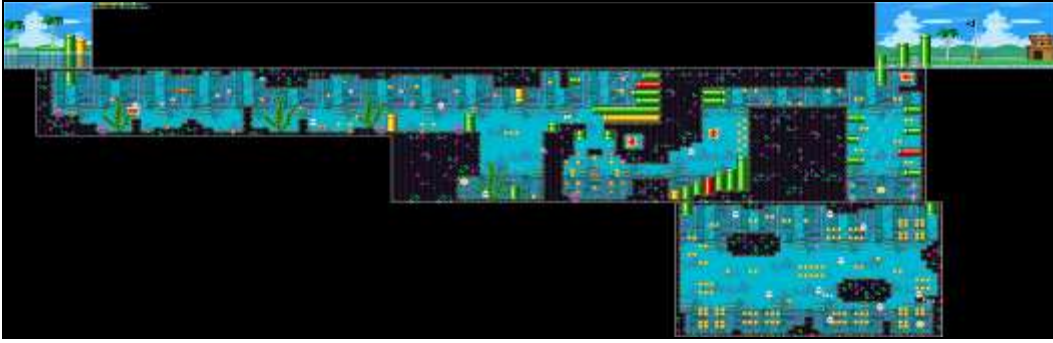
The Games We Play Today

Unlike previous chapters dealing with literature and the arts, this chapter is about the present where we invent virtual worlds to make seem real that which we've only imagined.

We will begin with a few early video games, the type in which the layout was that of a vertical plane in which the character moved to the left or right and up or down. As screenshots vary with hardware platform and edition, we make no pretense of showing the latest release of our examples. It's a fluid business in a rapid-fire universe.

The collaged screenshots from King's Quest (top) and Super Mario (bottom) illustrate how easily an underground river can be incorporated into a virtual world.





The player needs an entrance and, if he or she survives the subterranean waters, an exit.

The screenshots below are other examples.



Save the Underground River is keyboard-driven.

←	Space	- Attack
↑	Z	- Next Weapon
→	Shift	- Defend
↓	X	- Next Tool
	C	- Jetpack



The star of the Pitfall, an Indiana Jones-style character descends into the riverine catacombs.

The next three screenshots illustrate underground rivers depicted in video games seen in the player's field of vision, nose-center.

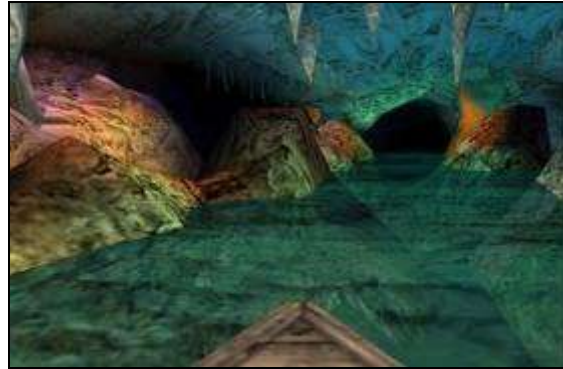


Doom specializes in shootouts, this one across an underground river.



Hexen is based on Doom. Three humans, the Fighter, the Cleric, and the Mage, seek vengeance against the Serpent Rider. Hexen's underground river is shown above.

Timeline, a video game based on Michael Crichton's novel, features dungeons, great halls of French castles, jousting tournaments and of course an underground rivers.



The twelfth main island to be released on Poptropica is Mythology Island.

How to Cross the River Styx in Mythology Island

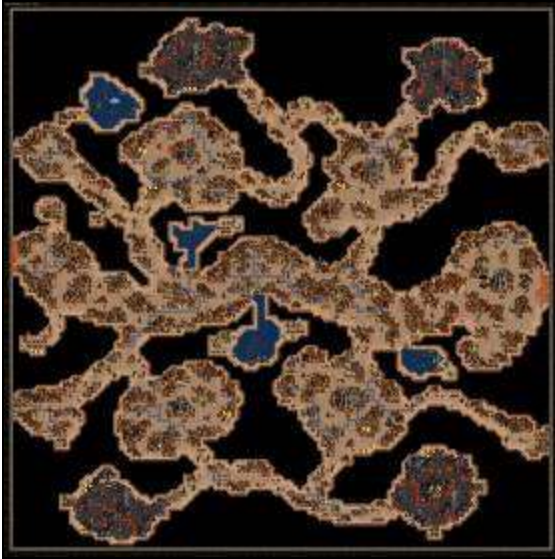
The answer to that is to stand right where Charon is. Then, all you need to do is avoid the flaming skulls by ducking down and the snapping monster jaws by jumping up. It's really that easy because if you're standing in this spot you'll be in a perfect position to avoid the falling stalactites as well. Trust the guy piloting the boat to know the best place to stand!



Many video games can be thought of as board games in which boards are stacked one above each other, vertical tunnels being routes. A virtual river can thus be more dimensional than its counterpart on the surface.

For the virtual adventurer, such a watercourse can facilitate exploration, but then again, it can make it more dangerous. Monopoly marches around the square, never shoots underneath. Clue at least had two secret passages.

Winning requires mastering the map, most often by trial and error. Shown below are underground river layouts.

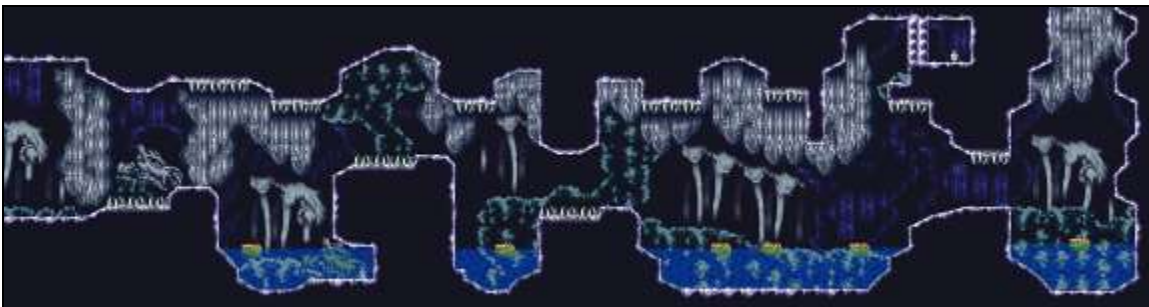


A Heroes of Might and Magic layer of tunnels, underground waters and troglobites.



The Puddleby Underground of Clan Lord consists of "snells," several of which are connected by an underground river which pools in two underground lakes.

Nemo's Mind is for Jules Verne devotees. The two underground waterways to the Dream Sphere are accessed by Mini-Sub Dolphins at high tide; at any other time the river spills out of the cliff rift just above the ocean.



This collage from Demon's Crest maps a limestone cave, complete with water on the floor. Chapter 40, Karstology, will explain why such a map isn't totally imaginary.

Myth-Weavers contains the mighty Seven-Pillared Hall, once the market square of the ancient under-mountain city of Saruun Khel. The hall is bisected by an underground river and protected by seven Minotaur statues -- "bronze warders" capable of being animated by the Mages.



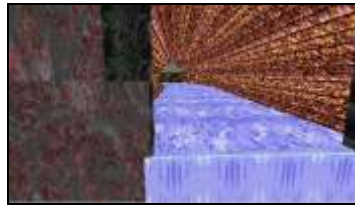
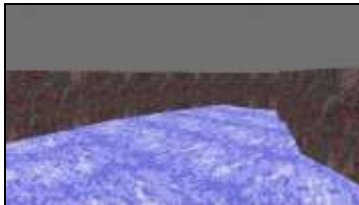
Chute in northern wall lowers water level, and the dark waters disappear from sight.

Two stone bridges broad enough to allow the passage of large carts.

Waterfall cascading from opening in southern rock wall allowing rain and glacial water to form a freshwater pool and river.

As *Active Worlds* is the oldest collaborative virtual world on the Internet, we'll look in a little more detail. This virtual world's colonized areas draw on the underground Planetary Veins for drinking water, water for crops, livestock and hydropower. Long ago, however, the veins were the Imperial Sewers. The veins move erratically due to the three moons and geothermal and volcanic activity.

As the veins open to a labyrinth of hospitable caves, at least two races are known to live below -- the Subminians and the Velosians. After finding the entrance, it's off to melancholy and strange country of fracture, and violence, and fire.



As there's no current going to Poison Lake, race the sub through the numerous splits, turns and double entrances. Because the River of Death is stagnant, one must pass through locks. Opening them quickly, however, may flood Poison Lake since it lies downhill from the volcano.

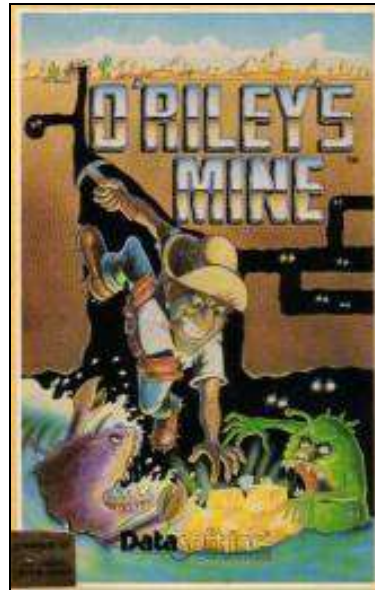
The River of Life has a current -- one can hear change in prop pitch and current against one's mini-submarine when going against the flow -- and surfaces occasionally in the Shadowed Jungle. Watch out for falling stalactites and a tidal whirlpool! Use navigation lights at intersections to see the underwater passages. When surfacing, take bearings with less than the top half of the sub exposed. A glass-shaft lock transitions the underground voyage from the subconscious to the super conscious.

With less detail, below are screenshots from a variety of other games. We'll begin with a company that wasn't at all video-based in its founding.

Nintendo Corp. began in 1889 as a game card manufacturer.



Fifty-seven million sales of The Legend of Zelda, however, helped make Nintendo the computer game giant we know today.



In digging for coal, gold, diamonds, rubies and oil in O'Riley's Mine, avoid the creatures and rising underground river. The river is unstoppable, but the creatures can be blocked or killed with dynamite



As we may need the audio cue when Scooby water-skis the underground river, Scooby-Doo! features a laugh track.



In Dragon's Lair, Dirk falls into a boat on a raging underground river. Move up each time it enters the calmer current. Avoid the whirlpools. When the boat hits the wall, grab the chain. The game's in its 60th edition.



To get to the Water Stone, in Blue Dragon, sail south to the vast underground river "Hells Serpent."



In the Super Mario Bros. "Misadventure of Mighty Plumber," Mario and Luigi are chased through an underground river in the Pipe Maze by Bowser and Mighty Plumber.



As Aladdin is a Disney offering, the underground river isn't that dangerous.



After reaching the first cavern of The Blackfathom Deeps, swim straight ahead to the above-water area.



In Ultima Underworld, The Stygian Abyss, one must cross underground rivers, lava pools, slippery ice, sloped floors and doors that swing open and shut.



The ripples in Alone in the Dark follow Aline through the water. A zigzag pattern can help avoid an initial attack.

From the description of A Dance with Rogues

After going over the waterfall in the Abandoned Mine, you'll find yourself in the Underground River and a few party members short. Remaining party members will need healing and Anden will need to be resurrected. If Pia, Bran, or Gemli are in your party, they'll be missing.



And then there the underground waters that must be swum.



Donkey Kong. Barbos blocks Kiddy's path.



Teenage Mutant Ninja Turtles. Watch out for the seaweed.



Crash Bandicoot. The boss makes the rocks fall down by shooting them.



With a Metroid gravity suit, one can move freely underwater.



Underwater, the Demon's Crest controls are completely different. Don't swim into the spikes.



Wario swims the underground river of Wario Land.



Super Mario, Guppy and the Underground Lake
Video games contain lots of waterfalls.



In Beyond Oasis, each waterfall leads to a lower underground river, but some lead to prizes such as the Infinite Metal Bow. Once at the bottom, take the stairs on the right to reach the top and try again



Tomb Raider features lovely, intelligent, athletic and reckless archaeologist Lara Croft who ventures into ancient and hazardous ruins. As Lara's been in a myriad of games, movies, animated series, comics and even theme-park rides, she's expert in subterranean waters.

Club Penguin is a massively multiplayer online role-playing game involving a virtual world containing a range of activities. The success of Club Penguin led to its purchase by Disney for \$350 million, with a like amount to be paid in bonuses should specific targets be met.



Club Penguin's New Mine Cave Room ...



... for which a diving suit is required.

And less pleasantly, there are the sewers that must be traveled.



A sewer scene from Dalek Attack, based on the Dr. Who BBC series.



In Faction Earth, the limestone beneath Florida has faulted and most of the Gator State has sunk into the underground waters. And then there are the underground rivers of sewage.



The sewers of Athens in God of War.



Another setting within the same game



The Underground River in [A Dance with Rogues](#)' Sewers of Betancuria is infested with sword spiders and rats.

We'll have more to say about sewers -- and not the virtual variety -- in Chapter 64, The Grand Tour, European Sewers of Distinction.

Most virtual-world gamecraft portrays underground rivers as static features to be negotiated, much the same as magic mountains or pits to doom. But now and then we encounter a subterranean stream that works as a subterranean stream should.

From the on-line discussion regarding Slaves to Armok: God of Blood.

What causes an underground river to flood/back up?

This underground river is a feature of a fantasy world in which the laws of physics need not apply, but by the gamers' responses, we're impressed by the correspondence to reality.

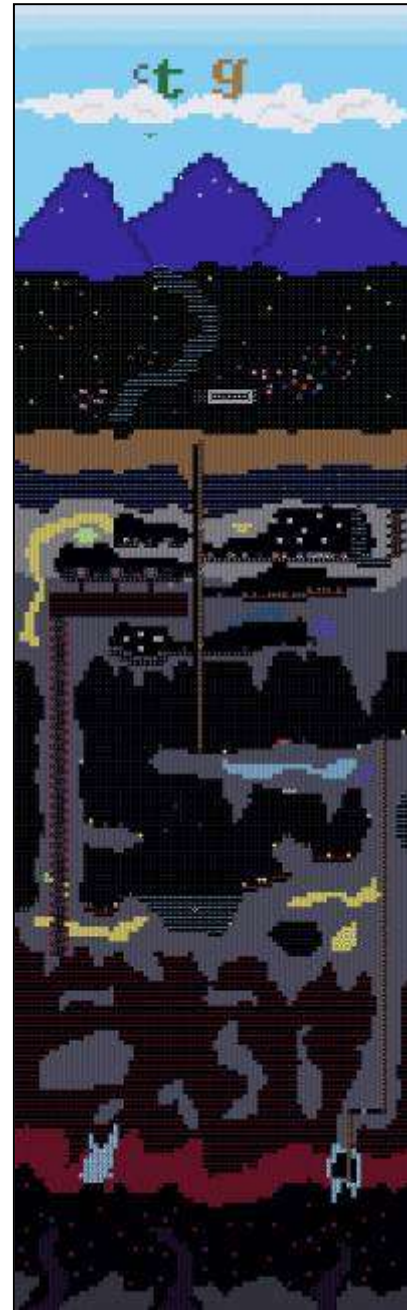
A couple of years after carving fortifications in the "dry" part of one stretch of river so I could shoot the beasts within, the river suddenly overflowed and flooded every mining shaft I had below the highest level of river. The fortress itself, thankfully, remains untouched. I'm currently trying to find ways to drain the river of its excess so that I can reclaim the silver I dug out.

The only time I have had an underground river "flood" is when I dammed the outflow and the source was higher than the dam.

You probably made the fortification on the same level the water is on, thus letting it flow in; as of right now, cave rivers never flood on their own. The only case I've had where a cave river "flooded" is when an aquifer was pumping in more water than what could drain off, or the lower portion was sealed partially or totally in some way.

I dug my fortress near, above and around an underground river. Eventually I dug extension tunnels across the river and down to access its lower parts, trying to make an underground cave fishing pond. The river eventually rose and flooded up into my extension tunnels. I realized it was because the river was filling to the z-level of the highest river point. Later I used the flood waters to irrigate another chunk of underground forest.

The "waterfall from nowhere" tiles which source underground rivers produce water far more quickly than it can drain off the edge of a map -- if your embark region contains the underground river source but does not contain the ending chasm, it is guaranteed to flood up to the source's level.



Games need not be just for those who follow the rules. Sploder is a web platform for those who invent their own. From the website,

Choose one of the free Flash game creators from the list at top to create and edit your games. With Sploder you can create free platformer flash games, 3-D space adventure games, and our class shooter games.

Save the Underground River is such a game.



And let us hasten to reinforce the educational side of things. Blending Instructional Design Principles with Computer Game Design, The Development of Descartes' Cove, Educational Multimedia and Hypermedia, 2005, Montreal, by Patricia Wallace, describes computer-based role-playing to create mathematics adventures for middle school and early high school students.

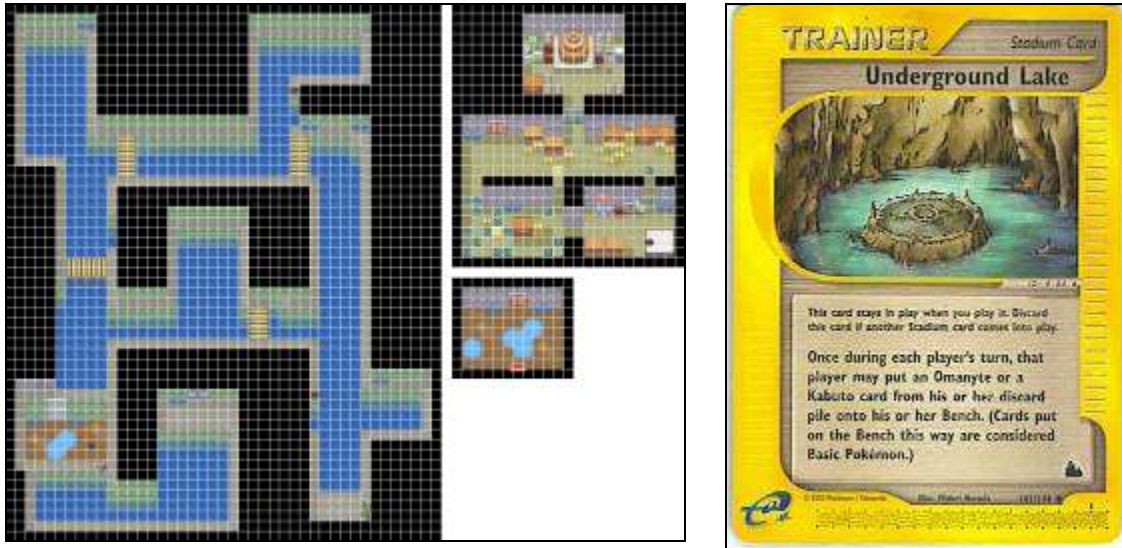
According to the author, whom we're told has a PhD,



In a leaky lifeboat, students survive an ocean storm and become marooned on the Cove's beach. Once they gather their gear, they can begin one of the adventures through the island's underground rivers, castle, jungle, mining caves, and volcano paths. They collect coins and inventory items as they solve math problems, explore new areas, and eventually reach Hypatia's Inlet where the problems are most difficult. Successful students can attempt the Final Quest (final exam), and enjoy a breathtaking escape.

We're in favor of mathematical education, of course, but we suspect the kids already know from their own computer games how to escape via an underground river.

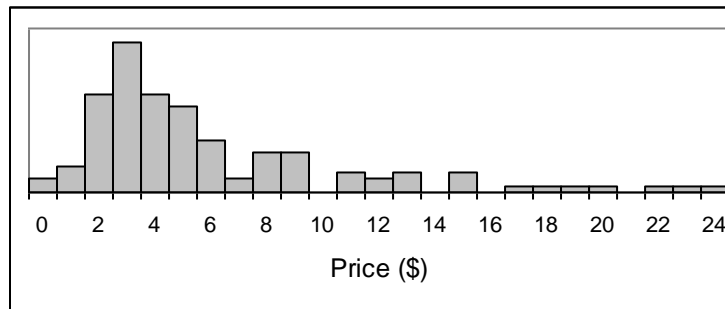
Pokemon can be played both on the game board and on the screen. Shown below is the layout of the underground sewer and a game card.



Although Magic can be played electronically, aficionados tend to prefer the playing-card version where players duel by casting spell cards which can have a single, one-time effect, set up a lasting magical enchantment or summon a creature for assistance. Over 8000 unique cards have been produced.



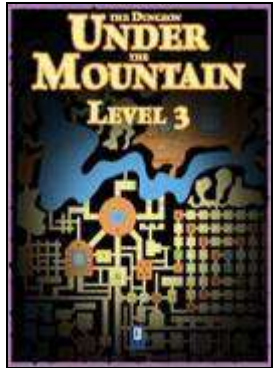
Prices to the right are for Underwater River cards advertised on e-Bay. As value depends upon the edition, Charon's two-obol fare has inflated to as much as \$25.



We add another Magic card to our collection, Charon, Ferryman of Hades, though this one's unofficial. Players can create their own. In Chapter 34, Twenty-Five Centuries of Subterranean Portraits, we'll note the 1861 source of the image, but more to the point of this chapter, see the trading-card format in graphic art of 250 years yet earlier.



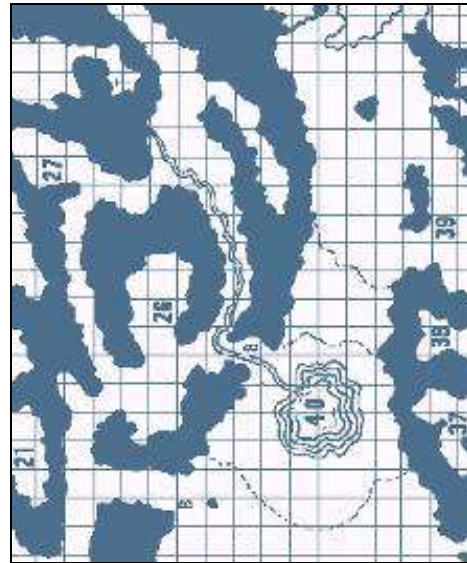
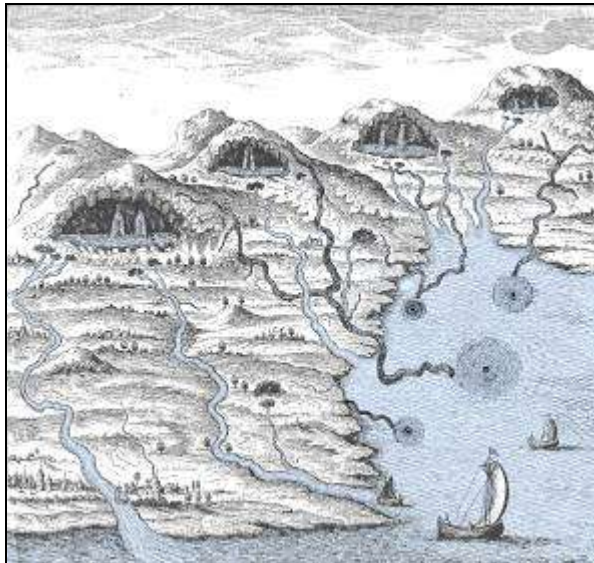
Dungeons and Dragons is likewise primarily a board game.



In Dungeon Under the Mountain, the underground river seems ancient. The remains of a lost city lie scattered; forgotten temples and pyramids tower in the darkness. But what inhabits the great underground river?

The Cavern Layout Kit includes effects for an underground river and lake. The floor tiles are based on 1-inch squares for Dungeons and Dragons. At \$139.00, it's pricy, but not for the serious gamers.

Compare Kircher's mapping of subterranean flow to the Dungeons & Dragons board Descent into the Depths of the Earth.



Who but Kircher would have foreseen the future with such precision?

In The Adventurers, Temple of Chac, there's a lava room to cross on tiles, some booby-trapped. There's an underground river to escape from the temple, or to quick demise over a treacherous waterfall.



Not all fantasy games are sedentary. NERO is a live action role-playing event set the medieval fantasy world of Tyrra in which heroes and heroines battle necromancers, goblins, zombies and other unsavories.



A single event can take a three-day weekend.



In the portion of the game-field above, note the underground river leading to the sea.

And not all fantasy games need even be games; they can be pewter miniatures.



Why Do Such Games So Often Involve Underground Rivers

Underground rivers engage our senses.

1. Underground rivers are visual.

Given the dollars spent on virtual realities, the academics have followed the scent. "The Immersant Experience of Osmose and Ephémère," 15th International Conference on Artificial Reality and Telexistence (2005) by Harold Thwaites ranks virtual locational aspects by evoked emotion or physical sensation.

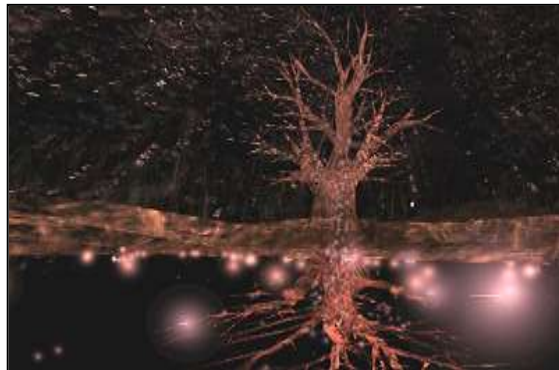
39% Lights, Fireflies/Wonderment, Peace, Joy, Delight
32% Underground/Scary, Unfamiliar, Spooky, Off Balance
20% Tree, Forest, Pond/Awe, Curiosity, Exhilaration, Floating, Fantasy

Which is to say that it works well to combine a subterranean location with moving water.

Game designers could replace underground rivers with, say, pneumatic tubes or mini subways, but then we'd not have the virtual rafts and canoes. As we will note another subway connection in Chapter 88, East Side, West Side, All Around the Town, it's easier to believe in imaginary worlds having to real-world experiences.

We turn to an example -- Osmose's three-dimensional Cartesian grid in which the immersant emerges in a clearing where there's a pond into which one can descend into an oceanic abyss.

This isn't Mario hopping down a shaft between Lego-like rectangles. Like Alice in Wonderland (Chapter 17, Underground Rivers in English Fiction), we are the ones descending..



2. Underground rivers are audible -- or more truthfully worded, we imagine them to so be

Portrayed sounds draw the reader into the experience. It is no surprise that in the popular ranking of video games, the audio track is almost as important as are the visual effects.

It is Dark Castle's multimedia effects -- rudimentary by today's technology -- that evoked this reflection in the Georgia Tech Game Morphology Project.

Amazing graphics and sound. This game was completely addictive and, for its time, totally immersive. The first time I saw it I couldn't believe the imagery -- like interacting with the images in book of fairytales or a theme park ride. I still remember the sound of the rushing underground river.

Wikia Gaming Spoilers and Hints,

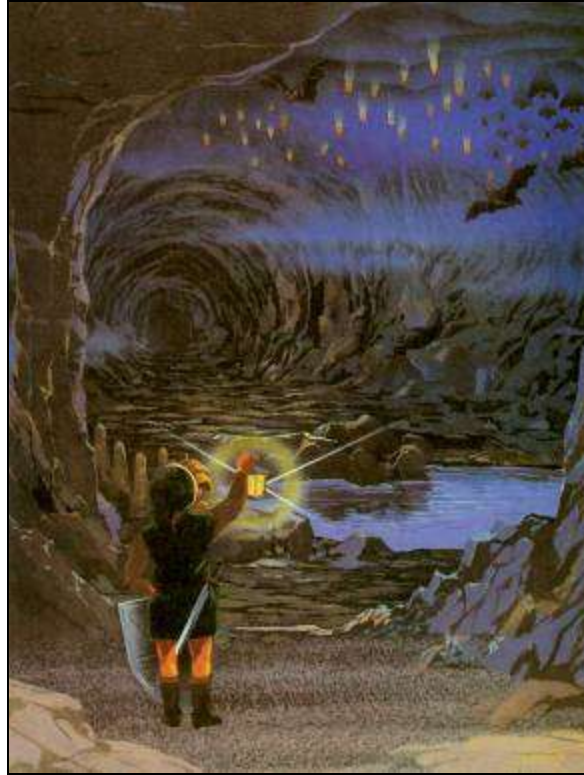
On the far right edge of the screen in Castle Grounds, there's an invisible switch. Use it to make a rope go down the well. Climb down to the Underground River.

If you ride at the very front of a log, then when it goes down a short waterfall, you'll go "Woah!" then fall onto the back of the log. This does not work on long waterfalls.

There are a limited number of logs, so when you have to climb ropes and platforms, go quickly.



We'll end our journey along virtual underground rivers with a look into the Melora Cave of Zelda.



For millennia we've fantasized visions of underground rivers and now we can enter them in multimedia from the comfort of our chairs.

CHAPTER 29 ET IN ARCADIA EGO

The Greek portion of our journey has to this point largely been one of chronicling the entrenchment of Homer's underground rivers of the afterlife -- the Cocytus, Lethe, Acheron, Styx and Pyriphlegethon -- into modern thought. We'll see more of the subject in chapters to come.

But Caron's waters are not the only subterranean Greek streams formative to Western culture.

In chapters ahead we shall explore the themes of underground rivers in metaphor, poetry and art, but let us first visit the Arcadian River Alpheus on the rugged Peloponnese Peninsula, home to Pan, god of nature and patron of shepherds.



And what better way can there be to begin with a story of lovers?

Pausanias (whom we met in Chapter 3) provides the basic plot in Descrittione della Grecia di Pausania,

They say that there was a hunter called Alpheus, who fell in love with Arethusa, who was herself a huntress. Arethusa, unwilling to marry, crossed, they say, to the island opposite Syracuse called Ortygia, and there turned from a woman to a spring. Alpheus too was changed by his love into the river... But that the Alpheus passes through the sea and mingles his waters with the spring at this place I cannot disbelieve, as I know that the god at Delphi confirms the story. For when he dispatched Archias the Corinthian to found Syracuse he uttered this oracle:

An isle, Ortygia, lies on the misty ocean Over against Trinacria, where the mouth of Alpheus bubbles Mingling with the springs of broad Arethusa.

For this reason, therefore, because the water of the Alpheus mingles with the Arethusa, I am convinced that the legend arose of the river's love-affair.

In The Ganges in Myth and History (1978), Steven Darian quotes a poem based on the tale,

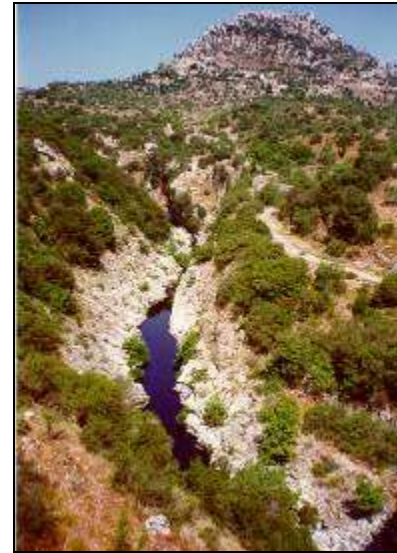
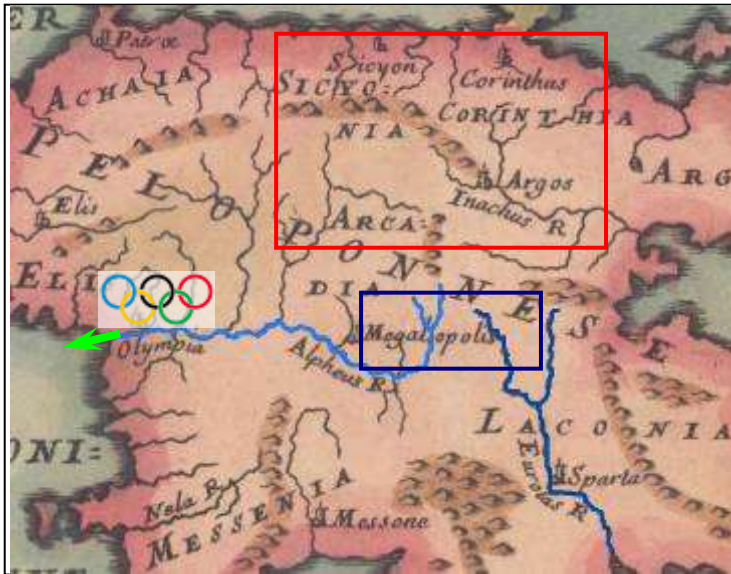
*Somewhere in the misty reaches of the sea
Where Ortygia lies by Sicily
Alpheus' eager mouth tastes of
Arethusa's bubbling spring.*

Aristotle's Meteorologica also considered the Arcadian river, but true to its author's bent for logic over lore, in a less romantic manner.

In many places: in the Peloponnese, for example, one finds it [i.e. underground rivers] most often in Arcadia.

The rivers that are swallowed up by the earth prove that there are chasms and cavities in the earth ... in the Peloponnese, for example ... The reason is that because the country is mountainous there are no outlets from the valleys to the sea; so when these valleys get filled with water and there is no outlet, the water flowing in from above forces its way out and finds a way through into the depths of the earth.

The Alpheus, the peninsula's longest waterway, is mapped below in light blue; the southerly River Eurotas is in darker blue.



River Alpheus

The red rectangle corresponds to Chapter 3's topographic map of modern rivers associated in name with those of the classical underground. The blue rectangle shows the headwater proximity of the Alpheus and Eurotas. The Olympic symbol marks the town by that name and the green arrow, the Alpheus outflow.

Headwaters

The aerial photo below corresponds to the blue rectangle above and shows approximate locations cited in four writings describing the Alpheus headwaters. We must be cautious, however, in connecting the dots, as geographic names have migrated over the centuries. We're more interested in cultural perceptions than actual plumbing.



For the source material in this chapter, we'll draw from several of the Roman Encyclopedists of Chapter 3.

In Geographia, Strabo (63 BC-24 AD) stated that the Alpheus and Eurotas rise from two fountains near Asea, and that, after flowing underground for several stadia [one stadia equals 150-200 meters], the Eurotas reappears at Bleminatis in Laconia, and the Alpheus in Arcadia.

Strabo's Geographia noted the popular belief that if two garlands dedicated to the Alpheus and the Eurotas were thrown into the stream before in plunged underground near Asea, each would reappear in its appropriate river, but Strabo, himself, disagreed for several reasons.

They say that it is the river Alpheus which rises in the Peloponnesus, and that it flows through the land beneath the sea to the place where the Arethusa rises and flows into the sea. Some such proofs as these are given in support of the fact.

1. The cast up chalice

A certain chalice having fallen into the river at Olympia was cast up by the springs of Arethusa; the fountain too is troubled by the sacrifices of oxen at Olympia. And Pindar, following such reports, thus sings,

*"Ortygia, revered place of reappearing of the Alpheus,
The offset of renowned Syracuse."*

The fable of the chalice being carried over is likewise a mere fabrication, for it is not calculated for transfer, nor is it by any means probable it should be washed away so far, nor yet by such difficult passages. Many rivers, however, and in many parts of the world, flow beneath the earth, but none for so great a distance.

As this chalice would prove to be long cited, we'll give it more attention a bit later in this chapter.

2. The lack of a chasm

Undoubtedly if before reaching the sea the Alpheus were to fall into some chasm, there would be a probability that it continued its course from thence to Sicily,.. but since the mouth of the river manifestly falls into the sea, and there does not appear any opening in the bed of the sea there, which would be capable of imbibing the waters of the river.

Were the Alpheus to empty into a visible chasm, however, Strabo implies that it would be plausible for the flow to continue a submarine course as far as Sicily.

3. The spring's fresh water

It might be possible to retain much of the character of fresh water, if they were presently to be swallowed down into a passage running below the earth which forms the bed of the sea. It is

altogether impossible; and this the water of Arethusa clearly proves, being perfectly fit for beverage; but that the flow of the river should remain compact through so long a course, not mixing with the sea until it should fall into the fancied channel, is entirely visionary.

Strabo finds the Alpheus to be entirely unlike the Rhone, which he indeed believed to flow underground.

For we can scarcely credit it of the Rhone, the body of the waters of which remains compact during its passage through the lake, and preserves a visible course, but in that instance both the distance is short and the lake is not agitated by waves like the sea, but in this case of the Alpheus, where there are great storms and the waters are tossed with violence, the supposition is by no means worthy of attention.

Strabo offers another possible source of the Alpheus, but as a citation not to be believed.

Zoilus the rhetorician, in his Eulogium of the people of Tenedos [an Aegean island off modern Turkey] says that the river Alpheus flows from Tenedos

Pausanias leaves unclear what's personal observation and what's not, his Descrittione della Grecia di Pausania is the best surviving geography of Greece in Roman times.

It is known that the Alpheus differs from other rivers in exhibiting this natural peculiarity; it often disappears beneath the earth to reappear again. So flowing on from Phylace and the place called Symbola it sinks into the Tegean plain; rising at Asea, and mingling its stream with the Eurotas, it sinks again into the earth.

The Dictionary of Greek and Roman Geography (1854) by Sir William Smith had this to say,

The two reputed sources of the Alpheus and Eurotas are found near the remains of Asea, at the copious source of water called Francovrysi; but whether the source of the Alpheus be really the vent of the lake of Taki, cannot be decided with certainty.



According to the Cyclopaedia of the Society for the Diffusion of Useful Knowledge (1883),

Alpheus, one of the chief rivers of Peloponnesus. Its rise and early course are marked by some singular circumstances.

According to Pausanias, the fountain is at Phylace, near the foot of Mount Parthenius, at the southeast corner of Arcadia, where the boundaries of Arcadia, Argolis, and Laconia meet.

Near a place called Symbola, (the "meeting of the water") it is joined by a considerable stream, and sinks underground; it rises again five stadia from Asea, close to the fountain of the Eurotas. The two rivers then mix their waters, and after flowing twenty stadia, are again swallowed up, and re-appear -- the Eurotas in Laconia, the Alpheus at Pegse (the Springs), in the Megalopolitan territory, and in Arcadia.

The statement of Pausanias is confirmed, and the course of the upper stream (now the Sarandapotamo) traced by Colonel Leake to the spot where it enters the earth below Phylace. He confirms the statement of its rise (or at least the rise of some subterranean stream) at Francovrysi, near Asea. Here there are two sources or emissaries, one of which he supposes to be the vent of the lake or marsh called Taki, not far from Tegea, north-east of Francovrysi; the other that of the Sarandapotamo. One of these probably is the supposed source of the Eurotas, mentioned by Pausanias. These streams, after joining, enter a lake, and again sink

into the earth. Passing under a mountain called Tzimbaru, the Alpheus reappears at Marmora, near Rhapsonati.

These subterranean descents are not uncommon in the Arcadian rivers, and are called by the modern Greeks, *Katavothra*: similar instances are collected in the *Encyclopedie Methodique; Geog. Physique*.

Where the headwaters sink and where they then rise has been of geographic interest for millennia.

"But Some Waters So Hate the Sea"

According to the *Aeneid* of Virgil (70-19 BC),

The story goes that Alpheus, a river of Elis, forced a hidden path here under the sea, and merges with the Sicilian waters of your fountain Arethusa.

Ovid's *Metamorphoses* relates how the river god Alpheus pursued the beautiful nymph Arethusa who bathed in his waters. Appealing to her patron Diana, goddess of nature, to escape, Arethusa was transformed into water.

I cried out "Help me. I will be taken. Diana, help the one who bore your weapons for you, whom you often gave your bow to carry, and your quiver with all its arrows!" The goddess was moved, and raising an impenetrable cloud, threw it over me.

The river-god circled the concealing fog, and in ignorance searched about the hollow mist. Twice, without understanding, he rounded the place, where the goddess had concealed me, and twice called out 'Arethusa, O Arethusa!'

Cold sweat poured down my imprisoned limbs, and dark drops trickled from my whole body. Wherever I moved my foot, a pool gathered, and moisture dripped from my hair, and faster than I can now tell the tale I turned to liquid. And indeed the river-god saw his love in the water, and putting off the shape of a man he had assumed, he changed back to his own watery form, and mingled with mine.



To the right, "Arethusa Pursued by Alpheus and Turned into a Fountain," 1731 by Bernard Picart.

To assist Arethusa's escape, the goddess split the earth between Greece and Sicily, providing a subterranean path to re-emerge as the Arethusa Fountain.

The Delian goddess split the earth, and plunging down into secret caverns, I was brought here to Ortygia, dear to me, because it has the same name as my goddess, the ancient name, for Delos, where she was born, and this was the first place to receive me, into the clear air.'

But Alpheus pursued her under the sea, intermingling his waters with hers, but not the ocean.

Unlike many stories clearly passed from Greek tradition, Ovid's sources for the tale are uncertain, but the story is one that well illustrates the Roman claim to the deep and powerful purity of the Greek cultural connection.

In another version, Arethusa was always located in Syracuse and it was the River Alpheus who made his underground way to Syracuse to be united with her.

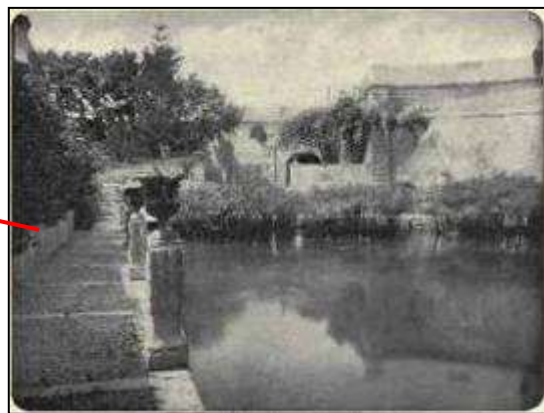
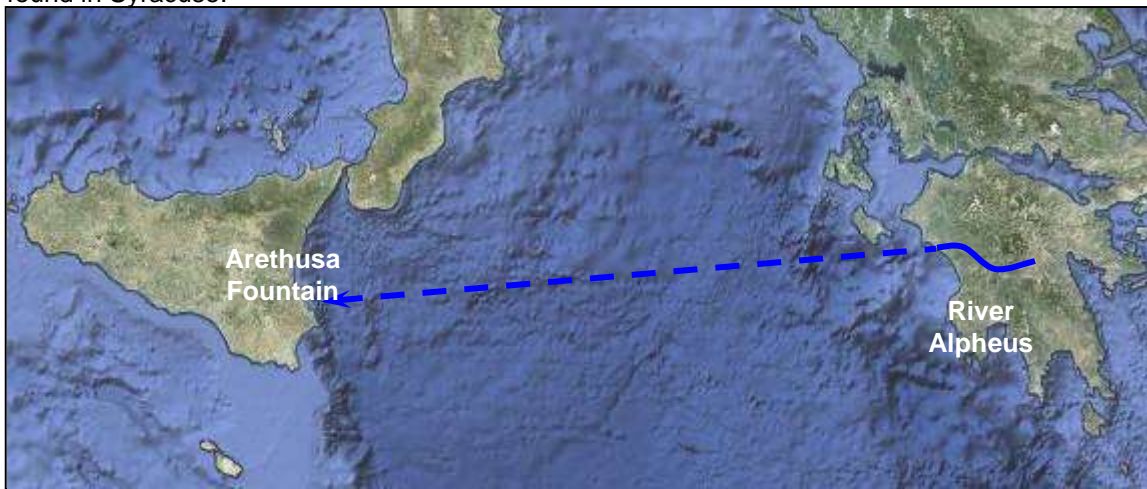
According to Pliny's Naturalis Historia,

But some rivers so hate the sea, that they actually flow underneath the bottom of it, for instance the spring Arethusa at Syracuse, in which things emerge that have been thrown into the Alpheus which flows through Olympia and reaches the coast in the Peloponnese.

Pausanias included the following in his Descrittione della Grecia di Pausania, clearly not first-hand knowledge.

Coming up at the place called by the Arcadians Pegse, and flowing past the land of Pisa and past Olympia, it falls into the sea above Cyllene, the port of Elis. Not even the Adriatic could check its flowing onwards, but passing through it, so large and stormy a sea, it shows in Ortygia, before Syracuse, that it is the Alpheus, and unites its water with Arethusa.

The historian Timaios, on the other hand, professed to have personally verified that the fountain Arethusa was the reappeared Alpheus. It was likewise said that the Fountain of Arethusa turned red after sacrifices at Olympia and that anything lost in the Alpheus eventually would be found in Syracuse.



The Arethusa Fountain on the island of Ortygia in Syracuse, Sicily

The Sicilian termination of the River Alpheus brings to mind da Vinci's speculation.

A spring may be seen to rise in Sicily which at certain times of the year throws out chestnut leaves in quantities; but in Sicily chestnuts do not grow, hence it is evident that that spring must issue from some abyss in Italy and then flow beneath the sea to break forth in Sicily.

Da Vinci was mistaken regarding Sicilian trees, however. The chestnut is abundant from southern Europe to the Caucasus and occurs on many Mediterranean islands. Perhaps da Vinci (an innovative speller) meant Cilicia, the Mediterranean region south of the Taurus Mountains. Lost rivers of that region were indeed mentioned in works of which Leonardo would have been aware.

As a brief aside, we should note that subterranean-transported flora would long remain of interest. The Gallery of Nature (1882), Thomas Milner (Chapter 10) is precise on the matter.

At Tours, in 1830, a well was perforated quite through the chalk, when the water suddenly brought up from a depth of three hundred and sixty-four feet, a great quantity of fine sand, with much vegetable matter and shells. Branches of a thorn several inches long, much blackened by their stay in the water, were recognized, as also the stems of marsh plants, and some of their roots, which were still white, together with the seeds of the same in a state of preservation, which showed that they had not remained more than three or four months in the water. Among the seeds were those of the marsh plant galium uliginosum, and among the shells a fresh water species, (planorbis marginatus) and some land species, as helix rotundata and helix striata. M. Dujardin, who, with others, observed this phenomenon, supposes that the waters had flowed from some valleys of Auvergne or the Vivarais since the preceding autumn.

Dominique Francois Jean Arago mentioned the same or similar event in Sur les Puits Fore (1834) in which the spring at a cathedral close to Tours increased by about a third, became turbid, and for several hours brought up with it pieces of wood and vegetation.

These facts prove without question that the underground water at Tours does not come (at least not entirely) from filtration through beds of sand. For it to be able to carry shells and pieces of wood, it must have moved freely along proper channels.

And we can yet add The Earth: A Descriptive History of the Phenomena of the Life of the Globe (1871) by Elisee Reclus.

In many places, especially at Tours, the artesian wells have ejected the remains of plants, branches, moss, snail shells, and other debris which the rains had probably carried away some weeks previously into the depths of the earth. At Elbceuf [also in France] the water of a well contained living eels.

Da Vinci's submarine stream originates in Italy, not Arcadia, but given Leonardo's enthusiasm for ideas, it's not likely he researched his Latin sources.

The chalice tale is again and again cited by classical scholars, an example taken from A New Classical Dictionary of Greek and Roman Biography, Mythology, and Geography (1851) by Sir William Smith,

Hence it was said that a cup thrown into the Alpheus would appear again in the fountain of Arethusan Ortygia.

"The Fountain of Arethusa," New York Times, July 7, 1901, remarks on the tourism aspect.

No object is more frequently mentioned in connection with Syracuse than Arethusa, the nymph changed into a fountain when pursued across the sea by the river Alpheus. The water of this fountain, much praised in antiquity, has in recent times become brackish by the letting in of salt water through earthquakes. But what it has lost in real excellence it has gained in stylish appearance. For the sake of its ancient renown washerwomen have recently been excluded from it, a fine wall put about it, and papyrus plants added to make it look picturesque.

As the Alpheus below Olympia flows into the sea as a distinct channel at times of high discharge and as meandering threads in times of drought, the tale of the river god and the nymph seems to

be rooted in river's more-perplexing headwaters. For direct delivery to Sicily, toss the cup in the river above Megalopoli, not at Olympia.

By the 19th century, hydrogeology was an entrenched physical science and few would have clung to a natural submarine pipe explanation. But some scholars still thought there might be a kernel of truth in the ancient literature. James Smith's Spring and Wells in Greek and Roman Literature, Their Legends and Locations (1922) may have been the last ditch effort, in this case, a hypothesis that the fresh water plume might have propelled itself under the sea and into the distant island.

By the time it [Alpheus River] reached the Adriatic, it had become a plethoric stream.

It continued to flow through the salt water until it reached the shore of Ortygia, in Sicily, where it bubbled up in the form it assumed at its birth -- ending its course as it began it, in the shape of a spring.

The Legacy

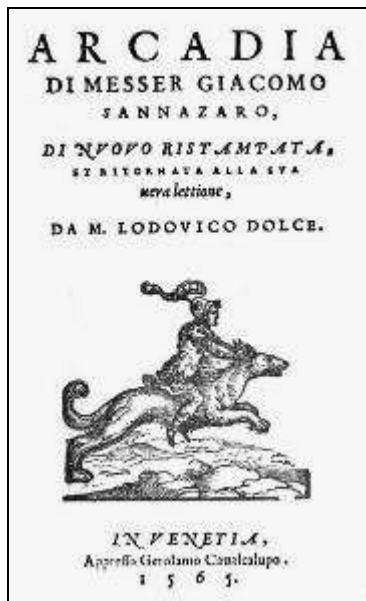
The mystery of the River Alpheus was an underpinning of Renaissance literary and art, but not simply as a river that stitched its way across Peloponnese. The deeper mystery was that of life's metaphorical destination.

Cosimo de Medici (1389-1464), the first of the Florentine political dynasty, sent agents throughout Europe in search of ancient manuscripts and with these, founded the Academies to study Greek philosophy.

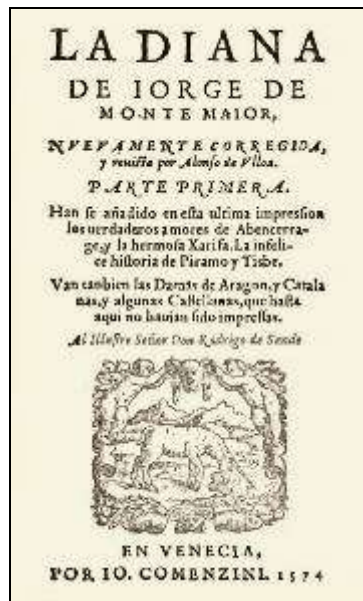
To writers and artists of the Renaissance having no knowledge of Arcadia's harsh topography, the land was seen as a gentle, fertile, idealized landscape, a wishful vision of existence untouched by the conflicts of contemporary life. Unlike the word "utopia" -- named for Thomas More's Utopia (1516), however -- "Arcadia" did not connote human progress, but rather the spontaneous result of life lived naturally.

The theme of Arcadia and its underground River Alpheus, in fact, became so prominent in Renaissance scholarship that the Academies were known as "Arcadians."

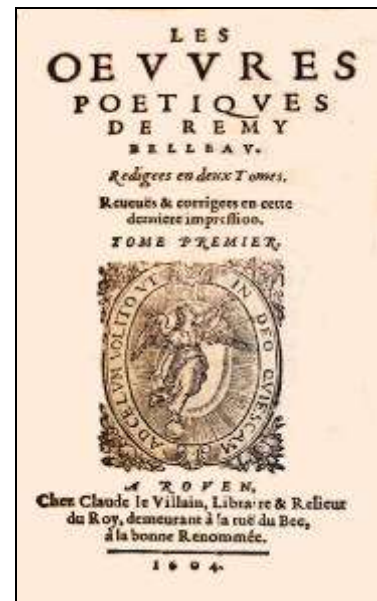
Following is an assortment of period literature set in -- and thus helping establish the idealized nature of -- Arcadia.



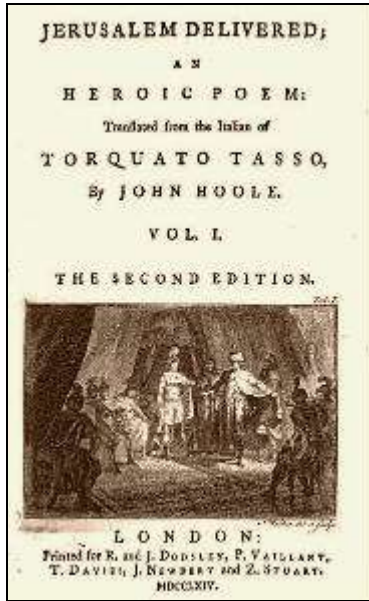
Jacopo Sannazaro
Arcadia (1502)



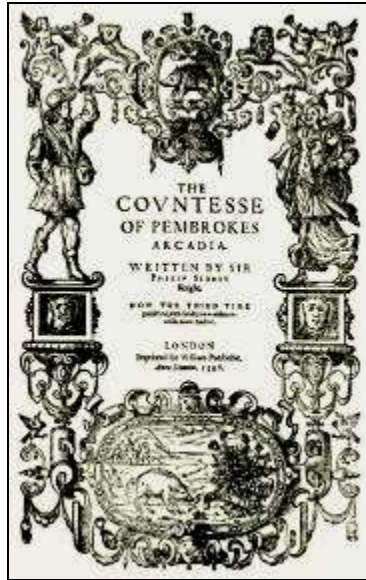
Jorge de Montemayor
Diana, (c. 1559)



Remy Belleau
Bergerieby (1572)



Torquato Tasso
Jerusalem Delivered (1581)



Philip Sidney
Countess of Pembroke's
Arcadia (1590)



Lope de Vega
La Arcadia (1598)

We will visit John Milton's Paradise Lost (1658) in Chapter 17, Underground Rivers in English Fiction, but here we'll mention his poem "Arcades" (1633) which drew upon the Alpheus story,

*I see bright honor sparkle through your eyes;
Of famous Arcady ye are, and sprung
Of that renowned flood, so often sung,
Divine Alpheus, who, by secret sluice,
Stole under seas to meet his Arethusa;*

Using the symbolic flow of water to connect Greek poetry to its descendant, Sicilian poetry, the poem recalls images of shepherds, nymphs, and pastoral landscapes, subjects with which Milton was well versed from Sidney's Arcadia.

But what is pure and undefiled must eventually be corrupted by humankind. To disillusioned modern philosophers, the underground river was to more and more represent history's melancholy underpinning.

Et In Arcadia Ego

The inscription "Et In Arcadia Ego" -- "And I (death) am even in Arcadia" -- first appeared in a 1608 painting by Giovanni Barbieri. The underground river represents life's ultimate fate, often portrayed by a tombstone or a fountain.



Nicolas Poussin painted two versions of Les Bergers d'Arcadie (The Shepherds of Arcadia), more commonly known as "Et In Arcadia Ego, I" and "Et In Arcadia Ego, II."



"Et In Arcadia Ego, I" (1630)



"Et in Arcadia Ego, II" (1637-1638)

Chapter 29 -- *Et In Arcadia Ego*

"Et In Arcadia Ego, I" depicts three men and a woman, two of the men and the woman occupied with the apparent discovery of a tomb. The inscription "Et In Arcadia Ego" seems to have an unsettling effect.

In the lower right sits the river god Alpheus, seemingly allied with nature, not culture. In his hand is an urn representing Arethusa Fountain, the flowing water suggesting the continuity of time. The god and his urn were present before this scene occurred and will be there after the drama is spent.



In "Et In Arcadia Ego, II," three shepherds point at the tomb's inscription, but absent is an air of melancholic contemplation. Poussin's Venetian training shows in the golden orange, scarlet, and midnight blue. The shepherds have figuratively eaten of the apple by Eve in Eden. Classical painters of the era used statuary as female models and the enigmatic female looks frozen.

Poussin was renowned for his Arcadian settings, even when the subject didn't fit, an example being that of rendering the Nile as a visual Greece in "The Finding of Moses" (1647).



The entirely-predictable focus is on women exclaiming over the discovery of the baby, but to the right, in shadow rather than highlighted and sitting rather than standing, Alpheus leans again on the spilling urn, the Arethusa Fountain. Having delivered Moses to where he will change history, the river god retreats. A sphinx stares beyond the canvas. The artist knows that unanswerable questions lie behind commandments inscribed in stone.

Rene d'Anjou, King of Naples (1438 -1442) and titular King of Jerusalem (1438-1480) used the theme of an underground River Alpheus to represent a subculture of Arcadian esotericism, unlike the Garden of Eden, free of Judeo-Christian constraints.

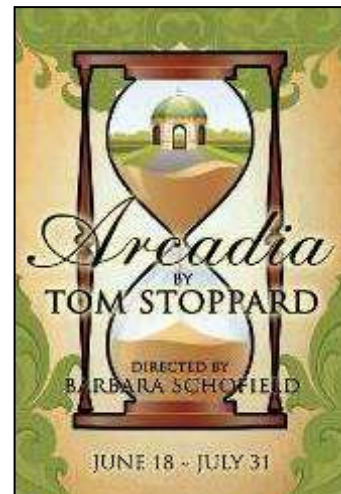
D'Anjou's Les Coeur d'Amours Espris (1457), depicted the fountain of the underground stream flowing from a tombstone.



In 1945, Evelyn Waugh sub-titled the first part of Brideshead Revisited "Et In Arcadia Ego," referring to his protagonist's blissful and innocent interbellum years as an undergraduate student at Oxford University.

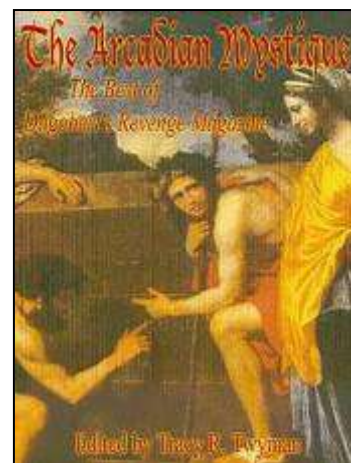
Tom Stoppard's Arcadia (1963) -- originally Et In Arcadia Ego -- involves themes of classical beauty and order in conjunction with the evolution of Western understanding of nature. Thomasina, unpretentious, innocent in youthful happiness, is the play's endearing character. Her death before cynical adulthood can destroy her in the same way that chaos will destroy the universe seems almost fortuitous.

Arcadia represents a fallen Eden, an intermingling of heavenly gifts and the folly of humanity. Et In Arcadia Ego -- The sun shines upon us, but what flows below?



Tracy Twyman's undated "The Real Meaning of 'Et In Arcadia Ego' and the Underground Stream," The Arcadian Mistique, rolls the Arcadian tie back to the divine.

Interestingly the word Jah (the name of the Jewish god inside the Ark of the Covenant) comes from the name Ia, the Lord of the Earth and Lord of the Deep Waters in Sumeria on which the Hebrew god Jehovah's character is partially based... King Ia, "Lord of the Deep Waters," was often depicted with water flowing from his throne. If this throne is now located in the center of the Earth, in the underworld, as legend tells us, then it is therefore also the source of an "underground stream."



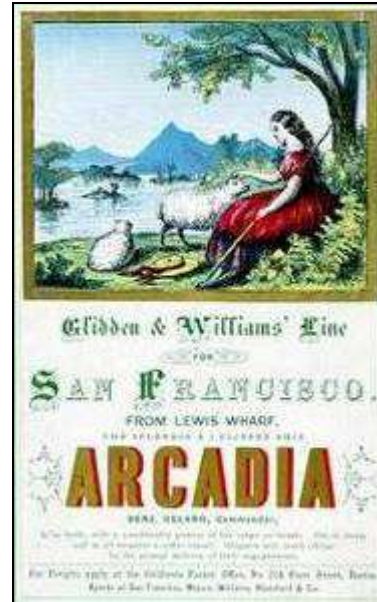
It's no light-hearted sail, this particular subterranean Alpheus.

Chapter 29 -- Et In Arcadia Ego

Below are a few Arcadian pieces from later times. Three portray land as those of the early Renaissance might have envisioned it, a world of blithe innocence. Three portray the land as it would come to be interpreted, a landscape with wondrous but ominous trees, lurking deity, a future uncertain.



Arcadian Landscape, undated, but note the tri-cornered hats



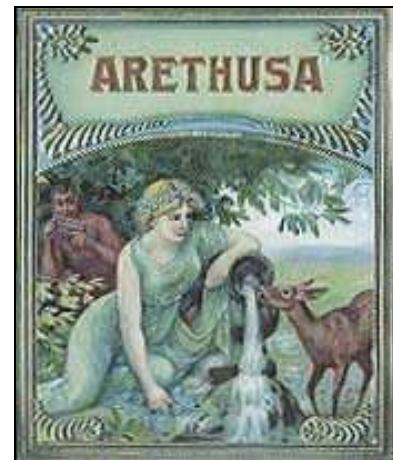
Konstantin Makovsky
"Happy Arcadia," 1890



Valley of the Alpheus, Arcadia, 1861



Thomas Cole
"The Arcadian or Pastoral State," 1836

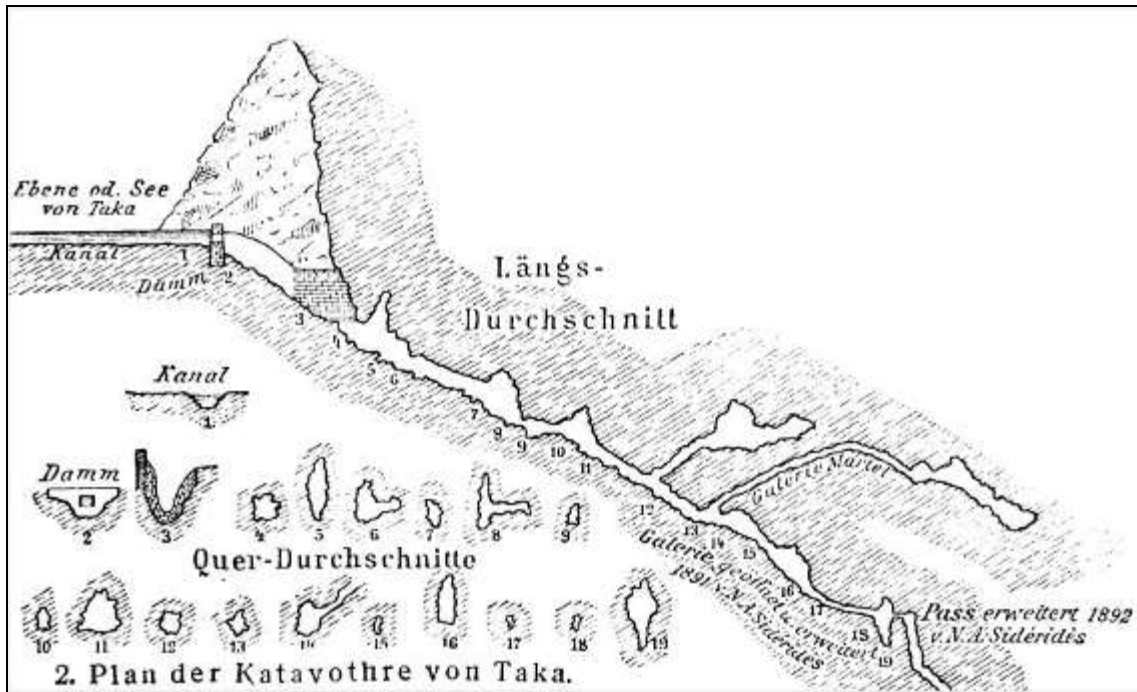


An Engineer

Few poets and painters could have personally said, "Et In Arcadia Ego," as they were working from stories. It would thus be unjust to ignore an engineer whose contribution involved actually being there.

Lake Taka on the Peloponnese Peninsula is an intermittent karst lake fed by surrounding dolines and sinks during the rainy season. It is drained by underground caves and in dry years, dries out completely.

In 1891, engineer N.A. Sideridis undertook works to better drain the Plain of Taka. The first step was to explore the Katavothres (swallow holes), accompanied by E.A. Martel whom we will encounter in Chapter 54, Subterranean Watercraft. The pair discovered a deep cave system and an underground river gorge.



Map redrawn after Martel and Sideridis, Mayers Konversations-Lexikon (1905)

Sideridis put a grid over the sink's entrance to prevent re-blockage by debris and excavated channels from the three incoming streams.



As an aside, the process of confirming the above Taka's geography unearthed reference to a like-named plain in the Sudan. From African Wanderings; or, An expedition from Sennaar to Taka,

Basa, and Beni-Amer, with a Particular Glance at the Races of Bellad Sudan (1852) by Ferdinand Werne,

In the country of the Haddenda is one spring, which supplies nearly the half of it; there one can plainly observe how the water runs strongly below the surface, and the land of Taka is also full of such underground watercourses.

Another Taka with its own underground rivers! As we note with some regularity, such waterways seem to be everywhere.

Conclusion

There is no physical underground channel from the Peloponnese Peninsula to Sicily, but our story is less about a water pipe than it is about a conduit of culture.

An idealized Arcadia was to fuel -- and to be fueled by -- the renaissance of Western culture and we thus recall land's underground rivers.

We'll depart Peloponnese not by a submarine River Alpheus, but via the subterranean Arcadian stream in Robert Hubert's 1808 "Le Grotte" with its trio of women illuminated by the water's mysterious light.



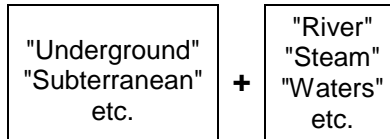
CHAPTER 30

THE UNDERGROUND RIVER AS METAPHOR

From the introduction,

A model is an expression of something we wish to understand in terms of something we think we do understand.

This chapter looks at underground rivers not as an aspect of setting, fictional or otherwise, but as a literary instrument in which some combination of



occupies the second clause of modeling's two-clause definition.

Insertion of the adverb "like" or "as" changes a metaphor into a simile,

Such-and -such is an underground river -- a metaphor,
Such-and -such is like an underground river -- a simile,

but both are said to be metaphoric. In quotations to follow, we'll highlight the underground river clause in CAPITAL LETTERS.

We'll begin with three explanations of our metaphor.

It has been noted as the peculiar characteristic of our time, that old institutions are continually giving way to new opinions, and that things of antiquity have "fallen on evil days." Such has not been the case with the Lumber Troop: -- to make use of a new simile, their course has been like that of an UNDERGROUND STREAM till now, when Sir John Key has discovered all their merit, and brought them before the wondering world in such a way that nobody can tell the importance or the consequence thereof. -- Edward Brewster, The Lumber Trooper: A Chivalric Poem, Written After the Most Approved Models (1832)

The simile wasn't in fact "new" in 1832, but apparently it wasn't hackneyed.

From the contemporary internet,

As a British Venus, Goddess of Gardens, she is the Flower Bride; at her Holy wells, mainly to be found in the North of the country, she is guardian of the underground streams that carry the sacred waters. These UNDERGROUND STREAMS have themselves become a metaphor for the secret continuation of sacred wisdom. -- Caroline Wise, "Elen of the Ways," internet posting, 2009

Humans have always drawn on a rich UNDERGROUND RIVER of subconscious wisdom, which sometimes emerges as metaphors, fairy tales, fables, myth, legends, or Holy Scripture. -- Jeanne M. Wiger, LedToGold.com internet posting

Following are underground river metaphors and similes excerpted from a variety of sources. To group them, we suggest interpretations, but the creative merit of the construction is that the meaning ultimately rests with the reader.

Anger

It has become an UNDERGROUND RIVER, this populist anger about the effects of economic globalization. -- "One World, Ready or Not, The Manic Logic of Global Capital," Washington Monthly, April 1997

Art

I think that visual art is part and parcel of many people, another UNDERGROUND STREAM flowing through their life. The more you learn to see, the more you can tap into the UNDERGROUND STREAM. -- Jeannine Cook, "Art, an UNDERGROUND STREAM flowing through life," internet posting, 2009

Belief

Mr. Thompson's feel for the tangle of beliefs and resentments in the "the UNDERGROUND RIVER of New Age ideas" is exemplary. -- "The End of Time, Faith and Fear in the Shadow of the Millennium," The Economist, December 7, 1996

Being

*The musicality of being is the silence which holds all knowledge.
It is the quiet pool at twilight, free of ripples and full with the moon's reflection.
It is the breathing of a quiet forest, whose creatures are at rest.
It is the water of an UNDERGROUND RIVER, which flows towards the sunlight.
It is the perfect white vase, empty yet full.* -- The Shakti of Aksobhya (Buddhist)

Communication

The power to communicate thought is nearly as important as thought itself. What is more vain than for a man to draw from the clear mountain springs of knowledge, and then flow through the world, a SUBTERRANEAN STREAM? -- P.E. More, An Apostrophe (1897)

Connection

They speak to us of the UNDERGROUND RIVERS that connect us, building a foundation of relationships at the center of our processes -- Michelle LeBaron, Bridging Troubled Waters, Conflict Resolution from the Heart (2002)

Biography, even autobiography, is full of systemic error, of holes that connect like a tangle of UNDERGROUND STREAMS. -- Carol Shields, The Stone Diaries (1994)

Consciousness

Think of it like a tree whose roots go down deep and tap into our ultimate source -- an UNDERGROUND RIVER of soul consciousness that exists beyond time and space and also beneath our deepest fears (the unified Field). -- Allen L. Roland, "Newsletter, Spirituality," internet posting, June 2001

Constance

Of deeper import still, like an UNDERGROUND RIVER, there ran a limpid flow of native songs attuned to the genius of the people. -- K.M. George, Western Influence on Malayalam Language and Literature (1972)

Yet throughout the twenty-four songs and seventy-two slokas, the thread of deep devotion runs like a SUBTERRANEAN STREAM. -- Subas Pani, "A Two-Part Study of Jayadeva's Glorification of Sri Krsna in His Jagannatha Manifestation," internet posting, 2009

The conception of the cosmos as the mechanism of self-expression for the infinite has flowed through all ages of thought LIKE A SUBTERRANEAN STREAM. -- Helen F. Dunbar, Symbolism in Medieval Thought and Its Consummation in "The Divine Comedy" (1929)

"German Art in the 20th Century," the huge show of some 300 works by 52 artists that has been the talk of London since it opened at the Royal Academy in October, has a clear agenda. It wants to prove something, and that something is continuity, from 1905 to 1985... The image stream of German expressionism went UNDERGROUND, but not even Nazism could dry it up. It is the deep, continuous current of German modernism. -- Robert Hughes, "Tracing the

Underground Stream. In London, a Major but Uneven Survey of German Modernism," Time, December 23, 1985

Convergence

What history has shown is that eventually these UNDERGROUND STREAMS do alter the balance of power of the world. -- Philip Gardiner, Secret Societies, Gardiner's Forbidden Knowledge (2007)

Where is the unity, the meaning, of nature's highest creation? Surely those millions of little streams of accident and willfulness have their correction in the vast UNDERGROUND RIVER which, without a doubt, is carrying us to the place where we're expected! -- Tom Stoppard, The Coast of Utopia (2002)

The SUBTERRANEAN RIVER of blood story is about the bodies of the participants collectively joining the flows of their life forces, their blood, to create a fluidity which dissolves all borders (between their individual bodies and the sacred ground, the ground made sacred).

TRAVELLING THE SUBTERRANEAN
RIVER OF BLOOD:
PHILOSOPHY AND MAGIC IN
CULTURAL STUDIES

The exfoliation is almost absolute, but it retains these features: vitality, movement, transformation (the bodies return to normal when they re-emerge). -- Stephen Muecke, "Travelling the SUBTERRANEAN RIVER of Blood: Philosophy and Magic in Cultural Studies," Cultural Studies 13:1, 1999

Creativity

Forget writing, it's a trivial matter. But day in day out, when the inarticulate patient struggles to lay himself bare for you, or with nothing more than a boil on his back is so caught off balance that he reveals some secret twist of a whole community's pathetic way of thought, a man is suddenly seized again with a desire to speak of the UNDERGROUND STREAM which for a moment has come up just under the surface. It is just a glimpse, an intimation of all that which the daily print misses or deliberately hides, but the excitement is intense and the rush to write is on again -- William Carlos Williams, The Autobiography of William Carlos Williams (1951)

What he is trying to do is jump-start a poem by lowering a bucket down into a kind of UNDERGROUND STREAM flowing through his mind -- a stream of continuously flowing poetry, or perhaps poetic stuff would be a better way to put it. Whatever the bucket brings up will be his poem. -- Larissa MacFarquhar on John Ashbery in "Present Waking Life," New Yorker, November 7, 2005

The UNDERGROUND RIVER of creation curves on beneath the surface life, its inspiring waters ever available to refresh and bring sparkle to daily life. People who feel that they are uncreative often complain that they do not know how to get access to these waters. Surely, these people assert, creative waters run through particularly gifted people only. -- "The Underground River of Creation Revisited," Beth Owl's Daughter, internet posting, March 2010

Culture

Cultures flow through our lives like UNDERGROUND RIVERS, powerfully nurturing, potently influencing, and sometimes dividing -- Michelle LeBaron, Bridging Cultural Conflicts (2003)

How bright, in comparison, the conception of our personality, meandering like an UNDERGROUND RIVER through the hidden world of God's creation, and enabling us, at each stage, to partake of Humanity's victories. -- Laurence Gronlund, Our Destiny, The Influence of Socialism on Morals and Religion (1891)

Culture is the UNDERGROUND STREAM of norms, values, beliefs, traditions, and rituals that builds up over time as people work together, solve problems, and confront challenges. This set of informal expectations and values shapes how people think, feel, and act in schools. -- T.E.

Deal and K.D. Peterson, "How Leaders Influence the Culture of Schools," Educational Leadership, September 1998

Destiny

Surely those millions of little streams of accident and willfulness have their correction in the vast UNDERGROUND RIVER which, without a doubt, is carrying us to the place where we're expected! -- Tom Stoppard, The Coast of Utopia (2003)

Disposal

A tree is also the symbol of chieftainship to be raised-up, uprooted by death, and a new one replanted in its place. Similarly a tree is uprooted to bury the hatchet, to cast the weapons of war into the UNDERGROUND STREAM that carries off pollution of war, and then the tree of peace is replanted. -- William N. Fenton, "The Lore of the Longhouse: Myth, Ritual and Red Power," Anthropological Quarterly 48:3, July 1975

Distance

He stopped and laughed--a low, gurgling laugh--and it was to the girl like the roar of some SUBTERRANEAN RIVER heard from afar. -- Edgar Wallace, The Book of All-Power (1921)

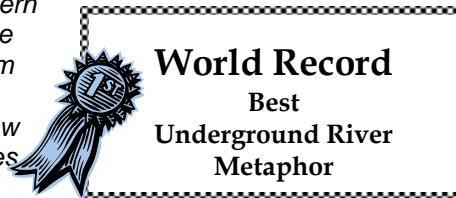
Dormancy

Using the UNDERGROUND RIVER as a metaphor for all that lays dormant in our exceedingly domesticated society; Something About a River explores various angles on the notion of ambivalence. -- review of Bluemouth, Inc's "Death by Water" from the trilogy "Something About a River," Fort Greene Park Conservancy internet posting, 2008

Far too antiauthoritarian to brook fuehrers or gurus, Pagans use historical materials to cure themselves of historical determinations, and to tape the UNDERGROUND STREAMS murmuring beneath the dominant narratives of the patriarchal state. -- Erik Davis, "Remains of the Deities, Reading the Return of Paganism," internet posting.

Emergence

In relation to his public, the artist of today is like the speleologist of the Peak or of the Causes of Southern France; he walks at first with his companions, till one day he falls through a hole in the brambles, and from that moment he is following the dark rapids of an UNDERGROUND RIVER which may sometimes flow so near to the surface that the laughing picnic parties are heard above, only to re-immense itself in the solitude of the limestone and carry him along its winding tunnel, until it gushes out through the misty creeper-hung cave which he has always believed to exist, and sets him back in the sun. -- English literary critic Cyril Connolly, The Condemned Playground (1946)



The award's only our opinion, of course, but we think it's deserved

It was as if an UNDERGROUND STREAM flowed through the country and broke out in sudden springs that shot to the surface at random, in unpredictable places. -- Ayn Rand, Fountainhead (1943), describing hero Howard Roark's struggle and success

The "well of life" is not in the next world, and not in the church's font; it is in human beings themselves. If they receive the life-giving water, they themselves become the wellspring of this water for other people. With this as background, Meister Eckhart painted the picture of God -- the Spirit of life -- as a great UNDERGROUND RIVER which rises to the surface in the springs and fountainheads. -- Jürgen Moltmann, The Spirit of Life, A Universal Affirmation (2001)

The SUBTERRANEAN STREAM of Western history has finally come to the surface and usurped the dignity of our tradition. This is the reality in which we live. And this is why all efforts to escape from the grimness of the present into nostalgia for a still intact past, or into the anticipated oblivion of a better future, are vain. -- Hannah Arendt, The Origins of Totalitarianism (1950)

There are UNDERGROUND STREAMS that flow on unseen and at length reappear to the light of day, holding on their course with undiminished volume. In like manner do the streams of influence disappear from view only to rise again, oftentimes when least expected, hewing their rocky way over the barriers of time or watering the broad valley till it smiles anew in an Eden bloom. -- "Editor's Table," Harper's Magazine, August 1858

Everything lies in everyone of us, but has to be brought to the surface. It grows a little in one, more in that one's child, more in that child's child, and so on and on -- with curious breaks as of a river which every now and then takes to an UNDERGROUND COURSE. -- George MacDonald, The Flight of the Shadow (1891)

Among literary scholars, interest in the Bible during the first three quarters of the twentieth century can be pictured as an UNDERGROUND STREAM that finally came to the surface around 1960. -- Leland Ryken and Tremper Longman, eds., The Complete Literary Guide to the Bible (1993)

Neo-Platonism may be compared to an UNDERGROUND RIVER that flows through European history, sending up, from time to time, springs and fountains; and wherever its fertilizing stream emerges, there imaginative thought revives, and we have a period of great art and poetry. -- Kathleen Raine, Blake and Antiquity (1979)

Cather implies a sharp contrast between the now of Marie's passions and that of Alexandra's, whereas Alexandra keeps the "UNDERGROUND RIVER" of her inner life safely hidden below the surface of her consciousness, so that it can continue to feed her art, Marie lets the river of her emotions rise up to the surface, only to drain her inner wellspring. -- Demaree C. Peck, The Imaginative Claims of the Artist in Willa Cather's Fiction (1996)

The great excitement of Great Expectations -- and it is still there, on the screen -- has to do with the rediscovery that visual storytelling was not just a notional link between Charles Dickens and movies, but an UNDERGROUND RIVER that had broken above ground. -- The Guardian, January 23, 2007, review of the movie Great Expectations (1997)

And language bubbled out of place as a spring from UNDERGROUND STREAMS the soil concealed. -- Meena Alexander, "Poetry, The Question of Home," internet posting, Academy of American Poets, 2009

No matter how insistently scholars and metaphysicians wave their dowsing wands, the sources of creative artistry remain largely undiscovered. Secret UNDERGROUND RIVERS of imagination can bubble up at unexpected times and places. If the geology of talent were a completely developed science, it might explain George Crumb to us. -- Donal Henahan, "Review/Music, Helping George Crumb Celebrate His Birthday" -- New York Times, October 26, 1989

And like an UNDERGROUND RIVER, it waits for the right moment (an event or transition) to resurface in the form of beliefs, fantasies, and actions. It is here, where it breaks the surface of life, the intergenerational transference has to be caught unawares, challenged, acknowledged, revised, and sent on its way. -- Vittorio Cigoli and Eugenia Scabini, Family Identity, Ties, Symbols, and Transitions (2006)

Was this -- like the emergence of some UNDERGROUND RIVER -- the musical reincarnation of impulses subconsciously remembered from generations earlier and producible only when the carrier of this memory had developed his instrumental technique sufficiently to cope with it? -- "The New Grove Dictionary of American Music," The Atlantic Monthly, March 1987

Chapter 30 -- The Underground River as Metaphor

The Earl of Carrington compared patriotism of the colonists to an Australian UNDERGROUND RIVER that disappeared in the bowels of the earth, came up again, and rushed onward in a mighty torrent to the ocean. -- Spokesman-Review, July 22, 1900, in reference to the Borer War

[Quentin's relived present] moves along in the shadow, like an UNDERGROUND RIVER, and reappears only when it itself is past. -- Jean-Paul Sartre, "On the Sound and the Fury, Time in the Work of Faulkner," Literary and Philosophical Essays, 1955

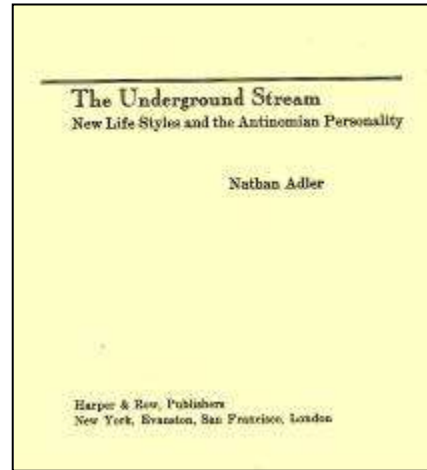
Nathan Adler uses the term "antinomian" to designate opposition to customary moral obligations. The Underground Stream, New Lifestyles and the Antinomian Personality (1972) is an effort to explain culture of LSD.

I discuss some of the newer therapies as an expression of the same antinomian orientation that surfaced in the hippie culture from the enduring UNDERGROUND STREAM.

The history of that UNDERGROUND STREAM and of the antinomian personality who rides it is a long-term study.

and

The gnostic values ran like an UNDERGROUND STREAM, this stream disappeared as society became tranquil and stable, but in stressful times the antinomian values surfaced again and became stronger.

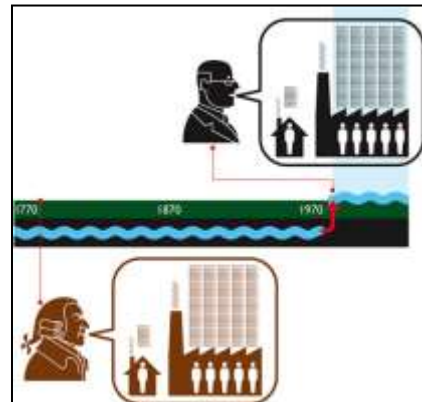


Since the heady days of 1972, however, the antinomian Flower Power subterranean river has largely resubmerged into a cloud of illicit smoke.

Or without the use of words, the re-emergence of Adam Smith in David Warsh's A Story of Economic Discovery (2006)

CHAPTER SIX

The Underground River



Emotion

Our history has moved us on two rivers, one visible, the other underground; there has been the history of politics which is concrete, practical, and unbelievably dull... and there is the SUBTERRANEAN RIVER of untapped, ferocious, lonely and romantic desires, that concentration of ecstasy and violence which is the dream life of the nation. -- Norman Mailer, "Superman Comes to the Supermarket," Esquire, November 1960, about John F. Kennedy

Erosion

Because of this latter fact particularly, while prostitution in peacetime is like some treacherous UNDERGROUND STREAM slowly washing away the solid earth, in times of national crisis like the present, unless firmly curbed, it may become like a raging torrent, damaging the health of

our armed forces and workers in industry to an extend of affecting the war's outcome. -- J.B. Pinney, "How Fares the Battle against Prostitution?" Social Service Review 16:2, June 1942

Esoteric

There have been many hypotheses written about the final destination of the treasures of the Templars, some even pointing to the New World!... But it is far more likely that the quickest, shortest and safest destination was -- England. The English King was a staunch ally of the Templars -- he was the only one who stuck with his protests -- and besides, such a scheme had already worked once before in 1247. One might add that Arsene Lupin later explained how the use of the secret UNDERGROUND RIVER and the hidden fortress of the Hollow Needle may have helped made such a scheme feasible. -- The French World Newton Universe, "Will There be Light Tomorrow? The History of the Greatest Conspiracy Man Has Ever Known," internet posting

The "UNDERGROUND STREAM," the hidden mysteries of western esotericism. From Merlin to Nostradamus, from Parzival and the Holy Grail to Alchemy and the mystery of the cathedrals, from the origins of the Tarot cards to the Hebrew/Druidic /Arthurian cabala, most of the major currents flowing through the UNDERGROUND STREAM surface, or have their origin, within a few miles of the lost Roman city of Glanum... From the answers to these question arise a vast untold story of the UNDERGROUND STREAM in the west, from Jason and the Argonauts to the Gnostic Christians, the Cathars and the legends of the Holy Grail, down to the true identity of the Knights of the Rosy Cross. -- Weidner and Vincent Bridges, The UNDERGROUND STREAM and Fulcanelli's Message, 1888

Experience

In all melodrama, heightened emotion and exaggerated gestures or, in the case of television, extended camera play on facial expressions represent the invisible life, the SUBTERRANEAN RIVER of experience. -- Mary S. Mander, "Dallas: The Mythology of Crime and the Moral Occult," Journal of Popular Culture 17:2, Fall 1983

Faith

Faith in the immortality of the soul exists deep down in their own souls like a SUBTERRANEAN RIVER, neither seen nor heard, but watering the roots of their deeds and their motives. -- Miguel de Unamuno, Tragic Sense of Life (1921)

Fear

You are walking in a dark cave, a vast subterranean string of passageways, unmapped. You have both a lantern and torch and you're an experienced explorer. There's a sense of joy, then. Caution, wisdom, but joy, in your exploration. As you move around a sharp corner, suddenly the ground gives way beneath you and you begin to slide. You drop your lantern, you drop your torch; your hands reach out trying to grab some surface to try to stop the slide. You find yourself falling literally into space and then splash! You are in cold water. Deep water. Moving water. -- "Wednesday Evenings with Aaron at Deep Spring Center," internet posting, May 3, 2000

Foundation

The editors have been deeply attracted to the vivid movement and activity of his poetry, which seem to flow up from an UNDERGROUND RIVER that lies beneath mere speech, as though written in some pre-verbal language of which all later languages have proved to be a mere translation. -- Peter Davison, "A Reflection on Poet W.S. Merwin," Atlantic Monthly, August 28, 1997

Proceedings of the Grand Lodge of Free and Accepted Masons of the State of New York (1917)

Q: What was Freemasonry prior to the London Conference of 1717?

A: An UNDERGROUND RIVER, with tributaries in widely scattered sections of Great Britain.

Hidden

My life is like the SUBTERRANEAN RIVER in the Peak of Derby, visible only where it crosses the celebrated cavern. I am here, and this much I know; but where I have sprung from, or whither my course of life is like to tend, who shall tell me? -- Sir Walter Scott, Redgauntlet (1824)

The work an unknown good man has done is like A VEIN OF WATER FLOWING HIDDEN UNDERGROUND, secretly making the ground green. -- Thomas Carlyle, Essays -- Varnhagen von Ense's Memoirs (1838)

Once, in my travels, I saw a whole river disappear under ground, and, miles below, it reappeared. The surface of the country, however, gave no evidence that a river was rolling beneath, no more than the faces of some present, while conviction for sin, like that SUBTERRANEAN RIVER, is rolling through their heart. I have known enough of people during and after a revival, and sufficiently of some present, to warrant me in making a very pointed application of the same. -- Arrows from my Quiver: Pointed with the Steel of Truth and Winged by Faith and Love Selected from the Private Papers of Rev. James Caughey (1868)

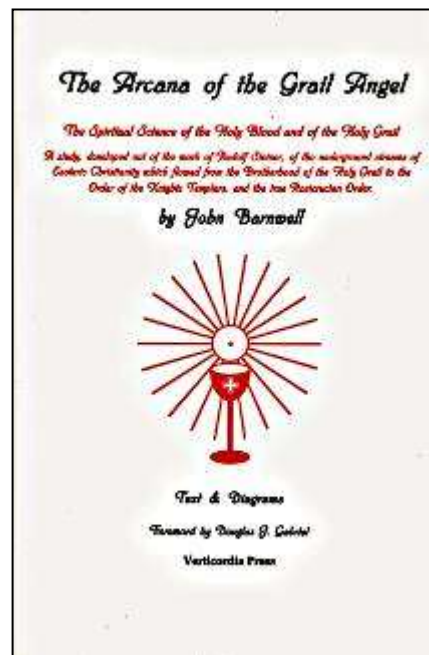
In this National Council of Women... we have only another illustration of the outreach of human hearts toward each other and toward humanity, stimulated by the almost universal desire to better the conditions of human life for the suffering of the children of men... The desire had been hidden like an UNDERGROUND STREAM from the day when Miriam first gathered women together to dance to the sound of the timbrel and to "sing to the Lord a new song." -- Mary Lowe Dickinson, The Arena, February 1897

"It's an UNDERGROUND RIVER of money," says John Davis of State Affairs. "It's very hard to find. And it's absolutely legal." -- "Attorneys' Rising Political Clout (Political Donations to Judges by Plaintiffs' Lawyers)," Nation's Business, February 1998

Holy Blood

The motif of an UNDERGROUND STREAM seems to have been extremely rich in symbolic and allegorical resonances. Among other things, it would appear to connote the "underground" esoteric tradition of Pythagorean, Gnostic, Cabalistic, and Hermetic thought. But it might also connote something more than a general corpus of teachings, perhaps some very specific factual information -- "secret" of some sort transmitted in clandestine fashion from generation to generation. And it might connote an unacknowledged and thus 'subterranean' bloodline. -- Michael Baigent, Richard Leigh and Henry Lincoln, Holy Blood, Holy Grail (1982)

For those anxious about such conspiracies, may we suggest The Arcana of the Grail Angel, The Spiritual Science of the Holy Blood and of the Holy Grail, A Study developed out of the work of Rudolf Steiner of the UNDERGROUND STREAMS of Esoteric Christianity which flowed from the Brotherhood of the Holy Grail to the Order of the Knights Templars and the True Rosicrucian Order (1999) by John Barnwell.



Inevitability

Even as an enormous UNDERGROUND RIVER of people flows south to north across the American continent -- the vast human tide of illegal immigration from Mexico flowing north across the Rio Grande -- it is counterbalanced almost perfectly by another vast UNDERGROUND RIVER flowing north to south: a flow of capital, in remittances from workers back to their families at home. -- Affordable Housing Institute, internet posting, June 8, 2007

But where was that free money coming from that these tubabs kept pulling from their pockets? It was like there was a money spring welling up in that cold country. Like a RIVER UNDERGROUND washing up all the money from the world out onto the flood plains of the old River Thames... The River Gambia never worked like that; it washed people out to other lands and sometimes it brought villagers from upcountry to Baku looking for a new life in the tubab hotels. But not money. No, never money. -- Richard Tromans, The River Underground (2003)

And Tromans' closing line, the protagonist being handcuffed. Hus felt like he was floating, floating up from an UNDERGROUND RIVER.

Notwithstanding the silencing of the Legal Realists in the course of the Second World War, the resonance of their critiques of conceptual and rule formalism continued like a SUBTERRANEAN RIVER. -- Brian Z. Tamanaha, "How an Instrumental View of Law Corrodes the Rule of Law," DePaul Law Review 469, 2006

Margaret Atwood's factual allusion to underground rivers (see Chapters 41, Sinkholes, and 72, Minewaters) provides metamorphic correspondence.

I think of those towns built on UNDERGROUND RIVERS, where houses and whole streets disappear overnight, into sudden quagmires... Something like this must have happened to her, once she saw the true shape of things to come. -- Margaret Atwood, The Handmaid's Tale (1986)

Although it's a bit longer, we can't leave out Hemingway's Boat: Everything He Loved in Life, and Lost, 1934-1961 (2011) by Paul Hendrickson.

Here's another example of the UNDERGROUND RIVER of Hemmingway fatalism:

Not so long after Arnold Samuelson knocked at his door -- about three months later, by my calculation -- in Cuba, with his boat,

remembering Africa,
remembering Spain,
remembering a car wreck and fractured arm out West,
remembering a forward listening post on the Piave front in World War I when he was a teenager,

the mentor wrote:

"I did nothing that had not been done before me. I had been shot and I had been crippled and gotten away. I expected, always, to be killed by one thing or another and I, truly, did not mind anymore."

Influence

[Astrology's] impact on history and on the history of ideas, an UNDERGROUND RIVER through human affairs. -- Benson Bobrick, The Fated Sky (2005)

Yet the more one reads Beckett, even late Beckett, the more one realizes that the intensity of emotion is still there, only in a new form, albeit formless, but there nevertheless, like an UNDERGROUND RIVER rippling the stylized surface of the written page. -- Corina Martin-Jordache, "Modernity, Urban Semiology and the Beckettian Cityscape," Journal of European Studies, December 2002

Inspiration

Like an UNDERGROUND RIVER flowing through Western culture, the Greek gods have sent up springs and fountains, inspiring and fertilizing the Western imagination for more than twenty centuries. -- Arianna Huffington, inside flap, The Gods of Greece (1993)

Art is an act of tuning in and dropping down the well. It is as though all the stories, paintings, music, performances in the world live under the surface of our normal consciousness. Like an UNDERGROUND RIVER, they flow through us as a stream of ideas that we can tap down into. As an artist, we drop down the well into the stream. We hear what's down there and we act on it -- more like taking dictation than anything fancy having to do with art. -- Julia Cameron, The Artist's Way, A Course in Discovering and Recovering Your Creative Self (1992)

Life

She took solace in the impersonal life that flowed through her LIKE AN UNDERGROUND STREAM... the life that generated babies, and ate away voraciously at all organic life, and animated the wind in the trees, and made her heart beat... without her consent or understanding. -- Joyce Carol Oates, I Lock My Door upon Myself (1990)

Multiplicity

There is one UNDERGROUND RIVER -- but there are many wells into that river: an African well, a Taoist well, a Buddhist well, a Jewish well, a Muslim well, a goddess well, a Christian well, and aboriginal wells. Many wells but one river. -- Matthew Fox, Meditations with Meister Eckhart (1982) commenting on "Divinity is an UNDERGROUND RIVER that no one can stop and no one can stop." -- Meister Eckhart (1260-1327)

Mystery

Music is like an UNDERGROUND RIVER... You don't know where it comes from and you don't know where it's going... What I have been content with is to see music as a mystery, and I leave it at that. -- Philip Glass, composer

Nutrition

Unknown to many, Ecstasy has a less recreational, more medicinal history. In the 1970s and 1980s, the chemical known as MDMA (methylenedioxyamphetamine, or N-methyl-3,4-methylenedioxyphenylisopropylamine) was used secretly by a select group of psychiatrists and therapists in the United States and Europe... When I learned about MDMA, I realized that this was an extraordinary situation in which there was a semisecret UNDERGROUND RIVER that was nourishing the psychedelic community. -- Julie Holland, Ecstasy, The Complete Guide : A Comprehensive Look at the Risks and Benefits (2001)

Sparks are those ideas that catch the light, inviting us into remembrances, explorations, and connections with those UNDERGROUND RIVERS that nourish us. -- Michelle LeBaron, Bridging Troubled Waters, Conflict Resolution from the Heart (2002)

To paraphrase Thomas Carlyle, the work of a Chief is like an UNDERGROUND RIVER: it nourishes the landscape without its presence being seen. -- James D. Audlin, Circle of Life: Traditional Teachings of Native American Elders (2006)

Obscurity

Let me hold my course in silence for a while, and in obscurity, like a SUBTERRANEAN RIVER; the time shall come that I will burst forth in my strength, and bear all opposition before me. -- Sir Walter Scott, Kenilworth (1821)

Permeation

An UNDERGROUND RIVER of filth... ran under the city. There was no turning back. I had to wade the excremental river. -- Ross Macdonald, The Moving Target (1949), the first Lew Archer mystery

Beneath the landscape of trends and school and movements run UNDERGROUND STREAMS of sympathy and influence -- J.D. McClatchy, The Vintage Book of Contemporary American Poetry (2003)

A poet who "engages the UNDERGROUND STREAM of our lives." -- Peter Davison on W.S. Merwin, Boston Globe poetry editor

Persistence

Yet that was far from the end of the Neoplatonist current, that half-UNDERGROUND RIVER that has often divided as it sought new channels and is yet to run dry. -- Robert S. Ellwood, Islands of the Dawn, The Story of Alternative Spirituality in New Zealand (1993)

His trinitarianism ran like a SUBTERRANEAN RIVER throughout his career as a pastor and polemicist; it did not dominate his public discourse. -- Amy Plantinga Pauw, The Supreme Harmony of All: the Trinitarian Theology of Jonathan Edwards (2002)

Nathaniel Hawthorne laid open a powerful UNDERGROUND STREAM in "The Scarlet Letter" - one in which desire and shame converge. -- Cate McQuaid, Boston Globe, October 10, 2004

Nevertheless, the UNDERGROUND STREAM was there, and it was because she had so much personality to put into her enterprises and succeeded in putting it into them completely that her affairs prospered better than those of her neighbors. -- Willa Cather, O Pioneers! (1913)

Power

There are great reservoirs of spiritual energy waiting to be tapped. If the architects of American morale are aware of this UNDERGROUND RIVER of power and idealism, tremendous things may be achieved in our time. -- M. Griesser, "Underlying Factors in Democratic Morale," Journal of Educational Sociology 15:7, 1942

We feel the flow of thought, its power like an UNDERGROUND RIVER finding its way for the first time through some shifted ground -- even if he doesn't know where it will come out. -- Robert Bly, Neruda and Vallejo, Selected Poems (1993)

The feeling I get when I write is akin to dropping through a trap door into the flow of an UNDERGROUND RIVER, I stand in the current and just as a plant absorbs nutrients and energy from its surroundings, I absorb the energy of this SUBTERRANEAN RIVER through my soul. This is not willed, it simply happens. -- Karen Hesse, author of Wish on a Unicorn (1991)

Rage

*It is not, though, and anyone with a sense of recent film history can see *Thelma & Louise* in the honorable line of movies whose makers, without quite knowing what they were doing, sank a drill into what appeared to be familiar American soil and found that they had somehow tapped into a wild- rushing SUBTERRANEAN STREAM of inchoate outrage and deranged violence. -- Richard Schickel, Elizabeth L. Bland, Sally B. Donnelly and Martha Smilgis, "Gender Bender Over *Thelma & Louise*," Time Magazine, June 24, 1991*

Replenishment

He rules in exile like a king who hides in public and writes nothing down. He replenishes his sources from an UNDERGROUND RIVER that is the home of the most hardy fishes. He lives in the mind like a lover in the attic who won't come down, who needs everything brought to him in order to survive. He talks on the phone to the mind with whom he quarrels and then hangs up without saying good bye. He works out all day on a secret track. Is vain, vain, vain in short shorts. -- Chard DeNiord, "Eros," The American Poetry Review, September 1, 2007

Mem, as the sign of Miriam, leads us to sing and praise God for our survival up to this point. We've made it through some deep waters. Our struggles aren't over yet, but we're still alive! Mem also reminds us that deep wells exist of which we may not be aware. Hidden, ancient UNDERGROUND STREAMS fill these wells. When we find them and dip our buckets, we tap into those deep currents of life. -- Richard Seidman and Lawrence Kushner, The Oracle of Kabbalah, Mystical Teachings of the Hebrew Letters (2001)

Sightless

The memory that forsakes the sunlight, like the fishes in the UNDERGROUND RIVER, loses its eyes; the cloud of its grief carries no rainbow; behind the veil. -- George MacDonald, St. George and St. Michael (1876)

Spirituality

An underground river can be seen as cause.

If; for example, you live in Australia, you may naturally wish to weave into your shamanic practice the landforms that you see in the course of your daily life, and you may know some of the dream songs told by the Aborigines. The cosmic and natural forces that created the landscape -- UNDERGROUND RIVERS, storms, earth upheavals, and so forth -- are the creative Ancestors who imbued the land with the life force that has allowed the people to live there happily for more than 100,000 years. -- Thomas Dale Cowan, Shamanism as a Spiritual Practice for Daily Life (1996)

An underground river can be interpreted as effect.

Having a natural affinity with female consciousness, her [the moon, the "Queen of the Night Sky"] timeless presence profoundly affects the ocean's tidal flow, UNDERGROUND STREAMS, weather conditions, body fluids, menstruation, conception, pregnancy, childbirth, menopause and physical death. -- Roslyne Sophia Breillat, "Lunar Mystery, Woman and the Moon," internet posting

An underground river can be a sermon, as seen in the bulletin of Trinity Assembly of God, Mt. Morris, Michigan.



An underground river can feed our spiritual insteps.

Let the Earth energy flow in through your rootlets, effortlessly. Let it move up, up . . . up through the reaches of your root system. Moving up through the UNDERGROUND WATERS, up through the bedrock, up past the bones of our ancestors, up through the rich topsoil, and right up into the soles of your feet. -- Wicca Spirituality, "Earth Grounding Meditation," internet posting

An underground river can also be a non-metaphoric ATV spiritual destination.

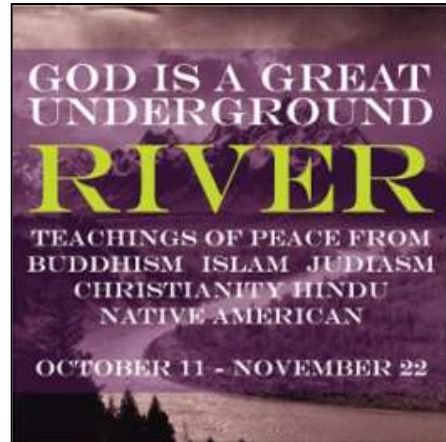
Jump on your ATV or Mini-Rhino and drive over back-roads through Playa del Carmen's low shrub-jungle terrain en route to the hidden underground world of the ancient Mayans at the mystical caverns of Chac Tun. You'll be awed by nature's majesty as she surrounds you with spectacular stalactites and stalagmites. Follow your guide into the cavernous depths and experience the power of an ancient Mayan ceremony of purification and renewal performed by a local practitioner of Mayan spirituality. This ritual involves the sacred waters of an UNDERGROUND RIVER as well as fire, earth, music, movement and meditation in the caverns depths. -- Mayan Destinations, "Sunset ATV and Mayan Ceremony," internet posting

An underground river can provide lore for a new religion.

Fundamental to the image of L. Ron Hubbard as the prophet of Scientology are the tales of his teenage travels. On an unnamed South Pacific island, the fearless lad calmed the natives by exploring a cave that was said to be haunted by showing them that the rumbling sound from within was nothing more sinister than an underground river. Hubbard wouldn't call it spiritual, however; it was simply ascertaining a meaning.

In The Holy Blood and the Holy Grail (1982), Michael Baigent, Richard Leigh and Henry Lincoln speculate that an "UNDERGROUND STREAM" might also have connoted an unacknowledged and thus "subterranean" bloodline of Jesus. As this one's a thriller, the metaphor's not subtle.

Why beat around the bush? God Him/Herself can be an underground river, as per the poster for the 2009 Fetzer-sponsored conference held in Fort Worth, Texas



Subconscious

These UNDERGROUND RIVERS of sorrow, constantly quaking beneath the surface of everyday life; everybody senses them at one time or another -- Donna Tartt recalling Mississippi writer Willie Morris, internet posting, 2009.

It is the deep undercurrent, I, that is the motive power of life, and it is not perceived by our usual consciousness. Its intense energy goes inward and creates sensitivity, intuition, and the highest mental abilities. The flow of this UNDERGROUND RIVER is the most difficult thing to grasp, and human civilization therefore cannot easily emerge from this dimension either. -- William Gleason, The Spiritual Foundations of Aikido (1995)

As I sit quietly painting, immersed in color and light, just beyond my consciousness violence and desperation run like an UNDERGROUND RIVER. -- Andrea Krupp, artist statement from the exhibition "Places I Know," 2009

He can let go of himself, let himself disappear into that great UNDERGROUND RIVER of the unconscious where one necessarily loses one's self-realization. -- Carl Gustav Jung and James Louis Jarrett, Nietzsche's Zarathustra, Notes of the Seminar Given in 1934-1939 (1988)

Even in the Fabulous Country there is the UNDERGROUND RIVER, which runs deep and silent beneath our consciousness, filling our waking lives with a dark meaning. -- Max Lerner, "Fabulous Country and the Underground River," Saturday Review of Literature, December 5, 1959

Jazz musicologists such as Gunther Schuller have speculated that Charlie Parker's skill at splitting the four beats of a bar into eight could be a reincarnation of subconscious impulses inherited from a mental UNDERGROUND RIVER from Africa. -- Billboard, May 21, 1977

Film lives somewhere in that UNDERGROUND RIVER of the psyche which travels from the domain of sex through the deeps of memory and the dream on out into the possible montages of death. -- Norman Mailer, The Spooky Art, Thoughts on Writing (2004)

Her personal life, her own realization of herself, was almost a subconscious existence; like an UNDERGROUND RIVER that came to the surface only here and there at intervals months apart, and then sank again to flow on under her own fields. -- Willa Cather, O Pioneers! (1913)

Tradition

The sub-consciousness is the governor of the waking brain. Tradition -- which is just man's memory of man -- flows through it like an UNDERGROUND RIVER from which rise the springs of every-day thinking. -- Henry Seidel Canby, Definitions, Essays in Contemporary Criticism (1922)

Repressed by the missionaries, the SUBTERRANEAN STREAM of tribal tradition was still operative in controlling the Indians and ready to break forth on the surface with the first release of external pressure. -- R Shonle, "The Christianizing Process among Pre-literate Peoples," Journal of Religion 4, 1924

Unappreciation

The editors have been deeply attracted to the vivid movement and activity of his poetry, which seem to flow up from an UNDERGROUND RIVER that lies beneath mere speech, as though written in some pre-verbal language of which all later languages have proved to be a mere translation. -- Peter Davison, "A Reflection on Poet W.S. Merwin," Atlantic Monthly, August 28, 1997

Union

*In the pit of the night our bodies merge,
dark clouds passing through each other in lightning,
the joining of RIVERS FAR UNDERGROUND in the stone.
I feel thick but hollow, a polyp floating on currents. -- Erica Jong, Half-Lives (1973)*

Unseen

My life is like the SUBTERRANEAN RIVER in the Peak of Derby, visible only where it crosses the celebrated cavern. -- Walter Scott, Redgauntlet (1824)

Vision

Joins the UNDERGROUND RIVER of ecstatic visionaries, what Gary Snyder calls "the Great Subculture," which connects the cave painters with Blake, Cezanne, and Mondrian. -- Peter Acheson, "Mind Mandala, The Art of James Harrison," The Brooklyn Rail, April 2006

Waste

For the first time in our history there is an overwhelming economic pinch, following the Great War and stretching around the world. We have turned our attention in this country, as never before, to the problem of waste -- waste in Governmental expenditures and processes, waste in industry. -- Frederick M. Davenport, "UNDERGROUND RIVERS of Waste," The Outlook, An Illustrated Weekly Journal of Current Life, January-April 1922

Wisdom

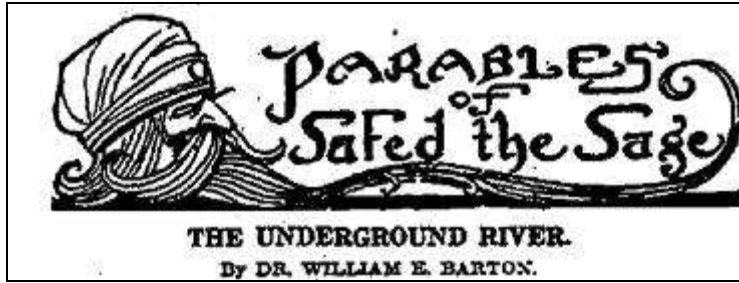
There are many wells of faith and knowledge drawing from one UNDERGROUND RIVER of Divine wisdom. The practice of honoring, learning and celebrating the wisdom collected from these wells is Deep Ecumenism. -- Creation Spirituality Communities, "Twelve Principles of Creation Spirituality," internet posting

Medieval alchemists referred to these teachings as the UNDERGROUND RIVER, which flowed through time carrying the ancient wisdom. -- Dennis William Hauck, Sorcerer's Stone, A Beginner's Guide to Alchemy (2004)

What seems most noteworthy regarding "underground rivers" is the spectrum of meanings. In the manner of Alice in Wonderland's Queen of Hearts, "A word means what I want it to mean; nothing more, nothing less."

Apparently, so can a metaphor.

For smothering bombast, a metaphoric underground river can flow like the Mississippi. William E. Barton split his writings between treatises on the life of Abraham Lincoln and weighty parables attributed to the wise Safed the Sage. We'll quote one of the latter, published in the Syracuse Journal, October 16, 1901.



I journeyed in the Land of the Big Red Apple, where they raise fruit as delicious as that with which Eve tempted Adam. For Eve knew her business, and the Apple is Some Fruit. And I saw the trees laden with fruit, and the ground beneath them growing green with Alfalfa.

And I asked, Whence cometh the water, with which these trees are nourished? For the clouds drop not their rain, neither is there melting snow upon the distant hills.

And they showed me a deep well that went down a hundred cubits. And at the bottom I saw an Engine that worked with Electric Power, and rested not day nor night.

And the engine lifted the water in a Mighty Stream so strong that when it reached the surface they had to hurl it against a wall, and divide it into smaller streams lest it tear up the very ground. And the water flowed unto Many Orchards, and watered the trees.

And the trees brought forth fruit in their season. And there are no years when the crop faileth for lack of water. For there is a Mighty River that floweth under the ground, and its flow is perpetual. And everything doth grow, whithersoever the river cometh.

And when I saw these things, I said, Behold there be many men whose lives are Sterile and Barren of good works, who might Grow and Blossom and Bear Fruit.

For there floweth under the feet of every man streams of Power; and there are in the life of men Hidden Reservoirs whereof the might Drink and water the ground abundantly.

For there is no need that any life should be barren, or that any man should fail to lift up toward heaven the evidences of a life that is useful and good and shineth upon the evil and the good. The sun is in the sky, and there are springs of water in the earth, and no man's life should be unfruitful.

Few pieces of English literature employ both King James prose and reference to Engines that work with Electric Power. As for the allusion to an underground river, who amongst us denyeth that no man's life should be unfruitful?

We'll end our catalog with a metaphoric prognostication by the New York Times, March 1915.

Now, the German and the Englishman are not in the least alike -- except in the sense that neither of them are negroes. They are, in everything good and evil, more unlike than any other two men we can take at random from the great European family. They are opposite from the roots of their history -- nay, of their geography. It is an understatement to call Britain insular. Britain is not only an island, but an island slashed by the sea till it nearly splits into three islands, and even the midlands can almost smell the salt. Germany is a powerful, beautiful, and fertile inland country, which can only find the sea by one or two twisted and narrow paths, as people find a SUBTERRANEAN LAKE. Thus the British Navy is really national because it is natural. It has cohered out of hundreds of accidental adventures of ships and shipmen before Chaucer's time and after it. But the German Navy is an artificial thing, as artificial as a constructed Alp would be in England.

"The Jew Is Not a Slacker," *North American Review*, June 1918, by Lewis P. Brown, makes metamorphic use of "fish in subterranean streams" to support a racial argument.

Chapter 30 -- The Underground River as Metaphor

Fish in subterranean streams will lose the sense of sight. Ducks out of water will lose the ability to swim. And so men unable to use physical force lose altogether the sense of fight. Their bodies wither, and if they are to live their minds must now protect them. Their minds must become wily and sharp. Their whole life must become cerebral. They must live by their wits. Now that is just what happened with the Jew.

We'll look again at these fish in Chapter 50, Wrecks of Ancient life.

a month before the Lusitania was sunk by a German U-Boat, "As people find a subterranean lake" turned out to be tragically illusionary.

A well-crafted metaphor can, in fact, be quite literal.

In *The Dark River* (2008) by John Twelve Hawks, all citizens are pawns in a game where only the bad side knows the rules (or, for that matter, that there's even a game on). The First Realm, hell, is replete with its own River Styx, which Maya, who's on the good side, must negotiate.

She knelt on the floor and lowered her head beneath the water. Lying flat, she moved toward the opening in the wall. Maya could hear her own breath, the bubbles coming out of the regulator, and a scraping sound from the edge of her pony tank and she dragged it along the limestone floor.

When she reached the opening, she extended her arm and pointed the flashlight into the darkness. Over the years, the flowing water had cut an underground tunnel through the rubble of the past. The walls of the tunnel were an aggregate of stones, Roman brick, and chunks of white marble. It looked fragile, as if everything would crumble, but the real danger was created by the present era. In order to support the collapsing foundations of the building, someone had driven steel rods deep into the ground. The tips of the rods jutted into the tunnel like the tips of rusty sword blades.

The plot is much the same as most of the genre -- lots of close calls, etc., future film rights in the writer's mind -- but the underground river flowing through past eras, endangered by the present "like the tips of rusty sword blades," evokes the imagination of the reader.

To harvest similes, we need only peruse liberal arts journals. There are too many.

Herbert Shore	Remembering Eduardo, Reflections on the Life and Legacy of Eduardo Mondlane	<u>Africa Today</u> Winter-Spring 1992	<i>The resurgence of interest in Mondlane among Mozambicans is LIKE AN UNDERGROUND RIVER rising to the surface.</i>
Walton Hamilton	English Social History, A Survey of Six Centuries, by G.M. Trevelyan	<u>American Economic Review</u> March 1944	<i>The current scene holds all the ages; the stream of causal events, unfixed by positive dates, "flows on LIKE AN UNDERGROUND RIVER"; a culture in all its confused contrariness is adamant to the keen tools of logical analysis..</i>
Jay Winter	Film and the Matrix of Memory	<u>American Historical Review</u> June 2001	<i>Bodnar takes issue with work on traumatic memory, understood AS AN UNDERGROUND RIVER of recollection, likely to erupt unbidden when triggered by some external stimulus</i>

Chapter 30 -- The Underground River as Metaphor

Judith Adler	Travel as Performed Art	<u>American Journal of Sociology</u> May 1989	<i>LIKE AN UNDERGROUND STREAM, they gather force before they are noticed, disappear only to resurface again in modified guise, or, taking hidden turns, give an appearance of novelty while drawing on enduring sources.</i>
Robert K. Martin	Hercules in Knickerbockers: Class, Gender, and Sexuality in The Landlord at Lion's Head	<u>American Literary Realism</u> April 1988	<i>That dream of a boyish, egalitarian love ran LIKE AN UNDERGROUND STREAM throughout the art of the nineteenth century, emerging in the works of Whitman or Eakins or even Twain, and bubbling up one last time in E.M. Forster.</i>
Emory Elliot	The Dove and Serpent, The Clergy in the American Revolution	<u>American Quarterly</u> Summer 1979	<i>What Jefferson and his fellow intellectuals understood about their countrymen was that religious feeling flowed LIKE AN UNDERGROUND RIVER through the colonies from New England to Georgia and might be brought to the surface with the appropriate codes and symbols.</i>
Wilma Shore	The Man in the Subway	<u>Antioch Review</u> July 1962	<i>The four tracks run between the platforms LIKE AN UNDERGROUND STREAM</i>
Bob Holman and Richard Tuttle	Richard Tuttle	<u>BOMB</u> Oct. 1992	<i>When his work was over, it went underground -- moving along in history LIKE AN UNDERGROUND RIVER</i>
Astrid Ivask	Kdjdmgdjejs un Muziba, by Maris Caklais	<u>Books Abroad</u> April 1968	<i>This commitment expresses itself in tenderness as well as irony, but most often in a streak of compassion that feeds his poetry LIKE AN UNDERGROUND STREAM.</i>
Gavin Mackenzie	Labour and Monopoly Capital, The Degradation of Work in the Twentieth Century, by Harry Braverman	<u>British Journal of Sociology</u> June 1977	<i>But beneath this apparent habituation the hostility of workers... continues AS A SUBTERRANEAN STREAM that makes its way to the surface when employment conditions permit or when capitalist drive... oversteps the bounds of physical and mental capacity.</i>
E.S. Drower	Mandaean Polemic	<u>Bulletin of the School of Oriental and African Studies</u> Jan. 1962	<i>Such a persecution would explain the violent abhorrence for orthodox Judaism which runs LIKE AN UNDERGROUND STREAM throughout Nasoraean (Mandaean) literature.</i>

Chapter 30 -- The Underground River as Metaphor

Keith Roberts	Painting in the Maceratese	<u>Burlington Magazine</u> Nov. 1971	<i>The strong religious strain that runs, LIKE A SUBTERRANEAN STREAM, beneath the desolate, burning landscape in which his imagination often so chose to linger.</i>
Gordon K. Lewis	On the Character and Achievement of Sir Winston Churchill	<u>Canadian Journal of Economics and Political Science</u> May 1957	<i>The slow and patient accumulation of knowledge which fertilizes a whole field of thought LIKE AN UNDERGROUND STREAM means relatively little to him except as it contributes to the great moment when the supreme gesture can be made.</i>
Colin S. Campbell and J. Rick Ponting	The Evolution of Casino Gambling in Alberta	<u>Canadian Public Policy</u> June 1984	<i>It runs LIKE A SUBTERRANEAN STREAM through numerous case studies of policy formulation.</i>
Herbert Shore	To Side with the Light: Conscience and Power in the Drama of Barrie Stavis	<u>Cardozo Studies in Law and Literature</u> Oct. 1990	<i>And in a scene toward the end of Lamp at Midnight, Francesco Barberini, the cardinal-nephew of the Pope, warns the latter that "Truth, LIKE AN UNDERGROUND STREAM, can be stopped up, but someday will rise to the surface."</i>
Elizabeth Ward Loughran	The Role of Catholic Culture in Bolivia	<u>Catholic Historical Review</u> April 1940	<i>LIKE AN UNDERGROUND STREAM this culture flowed unseen under the barren and scanty state-controlled education of the nineteenth century.</i>
Carol Zaleski	Whatever Happens	<u>Christian Century</u> Nov. 18, 2008	<i>Precariousness that runs below our activities LIKE AN UNDERGROUND STREAM.</i>
Brendan McNamee	The Flowering Cross: Suffering, Reality, and the Christ Motif in Francis Stuart's The Pillar of Cloud and Redemption	<u>Christianity and Literature</u> Autumn 2003	<i>The sense of another reality runs LIKE A SUBTERRANEAN STREAM through Redemption.</i>
Thos. A. Brady	Early Ionian Historians, by Lionel Pearson	<u>Classical Journal</u> Feb. 1943	<i>We should see this broad stream of non-Athenian tradition, submerged LIKE AN UNDERGROUND RIVER during the fifth and fourth centuries, come into view again as the central current in the culture of the Hellenistic age.</i>
Michael Atkinson	Sherlock Holmes and The Red-Headed League, A Symbolic Paradigm for the Teaching of Plot	<u>College Literature</u> April 1980	<i>Suddenly we have been given access to Holmes' thoughts, which have been running silently beneath the events all along, LIKE AN UNDERGROUND STREAM ready to burst up in a spring?</i>

Chapter 30 -- The Underground River as Metaphor

Robert Lipsyte	Damon Runyon	<u>Columbia Journalism Review</u> Nov. 1991	[The] story about his second wife, Patrice, which runs through the book <i>LIKE AN UNDERGROUND STREAM</i> .
Midge Decter	Homosexuality and the Schools	<u>Commentary</u> March 1993	Devoted to the theme that has run <i>LIKE AN UNDERGROUND STREAM</i> through the whole curriculum.
Grigore Nandris	The Historical Dracula, The Theme of His Legend in the Western and in the Eastern Literatures of Europe	<u>Comparative Literature Studies</u> Jan. 1966	A turbid, undefined undertone runs <i>LIKE A SUBTERRANEAN STREAM</i> through Bram Stoker's <i>Dracula</i> .
Judith Ryan	The Intertextual Maze, Rilke's <i>Der Turm</i> and His Relation to Aestheticism	<u>Comparative Literature Studies</u> Jan. 1993	Rilke's image of the tower stair <i>AS AN UNDERGROUND RIVER</i> has its origin in an important episode in Rodenbach's <i>Le Carillonneur</i>
Michael Bright	"Most Capital Enemies of the Muses: War, Art, and Kubla Khan"	<u>Comparative Literature Studies</u> Dec. 1984	The first of these ideas is that art is <i>LIKE A SUBTERRANEAN RIVER</i> , emerging spontaneously and unexpectedly at certain times and places, flowing for a spell, and then, as suddenly as it had appeared, submerging to hidden caverns.
Donald Bruce	The Age of Rembrandt at the Queen's Gallery	<u>Contemporary Review</u> Aug. 2005	The picture seeped up into Rembrandt's imagination <i>LIKE AN UNDERGROUND STREAM</i> from his assiduous reading of the gospel of St John.
Mary Doyle Springer	Upon Rereading Fiction and the Shape of Belief	<u>Critical Inquiry</u> Dec. 1979	Some of these ideas, such as the stiffly worded but unparaphrasable definitions of the types of fiction, continue to reverberate <i>LIKE AN UNDERGROUND STREAM</i> , echoed by several "generations" of Sheldon Sacks' students.
Helga Duncan	Headdie Ryots as Reformations, Marlowe's Libertine Poetics	<u>Early Modern Literary Studies</u> Sept. 2006	A "haeresis perennis, a perennial heresy" whose tradition is <i>LIKE AN UNDERGROUND RIVER</i> , which we can trace back and back, perhaps to the time of Christ.
Herb Shore	The Humanist Alternative, by Barrie Stavis	<u>Educational Theatre Journal</u> Dec. 1973	"Truth," says Barrie Stavis, "is <i>LIKE AN UNDERGROUND STREAM</i> . It can be stopped up, but some day it will rise to the surface."
Kristin Bryant	Oates's I Lock My Door Upon Myself	<u>Explicator</u> Fall 1993	The impersonal life that flowed through her <i>LIKE AN UNDERGROUND STREAM</i> .

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Brent Nelson	Cain-Leviathan Typology in Gollum and Grendel	<u>Extrapolation</u> Winter 2008	<i>He found a little cave out of which the dark stream ran [LIKE GRENDDEL'S SUBTERRANEAN RIVER]; and he wormed his way like a maggot into the heart of the hills.</i>
James S. Duncan	America, by Jean Baudrillard	<u>Geographical Review</u> Jan. 1990	<i>Yet an older European discourse runs, perhaps undetected by Baudrillard himself, LIKE A SUBTERRANEAN RIVER through this work.</i>
Francis B. Sayre	Criminal Conspiracy	<u>Harvard Law Review</u> Feb. 1922	<i>Thus, LIKE AN UNDERGROUND STREAM that ever keeps coming to the surface, the doctrine, constantly reiterated in the loose dicta of courts and the statements of text-writers, has kept appearing and reappearing ever since Hawkins' time,</i>
Declan Kiberd	Fallen Nobility, The World of John McGahern	<u>Irish University Review</u> Spring-Summer 2005	<i>The days were quiet. They did not feel particularly quiet or happy but through them ran the sense, LIKE AN UNDERGROUND RIVER, that there would come a time when these days would be looked back on as happiness, all that life could give of contentment and peace.</i>
Carlo Levi, R. and D. Catani	Structure and Style as Fundamental Expression, The Works of Carlo Levi and Their Poetic Ideology	<u>Italica</u> July 1901	<i>In the civilized world of reason and history, however, this poetic moment is, he asserts, elsewhere, like the memory of a previous existence, LIKE AN UNDERGROUND RIVER that surfaces unexpectedly.</i>
Corina Martin-Jordache	Modernity, Urban Semiology and the Beckettian Cityscape	<u>Journal of European Studies</u> Dec. 2002	<i>LIKE AN UNDERGROUND RIVER rippling the stylized surface of the written page.</i>
Jean H. Delaney	Imagining "El Ser Argentino," Cultural Nationalism and Romantic Concepts of Nationhood in Early Twentieth-Century Argentina	<u>Journal of Latin American Studies</u> Aug. 2002	<i>Rojas believed what really counted were the hidden processes shaping the nation's character and destiny, such as the blood of Argentina's indigenous peoples that he believed flowed LIKE A SUBTERRANEAN RIVER In the depths of the Argentine race.</i>
Daniel R. Schwarz	The Narrative of Paul de Man, Texts, Issues, Significance	<u>Journal of Narrative Technique</u> April 1990	<i>Truth, LIKE AN UNDERGROUND STREAM, can be stopped up, but someday will rise to the surface</i>
Winston L. King	Negation as a Religious Category	<u>Journal of Religion</u> April 1957	<i>There runs through Buddhism, LIKE AN UNDERGROUND RIVER, the positive, even luminous, religious experience.</i>

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Muhsin Mahdi	Al-Fārābī's Imperfect State	<u>Journal of the American Oriental Society</u> Oct. 1990	<i>Yet there is nothing surprising about this approach, once the simile of a text traveling LIKE AN UNDERGROUND RIVER takes possession of the researcher's mind.</i>
Edwin A. Cranston	Aspects of the Tale of Genji	<u>Journal of the Association of Teachers of Japanese</u> May 1976	<i>Two illicit liaisons and their consequences provide much of the continuity which runs LIKE A SUBTERRANEAN STREAM from the beginning of the novel to its end.</i>
Gerhard Masur	Wilhelm Dilthey and the History of Ideas	<u>Journal of the History of Ideas</u> Jan. 1952	<i>Here Dilthey shows how Hegel's ideas had grown out of poetical passion and suffering equal to that which moves Holderin's lyrics, and how this origin, LIKE A SUBTERRANEAN RIVER, still pulses in the fully developed system.</i>
Carolyn Kizer	A Month in Summer	<u>Kenyon Review</u> July 1962	<i>And love -- doesn't it endure somewhere peacefully, LIKE AN UNDERGROUND RIVER, beneath all this dust and meaningless commotion on the surface?</i>
Thomas A. Tweed	At Home on the Earth, edited by David Landis Barnhill	<u>MELUS</u> April 2000	<i>A concern to live responsibly in nature runs through this evocative anthology LIKE A SUBTERRANEAN STREAM.</i>
Lawrence Dugan	Orwell and Catholicism	<u>Modern Age</u> Summer 2006	<i>Ruminating in print over how a writer's social and political beliefs seem to move beneath what he writes LIKE AN UNDERGROUND STREAM.</i>
Michael Caesar	Linguae stile di Giacom Loeopardi Atti dell'VIII Convegnion ternazionadlei studil eopardiani	<u>Modern Language Review</u> July 1996	<i>Leopardi's stated desire to create "a modern national language," and at the same time to reach back to the old, "illustrious," language separated from the present by the chasm that the seventeenth century opened in the nation's literature, runs LIKE AN UNDERGROUND STREAM beneath many of the contributions to the 1991 conference.</i>
Ruth Morse	Medieval Biography, History as a Branch of Literature	<u>Modern Language Review</u> April 1985	<i>I wish to insist upon the importance of Suetonius, whose influence flows here AS AN UNDERGROUND STREAM, there as a clear river, and everywhere nourishes medieval attitudes to the writing of lives either directly or through the medium of his imitators.</i>
Theresa M. Krier	Worldmaking Spenser, Explorations in the Early Modern Age, edited by Patrick Cheney and Lauren Silberman	<u>Modern Philology</u> Nov. 2001	<i>A "poet's poet" whose influence moves through later writing LIKE AN UNDERGROUND RIVER, less easily mapped than Shakespeare's or Milton's</i>

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Francis Mathy	Modern Japanese Stories, by Ivan Morris	<u>Monumenta Nipponica</u> 1963	<i>How could I imagine a love LIKE A SUBTERRANEAN STREAM, with no sunshine and no one to know where the water comes from and goes.</i>
Gedaliahu Stroumsa	The Gnostic Temptation	<u>Numen</u> December 1980	<i>Such a more or less avowed inclination toward Gnostic views or attitudes can admittedly be detected AS AN UNDERGROUND STREAM throughout western intellectual history.</i>
Craig Wollner	The Portland Red Guide, Sites & Stories of Our Radical Past	<u>Oregon Historical Quarterly</u> Spring 2008	<i>A current of radical thought and action running through its past LIKE AN UNDERGROUND RIVER -- swift, seldom seen, but occasionally bubbling to the surface.</i>
Alexander Saxton	In Dubious Battle, Looking Backward	<u>Pacific Historical Review</u> May 2004	<i>Sometimes that current flowed powerfully on the surface, sometimes (as in our own era) deep-delved LIKE AN UNDERGROUND STREAM.</i>
Andrew Rolle	Exploring an Explorer, Psychohistory and John Charles Frémont	<u>Pacific Historical Review</u> May 1982	<i>Although his childhood frustrations did sink out of sight (LIKE AN UNDERGROUND STREAM below the prairies he was to traverse), later they reappeared in different forms.</i>
James Seaton	On Politics and Literature, The Case of O Pioneers	<u>Perspectives on Political Science</u> Summer 1999	<i>Her personal life, her own realization of herself, was almost a subconscious existence; LIKE AN UNDERGROUND RIVER that came to the surface only here and there, at intervals months apart, and then sank again to flow on under her own fields.</i>
Charles Hampden-Turner	Charting the Dilemmas of Hanover Insurance	<u>Planning</u> Jan. 1992	<i>The first says that people want to grow and to learn, and that this motive, LIKE AN UNDERGROUND STREAM, is of immense power and significance in human affairs.</i>
Robert C. Elliott	Swift's Tale of a Tub, An Essay in Problems of Structure	<u>PMLA</u> June 1951	<i>But beneath the level of subject matter there is a basic theme running LIKE AN UNDERGROUND STREAM which sustains a variety of forms of life above it.</i>
Fred Dallmayr	Heidegger and Freud	<u>Political Psychology</u> June 1993	<i>The child's desire-its endless quest for a lost paradise must be tunneled LIKE AN UNDERGROUND RIVER through the subterranean passageways of the symbolic order.</i>
Emilie L. Bergmann	De Officio Martiti, Introduction, Critical Edition, Translation and Notes	<u>Renaissance Quarterly</u> Winter 2007	<i>Carelessness or treachery, emerging LIKE AN UNDERGROUND RIVER springing forth from the surface of a familiar landscape.</i>

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J.B. Leishman	Donne's Poetry, Essays in Literary Analysis, by Clay Hunt	<u>Review of English Studies</u> July 1956	<i>This admirable, if ambitious, intention too often seems to disappear LIKE AN UNDERGROUND STREAM.</i>
Robert D. Finley	Dao De Jing, A Brief Illustrated Philosophy of Translation	<u>ReVision</u> Summer 2003	<i>Wonderfully potent image that runs through the Dao De Jing LIKE AN UNDERGROUND STREAM surfacing now and then, may come to our aid.</i>
Anon.	Editorial Notes	<u>School Review</u> Oct. 1906	<i>It may lead for some time an intermittent and fugitive existence, flowing LIKE A SUBTERRANEAN STREAM entirely below the surface of several issues of the Review, and reappearing perhaps at irregular intervals.</i>
George J. Dudycha	What Is Evolution?	<u>Scientific Monthly</u> Oct. 1929	<i>Again, he thinks of the process of development AS A SUBTERRANEAN STREAM which is forcing its way through rock and sand, and whose course is being determined by that which it encounters as well as by the force which it maintains.</i>
Kathleen Raine	Traditional Symbolism in "Kubla Khan"	<u>Sewanee Review</u> Oct. 1964	<i>LIKE AN UNDERGROUND RIVER that from time to time sends up springs and fountains, Platonism emerges in different centuries and different countries.</i>
Judith Robey	Gender and the Autobiographical Project in Nadezhda Mandelstam's Hope against Hope and Hope Abandoned	<u>Slavonic and East European Journal</u> Summer 1998	<i>Sarah Pratt also sees the autobiographical element in Nadezhda Mandelstam's memoir as something hidden, noting that it "flows LIKE A SUBTERRANEAN STREAM beneath the surface of the prose, nourishing the visible growth above."</i>
Kathleen Parthe	Invisible Allies, by Aleksandr Solzhenitsyn	<u>Slavonic and East European Journal</u> Spring 1998	<i>And in each case an autobiographical element flows LIKE A SUBTERRANEAN STREAM beneath the surface of the prose.</i>
Walter Comins-Richmond	Autobiography Studies, edited by Marina Balina	<u>Slavonic and East European Journal</u> April 1998	<i>And in each case an autobiographical element flows LIKE A SUBTERRANEAN STREAM beneath the surface of the prose.</i>
Želimir B. Juričić	Andrić's Visions of Women in Ex Ponto	<u>Slavonic and East European Journal</u> Summer 1979	<i>Man has no control over forces which love sets in motion deep within him, "the forces which keep rushing to the surface LIKE AN UNDERGROUND STREAM, unbidden and unsuspected, welling up at different points and in different strengths."</i>

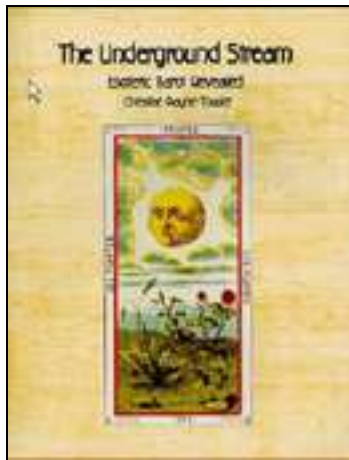
Chapter 30 -- The Underground River as Metaphor

Arnold McMillin	Dostoyevskay and the Process of Literary Creation by Jacques Catteau	<u>Slavonic and East European Review</u> Oct. 1990	<i>The "migrant images" of which the most persistent is the "Life of a Great Sinner," which runs LIKE AN UNDERGROUND STREAM beneath all the mature novels, and which has almost certainly never before been traced with such clarity and insight.</i>
Howard M. Bahr and Kathleen S. Bahr	Families and Self-Sacrifice, Alternative Models and Meanings for Family Theory	<u>Social Forces</u> June 2001	<i>The wisdom of ordinary people and "a legacy of personal virtue that runs LIKE AN UNDERGROUND STREAM beneath the great violent expanse of world history."</i>
John R. Reed	Inherited Characteristics, Romantic to Victorian Will	<u>Studies in Romanticism</u> July 1978	<i>Man's nature is fragmented and his "genuine self" buried, following "his being's law" in secret LIKE A SUBTERRANEAN RIVER, while the superficial selves might "seem to be /Eddying at large in blind uncertainty, /Though driving on with it eternally"</i>
Geoffrey Sanborn	Melville's Anatomies	<u>Studies in the Novel</u> Winter 1999	<i>To locate those politics beneath the surface of the text, as though all such meanings run LIKE AN UNDERGROUND RIVER in remote allegorical depths.</i>
Alexander Laszlo, Kathia Castro Laszlo and Halim Dunsky	Redefining Success, Designing Systemic Sustainable Strategies	<u>Systems Research and Behavioral Science</u> Jan. 2010	<i>The design journey is best conceived as an ongoing conversation, LIKE AN UNDERGROUND RIVER along which wellsprings of opportunity emerge.</i>
Sabrina Artel	At Breakneck Speed, Performing with Dar A Luz	<u>TDR</u> Winter 1995	<i>This work with Dar A Luz is LIKE AN UNDERGROUND STREAM rushing into my body, crossing borders and entering.</i>
Eugene M. Longen	Dickey's Deliverance, Sex and the Great Outdoors	<u>Southern Literary Journal</u> Spring 1977	<i>When Ed later reflects on all that has happened, he recognizes that dark mysterious part of himself, LIKE AN UNDERGROUND RIVER of great depth and power.</i>
Greil Marcus	The Lost Waltz	<u>Threepenny Review</u> Oct. 2004.	<i>Far beneath the quick and wary steps in Robertson's solo is something LIKE AN UNDERGROUND STREAM -- or whatever image Garth Hudson's organ calls up</i>
Rudolph Ballentine	Radical Healing and the Rebirth of Science	<u>Townsend Letter for Doctors and Patients</u> Feb. 2001	<i>The enduring existence of this consciousness as it flows LIKE A SUBTERRANEAN RIVER through our inner lives.</i>

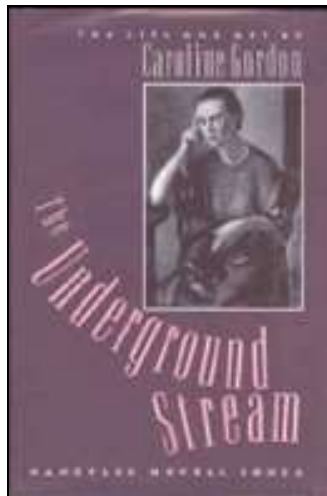
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Angela Yiu	From Utopia to Empire, Atarashikimura and a Personal View of the Greater East Asia War (1942)	<u>Utopian Studies</u> Spring 2008	"A new Asia (<i>shin no Ajia</i>)" and "peace" (<i>heiwa</i>) flow abundantly and steadily LIKE A SUBTERRANEAN RIVER that connects and nourishes the conception of Atarashikimura.
Doctress Neutopia	Wise Womyn Ways, Gaia Rhythms	<u>Utopian Studies</u> Spring 1998	LIKE AN UNDERGROUND STREAM, the wisdom traditions of womyn underlie all cultural traditions.
Wendell S. Johnson	Arnold's Main Stream	<u>Victorian Poetry</u> July 1967	Here man is reconciled with himself, either the Buried Self tending LIKE AN UNDERGROUND RIVER to flow into a tranquil sea or the Best Self of the regenerate, the child of a Second Birth.
Kirsti Simonsuuri	Muistinavaruus, Kirjoituksia, Puheenvuoroja Vuosilta 1959-1999	<u>World Literature Today</u> Winter 2001	LIKE A SUBTERRANEAN STREAM gradually emerging, it makes obvious that her poetic and aphoristic vision.
Henry W. Ehrmann	Pressures in a Divided France	<u>World Politics</u> Oct. 1958	For Fauvet, the Bonapartist and nationalist tradition, LIKE AN UNDERGROUND RIVER, disappears in Gaullism and reappears in Poujadism.
Jean-Christophe Bailly and Benjamin Elwood	A River With No Novel	<u>Yale French Studies</u> 1992	On the one hand, this flow is LIKE AN UNDERGROUND RIVER, whose resurgences guide the observable text by replenishing it.
Marcello Sorce Keller	Italian Treasury, Puglia, The Salento	<u>Yearbook for Traditional Music</u> Jan. 2003	A large body of traditional music (somewhat LIKE AN UNDERGROUND STREAM), which, unnoticed by music historians, had continued to exist in almost complete separation from the flourishing art-music tradition of the Peninsula.

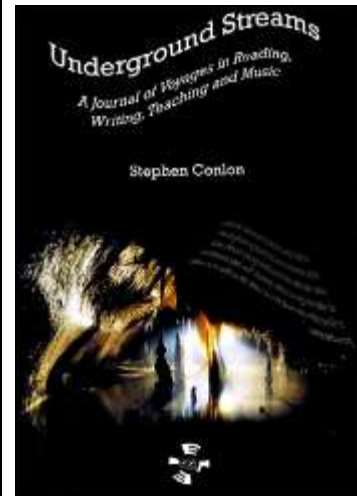
As the above table makes us appreciate the visual, here are covers from a few metaphorically-titled books.



Christine Payne-Towler, The Underground Stream, Esoteric Tarot Revealed (1999)



Nancy Lee N. Jonza, The Underground Stream, The Life and Art of Caroline Gordon (1995)



Stephen Conlon, Underground Streams, A Journal of Voyages in Reading, Writing, Teaching and Music (2003)



Jean Tardieu, The River Underground, Selected Poems & Prose (1991)



Peggy Shumaker, Underground Rivers (2002)



James Neal, Underground Rivers, Poems (2008)

		
<p>Shaun T. Griffin, <u>The River Underground, An Anthology of Nevada Fiction</u> (2001)</p>	<p>John R. Mabry, <u>God as a Great Underground River</u> (2006)</p>	<p>Inés Arredondo, <u>Underground River and Other Stories</u> (1996)</p>
		
<p>Albert Maltz (one of the blacklisted "Hollywood 10"), <u>The Underground Stream</u> (1940), in the library of Ernest Hemmingway</p>	<p>Velda Johnston, <u>The Underground Stream</u> (1991)</p>	<p>Jeanne Williams, <u>Underground River, Beneath the Burning Ground</u> (2004)</p>

And lest we be exclusively Anglocentric, here we have two Polish works, Underground River, Underground Birds about the immigrant experience in New York City and Underground River by a veteran of Solidarity. The third work, a novel about the Gulag, is in Azerbaijani.



Rivers of Darkness

While a "river of darkness" needn't be underground, it stands to reason that every underground river is in darkness, save those, of course, flowing in a subterranean world having its own sun. We'll cite a few.

Rivers of darkness in non-fictional literature.

Damming the River of Darkness: The International Campaign against River Blindness (1975), United Nations Development Program and the World Bank.

Rivers of Darkness, Visions of Light: From Extortion to Salvation (2010) by Larry Whited, a life that both precedes and follows the decision to commit a crime.

River of Darkness: Francisco Orellana's Legendary Voyage of Death and Discovery Down the Amazon (2011) by Buddy Levy, the story of the 16th-century explorer.

Rivers of darkness in fiction.

River of Darkness, or, Under Africa (1890) by William Murray Graydon, from which we quoted in Chapter 21, More Boys Club Serials.

River of Darkness (1991) by James Grady. CIA agent Jud Stuart must defend himself from his own country because those in power think he knows too much.

River of Darkness (1999) by Rennie Airth. Inspector John Madden investigates a homicide in the post-World War I British countryside. A veteran himself, Madden recognizes the work of a soldier.

Ruso and the River of Darkness (2011) by Ruth Downie. Gaius Petreius Ruso returns to Britannia to hunt down a missing tax collector Julius Asper and the missing revenues.

"Rivers of darkness" as reference to psychological depression is a well-entrenched poetic metaphor and poets can be unduly familiar with depression.

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"Far Down the River of Darkness" (1918)

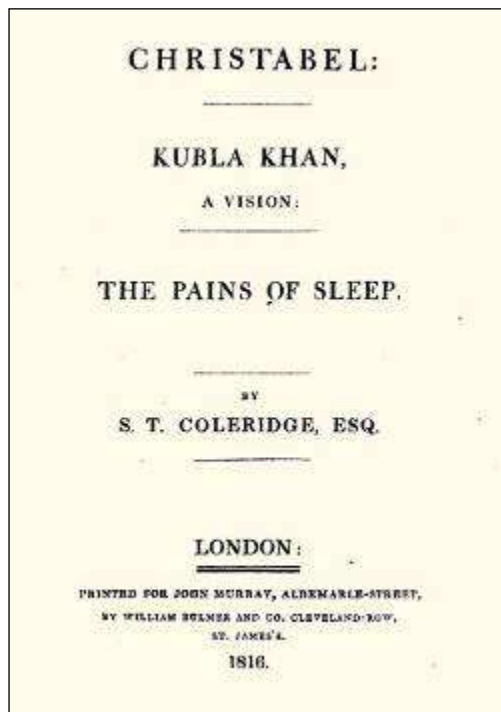
*In darkness, far down the river of darkness,
when darkness doesn't shimmer
like a mirror pierced by life,
when there is no head, or body, or mouth.*

Perusal of contemporary poetry reveals such metaphoric rivers of darkness flooding the literary landscape.

CHAPTER 31 DOWN TO A SUNLESS SEA

Poet Samuel Coleridge (1772-1834), a founder of the English Romantic Movement, is known for both "The Rime of the Ancient Mariner" and his 1816 "Kubla Khan, or A Vision in a Dream," the first stanzas being,

*In Xanadu did Kubla Khan
A stately pleasure-dome decree:
Where Alph, the sacred river, ran
Through caverns measureless to man
Down to a sunless sea.
And from this chasm, with ceaseless turmoil
seething,
As if this earth in fast thick pants were breathing,
A mighty fountain momentarily was forced
Amid whose swift half-intermitted burst
Huge fragments vaulted like rebounding hail,
Or chaffy grain beneath the thresher's flail
And 'mid these dancing rocks at once and ever
It flung up momentarily the sacred river.
Five miles meandering with a mazy motion
Through wood and dale the sacred river ran,
Then reached the caverns measureless to man,
And sank in tumult to a lifeless ocean*



As with several authors of subterranean fiction -- Poe, Carroll and Doyle, Chapter 17, come to mind -- drug-induced hallucinations assisted Coleridge's "vision in a dream." But perhaps it wasn't entirely a dream. Coleridge's reading suggests sources for his acquaintance with underground rivers.

Scientific Influences

From his student days at Cambridge, Coleridge was acquainted with the emerging science, as James McKusick documents in "Kubla Khan' and the Theory of the Earth," Samuel Taylor Coleridge and the Sciences of Life (2001), Nicholas Roe, Ed. From Roe's introduction,

James McKusick in "Kubla Khan' and the Theory of the Earth" examines the development of Coleridge's lyric poetry within the historical and intellectual contexts of geological theory... At the center of McKusick's chapter are John Whitehurst and James Hutton, advocates of rival geologies. Whitehurst was a Neptunian, holding that water had shaped the earth, while Hutton as a Plutonist believed that fire was the formative agent... McKusick shows how "Kubla Khan" incorporates the most up-to-date elements of geoscience. The poem reconciles the Neptunian and Plutonic theories in stanzas which might be seen as "a series of geological fragments" -- fragments of the epic on "universal science" in which "cosmology, geology, biology, hydrography, and agriculture" are interrelated.

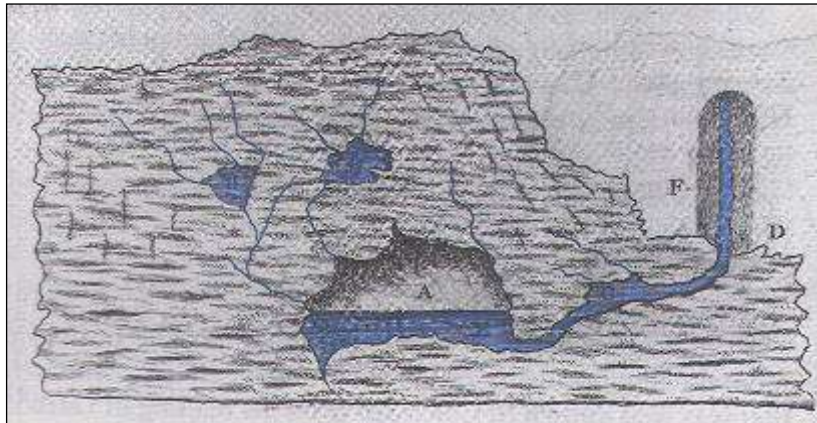
Let us look at several volumes with which Coleridge would likely have been familiar.

In a note to The Botanic Garden (1791, the frontispiece to the right), English naturalist Erasmus Darwin describes a "romantic common" where two rivers disappear into the earth:

Near the village of Wetton, a mile or two above Dove-Dale, near Ashburn, in Derbyshire, there is a spacious cavern about the middle of the ascent of the mountain, which still retains the name of Thor's House; below it is an extensive and romantic common, where the rivers Hamps and Manifold sink into the earth, and rise again in Ham gardens, the seat of John Port, Esq. about three miles below.



The figure "Caverns and Mighty Fountains" from John Whitehurst's An Inquiry into the Original State and Formation of the Earth; Deduced from Facts and the Laws of Nature (1786) is to the right. Whitehurst describes the same subterranean river in terms foreshadowing images in "Kubla Khan."



The mountains of Derbyshire, and the moorlands of Staffordshire appear to be so many heaps of ruins... They are broken, dislocated, and thrown into every possible direction, and their interior parts are no less rude and romantic; for they universally abound with subterraneous caverns; and, in short, with every possible mark of violence. The caverns near Buxton and Castleton, and the subterraneous rivers, the Manifold and the Hamps, are familiar instances of the present state and condition of those parts of the globe. The former river, after a passage of four or five miles from the north, and the latter about the same distance from the west both emerge at the foot of the same cliff, in the garden of John Port, Esq. of Ham, about the distance of twenty yards from each other.

Coleridge would have likely have toured the emergence during a visit to Derby in August 1796.

We can, in fact, tour the site today. During the dry months, the River Hamps flows southward from the moorlands of Derbyshire until it disappears in limestone terrain, reappearing six kilometers downstream at Ilam Park. The River Manifold disappears in the west and upwells at nearly the same location.



The Manifold upwelling

Anthony Harding's review of McKusick's essay the Coleridge Bulletin (21), Spring 2003, however, finds such scientific basis of Coleridge to be "rather uneven."

The attempt to read "Kubla Khan" as a compendium of geological speculation is, well, speculative. It is certainly true that Coleridge hoped to write "an epic poem that would integrate the lore of 'universal science' into a coherent narrative form," but to conclude that in "Kubla Khan," Coleridge was starting that poem -- "a scientific epic in the genre of Darwin's Botanic Garden" -- is to go beyond what the evidence will support. To take images and terms that were also used by geologists -- river, sea, cavern, hill, chasm, and so on -- as proof that this is a "scientific epic" is persuasive only so long as we ignore evidence that Coleridge was drawing upon a huge range of other sources: the Bible, travel literature [including an account of Florida's sinkholes [Chapter 41], archaeology, mythography, ancient history, ethnography, and so on.

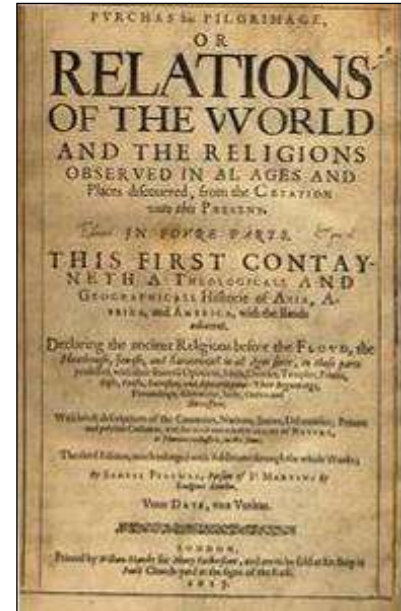
McKusick seems determined to hunt for any connection, no matter how flimsy, that might link the poem with geology: so, he makes much of the term "fragment" (used in the 1816 running title), observing pedantically that this term "had a distinct geological sense," and he connects "chasm" with the story of the Fall via John Whitehurst, a geologist cited in the notes to The Botanic Garden, since Whitehurst "asserted that the... Edenic state of human society was replaced by a fallen state" resulting from a flood.

Coleridge was versed, for example, in the divine framework of Thomas Burnet's Telluris Theoria Sacra (1694, Chapter 13, Hydrotheology/Theohydrology). While Coleridge may have intended a poetic nod to both 19th century Neptunian and Plutonian geology, his stream of thought remains significantly metaphysical.

Coleridge himself attributes a portion of "Kubla Khan" to Purchas, his Pilgrimage; or, Relations of the World and the Religions observed in all Ages (1613) in which Samuel Purchas recalled the 13th century Mongolian ruler Kublai, whose palatial estate in Shangdu (Xanadu) was legendary in splendor.

*In Xanadu did Cublai Can build a stately Palace,
encompassing sixteen miles of plain ground with a wall,
wherein are fertile Meadows, pleasant Springs, delightful
Streams, and all sorts of beasts of chase and game.*

Xanadu was much later to become the name of Charles Foster Kane's fictional estate in Orson Wells' "Citizen Kane" (1940). As would have been the case for the Chinese Xanadu, the film's surrealistic grounds "on the deserts of the Gulf coast" could likely sit upon karst terrain (Chapter 40, Karstology), and thus above water-filled caverns.



Unlike Purchas before him, however, or Wells after, Coleridge follows the river into the earth.

Into the Earth

Coleridge describes the Alph in four geological manners.

As "momently" (i.e. in an instant) flinging itself upward, tossing rocks about, violent.
As meandering in "mazy motion" through Xanadu's woods and dales,
As descending into "caverns measureless to man," and of special interest to us,
As tributary to a "sunless sea."

As each process has geologic possibility, we're tempted to sketch a hydrologic cross-section, the subterranean portion downward from the cavern, but such a figure produces a fluvial morphology in disaccord with that of any waterway we know. Within a brief five-miles, there is both the fearful upwelling and the idyllic riparian countryside. Streamflow incised in deep canyons doesn't meander; it tumbles. How can a sea be sunless?

Let us begin with the river's name.

"Alph, the sacred river" likely alludes to the Arcadian River Alpheus of Chapter 29, Et In Arcadia Ego.

"Alph" could be the Greek letter, alpha, the original place.

According to Maud Bodkin's Archetype Patterns of Poetry (1963), "Alph" signifies the modern need for "something enormous, ultimate, to express what strove unexpressed within experience."

The Alph could be life itself, "meandering with a mazy motion" being its twists and turns. Such interpretation, in fact, subsumes the other three.

Literary scholars, of course, dissect the entire poem word by word, but we will confine our consideration to the line pertaining to subterranean waters,

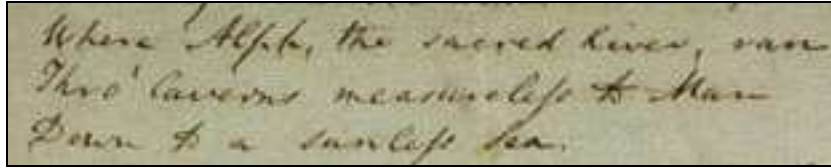
Down to a sunless sea

Seemingly so simple. Only five words, six syllables.

The prepositional "Down to" drop us away from the historic character Kubla Kahn and into the unconscious. "Down to" implies motion, unlike "upon" or "beneath," for example, which reflect

location. Before even arriving at the "sunless," we sense a destination more ominous than one approached by ascent.

Those who quote the third word as "the," rather than "a" -- not an uncommon misrecollection -- are mistaken. We have Coleridge's draft.



The article "a" is indefinite. Were it "the," the sunless sea would be a known place, unique in space. This river's destination, however, might be one of many possibilities.

"Sunless" and "sea" alliterate, but that's common in poetry. The adjective flows into the noun, but the same can be said for many such pairs. The power of the word pair lies not in the construction, but in the image of an ocean devoid of sunlight, a vast, tumultuous elemental darkness devoid of life.

If the Alph represents life, sinking into the sunless sea must be death itself.

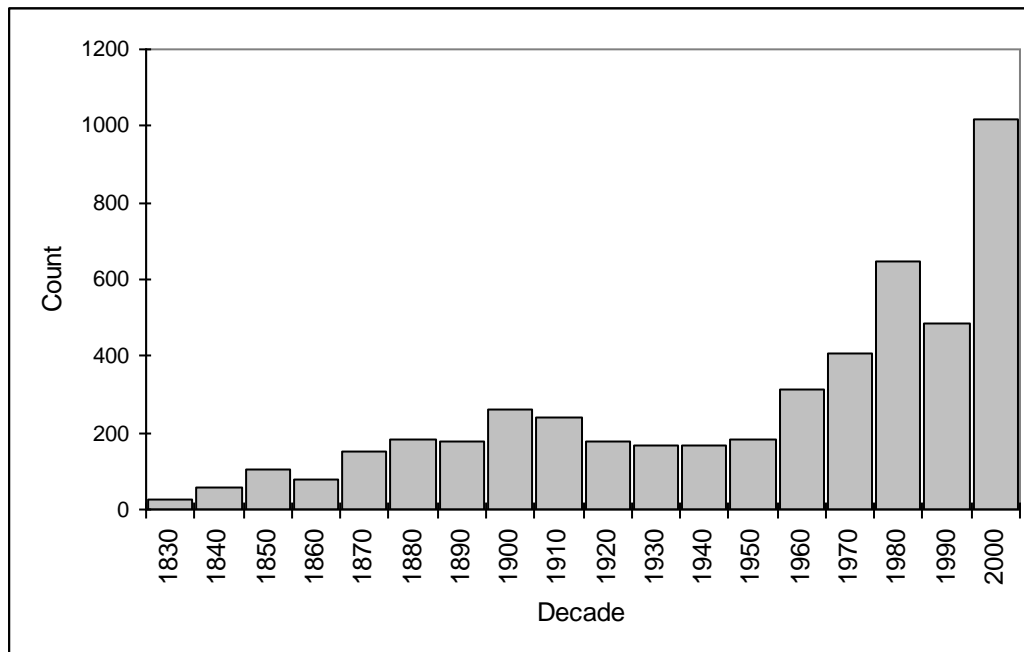
But yet the work's not morbid. While "sunless" is foreboding, a poetic "sea" holds allure. Together, there's tension.

Down to a sunless sea

Five words drawing us into the seascape within.

The Sunless Lea Legacy

"Kubla Kahn" is included in some 2000 anthologies of English poetry and the phrase "Down to a sunless sea" is quoted in another 3000 volumes. "Sunless sea" alone is incorporated into several thousand more, but we're holding ourselves to the full phrase. The bar graph shows book publications per decade with "Down to a sunless sea" in the text.



Unlike the Chapter 20 plot of lost-world tales, "Down to the sunless sea" plot does not peak at midpoint. The phrase is cited now, more than ever before.

We'll quote from a few publications, capitalizing DOWN TO A SUNLESS SEA for emphasis, starting with The Journals of Mary Shelley: 1814-1844.

My imagination finds other vents -- my Kubla Khan

*My stately pleasure house
Through which a mighty river ran
DOWN TO A SUNLESS SEA*

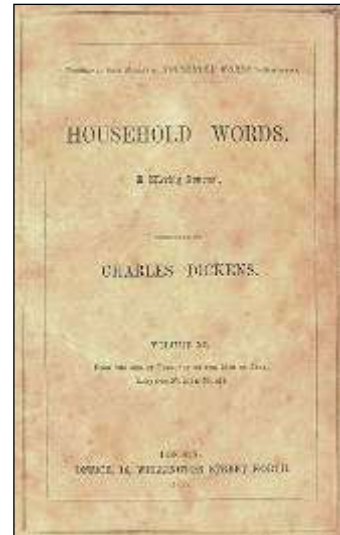
DOWN TO A SUNLESS SEA of oblivion which drinks any aspiration, my butterfly winged dreams which flit about my mind, illumine its recesses -- and finish an ephemeral existence, to give place to another generation.

George A. Sala's A Journey Due North: Being Notes of a Residence in Russia (1858) may be a bit obtuse, but Charles Dickens thought it suitable to preview in his Household Words of January 3, 1857.

That beefsteak and trimmings with which on board the little pyroscaphe that brought me to this Vampire Venice -- this Arabian Nightmare -- this the reality of Coleridge's distempered, opium-begotten Xanadu; (for here of a surety lives, or lived,

*The Kubla Khan who decreed the stately pleasure dome,
And possessed the caverns measureless to man,
Through which ran that river
DOWN TO A SUNLESS SEA*

-- that beefsteak and trimmings, ruble-costing, with which coming to Xanadu -- I mean St. Petersburg -- I was incautious enough to feed the wide-mouthed Petersen, did not turn out wholly unproductive to me.

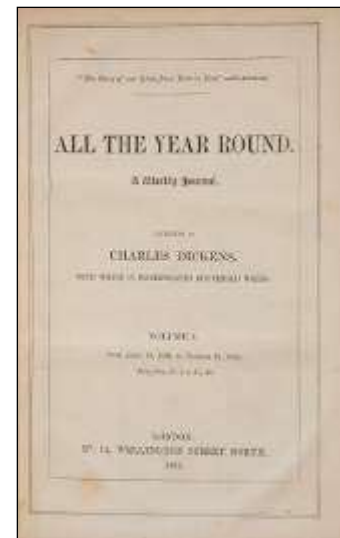


Dickens turned again to Coleridge's line in "Up and Down the Great Sun Garden," All the Year Round, August 8, 1862.

The travelers' first object was attained. The mountain had told its story. The river was now to be questioned. This river Limbang is the Nile of Borneo, whose sources in the far interior are yet undiscovered. The natives talked of it as a second Alph,

*The sacred stream which ran
Through caverns measureless by man,
DOWN TO A SUNLESS SEA.*

It rushed, they declared, through miles of natural tunnel; beyond, it meandered through a seven days' journey of smooth land, peopled by tame goats without masters; but no one had been among these goats, nor visited the watery caverns.



Henry M. Alden's "Thomas De Quincey," published in the September 1863 Atlantic Monthly, waxes in metaphor.

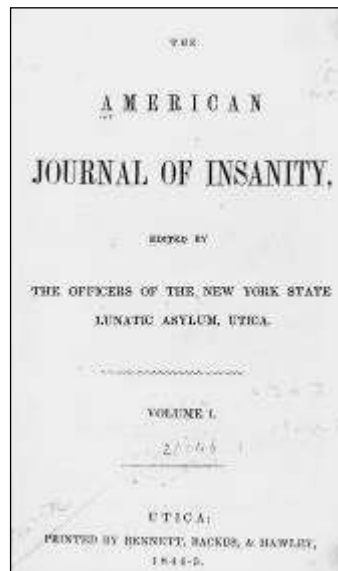
No stream can rise above the level of its source. No life, which lacks a prominent interest as to its beginnings, can ever, in its entire course, develop any distinguishing features of interest. This is true of any life; but it is true of De Quincey's above all others on record, that, through all its successive arches, ascending and descending, it repeats the original arch of childhood.

Repeats -- but with what marvelous transformations! For hardly is its earliest section passed, when, for all its future course, it is masked by a mighty trouble. No longer does it flow along its natural path, and beneath the open sky, but, like the sacred Alpheus, runs

*Through caverns measureless to man,
DOWN TO A SUNLESS SEA.*

American Journal of Insanity (21), 1865, offers this insight on certain institutionalized patients.

Life to them had ceased to flow along its accustomed channel, in the light of day beneath the open sky, but ran "through caverns measureless to man, DOWN TO A SUNLESS SEA."



For understandable reason, the journal was later retitled the American Journal of Psychiatry.

"The Romance of an Indian Empress," Melbourne Review, January 1877, describes the Taj Mahal.

It exceeds in its costly grandeur and consummate perfection of architecture the wondrous structure which Artemisia erected at Halicamassus over the remains of her beloved consort, and in its fairy-like loveliness that stately pleasure-dome which Kubla Khan decreed in Xanadu,

*Where Alf, the sacred river, ran
Through caverns fathomless by man
DOWN TO A SUNLESS SEA.*

In Chapter 56, The Tourist Trade Worldwide, we'll visit the Jenolan Caves in New South Wales. From The Jenolan Caves: An Excursion in Australian Wonderland (1889) by Sam Cooke,

And as you glance once more along the limestone mountain ridge you wonder what hidden beauties yet remain to be revealed. To the north from the Devil's Coach-house numerous caves are known to exist, and it is probable that some of them may present features more remarkable than any yet discovered. The creek, which runs quietly along, has on its way some oblique outlets before it sinks into the earth, and recalls, with its surroundings, the pleasure-place of Kubla Khan,

*Where Alf the sacred river ran
Through caverns measureless to man
DOWN TO A SUNLESS SEA.*

"The Golden Fleece," by Julian Hawthorne was an adventure serialized in the Sacramento Record-Union. From September 17, 1892,

"I should say that her Creator had already done that!" said Meschines. "By the way I know a young fellow -- if he were only here -- who is just the man you want, and can be trusted. He is a civil engineer -- Harvey Freeman. The Lord only knows in what part of the world he is at this speaking. He has made a special study of these subterranean matters."

"Don't you remember, papa, Coleridge's poem of Kubla Khan?"

Where Alph, the sacred river ran
Though caverns measureless to man
DOWN TO A SUNLESS SEA.

"Our sacred river, when we find it, shall be named Miriam."

"It ought to be Kainaiakan," she rejoined, "for, if anybody finds it, it will belie."

The review of Julety, A Story of old Kentucky (1901) by Lucy Cleaver McElroy, published in Publications of the Southern History Association, September 1901,

Here are scenes and situations which only a born story-teller-apt in word-craft by instinct and by art could vividly and sympathetically reproduce; and, as we follow these fascinating pages, reflecting, as in a mirror, the salient characteristics of the strange environment, our memory reverts to an old-time summer outing with congenial friends in that quaint, provincial region of mystery and charm a land of soft sunshine, of broad and fertile ranges; of noble woodlands; of soft-flowing waters; of dewy meadows; of fields of maize and gardens of fruits and (lowers; of great silent streams mirroring the slow raft or the swift canoe; of strange relics of vanished races known only by their entombed remains; of mighty caverns patiently wrought by crude cosmical agencies into chambers and corridors of sculpturesque finish and grace; of mysterious rivers, untouched by human traffic, flowing ceaselessly in subterranean silence,

*Like Alph, the sacred river,
DOWN TO A SUNLESS SEA.*

As the "Testing Flow of Underground River," St. Louis Republic, December 26, 1902, concerns groundwater, we could include it in Chapter 49, Finding the Underground Rivers, but we'll cite it here for its poetic reference.

The Arkansas River in Western Kansas flows for a distance underground, and the corps has used an electrical device to find the velocity of the subterranean current. A row of wells is driven across the channel at regular intervals. An electrolyte is sunk in one of the upper wells and allowed to dissolve. As the solution passes down to the other wells a needle of an electrical instrument is deflected. Thus it is shown that the Arkansas flows two and one-half feet a day underground. The time may come when the Government survey will investigate that dream river of Coleridge, who sang,

*In Xanadu did Kubla Khan
A stately pleasure dome decree,
Where Alph, the sacred river, ran
Through caverns measureless to man
DOWN TO A SUNLESS SEA.*

We delight in poet Walt Mason's closing lines of "The Funeral" (1911).

*So when I up and trundle DOWN TO A SUNLESS SEA,
Let no one blow a bundle to pay for planting me.
I'll slumber just as sweetly in some old basswood box,
As though trussed up completely with silver screws and locks.*

In Chapter 56 we'll visit the Lebanese Jeita Caves described by Lewis Gaston Leary in Syria, The Land of Lebanon (1913).

With the aid of portable rafts, adventurous explorers have penetrated this wonderful cavern for nearly a mile; but at that distance there was no diminution of the volume of the stream or any other indication that they had come at all near to the source of the mysterious underground river. The light of their torches but dimly revealed the roaring torrent ceaselessly speeding out from dark, distant channels like those

Where Alph, the sacred river, ran
Through caverns measureless to man
DOWN TO A SUNLESS SEA.

Robert Bennet's Out of the Depths: A Romance of Reclamation (1913) provides a platform from which to promote engineering.

"It's sure some canon," admitted her husband. "That French artist Doré ought to have seen it."

"If only we had a copy of Dante's *Inferno* to read here on the brink!" she whispered.

"It always reminds me of Coleridge's poem," murmured Isobel, and she quoted in an awed whisper:

Where Alph, the sacred river, ran
Through caverns measureless to man,
DOWN TO A SUNLESS SEA.

"Fortunately for us, this is a canyon, not a string of measureless caverns," said Blake. "It can be measured, one way or another. If I had a transit, I could calculate the depth at any point where the water shows -- triangulate with a vertical angle. But it would cause a long delay to send on for a transit. We shall first try to chain down at that gulch break."



Ellen Sherman's "Writ in Water," North American Review, July 1914, ponders how little we know regarding the earth's contents.

How many of these mystic underground streams there are that run "through caverns measureless to man" we know as little as we know the number of gold and silver veins yet to be discovered.

"Adventures in a Cavern," Outing, October 1914-March 1915, by Horace Kephart, reports "What Two Men Found in One of Earth's Secret Places Among the Ozark Hills."

But there is a fascination in solving the mystery of what has lain for untold ages beyond human ken; in venturing, as we were about to venture, where no foot of man has ever trod. What was there within these forbidding arches? Vast chambers, perhaps hung with weird pendants, walls glittering with crystals, forests of stalagmites, columns of alabaster or of "onyx." There might be relics of prehistoric races buried in stone since some past geological epoch, petrifications of plants and animals that died ages before man was born, living species unknown to the upper world. There might be dripping springs trickling through crannies in the rock, rills rumbling from ledge to ledge in fairy waterfalls and gathering far below in some subterranean stream that ran

*Through caverns measureless to man
DOWN TO A SUNLESS SEA.*

"Prehistoric Remains (Forts and Dolmens) in Burren and Its South Western Border, Co. Clare," Journal of the Royal Society of Antiquaries of Ireland 5:1, March 31, 1915, is a droll geographic piece by Thomas Westropp, but such can be spiced up by poetic reference.

There the fissured grey crag, level as a pavement, shelters in its clefts the hartstongue and maidenhair ferns. There the underground stream runs "DOWN TO A SUNLESS SEA."

"The Humanizing of Knowledge," Science, July 28, 1922, undertakes "to introduce the scientist to himself," a formidable task, indeed. Quotations within the passage below, other than that from Kubla Kahn, are from Alfred Tennyson.

Among the wonderers and pointers-out the poet, who "fancy light from Fancy caught," whose "thought leapt out to wed with thought," has always been surest of a large audience. For

songs, heroic tales and rhapsodies can be attuned to the heart's desire—they are magic carpets on which we can voyage whither we will. Their truth is the deepest truth, that of vague human longings. When we are told that

*Kubla Khan a stately pleasure dome decreed,
Where Alph the sacred river ran,
Through caverns measureless to man,
DOWN TO A SUNLESS SEA,*

we do not feel obliged to consult a list of Tartar rulers, or locate the sources of the river Alph, or consider the geological formation of limestone caverns. Few will be disturbed by the question of what particular species of wood louse secreted the honey dew, or the probable number of bacteria occurring per cubic centimeter in fresh milk of Paradise.

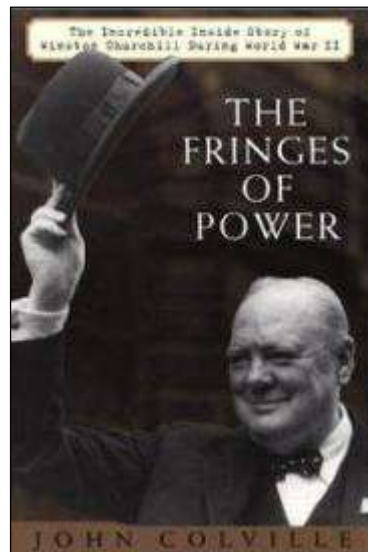
Sir John Colville was a British civil servant and diarist. From his January 1944 entry, The Fringes of Power: The Incredible Inside Story of Winston Churchill during World War II (2002),

We had a picnic in glorious country at a place called Pont Naturel. There was a deep gorge through which a stream ran, falling from rock to rock into limpid blue pools. Lady Diana [Cooper] gave one look at it and said Alph! The P.M. [Churchill] insisted on being carried down and scrambling over the rocks.

"Alph" is footnoted,

*In Xanadu did Kubla Khan
A stately pleasure dome decree:
Where Alph, the sacred river, ran
Through caverns measureless to man
DOWN TO A SUNLESS SEA.*

Coleridge



Lady Diana's exclamation, not otherwise explained, reflects her literary upbringing. The footnote evidences Sir John's concern that less-gentle readers might not recognize the source.

Richard Jefferies and his Countryside (1946) by Reginald Arkell,

*Into it flowed the River Nile, crawling with alligators, and out of it the Mississippi ran,
Through pastures measureless to man,
DOWN TO A SUNLESS SEA.*

Standing, like stout Cortez, upon some lonely peak, the islands of New Formosa and Serendib were just visible through the fret and spume of the New Sea. Strange birds and stranger beasts stirred the rushes that ran down to the water's edge.

Kathleen Raine's "The Sea of Time and Space, Journal of the Warburg and Courtauld Institutes 20:3/4, July-December 1957,

The cave is, in fact, the place of generation, where the mystery of the descent of souls takes place in its womb-like depths, where perpetually flowing waters are the sacred source of generated existence. The river of life rises in the most secret depths of the world-cave, and like

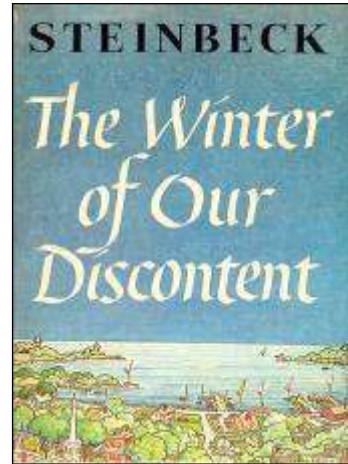
*Alph, the sacred river, runs
Through caverns measureless to man,
DOWN TO A SUNLESS SEA"*

Footnoted,

There can be no doubt that Coleridge, familiar as he was with the Neoplatonists, had this symbolism in mind when he wrote of his river, descending from a Paradisical world, through caverns, to a "sunless sea" -- sunless because this is a world of spiritual darkness.

The Winter of Our Discontent (1961) by John Steinbeck,

*I just know when a man is looking for me, or some other Margie.
Watch the stairs, they're narrow. Don't hit your head at the top.
Now, here's the switch -- you see? A pleasure dome, soft lights,
smell of musk -- DOWN TO A SUNLESS SEA.*



Juxtaposition (1963) by Piers Anthony is fantasy fiction.

He went on DOWN TO A SUNLESS SEA and huddled in the diminishing current as the last of the water drained out the bottom. Maybe the enchantress, whoever she was, really did mean to help him, since she knew he would die if she didn't.

Kathleen Raine's "Blake's Debt to Antiquity," Sewanee Review 71:3, Summer 1963, is literary criticism.

*From the secret depths, water perpetually flows, and, like
Alph, the sacred river, runs
Through caverns measureless to man,
DOWN TO A SUNLESS SEA of matter:
sunless because remote from spiritual light and, as Blake shows it, storm-tossed.*

Colleen McCullough's A Creed for the Third Millennium (1986) may be forgotten in a much shorter period, but there's still the nod to Coleridge,

A political appointee, he came with the a new President, was never a career public servant himself, and went through a predictable sequence from new broom to worn-out stubble -- if he lasted in the job. Well, Harold Magnus had lasted, and lasted for the usual reason; he possessed the good sense to let his career people get on with their jobs, and on the whole was secure enough within himself not to be causelessly obstructive.

"DOWN TO A SUNLESS SEA," she said into the speaker buried in the outside wall.

The door clicked and swung open. Crap. Useless shit. No one in the world could have duplicated her voice well enough to fool the electronics analyzing it, so why have a changing password?

To Blight with Plague: Studies in a Literary Theme (1993) by Barbara Leavy,

But if Poe's works create fable in the mind, as Dayan convincingly argues, then the most important lines in Coleridge's poems are not those that Poe draws on for his own landscapes of the mind, but rather the destination of Coleridge's waterway:

*The sacred river, ran
Through caverns measureless to man
DOWN TO A SUNLESS SEA.*

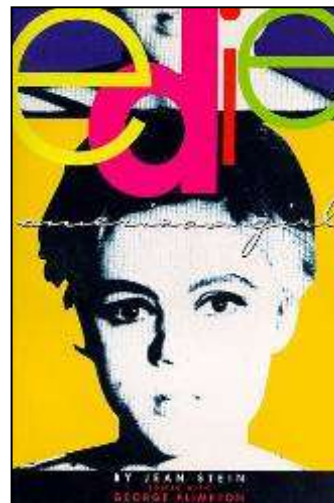
Edie, of Jean Stein's Edie: American Girl (1994), recalls the poem.

You can actually hear the wind in the pines, which is a completely different sound than oak trees or just no trees at all. It's a beautiful sound. I love it. And I know that there were only two places on the ranch that you could go and really listen to it. It was music. And what else was there? Oh, there were the Uplands, and that's where Edie wanted to stay. That was dangerous in a storm. So much violence. The ranch was potential violence -- both human and natural.

Do you know Coleridge? "Kubla Kahn?"

*In Xanadu did Kubla Khan
A stately pleasure dome decree:
Where Alph, the sacred river, ran
Through caverns measureless to man
DOWN TO A SUNLESS SEA.*

The ranch was all these things and, boy oh boy, does Coleridge know what he's talking about.



Likewise, the main character of Valerie Malmont's Death, Snow, and Mistletoe (2000) remembers the lines.

Curious about where it went, I got out of the truck to take a look. Along the base of the building were several arches, about three feet high, covered with wire mesh. To look through one, I knelt on the cracked macadam parking lot and saw that beneath the building the creek spread out into a huge tar-black lake. There was no way to tell how deep it was, but the water was so still and dark it gave the appearance of being bottomless.

My favorite childhood poem by Coleridge came to mind and I recited,

*Where Alph, the sacred river, ran
Through caverns measureless to man
DOWN TO A SUNLESS SEA.*

It was here that Bernice had dreamed of building her "stately pleasure dome."

We included snippet from the poem "Darkened" by Douglas Wilson, Untune the Sky: Occasional, Stammering Verse (2001),

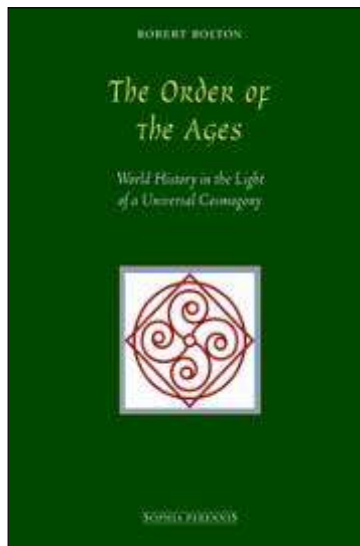
*Oblique, opaque, and never ending
Poets wander, ever wending
DOWN, STILL DOWN, TO A SUNLESS SEA.*

The Order of the Ages: World History in the Light of a Universal Cosmogony (2001) by Robert Bolton and Charles Upton tends toward the occult.

Consequently, this ontological movement has its reverberation in the subconscious mind, where it well may have inspired Coleridge's lines:

*Where Alph, the sacred river, ran
Through caverns measureless to man
DOWN TO A SUNLESS SEA.*

The "sunless sea" would therefore be the material world in which the Forms reach their final level of instruction. The more usual interpretation, that is an allusion to the river of Paradise manifested, in a relative sense at least, the fount of realities which make up this world.



Gravelight (2003) by Marion Zimmer Bradley includes,

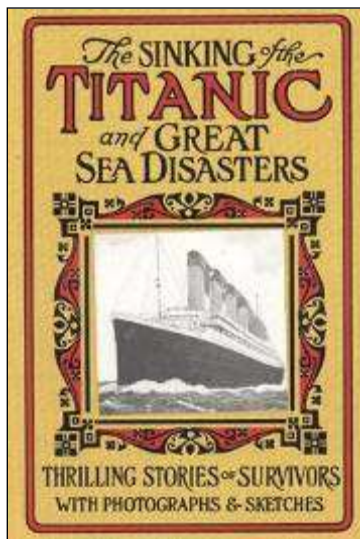
DOWN TO A SUNLESS SEA. The phrase circled around inside Wycherly's brain as if it were the answer to all Life's riddles. DOWN TO THE SUNLESS SEA... It was a line from a poem, but he no longer remembered which one.

He hadn't brought the flashlight, but it didn't matter. His hand trailed along the curving rock wall, and Wycherly moved slowly, inexorably, down the stairs. DOWN TO A SUNLESS SEA.

All he could hear was water: tricking, roaring, gushing, purling on from nowhere to nowhere, down here in the dark. Tickling scraps of spider webs brushed his face, and he batted them away absently. DOWN TO A SUNLESS SEA. He did not have to ask where he was going -- he knew.

For dire maritime statistics, we have Sinking of the Titanic and Great Sea Disasters (2004) by Logan Marshall.

As long ago as 1841, the steamer President, with 120 people aboard, crossing from New York to Liverpool in March, vanished from human ken. In 1854, in the same month, the City of Glasgow left Liverpool for Philadelphia with 480 souls, and was never again heard of. In February, 1856, the Pacific, from Liverpool from New York, carrying 185 persons, passed away DOWN TO A SUNLESS SEA. In May 1870, the City of Boston, from that port for Liverpool, mustering 191 souls, met a similar fate.



Bedlam's Edge (2005) by Mercedes Lackey and Rosemary Edghill returns us to the surreal.

Ahead, silver stones were laid into a smooth, broad oath, and the path led to what must be a palace, although that could not be seen through the intricate metal gates of a high wall was a fantastic Arabian Nights entrance, and above the walls dozens of gold-domed minarets. Along

the path was a river of smooth, dark water that ran in under the gate in the palace wall and all around the buildings behind the wall. A lifted drawbridge hovered over the water.

"Oh, my," Dov said.

And Rivka breathed,

*In Xanadu did Kubla Khan
A stately pleasure dome decree:
Where Alph, the sacred river, ran
Through caverns measureless to man
DOWN TO A SUNLESS SEA*

Divine Madness: Archetypes of Romantic Love (2010) by John R. Haule, on the other hand, brings us back to introspection.

*Alph, the sacred river, runs
Through caverns measureless to man
DOWN TO A SUNLESS SEA.*

It is the source of our deepest unconscious longings and images. When it is "flung up momentarily" to the surface, consciousness becomes flooded with its primordial darkness -- but also with the long hidden mysterious of that underworld of the psyche.

In Nature Mysticism: A Guide (2010), J. Edward Mercer argues for transcendence.

But are such experiences possible for the modern mind? Yes, if we can pierce through the varied disguises which the institutional material assumes as times and manners change. Coleridge, for example, is thrown into a deep sleep by an anodyne. His imagination takes wings to itself; images rise up before him, and, without conscious effort, find verbal equivalents. The enduring substance of the vision is embedded in the fragment, "Kubla Kahn," the glamour of which depends chiefly on the mystical appeal of subterranean waters. We are transported where

*Alph, the sacred river, ran
Through caverns measureless to man,
DOWN TO A SUNLESS SEA.*

These three lines make deeper impression than any others in the poem, and form its main theme.

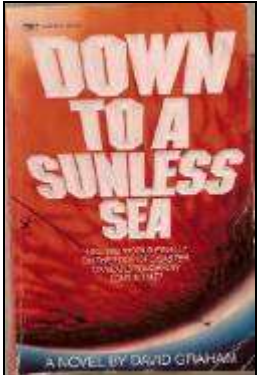
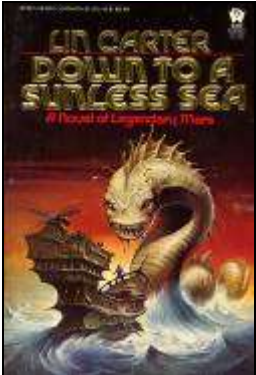
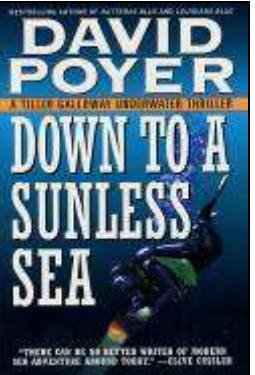
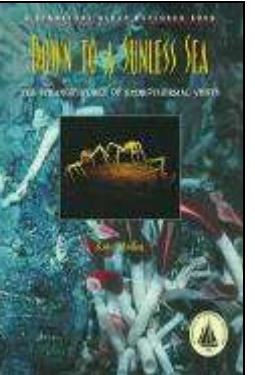
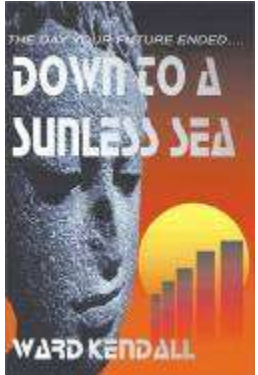
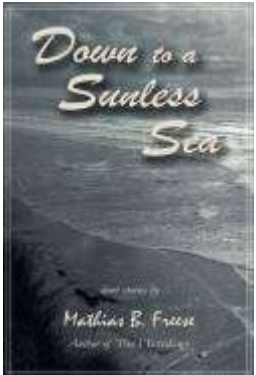

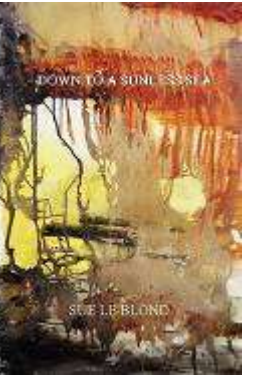
Nor is the feeling of the supernatural unrecognized. Spirits are near with prophetic promptings. From a deep ocean the sacred river throws up a mighty fountain, and for a short space wanders through wood and dale, only to plunge again into its measureless caverns, and sink in tumult to a lifeless ocean.

And again back to pulp fiction. From A Dance with Dragons (2011) by George R.R. Martin,

The caves are timeless, vast silent. They were the home to more than three score living singer and the bones of thousands dead, and extended far below the hollow hill. "Men should not go wandering in this place," Leaf warned them. "The river you hear is swift and black, and flows DOWN TO A SUNLESS SEA. And there are passages that go even deeper, bottomless pits and sudden shafts, forgotten ways that lead to the very center of the earth."

Chapter 31 -- Down to a Sunless Sea

A few recent Sunless Sea book covers,

			
<p>David Graham (1979)</p>	<p>Lin Carter (1984)</p>	<p>David Poyer (1996)</p>	<p>Kate Madin (1999)</p>
			
<p>Ward Kendall (2000)</p>	<p>Mathias Freese (2007)</p>	<p>Daniel McGowan (2007)</p>	<p>Sue Le Blond (2008)</p>

Coleridge's sunless sea poses an artistic challenge, as the verbal imagery does not lend itself to fixed lines and static shapes.

To the right is Albert Goodwin's effort, "The Source of the Sacred River" (c. 1900).



Chapter 31 -- Down to a Sunless Sea

Here we have "In Xanadu Did Kubla Khan," a float design for the Mistick Krewe of Comus parade, New Orleans Marti Gras, 1911.



Following are four contemporary works. Not all artists share the same vision, the very reasons we have art.



"Down to the Sunless Sea,"
Mary Ray Gehr



"Down to a Sunless Sea," Tony Broadbent



"Down-to Sunless Sea," Linda J Ging



"Sunless Sea," Susan Kubes

"Fractal Xanadu" (2008), a video by Abysimus, employs digital imagery for a morphing impressionistic visualization.



There is, in fact, a physical "Sunless Sea," but there's not much of it. Arizona's Kartchner Caverns' 19-meter crowned column, "Kubla Kahn," is touted for both its majesty and its mystery. Water in the cave's depths would be by association, the Sunless Sea, but other than at times of seasonal infiltration from the surface, it's mostly mud flats.



Karchner
Caverns
\$22.95

Our journeys to sunless seas have been varied, but each has taken us to waters less illuminated, more internal. Of all sunless seas, Coleridge's vision ranks the most compelling.

CHAPTER 32

POEMS FOR SUBTERRANEAN SAILORS

"Kubla Kahn," as we noted in the previous chapter, stands high in English poetry, but there's a great amount of other verse about underground rivers. We'll assemble just a sample.

Robert Herrick's "Proof to No Purpose" (1648) uses the hydrologic cycle to represent the cycle of human mortality, but it's the dual cycle (Chapter 7), with flow returning from the ocean to spring heads "by pores and caverns."

*You see this gentle stream that glides,
Shov'd on, by quick succeeding tides;
Try if this sober stream you can
Follow to th' wilder ocean,*

*And see if there it keeps unspent
In that congesting element.
Next, from that world of waters, then
By pores and caverns back again*

*Induct that inadult'rate same
Stream to the spring from whence it came.
This with a wonder when ye do,
As easy, and else easier too,*

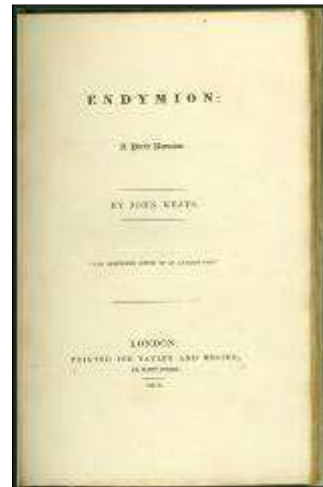
*Then may ye recollect the grains
Of my particular remains,
After a thousand lusters hurl'd,
By ruffling winds about the world.*

Jean-Jacques Rousseau is known as a philosopher, not poet, but much of what he pondered, he penned as if it were poetry. The aquatic imagery in The Reveries of the Solitary Walker (1782) both reflects and transforms the spirit. The passage below guides the mind from the waters above to waters unfathomably below.

I desired to daydream, but I was always distracted by some unexpected view. Sometimes high and thunderous waterfalls drenched me with their thick fog. Sometimes an ever-flowing mountain stream opened by my side an abyss the depth of which eyes dared not fathom.'

"Endymion" (1818) by **John Keats** speaks of underground rivers.

*Through caves, and palaces of mottled ore,
Gold dome, and crystal wall, and turquoise floor,
Black polish'd porticos of awful shade,
And, at the last, a diamond balustrade,
Leading afar past wild magnificence,
Spiral through ruggedest loopholes, and thence
Stretching across a void, then guiding o'er
Enormous chasms, where, all foam and roar,
Streams subterranean tease their granite beds;
Then heighten'd just above the silvery heads.*

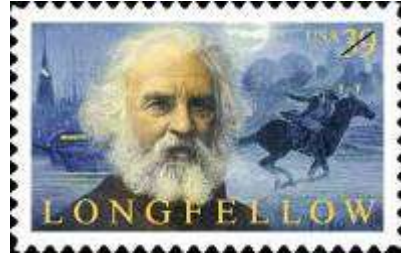


"The Close of the Year" (1840) by **George D Prentice**,

*Weep not that Time
Is passing on -- it will ere long reveal
A brighter ere to the nations. -- Hark!
Along the vales and mountains of the earth
There is a deep, portentous murmuring,
Like the swift rush of subterranean streams.*

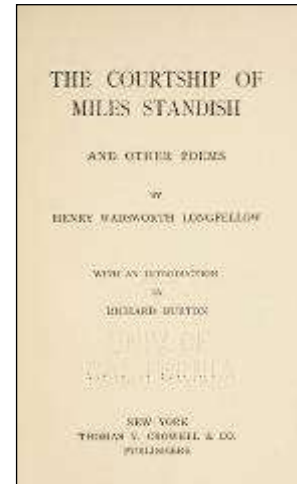
We've a pair from **Henry Wadsworth Longfellow**. "To a Child" (1841) wasn't what today is known as juvenile poetry.

*Freighted with hope and fear;
As upon subterranean streams,
In caverns unexplored and dark,
Men sometimes launch a fragile bark,
Laden with flickering fire,
And watch its swift-receding beams,
Until at length they disappear,
And in the distant dark expire.*



There's a subterranean river in Longfellow's The Courtship of Miles Standish (1858).

*Hence is the inner life of so many suffering women
Sunless and silent and deep, like subterranean rivers
Running through caverns of darkness, unheard, unseen, and
unfruitful,
Chafing their channels of stone, with endless and profitless
murmurs.*



D. Parish Barhydt's "Ahyunta" (1851) is notable for its footnote.

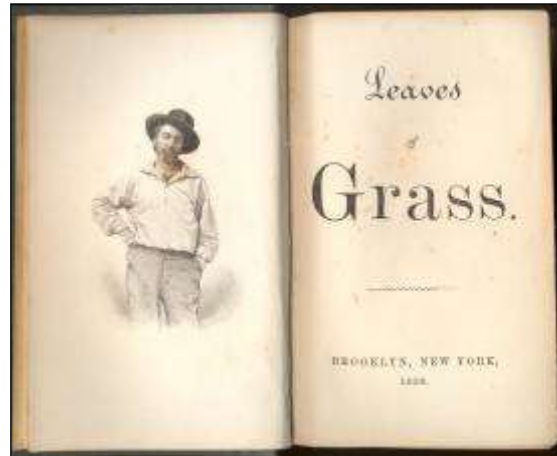
*Florida, rich are thy beauties and varied thy charms,
Where sweetest emotions are strung with alarms.
Seeming lakelets of steel there empolish the plain,
Beware the dark sink! it is fathomed in vain;*
There earth wears a smile, but is hollow below,
And swift sunless rivers through wide caverns flow.*

** The author became acquainted in Florida with the sudden recession of a large lake from its banks to great an extent (nearly draining it entirely), that it could only be accounted for on the hypothesis that a sudden caving of its bottom had opened a passage into the cavernous depths below. He was also familiar with a legend of an Indian entering by chance a cave in the bank of one river, and after dark and tortuous wanderings therein, emerging upon the bank of another many miles distant.*

We'll become better acquainted with the "cavernous depths below" Florida in Chapter 41, Sinkholes.

Walt Whitman's Leaves of Grass (1855) includes the poem "As Consequent, Etc.," a portion of which follows.

*As consequent from store of summer rains,
Or wayward rivulets in autumn flowing,
Or many a herb-lined brook's reticulations,
Or subterranean sea-rills making for the sea,
Songs of continued years I sing.*



Whitman's hydrology is, in fact, more accurate than some of his era's scientific teaching. And while we're discussing Whitman, though it's not poetry, we'll cite "The Spanish Element in our Nationality" (1883), in his Complete Prose Works (1891).

As to the Spanish stock of our Southwest, it is certain to me that we do not begin to appreciate the splendor and sterling value of its race element. Who knows but that element, like the course of some subterranean river, dipping invisibly for a hundred or two years, is now to emerge in broadest flow and permanent action?

"The Mammoth Cave," The Poems of George D. Prentice (1876),

*Rivers dark,
And dreary, and voiceless, as Oblivion's stream,
That flows through Death's dim vale of silence, -- gulfs
All fathomless, down which is loosened rock
Plunges, until its far-off echoes come
Fainter and fainter, like the dying roll
Of thunders at a distance.*

We'll visit the San Marcos in Texas in Chapter 53, Diversity in Darkness, Texan Ecology, but here we'll meet the river poetically. From the Library of Southern Literature 3, 1909,

Robert Lewis Dabney's fame in literature will rest, and justly so, on his work in prose {he was the biographer to Stonewall Jackson}, yet in leisure hours he turned aside to poetry and produced verses, some of which are not unworthy of preservation as witness the opening lines of his poem, "The San Marcos River"

*Mysterious river! Whence thy hidden source?
The rain-drops from far distant field and fell,
Urging through countless paths their darkling
course,
Combine their tiny gifts thy flood to swell.
What secrets hath thy subterranean stream
Beheld; as it hath bathed the deepest feet
Of everlasting hills, which never beam*



*Of sun or star or lightning's flash did greet?
Over what cliffs rushed thou in headlong fall
Into some gulf of Erebus so deep
Thy very foam was black as midnight's pall
And massive roof of rock and mountain steep
Suppressed thy thunders, so that the quick ears
Of fauns recumbent on its lofty side
Heard not; and grass-blades laden with the tears*



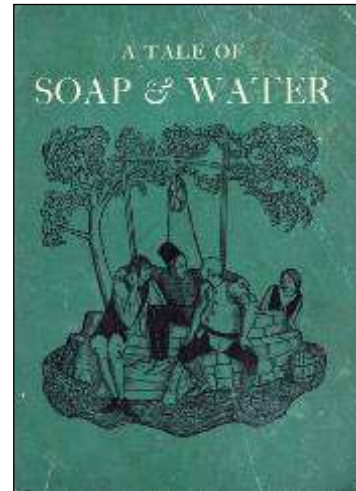
*Of night dews, felt no quiver from thy tide?
Through days and weeks uncouneted by the
sun,
Thy waters in abysmal caves have lain
In slow lustration, ere they sought to run
Forth to the day, purged from earth's least
stain.
Pallas-Athene of the rivers, thou!*

*Who leapest adult in thy glittering might
From yonder hoary mountain, Zeus's brow,
Whose cloven crags parted to give thee
light.
Thou teachest us, wise virgin; as through
caves,
Sad and tear-dropping, steal thy sobbing
waves,
Then flash to day; so Virtue's weeping night
Shall surely break into the dawn's delight.*

We will simply note that Dabney's biography of the Confederate hero remains in print a century hence, but his poetry is absent from anthologies.

Grace Hallock's poem "An Underground River" can be found in the Cleanliness Institute's [A Tale of Soap and Water](#) (1927), supplemental reading for seventh, eighth and ninth grades on the history cleanliness and sanitation

*Under the ground, a River went
A River went, a River went.
And folk in towns were well content
For underground a River went.
To fill the bathtub brimming up,
To wash the streets, to wet the green,
To fill the jug, to fill the cup,
To wash the clothes and dishes clean.
Under the ground a River went.
And the folks in towns were well content*



Regarding poetic merit, we'll not be judgmental, but as to environmental impact, the topic of Chapter 81, Mainlining the Sewage, subterranean disposal of laundry and dishwater is unacceptable.

In " and the Death of Lady Gregory," [Irish University Review](#), March 22, 2004, Roy F. Foster critiques **W.B. Yeats'** "Coole Park and Ballylee" (1931) which begins,

*Under my window-ledge the waters race,
Otters below and moor-hens on the top,
Run for a mile undimmed in Heaven's face
Then darkening through 'dark' Raftery's 'cellar' drop,
Run underground, rise in a rocky place
In Coole demesne, and there to finish up
Spread to a lake and drop into a hole.
What's water but the generated soul?*



and concludes,

*Though mounted in that saddle Homer rode
Where the swan drifts upon a darkening flood.*

According to Foster,

The lake, its underground river, his own Tower (effectively abandoned four years previously but now reoccupied for poetic purposes), and the house at Coole are linked by the eternal image of a soaring swan, which in turn suggests the journey of the soul (signaled by an implicit reference to the Neo-Platonist Porphyry in the first verse). But it is also, he privately told his wife, 'a symbol of inspiration'. All the house and its chatelaine had meant to him is concentrated into a poem that should also be read as another installment in his mounting commentary on the Anglo-Irish tradition and its importance for modern Irish life.

"In Praise of Limestone" (1948) by **W.H. Auden** is geologically specific about its underground stream.

*The blessed will not care what angle they are regarded from,
Having nothing to hide. Dear, I know nothing of
Either, but when I try to imagine a faultless love
Or the life to come, what I hear is the murmur
Of underground streams, what I see is a limestone landscape.*

According to Margaret Rees' World Socialist internet posting,

The second half of the poem assumes a languid conversational tone, mildly self-mocking and tentatively disparaging the landscape. An invocation to the natural order is decried, the concept of purity ebbs away in a neat didactic couplet. What is left is sediment.

Although we may lack the erudition to agree or disagree with Ms. Rees, we must be impressed with the fact that water in limestone caverns is known to poets.

Felicia Dorothea Browne Hemans' "Subterranean Streams" (1854) is a poem of the type suitable for a parlor game in which a stanza is read, all but the last word, which the players rush to guess. Give it a try.

<p><i>Darkly thou glidest onward, Thou deep and hidden wave! The laughing sunshine hath not looked Into thy secret [] . Thy current makes no music A hollow sound we hear, A muffled voice of mystery, And know that thou art [] . Yet once will day behold thee, When to the mighty sea, Fresh bursting from their caverned veins, Leap thy lone waters [] .</i></p>	<p><i>There wilt thou greet the sunshine For a moment, and be lost, With all thy melancholy sounds, In the ocean's billowy [] . Wild is their course and lonely, And fruitless in man's breast; They come and go, and leave no trace Of their mysterious [] . Yet surely must their wanderings At length be like thy way; Their shadows, all thy waters, lost In one bright flood of [] !</i></p>
--	--

The answers: cave, near, free, host, guest, day

Not all underground river poetry lends itself to parlor entertainments, however. Take, for example **Moikom Zeqo's** "The Miracle of Death," translated from the original Albanian by Wayne Miller.

*The miracle of death is precise like the law.
Our bodies will decompose in their natural elements.
Perhaps we'll meet as underground streams,
As humus and salt at the roots of a plant
That will flourish and open its petals,
Astounding everything with its anonymous [] .*

The answer (difficult for those not fluent in Albanian): "beauty"

James Dickey's poems are infused with anxiety and guilt upwelled by the memory of his brother who died before Dickey was born. In "The Underground Stream" (1960) Dickey peers into a well, seeking how his spirit could fall through the pool to find reconciliation with his sibling.

*I lay at the edge of a well,
And thought how to bury my smile
Under the thorn, where the leaf,
At the sill of oblivion safe,
Put forth its instant green
In a flow from underground.
I sought how the spirit could fall
Down this moss-feathered well.
The motion by which my face,
Could descend through structureless grass,
Dreaming of love, and pass
Through solid earth, to rest
On the unseen water's breast,
Timelessly smiling, and free
Of the world, of light, and of me.*



Pulitzer Prize winner **Maxine Kumin** writes of nature's persistence in "Why There Will Always Be Thistle" (2001).

*Outlawed in most Northern
states of the Union
still it jumps borders.
Its taproot runs deeper
than underground rivers
and once it's been severed
by breadknife or shovel
-- two popular methods
employed by the desperate --
the bits that remain will
spring up like dragons' teeth
a field full of soldiers
their spines at the ready.*

Algimantas Baltakis' "Underground Rivers" is not at all about symbolism. It's an accurate description.

*Alas, these rivers have no names.
No banks have they to shape their frames.
They don't reflect the floating sky,
In gloom by day and night they lie.
A wild sea-mew will never sweep
Across their waters running deep
Nor will a maiden ever chance
To see dawn glow on their expanse.
Yet their dim waters, cool and clear,
Feed wells and fountains far and near.
In summer drought or winter frost
Their patient streams are never lost.
Oppressed by darkness, now and then
The waters try to leave their den.
In dense dark forest look around,
A spring is bubbling from the ground.*

Andriana Škunca's "Shadow," on the other hand, could be about anything that haunts us.

*Farther away it gushes out of the underground stream,
Following us everywhere.
Constantly tied to some suffering that resides in us
Like a broken staff it leans on.*

Here's a twelfth century Japanese verse published in the November 5, 1921, Literary Digest.

*The subterranean river takes its rise
And flows unseen beneath the hills.
Like this, my love; and I indeed am sad
Because I may not tell my love.*

Charles Pierre Baudelaire is remembered for literary and artistic decadence. His "Don Juan aux Enfers" (Don Juan in Hell) centers around a free-thinking Spanish nobleman who seduces a woman, kills her father and then insults the dead man's statue before being condemned to hellfire.

*When Don Juan reached that underground river,
He paid his death coin passage from those shores.
Charon, gruff in Antisthenes' manner,
Then pulled with vengeful arms on his long oars.*

And our anthology of underground river poetry -- some by title, others by usage -- just keeps going. Here are a few more, sans comments.

Rosemarie Johnstone	"An Underground River in West Hollywood" (2001)	<i>If I were not such a lazy scholar disinclined to supplement Assigned of this hill startling emerald green</i>
Jane Reichhold	"Waves/Above the Underground River" (1990)	<i>Waves Above the underground river Sand dunes Plain as the lighted face Pilled with love radiating</i>
Phillis Levin	"A Meeting of Friends" (1988)	<i>Although their hair is turning gray And love is a stream changing course underground.</i>
Margaret Holley	"The Gallery of Owls" (1993)	<i>The river running underground Who am I then? Three snowy owls. Firelight on walls</i>
B.P. Shillaber	"A Song," (1853)	<i>The thirsty mart feels through its heart The mighty current quiver, Through streets and lanes, in iron veins, A subterranean river.</i>
Constance Henriette Urdang	"The River" (1990)	<i>Even here we have driven the river underground Like a blind man on an unfamiliar street Tapping his path between strangers</i>
Grace Butcher	"Sunbathing" (1967)	<i>The sun carves my body into caves where bird song moves like an underground stream.</i>
Theodore Roethke	"The Cycle" (1965)	<i>Dark water, underground Under a river's source Under primeval stone</i>
James Galvin	"Leap Year" (2003)	<i>When the river goes underground It isn't lying Home is where the heart gives out And we arouse the grass</i>
Muriel Rukeyser	"Letter to the Front" (1994)	<i>Women and poets see the truth arrive The blind inventor finds the underground river</i>
Muriel Rukeyser	"Women and Poets See Truth Arrive" (2004)	<i>Then it is acted out The blind inventor finds the underground river</i>
Lyn Lifshin	"That July" (1997)	<i>Something under skin Underground streams</i>

But where, we may ask is Carl Sandburg?

The answer doesn't lie in this chapter because, alas, we've yet to find a Sandburg poem about underground rivers. But that's not to say that he didn't write about them. To appreciate his contribution, we must wait until Chapter 49, the chapter about dowsing.

"The Braes of Balquhiddy" by the Scottish "Weaver Poet," Robert Tannahill (1774-1810), contemporary to Robert Burns, is the basis for the ballad "Wild Mountain Thyme," with its familiar chorus "Will Ye Go Lassie, Go."

Tannahill didn't write about underground rivers, but as he met his demise in one, we'll include him in our survey. As lamented 37 years after the fact in Northern Star, and National Trades' Journal, February 6 1847,

But still more melancholy is the contemplation of the beginning and the end of Robert Tannahill, the popular song writer of Paisley. Tannahill was no doubt stimulated by the fame of Burns. True, he had not the genius of Burns, but genius he had, and that is conspicuous in the many of those songs which during his lifetime were sung with enthusiasm by his countryman.

Tannahill was a poor weaver of Paisley. The cottage where he lived is still to be seen, a very ordinary weaver's cottage in an ordinary street; and the place where he drowned himself may be seen too at the outside of the town. This is one of the most dismal places in which a poet ever terminated his career...

Outside of Paisley there is a place where a small stream passes under a canal. To facilitate this passage, a deep pit is sunk, and a channel for the water is made under the bottom of the canal. This pit is, I believe, eighteen feet deep. It is built round with stone, which is rounded off at its mouth, so that any one falling in cannot by any possibility get out, for there is nothing to lay hold of. Any one once he goes there might grasp and grasp in vain for an edge to seize upon. He would sink back and back till he was exhausted and sank forever.

No doubt Tannahill in moments of gloomy observation had noticed this. And at midnight he came, stripped off his coat, laid down his hat, and took the fatal plunge. No cry could reach human ear from the horrible abyss; no effort of the strongest swimmer could avail to sustain him. Soon worn out he must go down, and amid the black boiling torrent be borne through the subterranean channel onward with the stream.

Thus died Robert Tannahill, and a more fearful termination was never put to a poetical career. The place is called Tannahill's Hole.



Paisley map, c. 1865 showing both Tannahill's Bridge and Tannahill's Hole



Where our poet's body was found.

If underground rivers merit the attention of poets, our topic has proven to be worthy one..

CHAPTER 33 TO CROSS THE STYX

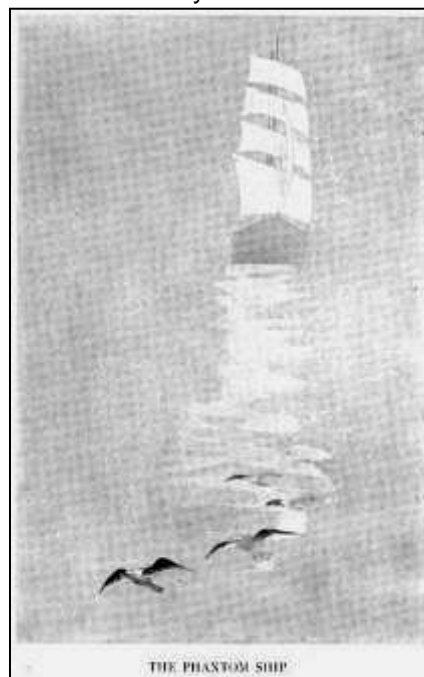
Water has numerous symbolic meanings. It is again and again divisible, yet when poured together, reconstitutes a seamless whole. It is life-giving, our first abode. We consume it daily. As a cleansing substance, we emerge from it purified.

Water can drown us, of course, but as myth is more often about the mortal soul than about physical safety, water is an agent of transformation of consciousness. In crossing the gulf between our world and that to follow, ego is dissolved, emerging completed and liberated on the distant shore.

The Greeks weren't arbitrary in myth creation when they made Charon a ferryman.

Wander Ships: Folk-Stories of the Sea (1917) by Wilbur Bassett, the frontispiece at the right,

Many religions and cults look upon the sun as the abode of souls, and the sea the home of the sun into which it sinks at evening and disappears even as the soul after death. It is hidden or concealed. Hades is the unseen, the concealed place as is the Norse Hel (Icelandic helja, to hide). So we are not surprised to find that the Aryan words for sea, desert and death are from the same root. Thus we have in Anglo-Saxon mere, sea, lake; in Perian meru, desert; in Latin mors, death, from the same root as murder... And so in Egypt the sun set in the vast unexplored desert in the west. There was the land of Apap the immense, personification of the desert, the serpent king who guarded the approach to the halls of Osiris, the sun. Between this land and inhabitable Egypt lay the Nile, which was therefore the river of death. The death voyage and the ritual of the crossing of this river of death are clearly set out in the so-called Book of the Dead



The Midgard Sea of the Eddas was undoubtedly originally a river, as the sea is a conception not readily grasped by the primitive mind. That river was Jormungandr, which in the later mythology is described as the great Midgard worm, which lies at the bottom of the Midgard sea. So the Greek Oceanus, originally a river flowing in a circle like the Midgard serpent whose tail continued to grow into his mouth, disappeared in the ocean of later days.

This leads to the general theorem that sea and ocean myths are less ancient than river myths, and indeed many sea-ceremonies of the present day hark back to that ever-flowing character characteristic of the primitive ocean.

Chapter 33 -- To Cross the Styx

The Egyptian god of death, Osiris, was often symbolized by a boat.

Akin to the entombment of pharaohs and their retinues in elaborate barks for passage across the great divide, Norse tribes laid their leaders, along with grave offerings in accordance with earthly status, in a boat to bear them to Valhalla, Land of the Heroes.



Isle of the Dead (1880) by Arnold Böcklin.



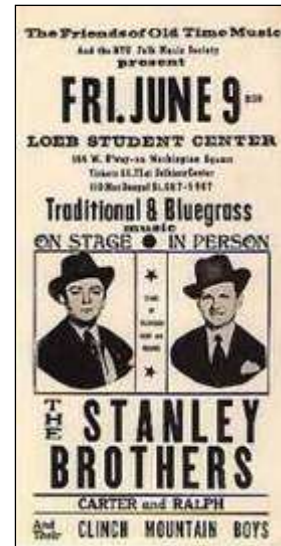
Judeo-Christian tradition speaks of reaching the promised land by crossing the River Jordan. Isaiah 43.2 declares,

When thou passest through the waters, I will be with thee; and through the rivers, they shall not overflow thee.



We could compile a lengthy list of crossing-the-river songs, but we'll mention just one more, "Standing by the River, Waiting for the Boatman" by the Stanley Brothers. As bluegrass music tends to avoid Greek references, Charon's not named, but we know the boatman.

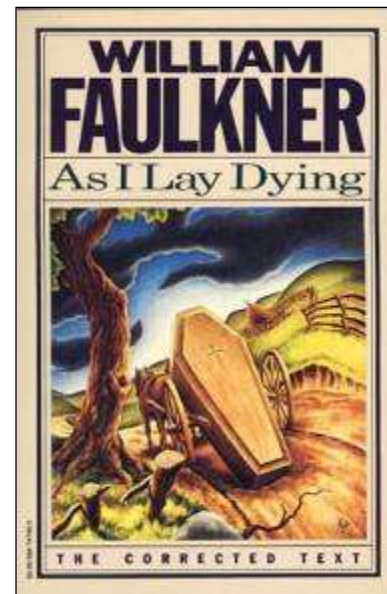
*Here I stand by this chilly water waitin' for my final call,
Standing by the river looking beyond.
Gazin' toward the land of fadeless beauty o'er the surges rise and fall,
Standing by the river looking beyond.
Standing by the river waiting for the boatman,
Listen to the music on the other shore.
I can hear the angels singing out a welcome
With my friends and loved ones (with my friends have gone before).
Music from the land of endless glory fallin upon my listening ear,
Standing by the river looking beyond.
Faces of my friends I often vision forms of loved ones oft appear,
Standing by the river looking beyond.
Shadows of night are swiftly falling lo I hear the boatman's oar,
Standing by the river looking beyond.
Many are the voices sweetly calling I must tarry hear no more,
Standing by the river looking beyond.*



In modern literature, we can turn to Faulkner's As I Lay Dying (1964), a story of a river crossing between life and death. A line from the Odyssey, "As I lay dying, the woman with the dog's eyes would not close my eyes as I descended into Hades," inspired the title.

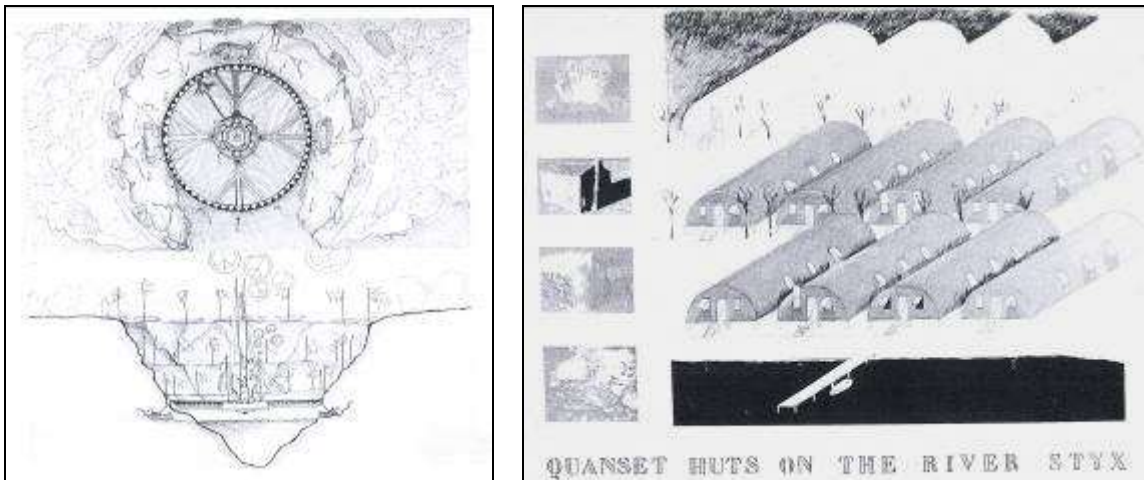
Before us the thick dark current runs. It talks up to us in a murmur become ceaseless and myriad, the yellow surface dimpled monstrously into fading swirls travelling along the surface for an instant, silent, impermanent and profoundly significant, as though just beneath the surface something huge and alive waked for a moment of lazy alertness out of and into light slumber again.'

It clucks and murmurs among the spokes and about the mules' knees, yellow, skummed with flotsam and with thick soiled gouts of foam as though it had sweat, lathering, like a driven horse. Through the undergrowth it goes with a plaintive sound, a musing sound; in it the unwinded cane and saplings lean as before a little gale, swaying without reflections as though suspended on invisible wires from the branches overhead. Above the ceaseless surface they stand -- trees, cane, vines-rootless, severed from the earth, spectral above a scene of immense yet circumscribed desolation filled with the voice of the waste and mournful water.



Unfortunately for Faulkner's characters, they lacked a subterranean ferryman.

Or for those of us more into engineering, Quonset Huts on the River Styx, The Bomb Shelter Design Book (1993) is the product of a wry national competition by Architects/Designers/Planners for Social Responsibility for a "radiation-proof emergency operation center" for government officials. An entry is shown below, the conical depression harkening to Dante's circles of Chapter 6.



Crossing the Styx

A metaphoric figure of speech is a phrase literally designating one thing used for implicit comparison. "To cross the River Styx" as a metaphor for "to die" has been in English usage for hundreds of years. In a less-frequent sense, the phrase has also been employed to describe a sojourn to the underworld from which the protagonists returns.

The literature of crossing the Styx begins in the Aeneid where Aeneas, in search of his father, tries to cross the netherworld river. It was the Divine Comedy (1314) that propelled the metaphor into modern vocabulary, a somewhat inexplicable literary legacy because -- as we've noted In Chapters 1 and 6 -- Dante's river was the Acheron. We lack particulars regarding the actual crossing, unfortunately, as Dante had fainted, not to awaken until he was on the other side.

We've encountered "crossing the Styx" multiple times along our underground river journey, but we'll add a few less-morbid examples.

Let us begin in Jolly Old England. From Rump: or An Exact Collection of the Choycest Poems and Songs Relating to the Late Times by the Most Eminent Wits, from Anno 1639 to Anno 1661 (1662),

*A Boat for this Old Doctor
To cross the River Styx
For Pluto he
Desired to see
Some of his Antick tricks.*



"Dead Ones," Salt Lake Telegram, March 5, 1903, attempts a bit of wordplay.

Blocks: I'll warrant thee Charon did make a great deal of money out of his ferry across the river Styx.

Stocks: Nay, friend, were they not all deadheads?



Crossing the Styx in marketing, as evidenced in an advertisement for Stuart's Dyspepsia Tablets in the Minneapolis Journal, January 27, 1912,

*One does not have to cross the Styx
To reach the sultry nether;
Who's [sic] liver and whose stomach mix
Irascibly together*



Accompanying text,

The victim of dyspepsia is an abject slave to his stomach. He has to rigidly and continually deny his palate the gustatory relishes gastrointestinal turmoil, often amounting to severe suffering, follows his innocent and natural indulgence.

If swallowing any reasonable quantity of properly cooked and well masticated food, such as others eat without discomfort, is followed by a feeling of heaviness, or a load, where it lies by gaseous distension or a bloated condition of the stomach, or oppression about the heart by watery, sour or windy risings by distress, nervousness, dizziness, nausea, headache. Inability to sleep rest fully or any other symptom of deficient, defective or disordered digestion you should procure and take Stuart's Dyspepsia Tablets, the best medicine to remedy all functional wrongs of the stomach.

Stuart's Dyspepsia Tablets are for sale at all drug stores at 50 cents a box.

"Haskell's Account of the Battle of Gettysburg," The Harvard Classics (1909-1914), Charles W. Eliot, Ed., provides us a well-worded equestrian eulogy,

Dick deserves well of his country, and one day should have a horse-monument. If there be "ut sapientibus placit," and equine elysium, I will send to Charon the brass coin, the fee for Dick's passage over, and on the other side of the Styx in those shadowy clover-fields he may nibble blossoms forever.

As a news item, "Prophets Initiate Fifty Candidates," Washington Times, May 20, 1914, reports,

Omitting the usual perils of the passage of the River Styx, more than 500 members of the Kallipolis Grotto, No. 15, Mystic Order of Veiled Prophets of the Enchanted Realm, met in the ballroom of the New Willard last night and initiated fifty candidates, had a real minstrel show and general jollification.

"A Dress Rehearsal for the Styx," New York Tribune, October 31, 1920, finds a news item in the subject.



Since there are no streets in Spreewald, near Berlin, everything is transported after the fashion in vogue in Venice. When a native dies he is borne to his grave in a hearse-punt.

The Mystic Order of Veiled Prophets of the Enchanted Realm is not an occult organization, we're glad to discover, but just a fellowship for Master Masons pursuing general jollification.



A few turn-of-the-century newspaper headlines:

<p>EMPEROR OF CHINA CROSSES THE STYX</p> <p><small>Kuang Hsu, Who Has Been Emperor in Name Only for the Past Thirty-three Years Succumbs to Disease— Pu Wei, Heir Presumptive to the Throne Becomes Emperor—Dowager Empress is Also Quite Ill.</small></p>	<p>DID IT WITH A WIRE</p> <p><small>Duluth Man Adopts a Unique Method of Crossing the Styx.</small></p> <p>HIS WIFE GETS A DIVORCE.</p> <p><small>And He Seeks Surcease From Sorrow by Strangling Himself.</small></p>	<p>FATE PURSUES HIM.</p> <p><small>Six Times William J. Rohr Has Been Almost Dead.</small></p> <p><small>Five Times He Was the Victim of Accidents, the Sixth Time He Tried to Cross the River Styx by Himself.</small></p>
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Marion Daily Mirror,
November 11, 1908

St. Paul Daily Globe,
April 11, 1895

Washington Bee,
June 14, 1902

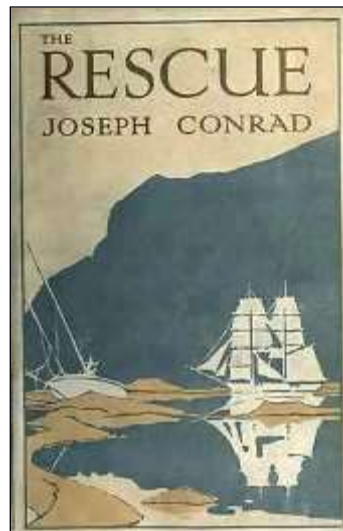
For an example in modern literature, we'll cite The Rescue: A Romance of the Shallows (1920) by Joseph Conrad.

"I have a most extraordinary feeling," he [the novel's insufferable narcissist yacht owner Mr. Travers] said in a cautious undertone. "I seem to be in the air -- I don't know. Are we on the water, d'Alcacer?... Are you quite sure? But of course, we are on the water."

"Yes," said d'Alcacer, in the same tone. "Crossing the Styx -- perhaps."

We're thus forewarned.

Conrad's Lord Jim (1900) contains "as black as Styx," another oft-used metaphor. Heart of Darkness (1899) is set on about a dark river, but one entirely above ground.



The allusion to fatality, we find, extends even to science, per the Acherontia Styx, the Death's Head hawkmoth, made famous in the film Silence of the Lambs (1991).



A Metaphoric Stygian Library

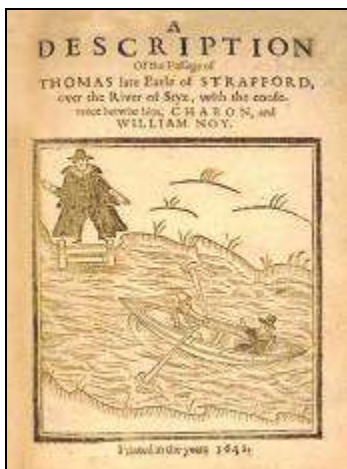
Let us draw together books in English having titles employing a Stygian allusion. To maintain a degree of propriety, however, we'll omit titles dealing with

Comic books set the underworld, a subject of Chapter 25, and
The rock band mentioned in Chapter 37.

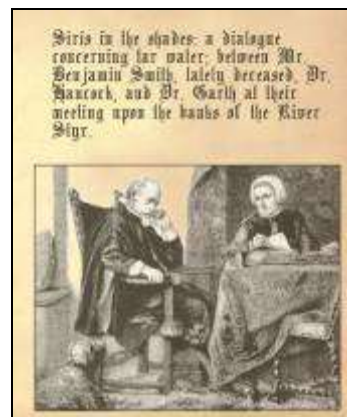
The commonality of our collection stems from the word "Styx" in the title, the proclamation that what follows is about death.

We'll begin our book collection with a pair of pamphlets.

An imagined meeting between notable personalities at death's doorstep provided commentators of centuries past a wry forum in which to examine the day's issues.

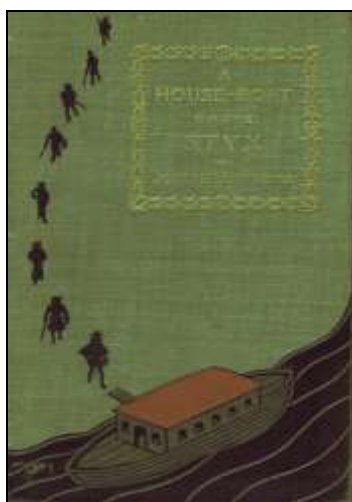


A Description of the Passage of Thomas Late Earle of Strafford over the River of Styx, with the Conference Betwixt Him, Charon, and William Noy (1641)

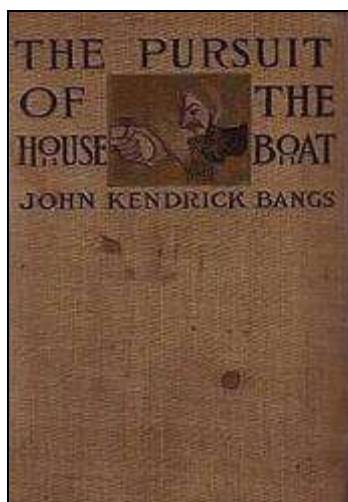


Siris in the Shades : A Dialogue Concerning Tar Water; between Mr. Benjamin Smith, Lately Deceased, Dr. Hancock, and Dr. Garth, at Their Meeting upon the Banks of the River Styx (1744)

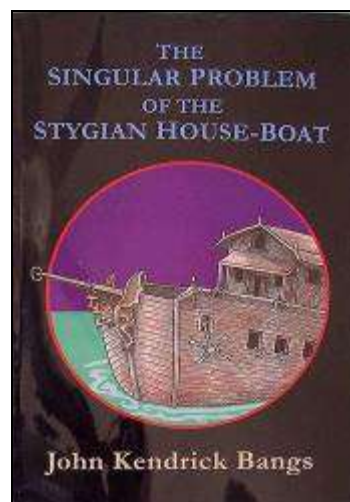
We'll add two works by John Kendrick Bangs about the denizens of Hades, plus the compilation of the two.



John Kendrick Bangs, A House-Boat on the Styx (1895)



Pursuit of the Houseboat (1897)



The Singular Problem of the Stygian House-Boat,

From A House-Boat on the Styx, we quote from "Charon Makes a Discovery."

Charon, the Ferryman of renown, was cruising slowly along the Styx one pleasant Friday morning not long ago, and as he paddled idly on he chuckled mildly to himself as he thought of the monopoly in ferrriage which in the course of years he had managed to build up.

"It's a great thing," he said, with a smirk of satisfaction--"it's a great thing to be the go-between between two states of being; to have the exclusive franchise to export and import shades from

Chapter 33 -- To Cross the Styx

one state to the other, and withal to have had as clean a record as mine has been. Valuable as is my franchise, I never corrupted a public official in my life, and --"

Here Charon stopped his soliloquy and his boat simultaneously. As he rounded one of the many turns in the river a singular object met his gaze, and one, too, that filled him with misgiving. It was another craft, and that was a thing not to be tolerated. Had he, Charon, owned the exclusive right of way on the Styx all these years to have it disputed here in the closing decade of the Nineteenth Century?

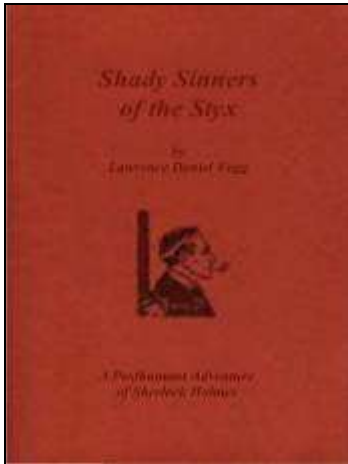
The ferryman fears the arrival of a houseboat, one bearing everyone that's ever died, will put him out of business, but finds out that he's actually to be appointed the boat's janitor.

What follow are stories set on the houseboat, what might transpire if departed notables were put in the same room. We meet Sir Walter Raleigh, Cassius, Demosthenes, Blackstone, Confucius, Shakespeare, Washington, Baron Munchausen, Confucius, Napoleon, Diogenes, Ptolemy, Boswell, Columbus, Cicero, Henry VIII, Doctor Johnson, Doctor Livingstone, Samson, Darwin, Mozart, Tennyson, Thackeray, Burns, Homer, Carlyle, Noah, Adam, P.T. Barnum, Queen Elizabeth and Ophelia!

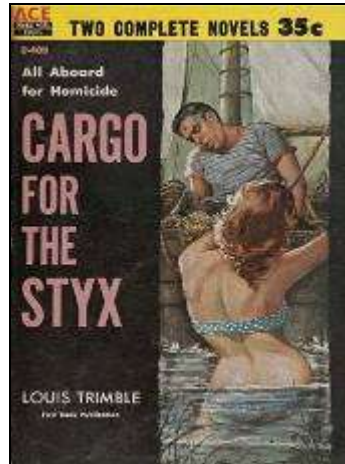


The Odyssean Charon, however, had no such erudite sailing, as evidenced by the spirit's astonishment that Odysseus could have crossed to Hades from the land of the living. "For in between lie the great rivers and terrible waters that flow, Ocean first of all." What Bangs got right was the fact that the houseboat passengers were all quite deceased.

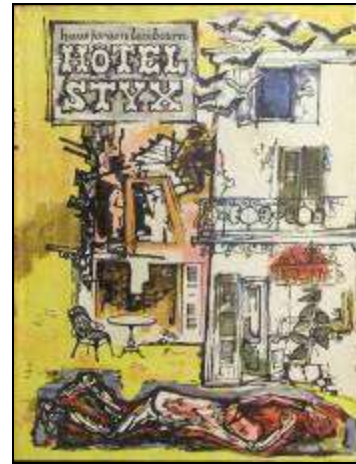
As we haven't the space to quote from the rest of our Stygian library, we'll just show the covers.



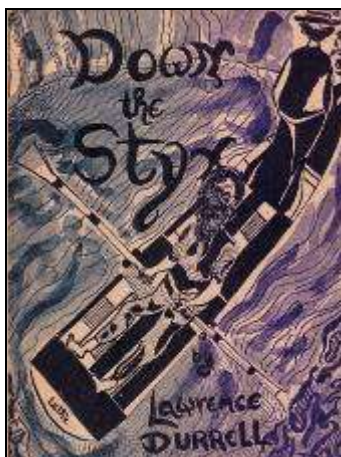
Lawrence Daniel Fogg, Shady Sinners of the Styx (1906)



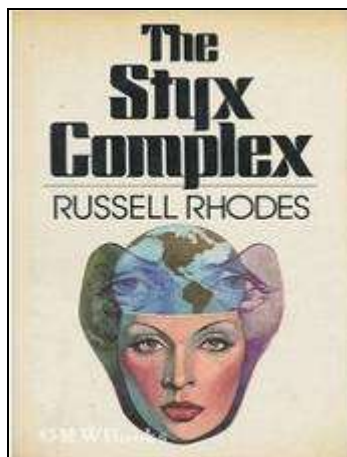
Louis Trimble, Cargo for the Styx (1961)



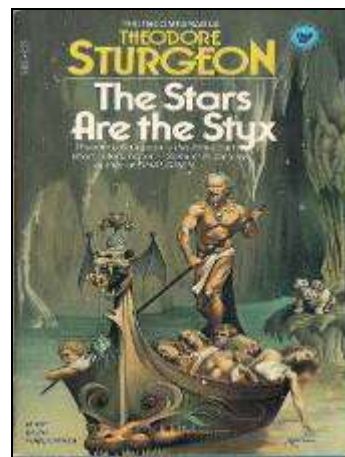
Hans Jorgen Lembourn, Hotel Styx (1964)



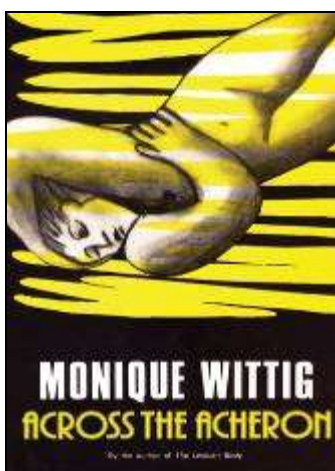
Lawrence Durrell, Down the Styx (1971)



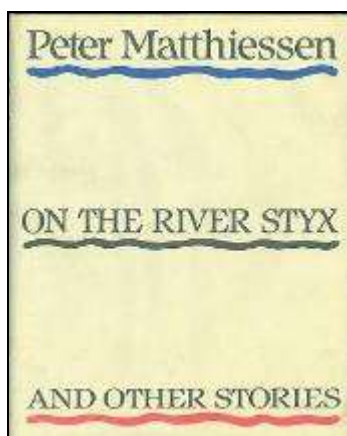
Russell Rhodes, The Styx Complex (1977)



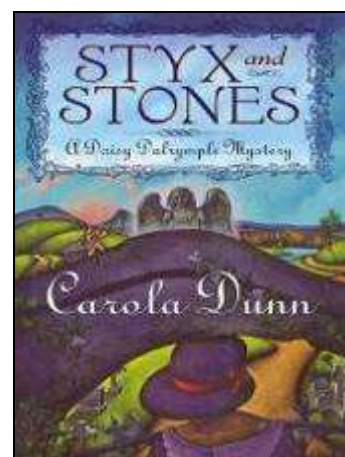
Theodore Sturgeon, The Stars Are the Styx (1979)



Monique Wittig, Across the Acheron (1987)



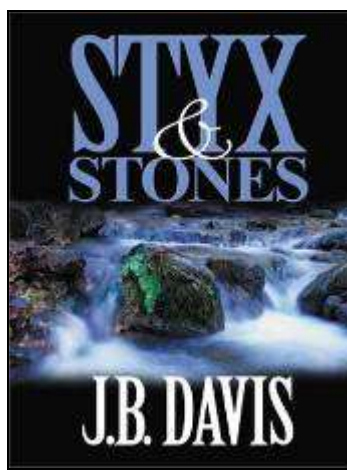
Peter Matthiessen, On the River Styx and Other Stories (1989)



Carola Dunn, Styx and Stones (1999)



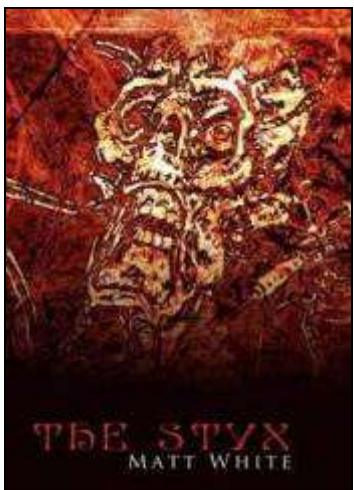
Andreas Foerster, Styx (2001)



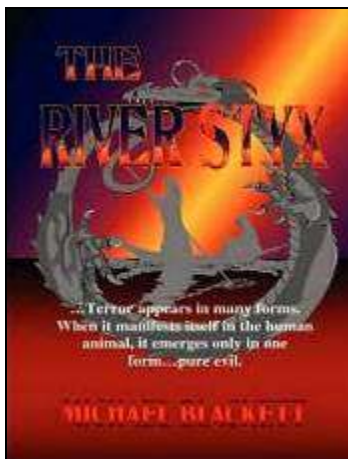
J.B. Davis, Styx and Stones (2001)



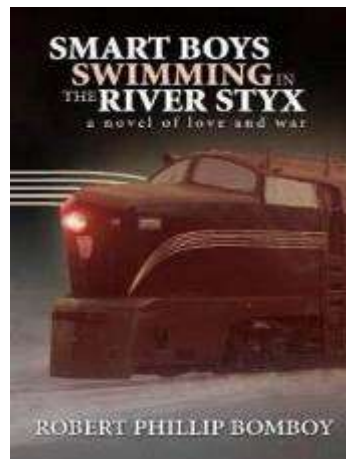
Jack Du Brul, Charon's Landing (2001)



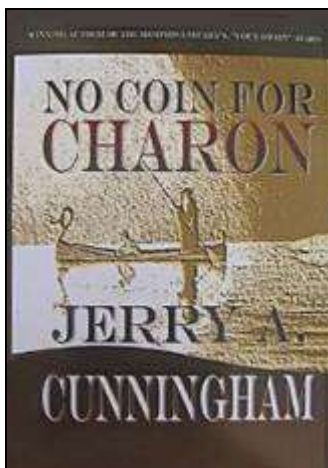
Matt White, The Styx (2006)



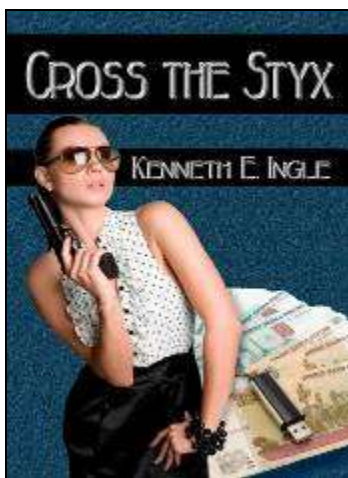
Michael Blackett, The River Styx (2006)



Robert Bomboy, Smart Boys Swimming in the River Styx (2007)



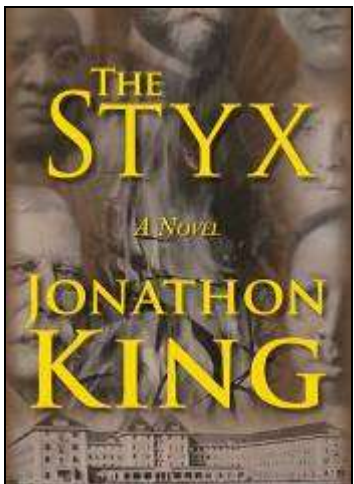
Jerry Cunningham, No Coin For Charon (2008)



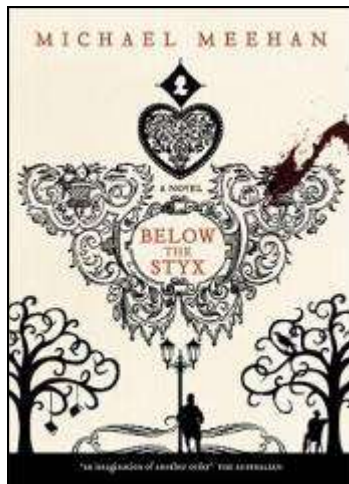
Kenneth Ingle, Cross the Styx (2010)



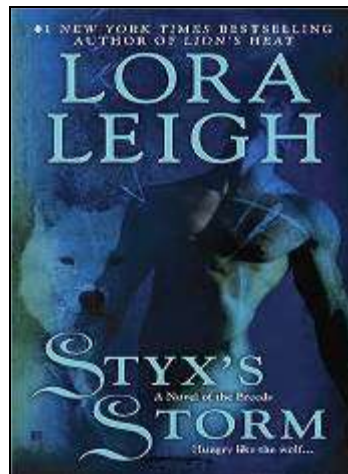
Ian R. MacLeod, "Recrossing the Styx," Fantasy & Science Fiction, July-August 2010



Jonathan King, The Styx (2010)

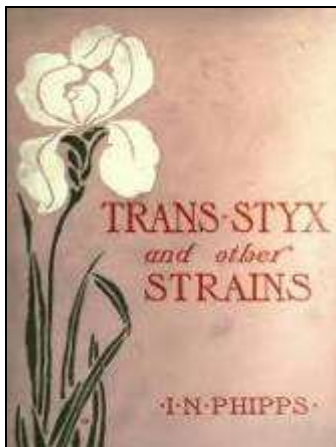


Michael Meehan, Below the Styx (2010)

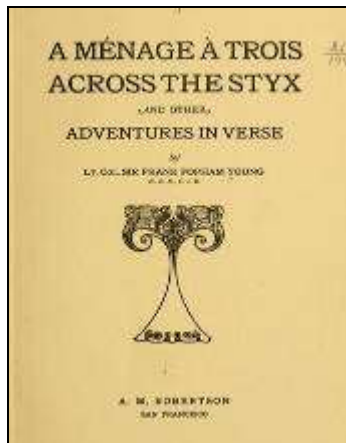


Lora Leigh, Styx's Storm (2010)

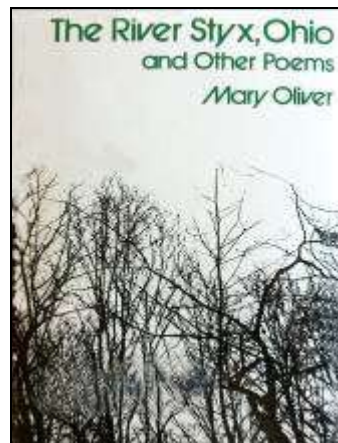
Poetry speaks for itself.



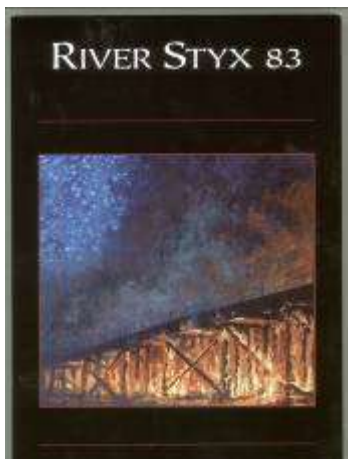
Isaac Newton Phipps, Trans-Styx and Other Strains (1907)



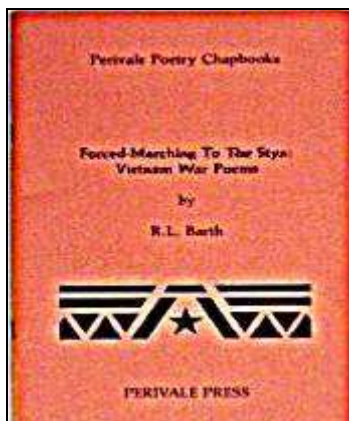
Frank Popham Young, Across the Styx and Other Adventures in Verse (1922)



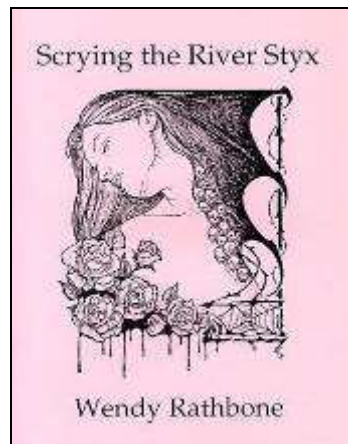
Mary Oliver, The River Styx, Ohio, and Other Poems (1972)



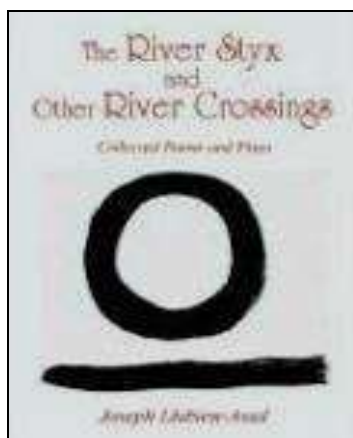
River Styx magazine, since 1975



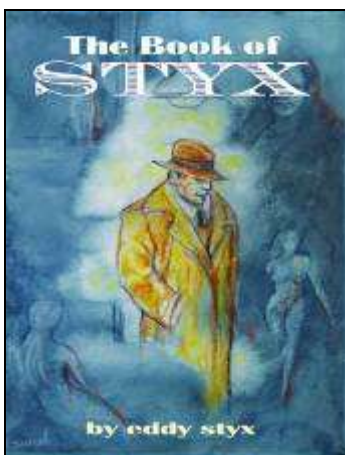
R.L. Barth, Forced-Marching to the Styx, Vietnam War Poems (1983)



Wendy Rathbone, Scrying the River Styx (1999)



Joseph Llubien-Asad, The River Styx and Other River Crossings (2003)



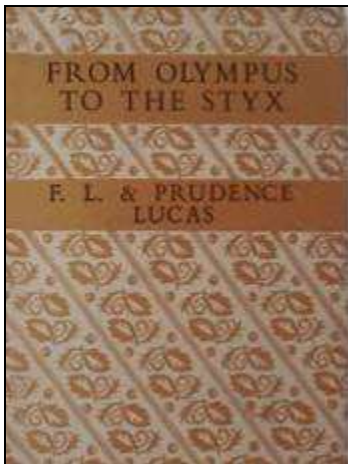
C.M. Mattison, a.k.a. Eddy Styx, The Book of Styx (2009)

Chapter 33 -- To Cross the Styx

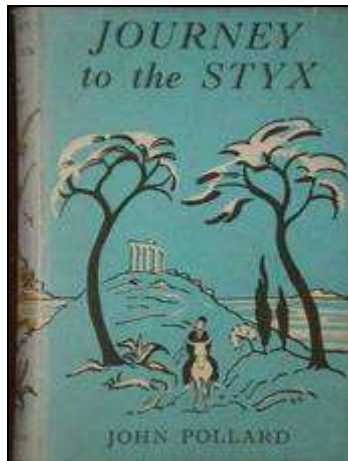
And as poetry requires special handling, we'll quote a few poets whose works aren't in bound volumes with "Styx" on the cover.

<p>"The Little Shade," <u>Greek Wayfarers</u> (1916) by Edwina Stanton Babcock</p> <p><i>No longer that gray visage fix, Charon, Asking me bow I come to mix With this pale boat-load on the Styx, Charon.</i></p> <p><i>I am so very small a Shade, Charon, Holding the vase my father made And toys of silver all inlaid, Charon.</i></p> <p><i>Ferry me to the golden trees, Charon, To isles of childish play and ease And baths of dove-like Pleiades. Charon.</i></p> <p><i>Ferry me to the azure lands , Charon, Where some dead mother understands The lifting of my baby hands, Charon.</i></p>	<p>"On a Picture" by Jean Ingelow</p> <p><i>As a forlorn soul waiting by the Styx Dimly expectant of lands yet more dim, Might peer afraid where shadows change and mix Till the dark ferryman shall come for him.</i></p>
	<p>"Photograph of My Mother on the River Styx" (2008) by Jeanne K Wagner</p> <p><i>How still she looks, among strangers, with only the lingua franca of silence between them, while she waits for the boat to dock, for Charon to take her by tip of the elbow and steady her as she disembarks.</i></p>

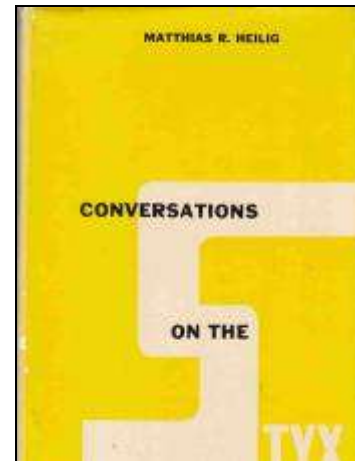
Our nonfiction volumes,



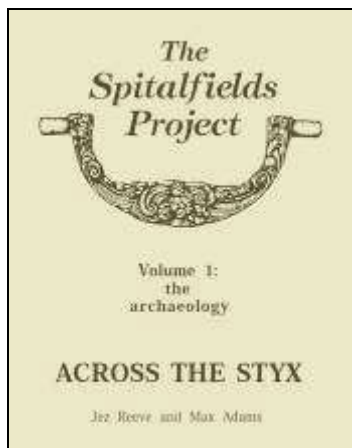
F.L. Lucas, From Olympus to the Styx (1934), Travelogue



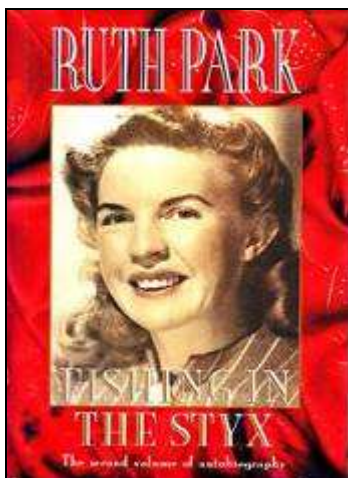
John Pollard, Journey to the Styx (1955), Essays



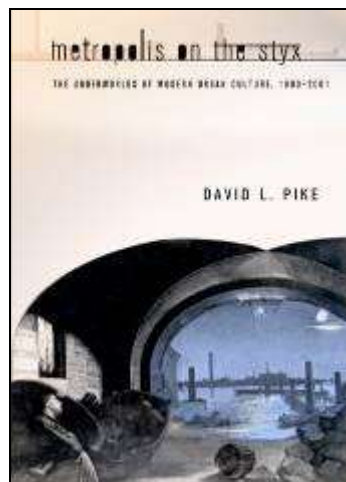
Matthias Heilig, Conversations on the Styx (1967), Philosophy



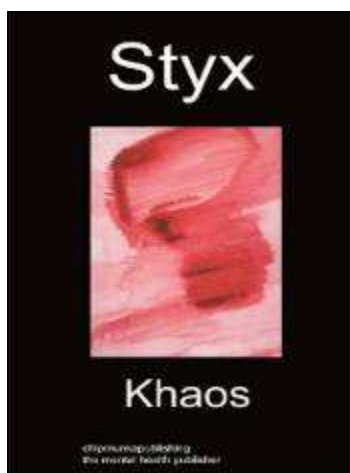
Jez Reeve and Max Adams, Across the Styx (1993), Archeology



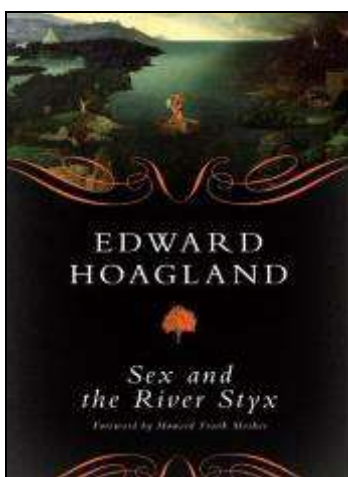
Ruth Park, Fishing in the Styx (2000), Biography



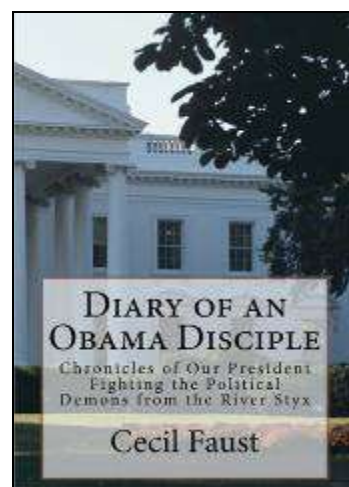
David Pike, Metropolis on the Styx (2007), Mythology



Khaos, Styx (2011), Mental Illness



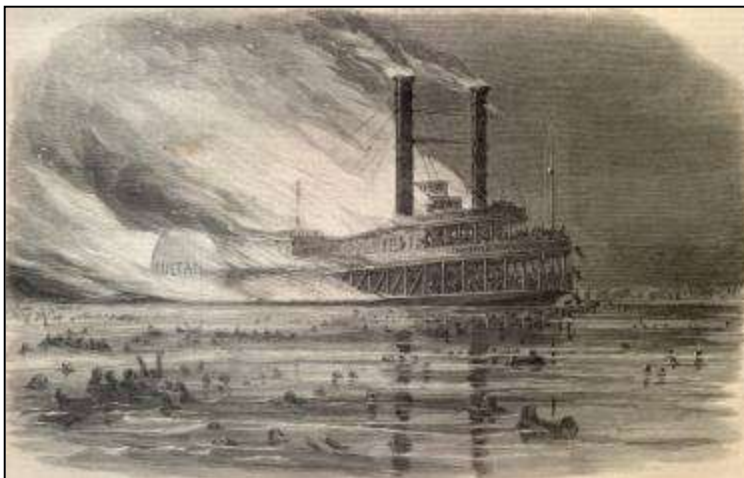
Edward Hoagland, Sex and the River Styx (2011), Essays



Cecil Faust, Diary of an Obama Disciple Chronicles of Our President Fighting the Political Demons from the River Styx (2011), Politics

The April 27, 1865, explosion of the Mississippi paddle-wheeler SS Sultana was the greatest maritime disaster in American history. An estimated 1,800 passengers, most of them liberated Union prisoners, were killed when the ship's four boilers exploded near Memphis.

An illustration from Harper's Weekly, May 20, 1865.



A few lines from the "Sultana" by Jon Waterman,

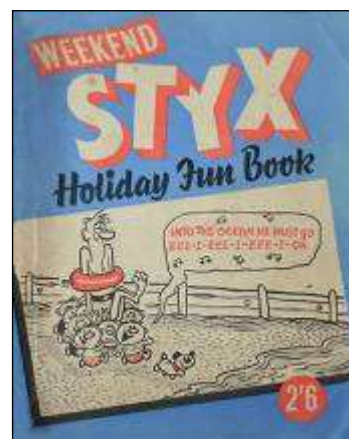
*Fifteen hundred men were drowned or scalded by the steam
And ferried off to a different home than the ones of which they dreamed
See how greed can turn a man like a gambler turns his tricks
Or even make the mighty Mississippi into the River Styx.*

Our collection's final volume, Styx Holiday Fun Book (1958) by Leslie Harding, at first seems miscataloged. What can be fun about Styx?

Styx, we discover, is the author. According to Adrian Room, compiler of Dictionary of Pseudonyms (2010),

The artist began his career drawing sporting strips. Hence presumably his name, alluding both to the river crossed by the souls of the dead in classical mythology and the "sticks" or fences that horsed jump in a steeplechase

Room's presumption may be correct, of course, but we find it unconvincing. Rather, we see a darker pseudonymic mantle in the Fun Book's cover cartoon, a helpless chap being borne by urchins into the water.



Will, we might ask after dusting our bookshelf, the metaphorical "crossing the Styx" succumb to its self-definition and fade from popular parlance?

Our collection's ever-increasing count suggests that the metaphor itself is crossing no such river.

We'll end our chapter with two small digressions: one, a classical metaphor involving the Styx, but not mentioning our river by name, the other, a contemporary short story about the crossing.

Achilles' Heel

An Achilles' heel is a weakness in spite of overall strength. While its genesis refers to physical vulnerability, it can be metaphorically employed for other attributes or qualities that can likewise lead to downfall.

In Greek mythology, when Achilles was an infant, it was foretold that he would die in battle from an arrow in the foot. To prevent the outcome, his mother Thetis dipped his body into the River Styx, waters with the power of invincibility.

But as we can see in Rubens' "Thetis Dips Achilles in the Styx" (c. 1630), Thetis dangled her son by his foot and his heel was not immersed. Achilles grew to survive great battles, but one day a poisoned arrow lodged in his heel and killed him.



Legend begets legend, of course. Alexander the Great (356-323 BC and Aristotle's student) is said to have met his demise by drinking water from the Styx sent to him in a mule's hoof. There may, however, be an element of truth in the story. As reported some three millennia later in "Alexander the Great Killed by Toxic Bacteria?" Discovery News, July 16, 2010,

The Styx River, the legendary portal to the underworld, harbors a deadly bacteria that may have ended Alexander's life.

An extraordinarily toxic bacterium harbored by the "infernal" Styx River might have been the fabled poison rumored to have killed Alexander the Great (356-323 BC) more than 2,000 years ago, according to a scientific-meets-mythic detective study.

The research, which will be presented next week at the XII International Congress of Toxicology annual meetings in Barcelona, Spain, reviews ancient literary evidence on the Styx poison in light of modern geology and toxicology.

*According to the study, calicheamicin, a secondary metabolite of *Micromonospora echinospora*, is what gave the river its toxic reputation.*

Pausanias (110-180) reported that the river could ruin crystal, pottery and bronze. "(The) only thing able to resist corrosion is the hoof of a mule or horse," he wrote.

"Indeed, no ancient writer ever casts doubt on the existence of a deadly poison from the Styx River," Mayor, author of the Mithradates biography The Poison King, said.

The researchers believe this mythic poison must be calicheamicin. "This is an extremely toxic, gram-positive soil bacterium and has only recently come to the attention of modern science. It was discovered in the 1980s in caliche, crusty deposits of calcium carbonate that form on limestone and is common in Greece," author Antoinette Hayes, toxicologist at Pfizer Research, told Discovery News.

Alexander fell ill at one of many all-night drinking parties in Babylon, in modern Iraq, crying out from a "sudden, sword-stabbing agony in the liver." The overlord of an empire stretching from Greece to India was taken to bed with abdominal pain and a very high fever.

Over the next 12 days, he worsened. Alexander could only move his eyes and hands and was unable to speak. He later fell into a coma.

Alexander was pronounced dead on June 11, 323 BC -- just before his 33rd birthday.

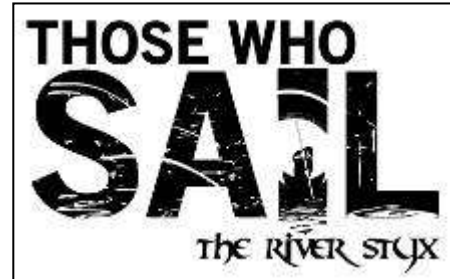
"Notably, some of Alexander's symptoms and course of illness seem to match ancient Greek myths associated with the Styx. He even lost his voice, like the gods who fell into a coma-like state after drinking from the river.

We'll return to the Oath of the Styx in Chapter 69, the Law of Subterranean Streams, and to water quality in Chapter 81, Mainlining the Sewage.

Those Who Sail

A 2012 short story by Trevor Faulkner, "Those Who Sail the River Styx," adds a human twist to Charon and the crossing. We'll extract a few lines about our weary boatman that don't reveal the story's conclusion.

The thin, bearded man pulled his robe's gray hood over his wrinkled face. His centuries of ferrying souls across the river Styx had taught him that the effect garnered by this appearance was one of the most important parts of his job. Most people would expect nothing less than the hooded boatman, and he would hate to ruin someone's death. He leaned into the current and steered for the rickety dock where three men now stood.



Those who sail the river Styx, who wait upon the shore. Confronted with the boatman's cry might cower before their fall. And those who would escape their fate only hear these words. There's only one way back to land, my boy, and no one knows it but the boatman.

CHAPTER 34

TWENTY-FIVE CENTURIES OF SUBTERRANEAN PORTRAITS

We'd be deficient in our underground river journey, were we not to salute the curmudgeon Charon, who navigates the River Styx. But as the chapter just completed -- the one about the river -- was substantially literary, we'll make this chapter one of pictures, a scrapbook.

Here, then, is a pictorial chronology of Charon's portrayal over twenty-five centuries of labor. In our portrait gallery, we will observe,

That the portrayal of the aged mariner has evolved,

That the catalog of illuminations, woodcuts and engravings far exceeds the count of watercolors and oils, thanks to centuries of illustrated editions of the Divine Comedy, and

That the Masters ignored the fact that their subject labors in darkness. A painting requires light.

Fifth Century BC

White slip lekythos pottery was used for Grecian funeral rites between 470 and 400 BC. Figures were outlined in red or black matte and filled in with purple, brown, red yellow, rose, vermilion and sky blue. In nearly all recovered artifacts, however, those colors have long since faded, so black and white photography is sufficient to depict what remains.

Given his duty, a picture of Charon was a common funerary adornment.



Noting the orthodoxy in Charon's representation as a robust Athenian seaman, we might wonder if bereaved families, striving for the departed's most favorable fate, thought it prudent to flatter the oarsman?

Other information relating this era comes from Pausanias (Chapter 3) who wrote that the Lesche in Delphi once contained paintings by the fifth century BC Greek painter Polygnotus, and in one of these pieces,

There is water to indicate a river, no doubt the Acheron... On the river there is a boat and the ferryman at the oars. Polygnotus, I think, follows the poem called the Minyad, for in this poem there is a passage about Theseus and Pirithous, "Then the bark of the dead which the old ferryman, Charon, was wont to guide, they found not at its moorings."

We thus have disparate ages for our ferryman:

From period ceramics, an oarsman in his prime, or

According to a Roman speculating on a work lost centuries earlier, an "old ferryman."

As we move forward through art history, we'll see many contradictions and changes in the characteristics of our subject.

A pair of c-430 BC representations

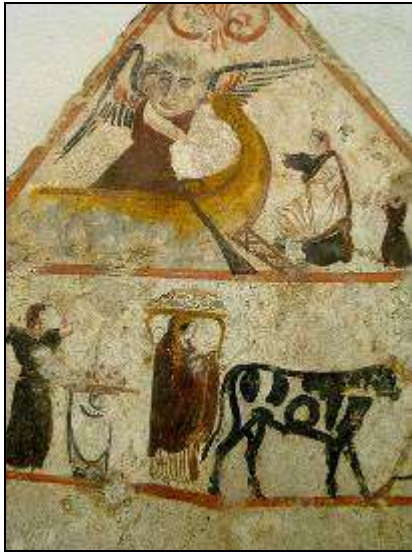


Hermes Psychopompos and Charon



Charon trying to persuade a woman to board

Third and Fourth Centuries BC



The Lucanian tomb painting (350-320 BC) shows Charon welcoming a deceased woman. Like what Christians would later call angels, this Charon is indeed winged.



As depicted on the Etrurian tomb entry (c. 200 BC), Charon shows personality. Affixed to his back are, yes, again wings.

First Century AD

A Pompeii wall painting of Admetus, Alcestis and a Romanized Charon.



Third Century

The Roman sarcophagus portrays a Charon with locks less kept and physique more gaunt, a Charon more akin to the aged boatman of Virgil's Aeneid, which would by now have been recited for 200 years.

*There Charon stands, who rules the dreary coast --
A sordid god, down from his hairy chin
A length of beard descends, uncombed, unclean;
His eyes, like hollow furnaces on fire;
A girdle, foul with grease, binds his obscene attire.*

Virgil may have portrayed effect, or perhaps the oral reached even his ears.



14th Century

Virgil's impression of the boatman's age might have faded, were it not for the popularization of Dante's Divine Comedy (Chapter 6, And Back to the Cross). As the first named character that Dante meets in Hell, Charon must be what literary critiques classify as a well-defined persona.

Note the proliferation of Charon's appendages.



Note the horns in "Charon, Dante, Virgil and other Souls in Charon's Boat," from a 1328-

Note the black wings in "Phlegyas crossing the Styx." Per Chapter 1, in some Greek myth, the

1330 edition of the Divine Comedy. Chapter 6 provides thoughts on why Charon's assumed such fierce demeanor.

god Phlegyas assumes the role of boatman. In keeping with medieval art, the passengers -- insignificant mortals -- are miniature.

Below left, fire-emitting ears from another edition of the Divine Comedy. Below right, a tail.



By Dante's day, the Church had robustly appropriated and manipulated themes of Greek lore to fit Papal dogma. The medieval Charon is a ruthless agent of Holy judgment, a galley slave for God.

15th Century

Priamo della Quercia's early Renaissance illumination shows three Charons, their wizened locks in ringlets. One dutifully conveys a righteous couple. Another disembarks passengers who, being nude, are to receive final judgment. A third threatens those who delay decision.

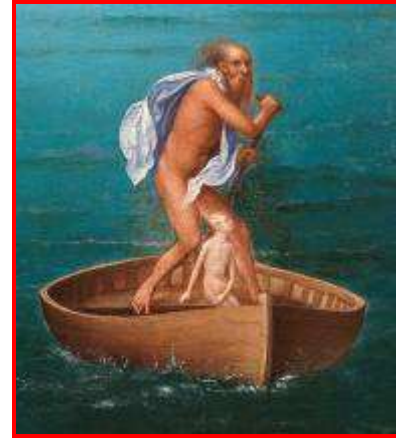


"Dante and Charon" (1442-1450), Priamo della Quercia

Renaissance artists more often took Charon to be avaricious, old and dirty, a grim gondolier laboriously pushing his skiff with a long pole. One or more diminutive, naked figures sit about him.



"Charon Crossing the Styx" (1475), Joachim Patenier



Detail

Patenier's Elysian Fields are "Christianized" with angels and a crystalline tower. On the other shore awaits a mouth-like cavern embellished with smoke, fire and infernal monsters. Charon's boat is poised midway. The small passenger, dwarfed by the ferryman, glances toward the gateway of doom, the human inclination toward sin.

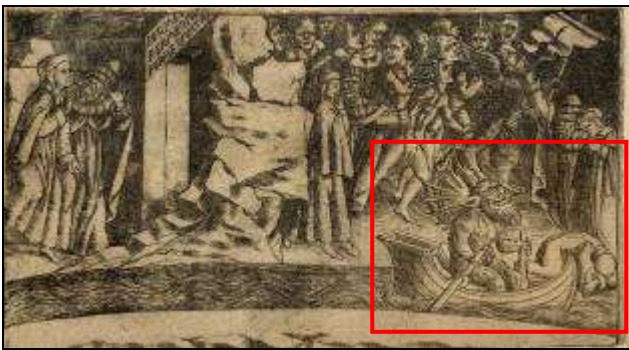


The illustration to the left shows Charon without distinguishing attributes, just a boatman of the era.



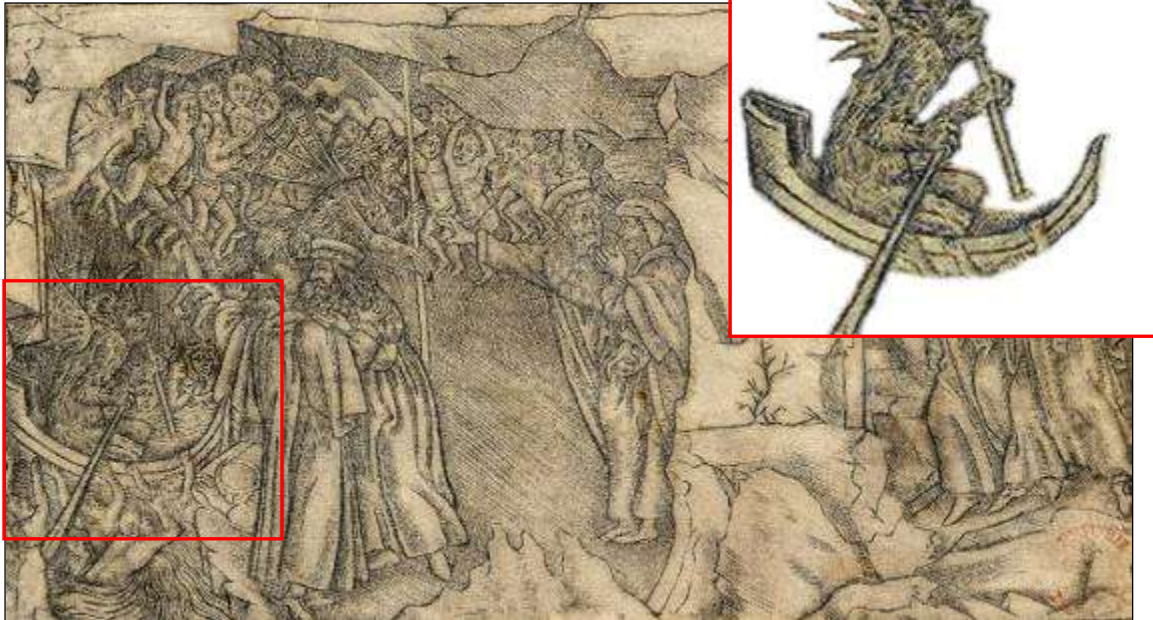
Guglielmos Giraldi (c. 1478)

Sandro Botticelli's detail (c. 1480-1495) portrays a grotesque and monstrous boatman approaching the shore of Purgatory. Chapter 6, And Back to the Cross, shows the full work.



After Sandro Botticelli (1484-1487)

Another 1480s print after Botticelli showing Virgil guiding Dante toward the gate of Hell. A demon with a banner converses with Charon along the bank. To the right, we've isolated Charon from the engraving for clarity.



"Approaching the City of Dis" (1493)
Two Charons





"Dante and Virgil go through the Portal to Hell and See Charon" (1493)



A portion of Luca Signorelli's fresco, "San Brizio Chapel, Charon and the Damned" (1499-1504)

The condemned languish on all banks. While in some myth, Charon labors on a lake, most artists preferred a river, perhaps because it allowed contrasting shores.

16th Century



"Dante and Virgil See Charon Ferrying Souls across the Acheron" (1512. Dante's river is the Acheron, not the Styx, as discussed in Chapters 1 and 6.



Etching by Philipe Galle. Charon is again winged



"Parable of Dives and Lazarus," woodcut by Jacob Locher. Meeting Charon, however, isn't a feature of the Luke 16 parable.



"Charon Comes to Ferry the Heroes" (1521) by Teofilo Folengo shows a boatman attired per the era.

Chapter 34 -- Twenty-Five Centuries of Subterranean Portraits

An early 16th century medallion depicting Aeneas and the Sibyl Cumana entering Charon's boat in the legend of Orpheus.

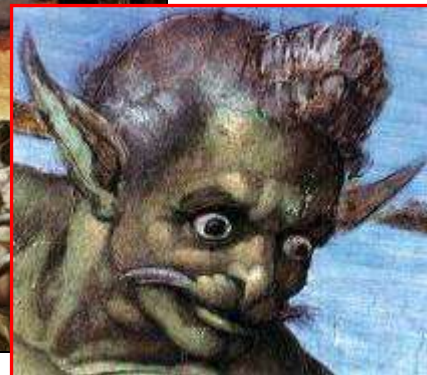
We've pulled Charon out to better see him.



The Charon of "Descent of Aeneas into Hell" (c. 1530) appears not to be old.



Influenced by Dante's "batte col remo qualunque s'adagia," Michelangelo's "Last Judgment" Charon is more than a toiler; he's a man of mission, oar raised to smite those who wish to rest.



Detail of "Last Judgment" (1541), Michelangelo

But before the plaster in the Sistine Chapel was yet dry, controversy surrounded the work. According to Papal Master of Ceremonies, Biagio da Cesena,

It was mostly disgraceful that in so sacred a place there should have been depicted all those nude figures, exposing themselves so shamefully, and that it was no work for a papal chapel but rather for the public baths and taverns,

Just a month before the artist's death, it was decided to "amend" the fresco and Daniele da Volterra added loincloths. Over the years, additional portions were "amended," but during the restorations in the 1980s and 1990s, the masterpiece was largely returned to its original state, leaving only the changes made by da Volterra.

Iconografia Dantesca. The Pictorial Representations to Dante's Divine Comedy (1899) by Ludwig Volkmann has this to say,

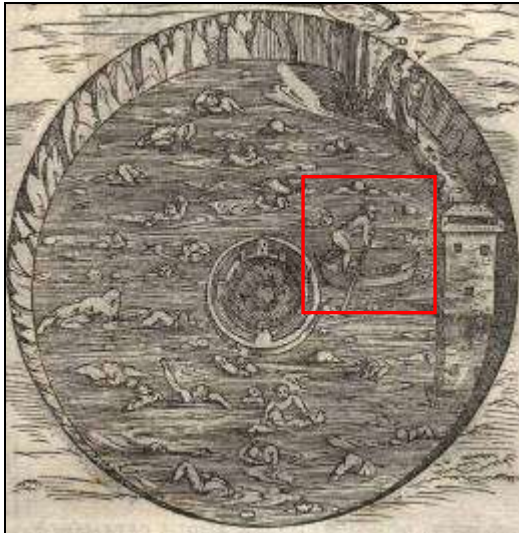
One can see the ferryboat of Charon, from which the damned are thronging in masses. The somber ferryman of the nether world himself is faithfully depicted after Dante, as he beats with his oar everyone who hesitates. This splendid motive had been almost universally allowed to pass unnoticed by artists previously. Most of the manuscripts present Charon simply as a rowing devil; and even in the rare cases where there was a suggestion of the beating with the oar, this is so stiffly and awkwardly done that one cannot really call them worthy representations of Dante's Charon as yet. Michael Angelo was the first to give him classical form, and all later men followed him in this.

According to Francis A. Sullivan in "Charon, the Ferryman of the Dead," Classical Journal, October 1950,

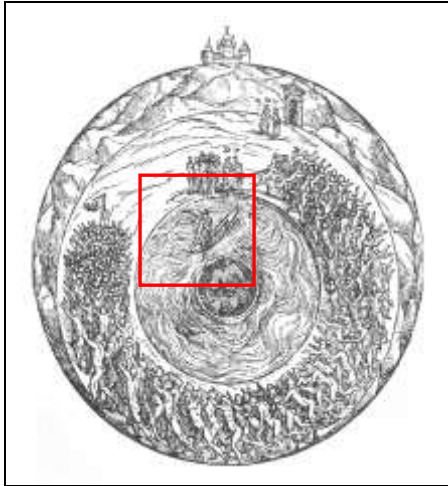
The Christian view of Charon has naturally softened the features of the character ascribed to him, and many a folk tale tells how unwilling he is to carry off his victims. But no respite can he give, for he is straightly charged by God to ravish souls. The modern pagan conception of him is darker and excludes all traits of kindness and mercy. Men hate him as the inexorable hunter whose quarry is human souls, or the warrior whom no human prowess can overthrow, no beauty soften.

Charon, the old boatman of the Styx, seems to have suffered a great sea-change down the centuries.

The closing line, of course, summarizes the theme of this chapter.



Francesco Marcolini (1544)



Venice woodcut (c. 1544)

The painting below bears hallmarks of a Brueghel, but is by a lesser-noted contemporary.



"Aeneas and the Sibyl enter Hades" (1571)
Jacob Isaacs van Swanenburgh



Detail of Aeneas and the Sibyl on Charon's
boat through the River Styx



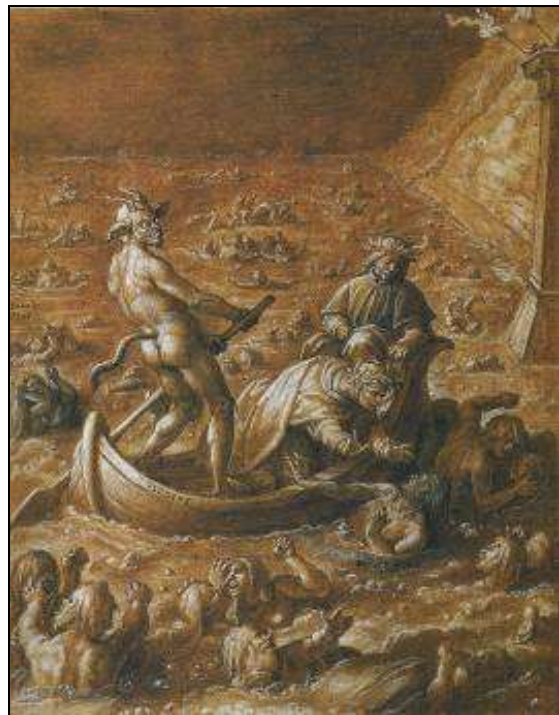
In "Dante and Virgil on the Shores of Acheron" (1588) by Jacopo Ligozzi, Charon smites those who linger while Virgil seeks to arrange for passage and Dante falls into a swoon.

Artistic plagiarism was commonplace. The Charon to the right, however, from another edition of the *Divine Comedy*, sports a tail



Venetian woodcut (c. 1555)

Another 16th-century tailed Charon.





Federico Zuccaro (c. 1587)



"Psyche Embarques in Charon's Boat,"
Bernardo Daddi (1512)

While many of the era's pieces clung to established styles, the hand-colored woodcut "Charon, the Ferryman of the Underworld, in Hell" (1535) is evidence of a new surrealism.



Tintoretto's figure-laden composition below foreshadows a changing artistic eye.



"The Last Judgment, Detail of the Damned in the River Styx" (before 1562), Domenico Tintoretto.



The feeble boat, beyond the power of the helmsman to control and laden with derelict souls, drifts to endless damnation.

Tintoretto's contemporary, Giorgio Vasari's Lives of the Artists, wasn't impressed.

There, also, may be seen the boat of Charon, but in a manner so different from that of others, that it is a thing beautiful and strange. If this fantastic invention had been executed with correct and well-ordered drawing, and if the painter had given diligent attention to the parts and to each particular detail, as he has done to the whole in expressing the confusion, turmoil, and terror of that day, it would have been a most stupendous picture.

The painting is flawed, according to Vasari's, because it inadequately portrays Charon's craft a refuge upon the river.



Not all art is on canvas or paper, as illustrated by Italian ceramicist Nicola da Urbino's "Orpheus and Eurydice" (1520-1538).



17th Century

Donato Mascagni (1579-1636) held closer to earlier motifs. Note Charon's style tail on the right.



"Dante and Virgil about to Take Ship with Charon across the Acheron"



"Charon Ferrying Virgil and Dante across the Acheron"

A pair of woodcuts, heroic in Charon's toil, nearly identical in composition,



"Charonte" (1615), Filippo Feroverde

The format brings to mind the trading card of Chapter 28.



"Of the Ancient Images" (1603), Vincenzo Catari

The works below are sophisticated in story, but reveal little novel regarding the boatman.



"Aeneas and Charon" (17th century)
Wenzel Hollar



"Entrance to Erebus" (1684-1686)
Luca Giordano

The woodcut to the right, "Charon" (c. 1620) by Werner Van Den Valckert makes Charon less the heroic boatman, and more the bemused observer.

Below, "Psyche with the Water of the Styx, after Crossing into the Boat of Charon" (17th century), Jean-Baptiste Corneille



"Charon Taking as Passengers Aeneas and the Cumaean Sibyl" (1628) by Oliviero Gatti, is more-representational of emerging Romantic movement.

We don't today associate this softer side with our brusque oarsman, but when Orpheus sought his deceased wife, Eurydice in Ovid's Metamorphoses, Charon was so charmed by his music that he ferried for free. Even the most curmudgeon retains a spot of vulnerability, a touch of the humanistic 1600s.



Below, the "Golden Apple" (1668), after Burnacini, portrays Charon alone, the city on the far shore seemingly not Dante's Dis, but a place of refuge.



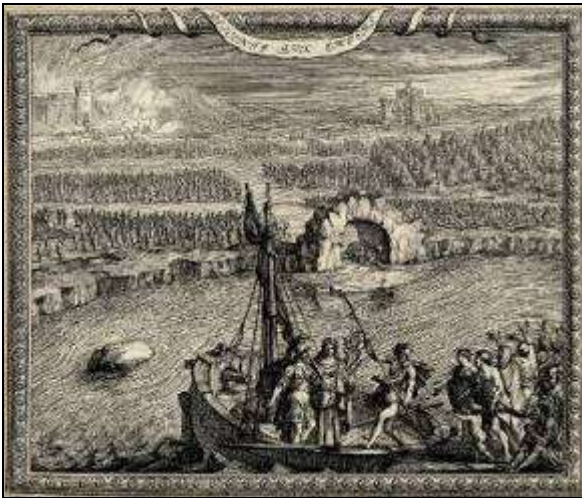
Abraham van Diepenbeeck, "The Boat of Charon" (17th century), the boatman accentuated in red.



Attributed to Ciro Ferri "Charon Leading Aeneas and the Sibyl in the Underworld" (17th century). Note the Roman helmet.



"The Underworld" (1635-1638), after van Diepenbeeck, Charon, repelling souls trying to board. Hades and Persephone are under a canopy of flayed skin. Torture scenes fill the middle.



"Descent to Hell" (1648). Charon poles a vessel of the era.



"The Sibyl of Cumae Guides Aeneas through the Underworld" (mid-17th century), Johann Wilhelm



18th Century

The 1700s was a century of neoclassical revival.



"Aeneas with the Sybil and Charon" (c. 1700),
Giuseppe Maria Crespi

Crespi's painting serves to model the bodies with plasticity, and above all to structure the surface of the picture into light and dark patches, into bands of light, as if the physical connection and hence the connection with regard to content were becoming secondary -- pointers to the new century that was about to start. -- Wolfgang Prohaska, Kunsthistorisches Museum, Vienna, The Paintings (2006)

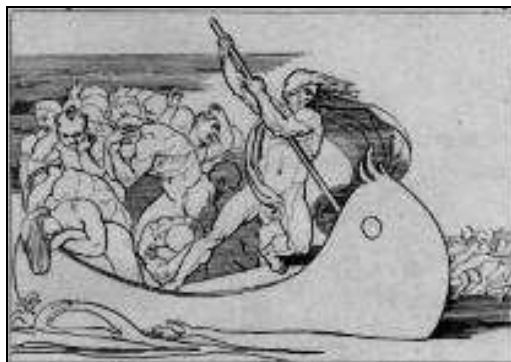


"Charon Ferrying Dead Souls across the Styx" (1732), Pierre Subleyras

Between late-Baroque and early-Neoclassic, this Charon seems in the prime of vitality.



Michel Corneille the Younger, "Psyche asking to pass the Styx" (early 18th century)



"Charon Ferries the Damned across the Acheron" (1793), John Flaxman. For the era, a rare instance of less cluttered imagery



"View of Hell with the Palace of Pluto in the Distance" (third quarter, 18th century), Jacques-Gabriel Huquier.



Engraving (18th-century)



"Charon Ferries the Shades," Lettres à Emilie sur la Mythologie (1786-98), Remi Henri Joseph Delvaux

A pair of neoclassical scarab renderings of Charon confronting the half-woman, half-serpent Cerberus.



19th Century



"Passage on the River Styx" (1819),
Nicolas-Louis-Francois Gosse

Charon appears to have forgotten his charge and now transports the Holy Family.



"Filippo Argenti Trying to Get into the Boat" (1838), Federico Zandomenegh

The snake lurks in both works.

"Bark of Charon" (19th century), Filippo Bigioli



The three Divine Comedy illustrations below were engraved by William Blake, 1824-1827.



"Vestibule of Hell and Souls Mustering to Cross Acheron"

The detail shows what may be a unique nautical outing for Charon, sailing.



"Dante and Virgil are Hailed by Filippo Argenti"



"Charon and the Condemned Souls"

Edward Calvert's "The Soul Crossing the Styx" (1844-1883) is to the right, Charon's face shrouded in his cape, his passenger, angelic.

Below is another Calvert, less-foreboding



"Charon's Boat," Auguste Feytaud (1826-1888)



Elie-Honoré Montagny



"Psyche Crossing the Styx," The Loves of Psyche, after Raphael (1825)



"Charon's Crossing" (1861), Alexander Litovchenko.

The etching and wood-cut below are by Edward Burne-Jones. In the former, Charon takes the coin out of Psyche's mouth, whereas in the latter, she holds it in her hand.

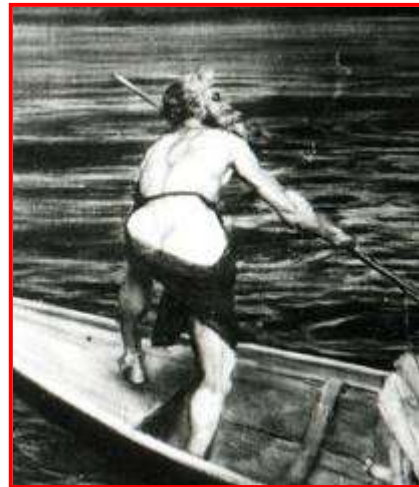
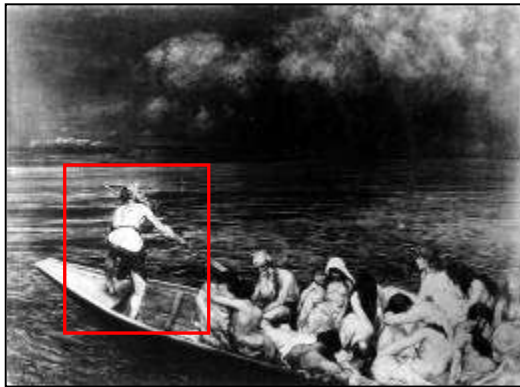


"Cupid and Psyche" etching (1865)



"Cupid and Psyche" woodcut (1880)

Unlike Burne-Jones prints which hearken to centuries of Dante illustrations, the 1876 etching by Hans Thoma is almost photographic in tone.



Below, however, we see that classicism persists.



"Charon Crossing the Acheron" (1882),
Pedro Americo



"Charon and Psyche" (1883),
John Roddam Spencer Stanhope



"The Boat of the Acheron" (1887),
Felix Hildago



Hildago's Charon studies

In "The Bark of Charon" (1895),
photogravure by G. Pepperity.
Charon turns from the carnage
while the vulture eyes the spoils.



The engravings that follow are from the 1892 edition of the Divine Comedy illustrated by the engravings of Gustave Doré. All show our boatman, but the first is the figure most recognized.



Charon

*And lo! toward us in a bark
Comes on an old man hoary white with eld,
Crying, "Woe to you wicked spirits." (3:76-78)*



Virgil Pushes Filippo Argenti into the Styx

*My teacher sage
Aware, thrusting him back, "Away! down there
To the' other dogs!" (8:39-41)*



Charon Collects the Doomed Spirits

*E'en in like manner Adam's evil brood
Cast themselves one by one down from the
shore. (3:197-198)*



Across the Styx

*Soon as both embark'd,
Cutting the waves, goes on the ancient prow,
More deeply than with others it is wont.
(8:27-29)*



Outskirts of Dis

*I could not hear what terms he offer'd them,
But they conferr'd not long. (8.110-111)*



Opening the Gate

*To the gate
He came, and with his wand touch'd it,
whereat
Open without impediment it flew. (9:87-89)*
Charon's craft is in the background



"Charon's Bark with Souls Crossing the Styx"
(1807-1808), Joseph Anton Koch





Three illustrations by Bartolomeo Pinelli. Note the remarkable beard.

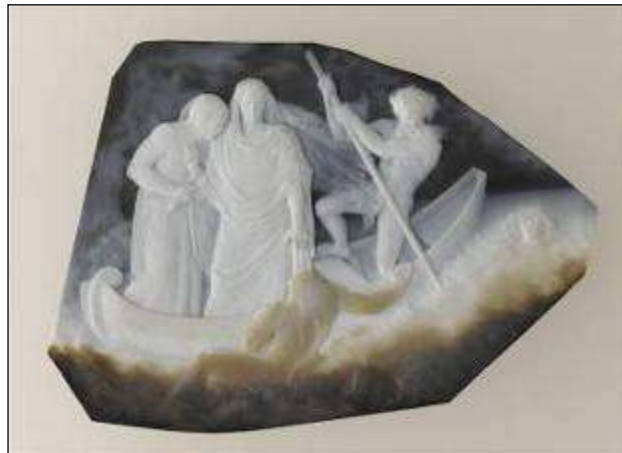


Aeneid (1811) Charon commands condemned souls to return to land



L'Infe (1824)

"Passage of the Styx with Dante and Virgil" (1893), Tonnelier Georges, sardonyx (a variation of onyx).





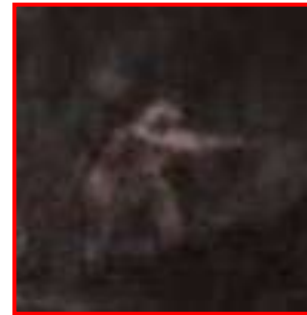
"Charon and Hermes" (1802-1833),
Philippus Velyn



19th-century stained glass window,
Poldi Pezzoli Museum, Milan



"Souls on the Banks of the Acheron" (1898) by Adolf Hiremy-Hirschl. Charon emerges from the darkness to row these souls to their final abode. The sight of his bark on the black waters strikes the multitude with terror.



20th Century

"Charon's Boat of Damned Souls Skimming across the Acheron" (1902), Alberto Martini



"Orpheus and the Boatman" 1907, drawing by A.J. Campbell, block by the Students of the London County Council School of Photo-Engraving and Lithography



"Charon Moving his Empty Boat toward a Distant Shore" (1909), Robert Traill Rose



"The Boat of Charon" (1919) by Jose Benlliure y Gil is a fairly formulaic Greco-Roman rendition of the wearied oarsman and a ghost-like passenger.



"A New Dance of Death" (1938) Alfred Kubin

The first Italian feature film, "L'Inferno" (1911), was a depiction of Dante's Divine Comedy.



As Dante and Virgil approach the River Acheron, scores of naked bodies attempt to board Charon's craft, a scene staged as if it were a Doré etchings.



"Charon on the Styx" (1936),
Allen Bennett, a.k.a. Allen Pencovic



Mythology (1942), Edith Hamilton



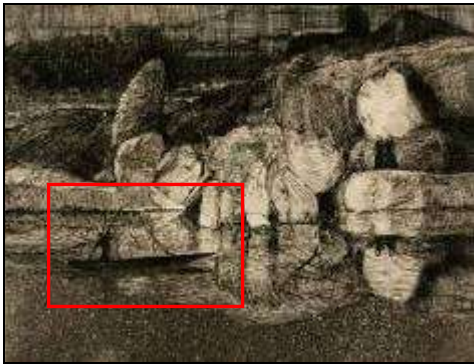
"A Dream of the Middle Ages," (1937), Donn Crane, My Book House 11



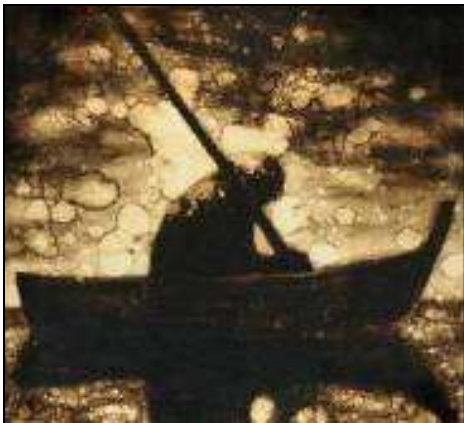
"Charon Crossing the Acheron," (1963), Salvador Dalí



Of the works we've collected from both this century and the first decade of the next, Renato Guttuso's "Crossing the Acheron" (1970) is the only one with the smiting-oar stance.



"Charon" (c. 1990), Joe Winkelman



"Charon Sleeps" (1991), John Sokol



"The Crossing of the Styx" (1997), Eli Tiunine



Gérard Garouste (1986)



"Passage over the River Styx" (1952), a monument by Gerhard Marcks erected at the site of the Hamburg firestorm of August 3, 1943.

21st Century



Two sketches by Dan Hammer, c. 2005

While it's far too early to predict Charon's depiction in the century upon us, we have indications.



Donald Axleroad



Donald Axleroad



E. Thor Carlson

Chapter 34 -- Twenty-Five Centuries of Subterranean Portraits



Detlef Hahn and Jamie Boyd



Bradley Platz



Sherrie Thai



Nick Skochev



Paco Garcia



Sandra Yagi



George Gittoes



Martine Davies



Suloni Robertson



Adam Shaw



Luke Olsen



Robert Talpin



Red Sonja #30, January 2008, the "She-Devil with a Sword" on the River Styx



A Legos model doesn't qualify as a portrait, of course, but it seems worth noting.

And a lasting character is our protagonist is, as evidenced in Seymour Chwast's 2010 illustrated novel adaptation of the Divine Comedy.

We plan to cross the Styx. A flame in a tower points us to a boat. The boatman, Phlegyas, offers us passage. We accept.



And we've still more portraits of our boatman in the chapter to follow, graphics in which our character is employed to convey a message more particular to the day.

CHAPTER 35 CHARONIC POLITICAL CARTOONARY

Cartoonists have long portrayed Charon ferrying the well-known and wealthy to their just desserts. The ancient boatman is sometimes drawn as the muscular Greek sailor, sometimes as the wearied laborer, sometimes as the ferocious demon, all incarnations from the art world. Charon ferries some clients to what looks to be an Elysian Field afterlife, but more often he's rowing them toward Hell. Our versatile boatman serves whatever purpose is assigned him.

Holland

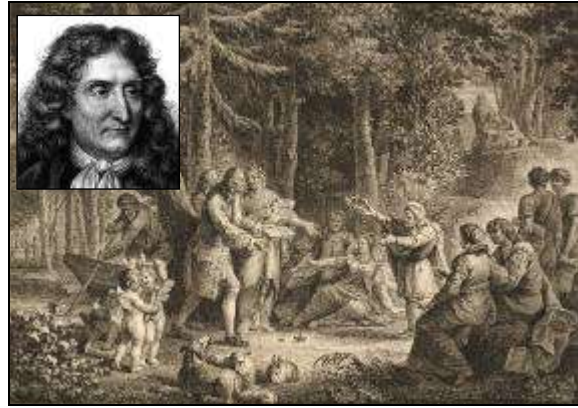
In "The Wretchedness of Wealth" (1563) after Maarten van Heemskerck, Death ushers a bejeweled king towards Charon's boat. Money is of no avail in the dying hour.



France



"Arrival of J.J. Rousseau at the Elysian Fields" (1782)



"Coronation of the Fountain at Elysian Fields" (1785). Poet Jean de La Fontaine is welcomed to Elysium. Virgil and Pliny converse next to Petrarch and Laura. Charon is behind the tree.

"Mirabeau arrives aux Champs Élysées" (1791). Mirabeau, at the center, arrives at the Champs Élysées where he hands a copy of the French Constitution to Rousseau while Benjamin Franklin bestows a wreath. On the left, Fénelon, Montesquieu, Voltaire and Mably come to greet the recent arrival. On the right, Demosthenes talks with Cicero. Charon pushes his boat from shore.



The aforementioned,



In this 1789 cartoon, Charon accepts the baker Remy François, mistakenly beheaded in the aristocratic fury, into his boat while rejecting officials and guards who carry their severed heads atop pikes. On the opposite shore, the Elysian Fields, Jean Calas and others welcome the baker.



"Avis aux Aristocrates" (1790), Satire against the Aristocracy. Charon refuses to ferry a crowd of dead aristocrats.



"Arrival of Louis Capet in Hell" (1793). To republican France, Louis XVI was "Citizen Louis Capet." A revolutionary Charon deposits the headless despot to a Hades populated with prior monarchs as the people frolic about the liberty pole.



In post-revolutionary France, Louis Abadie's "La Barque a Caron" (1825) warns that Charon awaits the drunkard.



Great Britain

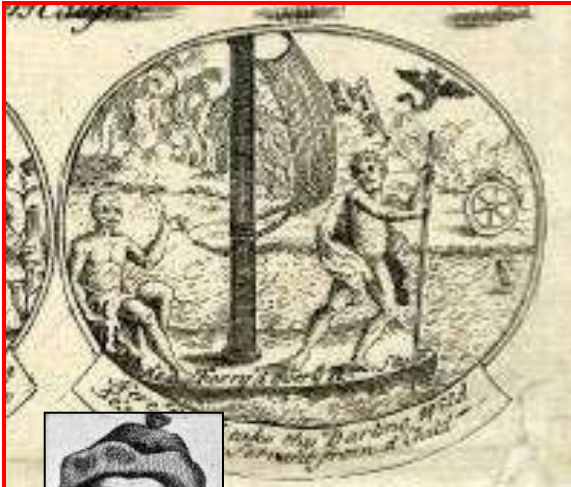
To the right, the frontispiece to The Works of Mr. Thomas Brown (1715), showing Charon ferrying a group of gentlemen across the Styx. On the bank stand the author and the recently dead comic actors Joe Haines and James Nokes. The actor Antony Leigh (also recently dead) preaches from a ruined church, while an astrologer speaks to well-dressed women. The Quakers James Nayler and George Fox, pictured below, approach.



"Robin's Flight, or Ye Ghost of a Late Treasurer of the South Sea Company Ferry'd into Hell" (1721). Absconder Robert Knight -- the facial from another cartoon -- is led by the Devil to the River Styx, refused entry into Elysian Fields and turned away from Purgatory. As a shrouded ghost, Knight is ferried by Charon to Hell where Pluto, attended by monsters and a diabolic accountant, await. Knight is then dragged into Hell by tormenting devils and forced to surrender his ill acquired wealth.



"The Funeral Procession of the Celebrated Mr. Jonathan Wild, Thief-Taker General of Great Britain & Ireland" (c. 1725) celebrates the execution of the criminal Jonathan Wild. The mourners are led by Beelzebub as Wild is ferried to Hell by our boatman.



In "Sawney Below Stairs" (1763), Lord Bute arrives on the shore of Hades where an elegantly-dressed devil introduces him to earlier politicians while a snake ascends Bute's leg. A devil flying above holds a mirror, allusion to Bute's vanity. Charon demands his fare in advance, as Bute's crony Henry Fox is "a bad Paymaster"



"Sheol, Puck, May 27, 1885, reverses Charon's route.



According to the new version of the Old Testament, many respectable people who have been writhing in the old fashioned Hell will have to be transferred to the pleasant watering-place known as "Sheol." This is Puck's notion of the evolution of Hell to Sheol.

To the figure's left, the dejected Devil sits beneath a sign, "This Business is Removed to Sheol, Opposite." Among those ferried to Sheol by Charon are the philosopher Hypatia, Fanny Elssler, Voltaire, Frederick the Great, Socrates, Offenbach, Darwin, J.S. Mill, Rousseau, George Sand, Galileo, Jefferson, Thomas Paine, Goethe and Heinrich Heine.

Chapter 35 -- Charonic Political Cartoonary



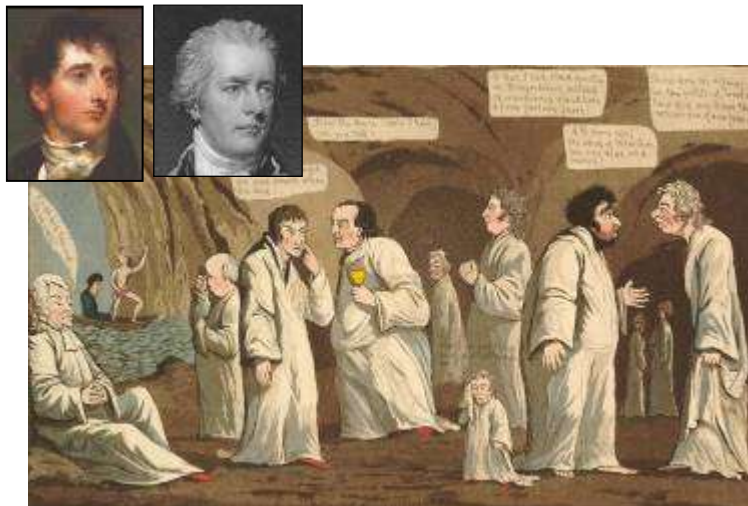
"The King of Prussia arriving in Elysium is reconciled with Voltaire by Henry IV" (c. 1800). Charon's to the right.



Frontispiece to The Wonderful Flights of Edmund the Rhapsodist, into the Sublime and Beautiful Regions of Fancy, Fiction, Extravagance, and Absurdity (1791). Charon sits in his ferryboat as Edmund Burke, with ass's ears, sits astride a broomstick and is carried upwards on a cloud rising from ground containing the slaughtered victims to the divine Right of Kings and the sanguinary Principles of the Priesthood of all Ages.

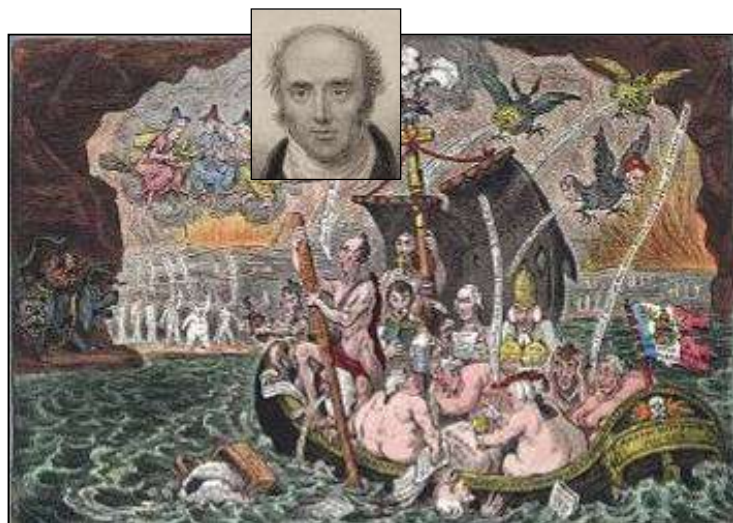


"Shades of Opposition; or, More Ghosts" (1798). Members of the Opposition converse in Hades while William Pitt, as Charon, ferries Francis Burdett towards his companions. In the distance are two lank figures, perhaps United Irishmen.



"In Charon's Boat" (1807). The fallen Wig leader Earl Grey is Charon. Grey, however, was to return to politics as Prime Minister, reform the government and abolish slavery throughout the Empire.

In addition, this particular Charon provided his name to a familiar blend of tea.



In "A Vision of Judgment" (1829), a haggard Wellington starts up from a sofa, horrified at a vision of Charon's boat with banner "Turkey, Portugal, Russia."



Wellington:

*What do I see -- Old Caron and his ferry?
 And Canning, Percival, and Londonderry?
 This is too bad by G-- 'twas all my own
 The Church and State, the Scepter and the Throne,
 Caesar himself I have put fast asleep
 While Lords and Commons are afraid to peep.
 What can those shadows mean? What can they want?
 Resign my mighty power! No that I shan't.
 And yet I am half afraid that I shall fall,
 Thus "Conscience still makes Cowards of us all" -- ['Hamlet', III. i]*

King George IV dozes in his armchair, a bottle of brandy beside him.

Charon:

I hope your Grace will not forget my fee.

J.J. Grandville was a caricaturist later recognized as a grandfather of Surrealism. Un Autre Monde (1844) describes a parallel world, a thinly-veiled parody of our own. "La Barque a Caron" is one of many illustrations from the work

*Portitor has horrendus aquas and flumina
 servat, terribili squalore Charon*

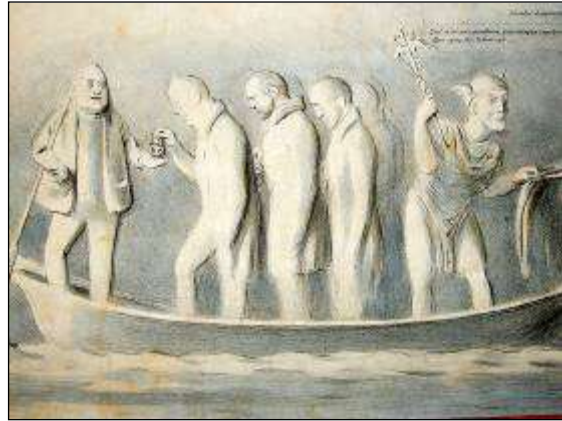
*Ferryman of these horrible water and streams,
 Charon, in his terrible squalor.*

We're unsure of identities, caricatures of the day's well-known personages.



Two drawings by John Doyle for his series Political Sketches.

"Unhappy ghosts crossing the Styx" (1834).



"Unhappy ghosts wandering on the banks of Styx, while Charon in his boat ferries over the elect to the Elysian Fields" (1847)



The unhappy ghosts of Thomas Macaulay, Sir John Hobhouse, Benjamin Hawes, Thomas Wyse and Charles Fox walk disconsolately on the banks of the Styx, followed by John Roebuck, tearing his hair, while Charon (John Bull, symbolic England) moves off for Elysium with John Russell and his colleagues. The silhouette of Hawes was made on Brighton Pier.

Chapter 35 -- Charonic Political Cartoonary



Early environmental journalism: "Silent Highway Man" from an 1858 issue of Punch.



Punch, January 5, 1865, welcomes "The New Passenger."

Lloyd George Charon to Plutocratic Shades, "Your fares will cost you more!" -- Punch, May 13, 1914





"Threatened increase in the high cost of dying. Mr. Philip Snowden's comments on the unsatisfactory receipts of Death Duties are held to foreshadow an increase in these in the next Budget" (1930).

Styx Ferry Service. 10 minutes service to the bad place including Sundays and holidays. Notice In consequence of the bad season all fares may shortly be increased. Signed, Philip Charon.

"Seine Crossing" (1944)



"A Patriotic Appeal" (1934)

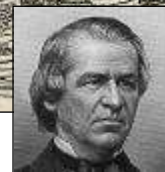
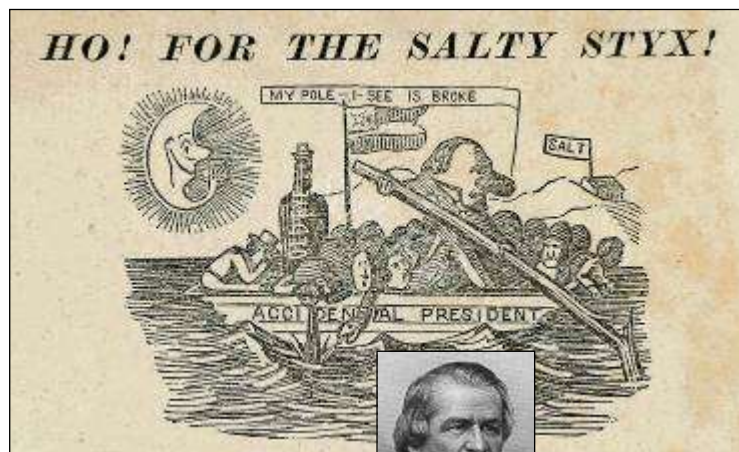
England Expects That Every Millionaire This Day Will Yield His Duties

Summer Cruises across the Styx on Charon's Luxury Ferry



United States

The 1865 broadside, "Ho! For the Salty Styx!" attacks Andrew Johnson's ascension to the presidency upon the assassination of Abraham Lincoln. Johnson, as Charon, pilots the boat "Accidental President," with the text beneath.



The steamer "ACCIDENTAL PRESIDENT" will leave immediately for the above-named resort [Salty Styx]. Take cars 9th and Arch. Passengers are requested to take sufficient clothing, as the stay may be prolonged. On account of the Great Rush to the Saline Shores, during the last six years, a new Hotel has been erected, called the "Usurpation" House, capable of accommodating the whole democratic party -- no distinction among the quests. Conservatives, Copperheads, Traitors, Blackguards, &c, will be treated alike. A prominent man will be on hand to grant pardons. On the trip Grandmother Buchanan will related the story "How he aided and abetted the Rebs!" A prominent Reader will recite the "Story of Arnold." A band of Renegade Republicans: will perform Andy's favorite, "We'll all drink Stone Blind." Liquors, (White House Vintage,) free. PROPOSALS RECEIVED for BURYING the DEAD DOG. -- P. Brownlow, Undertaker.

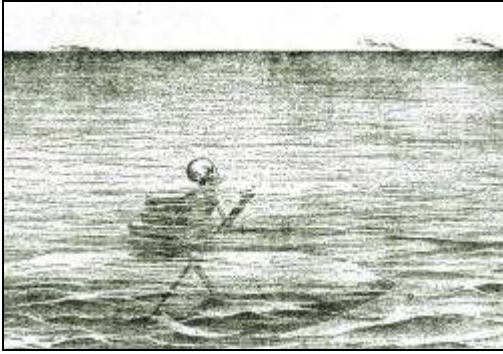
"Across the River Styx," Cleveland Plain Dealer, February 9, 1902, deals with a local issue, the displacement of Cleveland Public Schools Director Bell from the Republican primary by his "Former Political Friends."



Charon: "Just as well keep up with the times and satisfy my Patrons." -- Harper's, November 1907



Charon (who has just installed a gasoline engine): "If there are any of you shades who know how to run this engine, you'll get your trip free!" -- Harper's, August 1912



Charon steers a submarine in this 1914 Literary Digest cartoon, "The New Death."

To the right, another Great War commentary. Count Hohenzollern became King Ferdinand of Romania in 1914 and in 1916 presided over his nation's entry into the war.

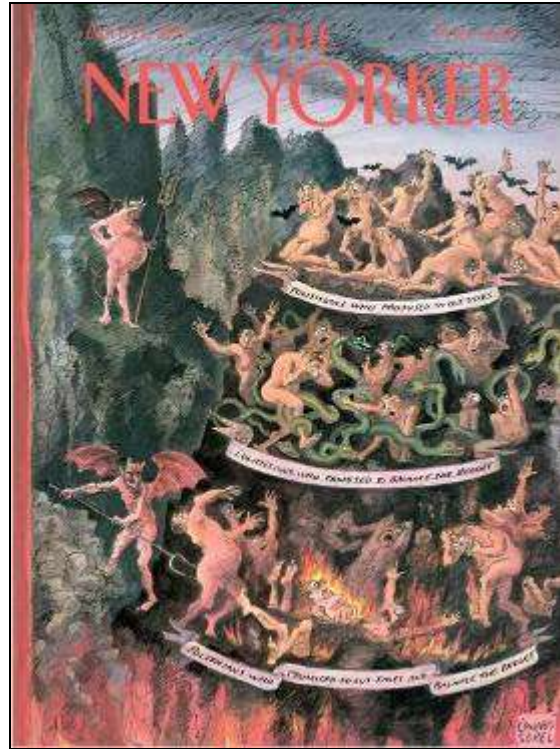


Charon: "I'll take you across, gentlemen, but the Styx is infested with U-Boats, and you travel at your own risk." -- Harper's, November 1918





Izaak Walton League Monthly, 1922 or 1923,
So you're a polluter, are you? Well, the Old Man won't stand for and such rough stuff down here.



And at the risk of equating an oar to a pitchfork, the Dantesque cover of the April 21, 1997, New Yorker cannot be omitted.

Politicians Who Promised to Cut Taxes
Politicians Who Promised to Balance the Budget
Politicians Who Promised to Cut Taxes and Balance the Budget

Prohibition, of course, was a frequently-cartooned target.



Jay N. Darling, "Over the River," Des Moines Register, January 16, 1920. Old John Barleycorn on the River Styx, "Hey old timer, how much farther is it?" a reflection on prohibition



"From One Dry State to Another," Harper's, February 1920

Art Young, "Charon, The Ancient Ferryman of the Styx, Now Retired, Inferno: A Journey Through Hell Six Hundred Years After Dante (1934).

Hell, like modern society, is rapidly industrializing and Charon has been forced into retirement by a younger captain. Charon is now a mere loiterer on the river's docks. The industrialized "Styx Navigation Co." in the background calls for a newer, commercially-friendly face. Young was best known for his contributions to the Socialist monthly.



New Yorker cover, February 21, 1994

Kevorky Park, an amusement park with rides on which people can commit suicide, refers to Dr. Jack Kavorkian, an exponent of euthanasia.



Bradley Platz, "Charon and the Shades" (2007). On the boat with Charon, Nicole Ritchie -- modern celebrity and wealth -- is dry and emaciated, without physical beauty. Gold is pours from her mouth. Souls trapped in purgatory swarm the craft, but without money for Charon, remain eternally stranded.

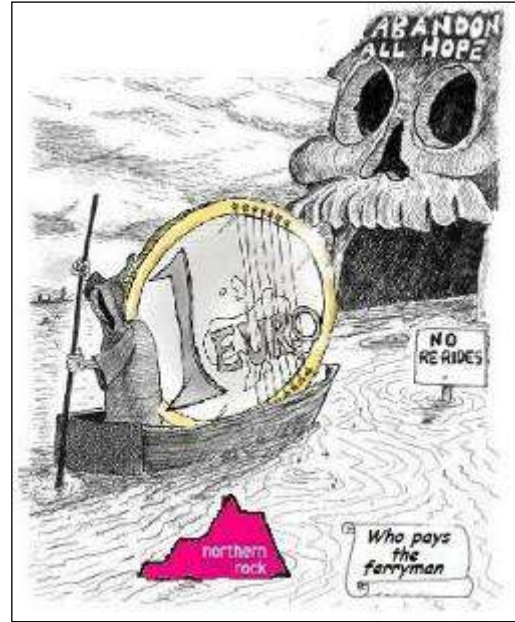
In the words of the artist,



The painting represents celebrity privilege as the continuation of the aristocratic privileges that have extended back to the time of myths and gods.

How have we progressed regarding gender equality? Consider the cartoon subjects pictured in this chapter. Not until 1885 do we have a female, only three out of 15 subjects, to be sure, but at least included. Our next female, not until 2007, is noted for being noted

Charon today is increasingly garbed to resemble the Grim Reaper.



Three George W. Bush cartoons by Mike Lane



"Enron Boat," February 6, 2002



"The Mainstream in Iraq," October 18, 2004



"River Styx Iraq," October 12, 2006

Eugene Terre'Blanche going to Hades, *Mail & Guardian*, April 8, 2010. Terre'Blanche was a member of South Africa's Herstigte Nasionale Party during the apartheid era and later was known for threatening civil war to maintain white rule in South Africa. Terre'Blanche was imprisoned for assaulting a black petrol station worker and the attempted murder of a black security guard in 1996. In 2010, he was beaten to death by two laborers over a wage dispute.



Through the interpretations of myth, the schools of art, the social change that feeds it all, Charon glides onward, his portraiture altering from prime to aged, from kind to fierce, from angelic to monstrous, but the relevance of his labor is undiminished.

CHAPTER 36

UNDERGROUND RIVERS IN THE FINE ARTS

If in fact the image of the underground river permeates Western culture, we would expect to encounter such representations in the fine arts. And indeed, this is the case. This chapter cites a few examples in painting, photography, performance and architecture. We've seen examples in prior chapters and we will see others in the journey ahead. Although music could be folded into this chapter, we'll give it its own sage in the chapter to follow.

The Underground River in Painting and Etching

The previous chapter makes this section a short one. Because most underground river artwork is historically of the River Styx -- our ferryman Charon usually claiming the center -- we're left with a reduced catalog.

Before we look at underground rivers, sans Charon, in painting, however, we remind ourselves that from a broader perspective, we're looking at circularity, the metaphor of the Renaissance (Chapter 7). As expressed by Vincent Van Gogh in an 1888 letter to Emile Bernard,

We're still in the position of believing that life is flat and goes from birth to death. But life too is probably round, and far superior in extent and potentialities to the single hemisphere that's known to us at present. Future generations -- probably -- will enlighten us on this subject that's so interesting -- and then science itself -- could -- with all due respect -- reach conclusions more or less parallel to Christ's words concerning the other half of existence.

Below, "Aeneas and the Sibyl" (1620s) by Jan Brueghel, the Elder, an artist celebrated for the velvet texture of his works. The River to Hell begins in lightness.



Chapter 36 -- Underground Rivers in the Fine Arts

To the right and below are three William Blake Inferno etchings (1824-1827) not included in the previous chapter because they don't portray Charon. They are explicit, however, in Stygian location.

Unlike "The Stygian Lake with the Ireful Sinners Fighting" to the right, Blake's engraving below and on the left seems decidedly un-infernal in several aspects:

- The summer-day setting,
- The recreational sloop,
- The edifice resembling the Lighthouse of Alexandria, a Wonder of the Ancient World.



"Dante and Virgil about to Pass the Stygian Lake"



"The Angel Crossing the Styx"

Perhaps the most we can conclude from Blake's underground-river etchings is that artistry is granted broad license.

George Catlin (1796-1872), an artist with a bent toward geology, is best known for his illustrations of Native Americans and landscapes, an example of which, "Lower Missouri River," is shown below.



Catlin's interests were not exclusively what could be seen, however. Underground lakes and rivers were central to his geologic treatise, The Lifted and Subsided Rocks of America (1870). The elevation of mountain chains, he explained, left vacant cavities underneath, "and the ever-ready ingredient to fill those spaces is water." Citing Mammoth Cave and Native American legends, Catlin argued the magnitude of these reservoirs was necessarily enormous. In reference to the Noachian flood, "If suddenly raised and let loose upon the surface, [the water] would deluge the globe."

These reservoirs, not subject to evaporation, are fed from the surface, it being the nature of mountains to receive more precipitation than do the surrounding plains. Resultant overflow at the top of these "subterraneous cavities" thus produces an underground river flowing towards the sea in the direction of the inclination of the chain. The Gulf Stream consists of two vast subterranean rivers, one carrying the drainage of the Rockies, the other that of the Andes. "Submontagne aqueducts, with currents, are the necessary consequence, is proved by a law of nature." It's unfortunate that Catlin made no painting of what lies beneath the painting above.

The Geological Magazine 7, 1870, review Catlin's work,

Catlin, the hero of our boyhood, the historian of the North American Indians, comes before us here in a new character, as a writer on physical geology, geography, and ethnography; and although we confess to a feeling of fond regret in not meeting with a single buffalo-hunt, or a Pawnee chief in his war-paint in the book before us, it is a wonderful book nevertheless. No, Mr. Catlin has taken up the pen once more, not, however, to write on Indiana, but on the great physical features of Northern and Central America, and to offer us his own opinions on the origin of mountains and valleys, rivers and seas, and the vast changes that have taken place in the relation of land and water since man, as civilized man, occupied Central America. Mr. Catlin, if not a profound scholar is, at least, a great traveler, and his observations therefore deserve our attention, even if we are unwilling to accept his theories.

Along the shores of the United States enormous volumes of fresh water are constantly poured into the sea from subterranean rivers. The coasts between Nice and Genoa, those of Algeria, Istria, Dalmatia, and even the shores of the Dead Sea (destitute of substantial streams) have all their submarine rivers jetting up into the sea. Nor will anyone, familiar with the phenomena of mountains and rivers, be disposed to object to the assertion of Mr. Catlin of the vast quantity of subterranean channels in the Rocky Mountains into which a very large proportion of the rainfall

finds its way, probably not to reappear until it is poured into the sea itself by some submarine vent. But it may be very reasonably doubted whether there is any more connection between these fresh-water rivers, with submarine outlets, and the Gulf Stream, than between it and the waters of the Amazons or the Mississippi itself.

Though doubtful regarding Catlin's expertise, Geological Magazine endorsed the artist's Rockies-to-Gulf subterranean thesis, a hypothesis we'll further explore in Chapter 79, Veins of the Heartland.

Here, for a reason that will become apparent, we cite an article, "An Underground River, One of the Natural Wonders of Idaho Territory," in the Oregonian of January 17, 1882, which in its geographical content, would be suited for Chapter 94, The Rio San Buenaventura. The story reports upon an amazing discovery by cowboy Meto Green.

A funnel-shaped orifice fifteen or twenty feet deep by ten or twelve at the rim in diameter. At the bottom of this funnel -- the soil giving out there -- was a rift in the rock two or three feet in width by four or five in length, which seemed to open into the very bowels of the earth. Through this aperture came up from the depths below a terrible roaring, as if of a leaping cataract, a mighty rush of waters, tumbling over rocks. The ground trembled and the subterranean noise continued uninterruptedly. Meto remained some time, and the longer the listened the more convinced he became that what he heard was running water; but how far down to the stream he could not even conjecture -- might have been a few feet or half way to China.

The Oregonian speculates on the discovery's nature,

A second Mammoth Cave, or a vast and unfathomable abyss whose mysterious depths will never be explored of its gloomy solitude disturbed by inquisitive man. Catlin, the artist, mentions these underground rivers, and in his writings tells of one which he heard in the very backbone of the Rocky Mountains, running, he thought, from north to south.

As we will observe, optimistic comparison to Mammoth tended to be common in news coverage of cave discoveries in that era.

We cite the Oregonian article in a chapter dealing with the fine arts because of the reference Catlin. We quote the portion of the artist-turned-geologist's The Lifted and Subsided Rocks of America to which the Oregonian refers.

Our guide, who was a Frenchman, seeing me making sketches and examining the minerals of the country, proposed that we should leave our track for a while, to visit "Les Roches qui tremblent."

Our guide took us to the side of the wall, and exulted in convincing us, when resting our heads against it, that the rock "trembled." This trembling I found was sensible at a mile distant, and though I attributed it to the falling cascade, our guide assured us that it was always the same, even when the ravine was dry.

If this were so, it would furnish strong proof... of the existence of submontagne cascades, which are easily within the scope of possibility; but for the present -- where went this foaming torrent? Surely not to the Mississippi, nor to the Pacific Ocean, for we had already crossed half-a-dozen mountains coming from the last, and had as many more between us and the head waters of streams leading to the other.

Here, then, was a river (or the branch of a river) running under the Rocky Mountains, and I have seen a number of such, and of these some hundreds are known in the mountains of Mexico and the Rocky Mountains.

Not only by this mode of sinking, by which the rain falls upon the inclines are sliding off and pitching into the faults and crevices in all directions, but through mountain lakes which have no apparent outlets, mountain springs and ravine products are constantly passing, and to the same destination.

Chapter 36 -- Underground Rivers in the Fine Arts

Humboldt's Lake and the Great Salt Lake, with large streams running into them, and with no apparent issues running from them... are descending into the great reservoirs, would form submontagne torrents, with cascades, producing not only the "trembling of rocks," but the "blowing caves" and the "montagnes qui fument"

In his series of four canvasses, Voyage of Life (1842), Thomas Cole centers each work on an aspect of the hydrologic cycle.



"Childhood" shows a child on a boat drifting out of a cave from which a river flows. Cole described the cavern as "emblematic of our earthly origin, and the mysterious past."



"Youth" represents the optimism of a youth riding a boat not far from the stream's source.



"Manhood" is set in a Stygian river. Of two lightings, one illuminates hope for successfully riding the rapids. The second is created by the halo of his guardian angel. The voyager's Charonesque stance signifies labor.



"Old Age" shows a wearied soul in a ruined boat waiting on a becalmed sea. Solitary rough rocks represent the edge of the earthly world, and dark water stretches onward, merging with the clouds.

A few more period paintings.



"A Katabathra of Lake Copias" (1816) by Edward Dodwell



"La Source de la Loue" (1864), Gustave Courbet

A few paintings more contemporary.



Anne Kent/Ann Neale's encaustic "The Underground River in the Forest," we are pleased to observe, aren't as ominous.



Julie Ward's "The Underground River" speaks of a journey through darkness. Are the apples and pears (goddess symbols) magical fruits that sustain and bring joy to our labors or are they poisonous temptations that sway us off the track?



"Underground Stream" by Terri Burris. Whether the red is foliage, bird wings or something oriental may be up to the viewer.



"Styx" (2001) by Erik Heyninck "Böcklin's Island of the Dead in the distance is an indication that it is not the end, but that there's a river that leads us further."

Quoting from the Center for Maine Contemporary Art catalog for Alan Magee's 2007 exhibition -- and resolutely retaining from further comment,

[From the Underground River] addresses the fragility of our humanity, namely our capacity for violence -- violence directed towards others as well as ourselves. In these works Magee examines the human condition in today's culture of greed, commerce, and superficiality. His is a profoundly concerned art that is full of compassion and fellowship. In his study of human frailty, it is ultimately indifference that Magee decries.

From the Underground River presents this body of work in depth for the first time, and offers a rare opportunity to experience a wide spectrum of Magee's most personal and provocative images.



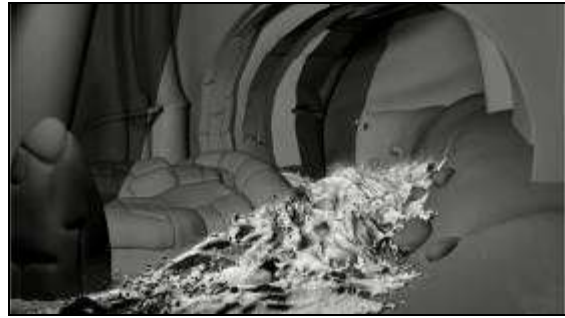
The Underground River in Digital Art

Ryan Corrigan's "Waterfall Cavern" brings to mind da Vinci's sketch.



Digital animator Ranjan's 16-second "Cave Flash Flood," is cartoonish in its rendition of the cave environment, but the roaring wave captures the fury a real event.

<http://vimeo.com/28805039>



The Underground River in Photography

Consider "Underground River" by John Welch, 2000. Not all is as it appears, however, as described by the photographer,

Basically, I generated two terrains, edited one for the floor and one for the ceiling, flipped the ceiling over and placed it on top of the floor. Then I added a water plane for the river and used a limestone texture for the rock.



Chapter 40, Karstology, contains additional photographs of underground streams.

The Underground River in Sculpture

As to where the whirlpool goes, we must wait until Chapter 94, The Rio San Buenaventura, and as for Native American legends, Chapter 84, but here we'll recognize the art.

"Spiral Jetty" (1971) is the best known work by Robert Smithson. Spiral Jetty is a coil of black basalt rock, salt crystals and earth that spins 500 meters into the Great Salt Lake inspired by the Native American legend that Utah's Great Salt Lake is connected to the ocean through a whirlpool.



The Underground River in Dance

"Underground River" is Jane Comfort and Company's Bessie Award-winning meditation on the dichotomy of an artist's inner creative world and the external reality. The work explores the rich, inner life of a girl who appears to the outer world to be comatose. It's good that we're told this.

The performance begins with four dancers walking onto stage. A skeletal umbrella with ribbons descends from above. The dancers remove ribbons and make a ribbon dancer puppet that all four manipulate.



Tim Dalman's 1999 internet posting, "John Sherwood's Dance, A Map for Understanding Unconscious Transactions between Groups and Newly Appointed Leaders" employs an above-ground vs. underground river as a dance metaphor for social interaction.

It is possible to view that which occurs in groups and among people as occurring in either of two layers. One layer is aboveground, but flowing beneath the surface is an underground stream.

If all to which a person pays attention in group functioning is manifest behavior (what people say and do, or fail to say and do), then we could say they are fishing in the aboveground level. But if one is also keen to examine and react to the corporate unconscious or the psychodynamics in group functioning, then we might say that they are fishing in the underground stream.

This all makes sense, we suppose.

The Underground River in Drama

Regarding the sewer as dramatic setting, Charles Dickens' "Underground London," (the weekly magazine we encountered in Chapter 50), July 20, 1861, offers the following.

There are more ways than one of looking at sewers, especially at old London sewers. There is a highly romantic point of view from which they are regarded as accessible, pleasant, and convivial hiding-places for criminals flying from justice, but black and dangerous labyrinths for

the innocent stranger. Even now, in these days of new police and information for the people, it would not be difficult to find many thousands who look upon them as secret caverns full of metropolitan banditti. When the shades of evening fall upon the City, mysterious whispered "Open sesames" are heard in imagination near the trap-door side-entrances, and many London Hassaracs or Abdallahs, in laced-boots and velveteen jackets, seem to sink through the pavement into the arms of their faithful comrades. Romances, as full of startling incident as an egg is full of meat, have been built upon this underground foundation, and dramas belonging to the class which are now known as "sensation" pieces, have been placed upon the stage to feed this appetite for the wonderful in connection with sewers.

I have some recollection of a drama of this kind that I saw some years ago at one of the East-end theatres, in which nearly all of the action took place under huge dark arches, and in which virtue was represented in a good strong serviceable shape by a heroic sewer-cleanser. Much was made of floods and flooding, which the flusher, who played the villain of the piece, seemed to have completely under his control; and it was not considered at all singular by the audience, that a dozen men and women should be found walking high and dry under these mysterious arcades, as if in some place of public resort.

May Sarton published The Underground River, a Play in Three Acts in 1947, concerning the French resistance, but it wasn't performed until 1955.

Teatr Novogo Fronta was established in St. Petersburg in 1993. Their early work resulted from experiments in the relationship between the actor's body and the event space.

To the right is a poster from the 2009 Berlin International Theater Workshop. Why this work is called "Underground Rivers" perhaps eludes us because we don't speak Russian.



Or for something a bit more melodramatic, we have Within the Gates (1900) by Elizabeth Stuart Phelps, a portion from Scene IV which follows.

After a moment's interval, following The Angel quickly. Enter Dr. Thorke (his robe is much paler, but still of a purplish tint. It is now clasped by the golden cross.

He cries aloud: Azrael!

Echo from the caverns: Azrael!

Azrael makes no reply. Moves on steadily.

Dr. Thorne in a lower voice: Azrael, Angel of Death!

Azrael turns his head, but without pausing.

Dr. Thorne: In the name of Him who strove with thee, and conquered thee -- whither goest thou, Azrael?

Azrael pauses. He looks over his folded wing at the man; regards him steadily; does not speak; moves on again. Dr. Thorne utters an inarticulate exclamation. He follows the Angel. Halfway down the path he stops, perplexed. His expression is anxious. Azrael moves on. He does not again look back; glides to the edge of the ravine. The scene darkens. The Angel

does not pause, but can be seen to cross the gulf fleetly: He does not fly, but appears to tread the air across the space. Vanish Azrael.

Dr. Thorne stands alone in the gloom. His eyes are fixed upon the spot where the Angel disappeared. A low, rushing sound, as of water, can now be heard.

Dr. Thorne shudders; speaks: It seems like an underground river. Horrible!

He calls: Azrael! Tell me thine errand -- in this fearful place!

Azrael neither replies nor appears. It grows very dark. The perspective of the Heavenly City fades. The rushing of the river can be heard.

The Underground River in Architecture

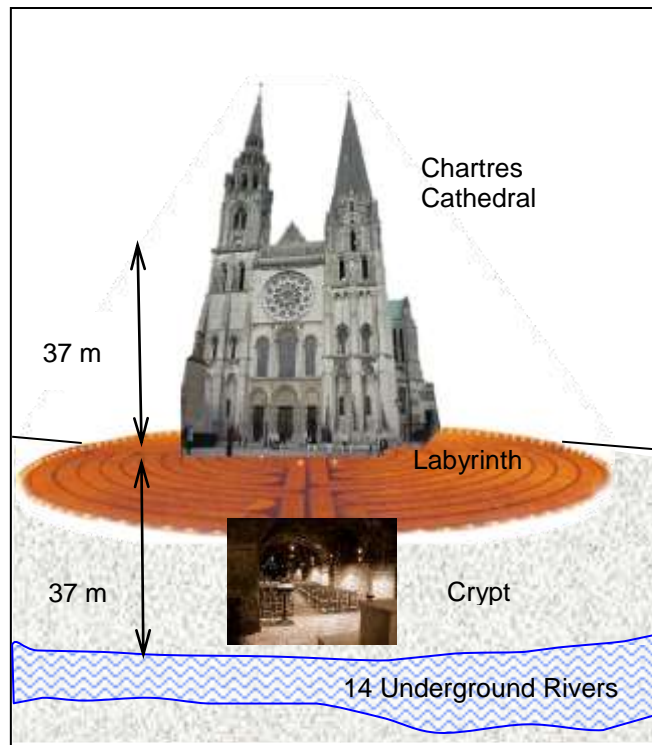
In the 1970s, Terry Fox produced sculptures, drawings, environments and performances based on the theme of the labyrinth of Chartres Cathedral. According to the artist,

Although it [the labyrinth] exists physically on the floor of the cathedral, it is not really an object at all; it is a metaphor.



New age lore claims that 14 underground streams converge beneath the labyrinth, charging the cathedral with energy. In actuality, as demonstrated by the Opera Garnier, a single backfilled watercourse is sufficient to charge the basement with water.

Fox believed that the architects set the height of the nave equal to the river's depth below ground.



It's been a varied journey, traversing the underground waters of the fine arts. Like the writers' metaphors, the artists' allusions and manifestations reflect the breadth of creativity.

Chapter 36 -- Underground Rivers in the Fine Arts

As we move forward to modern science, however, let us not forget that in terms of human expression, underground rivers flow as much through the right half of our brain as the left.

CHAPTER 37

UNDERGROUND RIVERS IN SOUND AND SONG

The sounds of an underground river cannot be segregated from the river itself. In this chapter we wish to make ourselves watchful for how frequently the audio aspect engages the minds of observers. We want to be listening for the listening, so to speak.

We'll begin with the passive. Musical minds have undertaken to create, or at least capitalize upon, the sounds of water beneath our feet. Then we'll migrate to the active, how underground streams have contributed to tunes we might find ourselves humming.

The Underground River in Sound

The sound of underground rivers has often been reported, as evidenced by journalism from the late 19th century.

<u>Bluffton Chronicle</u> , Aug. 1, 1894 Wabash County, Indiana	<i>Not far from the Huntington county line, in Wabash county, a farmer drilled a well to a depth of about sixty-five feet, when the drill ceased to strike anything solid, and by applying the ear close to the opening running water could be heard.</i>
<u>Kendallville Standard</u> Oct. 19, 1888 Whiteville, North Carolina	<i>What is claimed to be the roaring and rushing of water can be plainly heard and hundreds of people are visiting the spot. When in the vicinity of the supposed stream it can be plainly heard, but when a person lies flat upon the ground the phenomenon becomes really alarming. The sound indicates that the water is not any great distance down and that it is not a small stream, but a majestic river that is coursing unseen in the bowels of the earth on its way to the sea.</i>
<u>New York Times</u> March 11, 1897 Lost River, Indiana	<i>The water has now ceased to flow from the cave, but any one standing near the entrance can hear the rushing of the torrent apparently hundreds of feet below.</i>
<u>The Daily Argus News</u> Aug. 14, 1895 Jefferson County, Tennessee	<i>Away in the distance is heard the roaring or a much larger stream, which is thought to be a veritable underground river of no small dimensions.</i>
<u>New York Times</u> Nov. 14, 1888 York County, South Carolina	<i>All agree that it is the sound of running water over a shoal perhaps 100 feet lower down, and that it must be a large stream.</i>

How the sounds of subterranean streamflow provoke our imaginations is noted by no less than Nathaniel Hawthorne in "Night-Sketches," in Twice-Told Tales (1837).

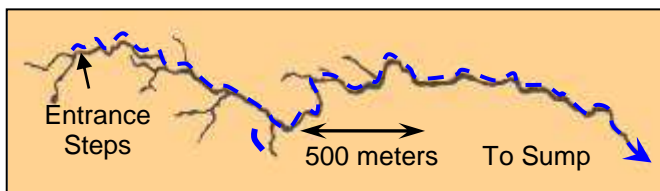
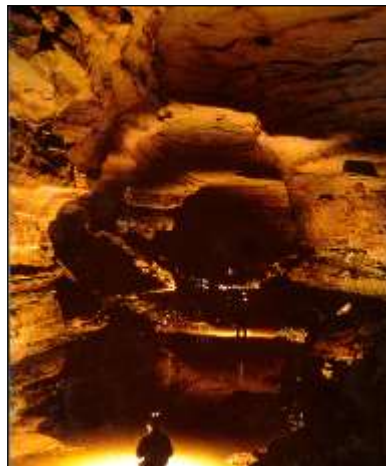
It is strange what sensations of sublimity may spring from a very humble source. Such are suggested by this hollow roar of a subterranean cataract where the mighty stream of a kennel precipitates itself beneath an iron grate and is seen no more on earth. Listen a while to its voice of mystery, and Fancy will magnify it till you start and smile at the illusion.

Hawthorne's "kennel" is a gutter along a street.

"Illinois' Big Cave. Rival to Kentucky's Famous Cavern Found," the Sandusky Daily Star September 2, 1901, reports the discovery in today's Illinois Caverns State Natural Area. Note the attention to sounds.

Among the other wonders, the Burkesville cave contains two lakes, one of them very large. A river full of strange blind fish has been discovered five miles from the mouth, and waterfalls of different size and height may be either seen or heard in many parts.

Throughout the length of the cavern runs the subterranean river that has hollowed it out in the long course of the centuries. Sometimes the river is in plain view and of fair size; at others it narrows down to a brook and disappears entirely, only to be seen hand heard again further on. Cascade Hall is entered. Approach to this is heralded by the noise of an underground Niagara. Fissures in the walls of the chamber show that a hundred cascades surround it, each adding its noise to swell the peculiar, deep toned harmony.



Moving to the present, we've condensed "Artist's Project Brings Sound of Underground Downtown Stream to Surface," Lexington Herald-Leader, July 27, 2011, as follows.

There has long been no visual or audible evidence of the rushing water that runs just below the high-rise buildings and busy streets of the Lexington

Artist Bill Fontana will unveil his newest sound sculpture, Surface Reflections. The piece will bring the sounds from microphones hung over the Town Branch flowing just below the Lexington Financial Center.



The sound of the water will be live, but manipulated into a cascading effect through eight speakers along the landscaped path where downtown workers can escape the sun and traffic clamor.

Fontana has done projects with famous rivers from Cleveland's Cuyahoga to Europe's Danube, but there he was interpreting a well-known body.

Hark.com's "Water Cave Underground Waterfall Ambience Nature Loop" and Dr. Sound Effects' "Underground River" in "Soothing Sounds of Nature - Caverns & Creeks" typify of what's now available on the sound clip market

The soothing sequence of minutely-interrupted white noise creates an underground water sound, perhaps, but could as well be from an open faucet in an otherwise quite kitchen.



At the risk of being considered less than romantic, we should probably conclude that water tends to sound like water, independent of its environment. If it's in a dark place, we're simply more likely to listen with enhanced appreciation.

The Underground River in Music

We must first listen, of course, but the human spirit strives to then create.

We've recalled the legend of Orpheus and Eurydice elsewhere in our journey, Chapter 34 being one encounter, but here we'll note an operatic rendition today in its fifth century of performance, Claudio Monteverdi's 1607 L'Orfeo.

L'Orfeo, Act 3:

Orpheus (a tenor) attempts to pass into Hades to find Eurydice, but his way is barred by Charon (a bass, as we might expect), who declares that no living body may board his boat. Orpheus protests that he is no longer living, for, with his wife dead, he no longer has a heart. Cantankerous Charon is unmoved, but when Orpheus plays his lyre, the boatman is lulled to sleep and the hero crosses over the Styx in the boat.

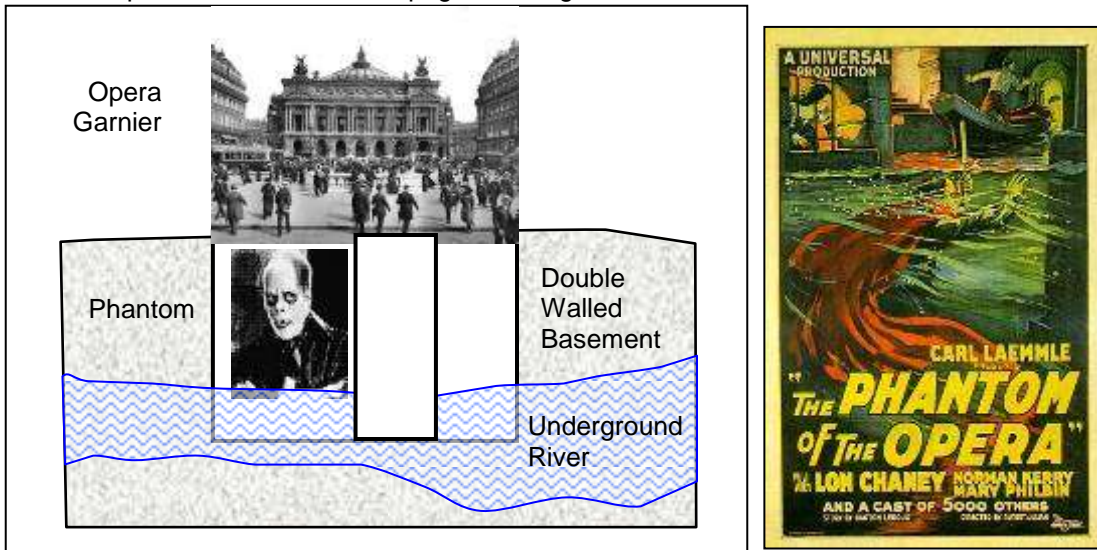


Should we flip ahead to Chapter 63, Cargo Conveyance, we'll see how Georges Bizet's Carmen relates to an underground river, but we'll not reveal the outcome, as it involves a secret passage.

Opera's most noted subterranean setting doesn't stem from an opera at all; it's from Gaston Leroux's novel, The Phantom of the Opera (1910). The tale's since been produced by Hollywood, a notable version being the 1925 silent film, and later on stage, Andrew Lloyd Webber's 1986 musical, the most successful. A novel set under an opera house becomes an opera itself, 76 years later.

Phantom is set in the gothic "Opera Populaire," an edifice inspired by the real Opera Garnier in Paris. The "subterranean lake" above which today's guidebooks say the Garnier sits is in fact the building's fifth and lowest cellar, flooded by a buried branch of the Seine, encased by a double wall of concrete and used for hydraulic manipulation of stage machinery. The operatic Phantom's chamber would seemingly lie between the two walls.

The 1925 poster indicates the seepage challenge.



Dramatic highlights of the 1925 film include.

The journey into the cellars, a procession of arched levels and underground lakes through which the Phantom rows a gondola while Mary's lace train trails into the water.

The Phantom entering the underground lake, disappearing until only the tip of his breathing tube shows as he exits to drown de Chagny's brother.

We needn't rely on the Hollywood and London entertainment industry, however, to relate opera to underground waters. Here's an excerpt of "The New Opera House in Paris" from the nuts-and-bolts Manufacturer and Builder, July 1875.

The excavations were commenced in 1861, and carried 20 feet below the street in the main parts of the building and 50 feet under the stage, which occupies a surface of over 25,000 square feet. Very soon the water was encountered which descends from the bights of Belleville, forming a large subterranean river, passing through all the permeable layers of earth, and running into the River Seine. In order to make a foundation under such circumstances the whole site was surrounded with a double row of piles 20 feet long, driven down 80 that only 1-1/2 feet was left projecting above the surface of the water, while between the piles hydraulic concrete was poured, so as to make a water-tight wall, inside of which the water was pumped out and the foundations laid. This work absorbed half a million dollars, and was only accomplished under great difficulties, eight large pumps working night and day being required to enable the workmen to place the concrete in a sufficiently dry soil, while at the same time measures had constantly to be taken to remedy the continual caving in of the surrounding soil.

Underground rivers themselves are long-established venues for musical performance. We'll cite Pictorial Guide to the Mammoth Cave, Kentucky (1851) by Horace Martin several times in subsequent chapters, but here's a pertinent excerpt related to Echo River.

We remember well on the occasion of a late visit to the Cave, that the whole boat's company joined simultaneously in song while gliding down this River Lethe. How sublime, how truly religious was the effect.

Sometimes a full band of music has been tried on the Echo. What the effect has been can be imagined. Truly may it be said that such things cannot be obliterated from the memory. Let us add that they ought not to be, for they assuredly make better creatures of us all.

Jenny Lind (1820-1887), "The Swedish Nightingale," forerunner of the modern pop icon, was mobbed by crowds of 30 to 40,000 upon her arrival in America and tickets to her show went for as much as \$250. She visited Mammoth Cave in 1851, near the end of her concert tour managed by P.T. Barnum.

Lind is reputed to have sung while seated on the formation now known as "Jenny Lind's armchair." The 1910 doubly-misspelled postcard, "Jennine Linn Rested in this Armchair," is to the right.

As for Miss Lind's underground boat trip, that's included in Chapter 55.



Also in Chapter 57, we'll offer a ticket to visit the underground waters of Luray Cavern in Virginia, but this is the chapter to promote the Cavern's organ concert.



In his [The Hidden Messages in Water](#) (2001), Masaru Emoto notes,

However, within natural water, no matter where it came from-natural springs, underground rivers, glaciers, and the upper reaches of rivers-complete crystals formed... My efforts to photograph ice crystals and conduct research began to move ahead. Then one day the researcher -- who was as caught up in the project as I -- said something completely out of left field, "Let's see what happens when we expose the water to music."

The musical tastes of underground rivers remains unknown, however. What is certain is that performers sing of such rivers.

English composer Stephen Blumberg's "Subterranean River" was commissioned by the California Youth Symphony and first performed in November, 2011.

California Youth
Symphony
\$10.00 - \$15.00



In the words of the composer,

Early in the process of composing this music I heard in it evocations of moving water, sometimes tranquil, sometimes rushing, even torrential. There was also a sense of underground spaces -- dank, dark, cavernous, resonant, and echoing. In one passage the music slows to almost complete stillness and it suggested to my imagination a timeless, voluminous space, cathedral-like, with crystals and hanging stalactites above nearly motionless, pooling water. The various sections of the piece have tempo and character indications -- tranquil, calm; murky, menacing; turbulent, rushing -- that suggest different types of motion associated with the changing speed and flow of an underground river. I determined the title, Subterranean River, and as the piece progressed the music flowed through a changing succession of scenes and spaces, experienced through an imagined voyage.

Drach Caves in Spain offers a rowboat concert every hour, a 10-minute classical performance by two violins, cello and harmonium on Lake Martel. The concert consists of four pieces:

Caballero's "Galician Alborada"
Martini's "Plaisir D'amour"
Chopin's "Tristesse" (Study #3, Opus 10)
Offenbach's "Barcarolle," from "Tales of Hoffmann"

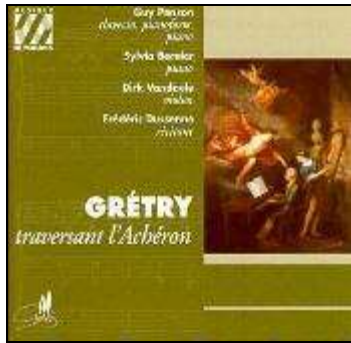
The concert's been offered since
1935

Cueva del
Drach
€11.50



Ten minutes isn't sufficient for a classical concert, course, but none of the composers have objected. We'll have more to say about the underground lake's name in Chapter 54, Subterranean Watercraft.

A few recordings for the aficionado,



André Grétry, Belgian, "Grétry Crosses the Acheron"



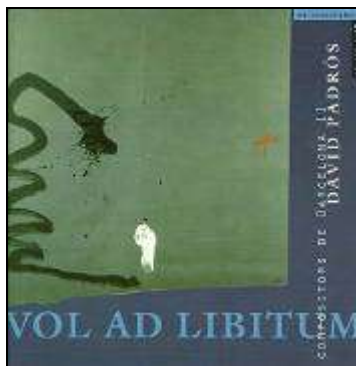
François-Bernard Mâche, French, "Styx" for 2 pianos, 8 hands



Giya Kancheli, Georgian, "Styx" for viola, mixed choir and orchestra



Wolfgang Rihm, German, "Styx und Lethe" for cello and orchestra



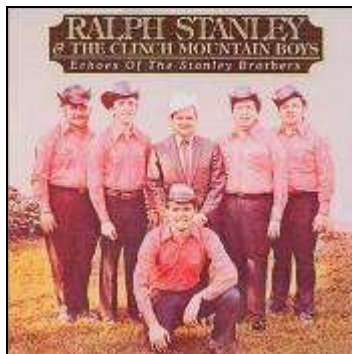
David Padrós, Catalan, "Styx" for piano and chamber ensemble
Album: Vol Ad Libitum



Panayiotis Demopoulos, Greek, "Styx" for flute
Album: Contemporary Greek Music for Flute and Piano

For those to whom "classic" means classic bluegrass, we met the Stanley Brothers, pioneers of that musical genre, in Chapter 33, To Cross the Styx. Echoes of the Stanley Brothers, remakes of 1971 and 1973 tracks, includes "River Underground."

On the far right: Ralph Stanley and the Clinch Mountain Boys performing in Cumberland Caverns, Tennessee, 2011. Stanley: "I hope we can get out."



"River Underground,"

*When I was a young lad
I wandered one day
An unknown cavern
Went there to play.
Heard Water running
with an echoing sound,
A wild raging river
so far underground.
I tied me a string
and I left it that day.
I'd follow the string
till I found the way.
Not a word of the river
I breathed to no one
I'd go there alone
watch the wild waters run.*

*My childhood flew by.
I grew to a man.
Fell for a woman.
Put a ring on her hand.
But she didn't love me.
Started running around
Then I thought of the river
so far underground.
So into the cavern
we strolled hand in hand.
I came out alone
the way I had planned.
O'r the roar of the river
I heard her sad cry
In the water that echoes
but never runs dry.*

*I was tried for murder
but set free to go.
They had no proof
There was nothing to show.
I'm free but still guilty
and I miss her so
And today I'll go join her
where the wild waters flow.*

Stanley harkens from the limestone hills of the Virginia, a terrain we'll explore in chapters to come. One might agree with a review of the song, however.

Wendy Smith's "River Underground" is haunting... but while the band does its best to infuse the material with some energy, notably through inspired backup work by Skaggs, Cline and Whitley (on lead guitar), they keep bumping up against the limits of worn-out melodies and more than occasionally pedestrian lyrics.

A few pop music underground rivers, cropped for reason of space.

<p>Talking Heads "Once in a Lifetime" Album: Remain in Light</p>	<p><i>Letting the days go by / Let the water hold me down Letting the days go by / Water flowing underground Into the blue again / In the silent water Under the rocks and stones / There is water underground. Letting the days go by / Let the water hold me down Letting the days go by / Water flowing underground Into the blue again / After the money's gone Once in a lifetime / Water flowing underground. Same as it ever was. / Same as it ever was.</i></p>
<p>Phish "All Of These Dreams" Album: Round Room</p>	<p><i>You might find a river under a mountain That feeds a remote, subterranean fountain. Drink from this taste just a hint of a dream That somehow leads in to the underground stream. And if you go there, and after you do All of these dreams would be yours to pursue. The rest of your lifetime, devoid of a care If you keep your eyes open, you may find yourself there.</i></p>

<p>Thinking Plague "The Underground Stream" Album: A History Of Madness</p>	<p><i>All my life I've been searching For the reason that my heart is broken. One day soon waters come Wash away what is done Someday floods will rise Wash this stain from our eyes Deep in the gorges, in the grottos, Time holds the antidote. Hubris is the triggering wire. We should be as water, Lower than all things. Yet stronger even than the rock</i></p>
<p>Esther Frances "Underground River" Album: Mother Earth Calls</p>	<p><i>There's an underground river deeper than the sea, An underground river eyes cannot see. An underground river deep and wide, Underground river where parts of us hide. Find your inner river journey to the sea, Find the One Life playing many parts as you and me. Compassion can then flourish rise up by going down, To that underground river 'neath each nation and each town.</i></p>
<p>Benny Hester "Underground River" Album: Personal Best</p>	<p><i>Underground river, Flowing through your city. Taking lives, breaking lives, sweeping lives Into an underground river. And the rain is pouring, The level is rising. And the white washed walls Scream as they fall. Nothing stops the river. No, nothing stops the river.</i></p>
<p>Wire "Three Girl Rumba" Album: On Returning</p>	<p><i>Painted statues in underground streams With invitations to the Pharaoh's dream. They stare at themselves, there's a need to be seen, Walking mirrors in the Pharaoh's harem.</i></p>
<p>Ellen McIlwaine "Underground River" Album: Fear Itself An homage to Jimi Hendrix performed at Woodstock the year before the big one</p>	<p><i>Was he really there at all? Or was it just a call That I heard from a hollow hall? Whispering his name May bring me down in the water To drown. Will I ever see his face again? Could I just pretend That this tunnel never ends? Keep memory of his face In my underground river Secret place.</i></p>
<p>Mel Tillis and Nancy Sinatra "Underground River" Album: Mel and Nancy</p>	<p><i>Then the underground river flows to the top, Deep and wide and impossible to stop. When the feeling in my blood rises like a flash flood, I'm a lover, a taker and a giver Flowing down that underground river.</i></p>

Chapter 37 -- Underground Rivers in Sound and Song

<p>Irma Thomas and David Egan "Underground Stream" Album: Simply Grand</p>	<p><i>Sweet, sweet water Give the sons and daughters. Bless it like the flowers that drink From the underground stream.</i></p>
<p>Antler "A River Underground" Album: Nothing That a Bullet Couldn't Cure</p>	<p><i>There's a river underground A river underground It runs between the stones without a sound There's a river underground Just beneath the ground But the desert's all that you can see right now</i></p>
<p>Michael Garfield "Underground River" Album: Double-Edged Sword</p>	<p><i>I'm a rounded stone in a trickling stream. A glowing coal enwombed in ashy bedding. Erode away my name and face, My time and space to deeper places than I've given you.</i></p>
<p>Arlo Guthrie "Underground" Album: Outlasting The Blues</p>	<p><i>There's a river running underground That rolls along the clay That took my body when I laid it down And carried it far away It's too damned dark for you to see So I did not protest My soul shook free, you can't have me But you may keep the rest The waters weep, the sickles reap My hands are cold with sweat The eagle screams with frightened wings The dust does not forget There's a river running underground That rolls along the clay That tempts the soul to the ocean cold To with the body lay</i></p>
<p>Agnes Stone "River Underground" Album: Agnes Stone</p>	<p><i>She knows, when everything is good There's a river underground She knows, when it comes to love There's a river underground She's the river in me Everything seems so fragile Could all come crumbling down Like ashes to the wind They won't stick around All I know is talking never did no one good Covers up the feelings that are real The river underground</i></p>
<p>Subterra "Underground"</p>	<p><i>There's a lot going on underground There's a world you don't even know about There's a river that flows into a sea There's an ocean of possibility I'm swimming upstream in a river that flows Through the underground sea The sea of love There's a lot going on underground</i></p>

Chapter 37 -- Underground Rivers in Sound and Song

<p>Rufus Wainwright "Between My Legs" Album: Release the Stars</p>	<p><i>When the rocket ships all fall, and the bridges, they all buckle And everybody's packing up their station wagons There's a number you can call, like a breast that you can suckle And we quietly will exit as it all is happening again 'Cause there's a river running underground, underneath the town towards the sea, That only I know all about On which from this city we can flee On which from this city we can flee</i></p>
<p>Thinking Plague "The Underground Stream" Album: A History of Madness</p>	<p><i>Gone to ground, life seeping down, rivers rise. One day soon waters come wash away what is done (someday floods will rise wash this stain from our eyes) Deep in the gorges, in the grottos, time holds the antidote. Hubris is the triggering wire. We should be as water, lower than all things. yet stronger even than the rock</i></p>
<p>Michael Garfield "Underground River" Album: Double-Edged Sword</p>	<p><i>I'm a rounded stone in a trickling stream. A glowing coal enwombed in ashy bedding. Erode away my name and face, my time and space to deeper places than I've given you. Relax the gates. My love awaits to fold into your quiet depths and patient truths. To couple with the subtle grace that lives through you.</i></p>
<p>The Scorpions "The Sails Of Charon" Album: Taken by Force</p>	<p><i>Dark night, there is no light In the realm of the black magic man Soul's flight into the cold blight Of the destroyer's magic land Poor man, whose spirits are stronger They're the ones who will reign You're struggles are in vain Throw out your evil desire The dark king's kingdom is Made out of mire Keep on for the kingdom of light There is no darkness, there is no night</i></p>

The rock band Styx of course comes to mind, but there's so much more in the way of American underground river albums.



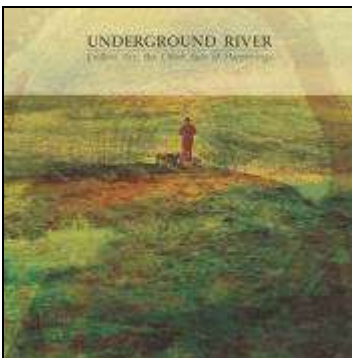
The triple platinum Styx



Acheron, Satanic black/death metal



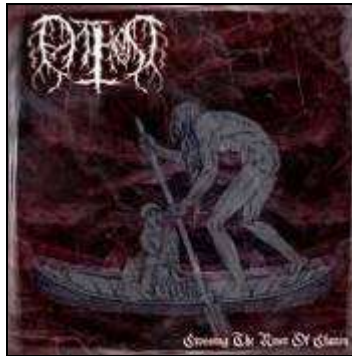
"The Underground Stream," by Ham1, pop rock



The band Underground River from Binghamton, New York



Underground river rock, international,



"Crossing the River of Charon" by Hellenic Black Metal Front from Greece



Υπόγεια Ρεύματα "Underground Streams" Greek rock and roll



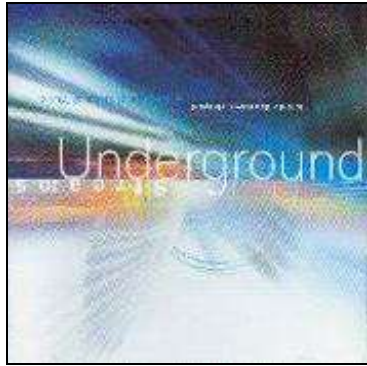
"Songs for Sinners" by Charon, Finnish gothic metal



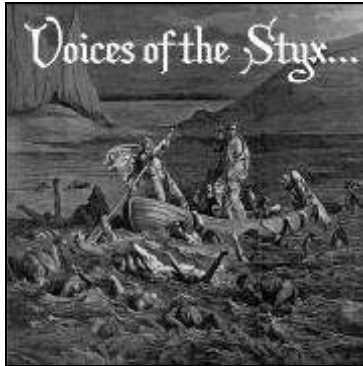
"Caronte" by The Trip, an English band that moved to Italy. The figure's again a Doré.



"Subterranean Streams" by Trimegisto, Chilean death metal



"Underground Streams" by Toronto Downtown Vineyard, contemporary Christian



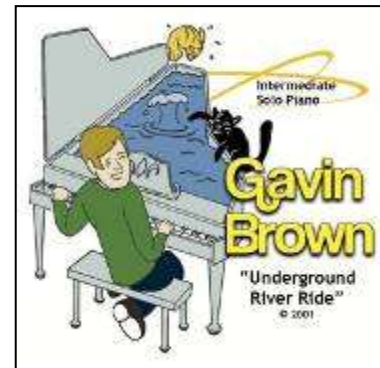
"Voices of the Styx," a Hungarian black/death compilation. The illustration's a Doré, Chapter 34

For those more into meditation and minimalism, ripples in the shadows, so to speak,

- "Underground River" and "Underground River 2" on Michael Colquitt's "Still Waters"
- "Underground Stream" on NON's (pseudonym of Boyd Rice) "Children of The Black Sun"
- "The Underground River" on Paul Ellis' "Into the Liquid Unknown," piano with synthesizers
- "Underground Stream" by Douglas Reed in Memoriam William Albright, Albright Organ Music

The intermediate to advanced pianist can try Gavin Brown's "Underground River Ride."

Imagine you're in a canoe paddling in a cave when suddenly a whirlpool sucks you down and you find yourself swept through odd caverns as a rushing underground river pulls you in one direction after another. Your lantern illuminates the strangely colored walls and you catch glimpses of strange eyes staring in your direction, but only for a moment and then they are gone.



Whatever our musical taste, there's likely an underground river composition to suit.

CHAPTER 38

ACHLUOHYDROPHOBIA



We venture into the field of psychology, a quagmire of opinions where the subjective tends to trump the objective. What seems safest is to turn to the profession's famous names.

Freud and Jung

What we'd like is Sigmund Freud's and perhaps Carl Jung's interpretation of the psychological meaning of "underground river."

Freud visited the caves of St. Canzian (today, Slovenia's Skocjanske Cave, Chapter 78, Underground and Balkanized) in 1898. From his letter to Wilhelm Fliess, April 14 of that year,

The caves of St. Canzian, which we saw in the afternoon, are a gruesome miracle of nature, a subterranean river running through magnificent vaults, waterfalls, stalactite formations, pitch darkness, and slippery paths secured with iron railings. It was Tartarus itself. If Dante saw anything like this, he needed no great effort of imagination for his Inferno.

We're severely tempted to thus apply a Freudian interpretation to underground rivers. A wet dark tube. How does this relate to our earliest associations?

But, no, we shouldn't go there. In the context of the letter, Freud's is a tourist account in the mode of the scores of the era's published travelogues. Of the several English translations of the letter, only one hints to some degree of horror, but even that isn't in the original German.

So how about Karl Jung and underground rivers?

The Life Below the Ground: A Study of the Subterranean in Literature and History (1987) by Wendy Lesser,

Jungians are interested in the continuity of metaphor over time, and are therefore, like myself, attracted to the repetition of a single image in various cultures and periods. The Jungian psychologist James Hillman has pursued this technique in The Dream and the Underworld, an exploration of the idea of death in dreams, in myth, and in the literature of psychology. For Hillman, there is only one meaning to the underworld metaphor, and that is death; all of the various shapes which this image takes are merely the shadowy signposts pointing toward that deepest reality.

It doesn't take a Jungian, here. Hillman's picking up on the death allusion we encountered in Chapter 29, Et In Arcadia Ego.

Lesser goes on to propose an additional interpretation of underground waters, however.

Another motif that seems to run through all underground children's books is the subterranean sea or lake. This occurs in Alice, of course, in the form of the Pool of Tears from which she is "born" (through that too-small door) into the world of "adult" playing cards and eccentric animals. Elsewhere it is not so dearly an amniotic pool combined with life-generating ocean, but I think its vestigial appearance in every children's story I've mentioned here has something to do with this original function. In The Adventures of Tom Sawyer it is "a subterranean lake...

which stretched its dim length away until its shape was lost in the shadows"; in The Silver Chair it is a sunless sea, a seemingly endless expanse of "smooth, dark water, fading into absolute blackness," on which the children sail to the underground palace. This is a familiar image in adult underground works as well: think of the sea on which Jules Verne's underground travelers sail, or the River Styx across which Phlegyas ferries Dante and Virgil, or Dante's sea of tears. But whereas the image is associated with death in those works, it tends to be associated with birth and rebirth in the children's books. For instance, the two children in The Magician's Nephew... repeatedly enter new worlds by jumping into various pools. In children's books, the hidden sea buried deep in Mother Earth can be a frightening place, but it is just as likely to be a useful passageway to a new existence: children, that is, do not seem to fear regression to the womb as much as adults do, nor to equate such retreat exclusively with death.

We're familiar with the references to juvenile literature from our chapters on the topic and probably agree that more children see the plots in relation to growing up, not death. Lesser's "sunless sea" allusion is a nod to Coldridge (Chapter 31, Down to a Sunless Sea).

Freud and Jung simply didn't apply the full extent of their insights to the topic of underground rivers. Such a shame, we note, as there's so much more to such rivers and the human mind. We just need a name, preferably a formidable one.

Achluohydrophobia

Fear of the darkness is rarely a fear of the absence of light itself, but fright at possible or imagined dangers concealed by the shadows. Rational fear produces caution and alertness for natural dangers, from tripping over something unseen to being attacked by a nocturnal animal.

Phobias fall into three categories:

Agoraphobia	Fear of places of assembly, crowds and open spaces
Social phobias	Fear of being observed doing something humiliating
Specific phobias	Fear of animals (e.g., spiders, rats, and snakes) Fear of inanimate objects (e.g., darkness, heights, enclosed spaces) Fear of illness (e.g., injury, death, disease)

Thus we're dealing with a specific phobia of an inanimate object, code 300.29 in the DSM-IV.

Sigmund Freud considered the fear to be a manifestation of separation anxiety. While most children experience some fear of the dark -- rarely before age two, however -- such fear usually doesn't rise to the level of paranoia.

In the 1953 Encyclopedia Britannica short film "Don't Be Afraid," Billy learns that fear of the dark is natural and enables us to avoid danger.

Announcer: *Billy's mother didn't know the real reason he didn't want to go to bed. When he was left alone in a dark room, he became frightened.*

Chapter 38 -- Achluohydrophobia

Mother: *Tell me, Billy, are you often afraid like this?*

Billy: *Not this much.*

Mother: *Well, I'm sorry you didn't tell me about this before. You should never be ashamed of telling me when you're afraid of something. Fear is nothing to be ashamed of. Everybody is afraid of something or other. Very Natural.*



One could provide young Billy the American Psychological Association's findings regarding his condition, but they're what any mom would know.

A bit more contemporary is the chorus from Iron Maiden's "Fear of the Dark."

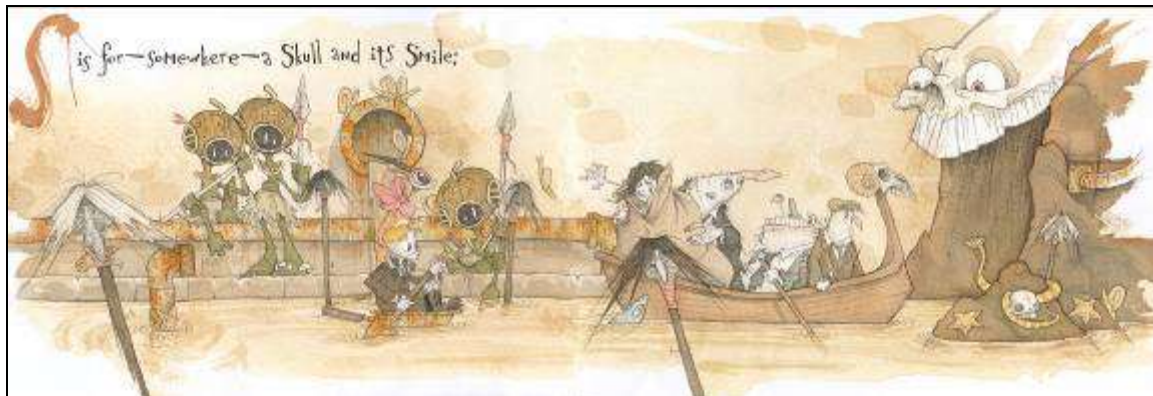
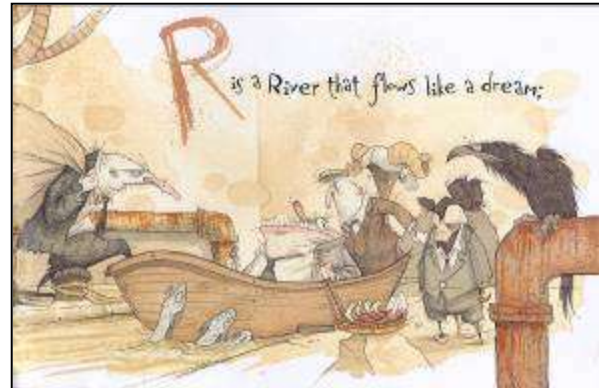
*Fear of the dark, fear of the dark,
I have a constant fear that something's always near.
Fear of the dark, fear of the dark,
I have a phobia that someone's always there.*

From where do such thoughts stem?

For a start, we need only visit the children's section of our local library.

In *The Dangerous Alphabet* (2008) by Neil Gaiman, two children and their pet gazelle treasure hunt along a sepia-toned Dickensian underground river surrounded by monsters and villains.

The young reader may or may not gain alphabetical skill, but surely ends up with a morbid concept of subterranean waterways.



There are numerous theories of the psyche, but we'll just hit a couple.

"Recapitulation and Education," The Pedagogical Seminary, A Quarterly International Record of Educational Literature, Institutions and Progress 7, 1900, by Cephas Guiiabt,

Sensibility to light is rare among the protozoa, but general among the metazoa. As a rule the lower animals prefer the dark, while the apes are almost without exception diurnal animals, and we have even some evidence that they are afraid of the dark. The child at first shuns strong light, but this, like many other early reactions, seems to be due rather to the delicate sensitiveness of the unaccustomed nerves than to a feeling of fear. He soon shows for it a strong interest, which seems very like fascination, due doubtless to the mixture of pain and consequent fear still present. This fascination for a bright light is quite prevalent among the vertebrated animals. Later on, some children show fear of the dark, but whether this is innate or due to suggestion does not appear.

And from "Children's Fears," the same journal, Volume 28, 1921, by Henry Curtis,

The fear of the dark is an almost universal fear, although the child tucked in his bed at night is almost absolutely safe; far safer than at any other time, and is only threatened by fire, of which he is usually not afraid. Many say that this is an artificial fear which has been given the child through the terrible stories which have been told him. It is doubtless possible to bring a child up in such a way that he will not fear the dark. Nevertheless, it only takes a very slight occasion for this fear to appear, thus showing a natural tendency. If it is prevented, it must be by the use of much caution. The reason for this fear is obvious. All instincts develop as such only through the habits and daily life of the race, followed through generations of time, consequently all instincts and emotions are adapted to ages long back in racial history. There was a time when the dark held all the monsters which the child's imagination yet beholds, when the lion and the tiger, and the cave bear, and yet more savage man, lay in wait, and did their hunting in the dark. After the day has gone, and the darkness comes upon us, the nervous system still vaguely feels their dread.

As psychology has since become a theme of glossy magazines, we can go to newsstands for updates.

"Hydrophobia" has two meanings:

The fear of water, an anxiety, potentially pathologic. Symptoms include nausea, sweatiness, disorientation, loss of control and panic attack.

An older term for rabies (Latin for "madness"). Because of this name, many believe that rabies makes one afraid of water, but that's not so. Victims of rabies get spasms in their throat muscles that prohibit drinking, and so will refuse water.

Fear of underground rivers could thus be called:

Achluohydrophobia from the Greek root "achluo," dark

Nyctohydrophobia, from "nukt," night

Scotohydrophobia, from "skotos," darkness

Lygohydrophobia, from "lyge," twilight

As we're coining the term, the choice is ours and "Achluohydrophobia" nicely alliterates with "Acheron," the river of Hades. "Hydroachluophobia," we surmise, would be the fear of watery darkness, rarely a concern to two-year-olds.

We saw evolutionary achluohydrophobia in Chapter 34, Twenty-Five Centuries of Subterranean Portraits. In his formative years, Charon indeed dealt with death, but his portrayal would not have struck terror. Though the Christianized Charon took on Luciferian aspects, the pointed ears and snake-like tail were of God's design, a cautionary prod for righteous lifestyle. Only in the past century have the depictions degenerated to little purpose above that of horror.

We need but skim Chapters 30-32, dealing with metaphor and poetry, to catch the literary despondency associated with subterranean waters.

Q: Where did James Dickey fearfully peer in search of his unreconciled and departed sibling?

Chapter 38 -- Achluohydrophobia

A: Into the underground river.

Q: Does the thought of an underground river likewise evoke within us an anxiety?

A: Freud would argue to the affirmative, both from the aspect of darkness and as a manifestation of our yearning to return to the watery womb.

Q: We will not dispute that the concept of a subterranean stream whispers to our unhappy side, but is the depth of achluohydrophobia our only latitude when confronted with such waters?

A: Of course not. The rest of the chapters are much longer than this one because there's a great deal more to our world than phobiology.

Let us propose an alternative term, "Achluohydrophilia," a fondness for underground rivers. If nothing else, it's upbeat.

Q: Do those of us who ponder underground rivers require psychoanalysis?

A: Some may say so, but we think not.

Q: Might Charon benefit from professional help?

A: Indeed, he might. He looked upon his mother as a Greek goddess, after all.



CHAPTER 39 HYDROGEOLOGY

Following is an estimate of the earth's water resources.

	Cubic km
Rivers	2,000
Atmosphere	13,000
Soil moisture	16,000
Saline lakes and inland seas	100,000
Fresh water lakes	125,000
Groundwater to depth of 4000 m	10,000,000
Icecaps, glaciers, permafrost	29,000,000
Oceans	1,325,000,000

North American groundwater uniformly distributed over the continent would make a lake nearly 30 meters in depth. As subsurface water must fit into the pores between soil grains and rock fractures, however, a greater saturated soil depth is required to store this water, in the order of 100, 300 or 1000 meters for sand, shale or limestone, respectively.

To this point in our journey, we've seen a number of hypothesized hydrologic cycle schematics. Following is a simplified rendition of the correct answer.

Much more water is stored under the ground than in rivers, 10,000,000 cubic kilometers to 2,000, but surface flow is said to deliver 20 times more to the sea than that which travels beneath the shore. "Is said to deliver," however, is just an "is said to." According to R. Monastersky in "Seep and Ye Shall Find: Hidden Water Flow," in Science News, April 30, 1996,

Before these new measurements, some scientists had suggested that groundwater flow into the ocean might equal only one-thousandth of the river flow. But Burnett estimates that groundwater contributions to the ocean total about one-tenth of the amount supplied by rivers globally. In some locations, the groundwater component may dominate, he says.

Perhaps the safest thing to say is that underground rivers probably don't deliver a proportionally great amount to the sea, but we're not that certain how much.

The One-Thousandth Rule of Thumb is woefully approximate, but reasonably suggests the relative magnitudes of groundwater flow vs. surface water flow.

Groundwater velocity is in the order of one-thousandth that of a surface stream.

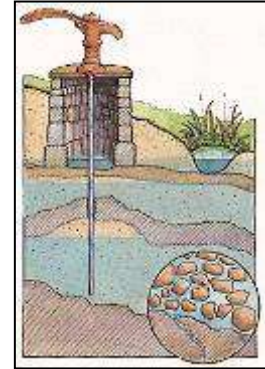
The width of a groundwater passageway is in the order of one-thousandth that of a surface stream.

The height of a groundwater passageway is in the order of one-thousandth that of a surface stream.

As discharge is the product of velocity and cross-sectional area,

Groundwater discharge via a particular subsurface pathway is thus in the order of one-billionth that of a surface stream.

The velocity of the Amazon is in the range of 0.7 meters/second. At high stage, the Mississippi flows at about 2.4 meters/second. (A brisk walk is mid-way between the two.) Most groundwater, on the other hand, is traveling orders of magnitude more slowly. Most water wells draw flow at almost an imperceptible velocity through the miniscule interstitial voids of a large surrounding area.



There may be large volume of groundwater under our feet, but in terms of discharge, it takes a perhaps a billion subsurface threads to equal what most of us envision to be a "river."

We will have much to say regarding calculations in Chapter 45, The Hydraulics of Underground Waters.

Aquifers

Aquifers are porous geologic strata from which water can be economically extracted. Aquifer is judged by,

- How much water is contained within the pores, and
- The strata's capacity to transmit that water.

Few aquifers were ever themselves above-ground rivers, but rather were broad zones of terrestrial surface, lake bed sea floor which accumulated silts, sands and rock fragments over eons. The passing millennia may have resulted in compaction and consolidation, but connected voids yet remain between the particles.

Unconfined aquifers are those without a fixed top boundary. The water level (the "water table") can rise or fall with recharge or pumping. Think of a large sandbox.

When the popular press deems a story regarding groundwater to be newsworthy -- not as often as it should, we maintain -- too often "underground river" or "underground lake" is used in lieu of "aquifer." As virtually all aquifers are wide and quiescent, "underground lake" is perhaps the less incorrect, but we'll avoid misrepresentation entirely and call an aquifer an aquifer.

An example is shown on the right, the Ogallala Aquifer consisting of unconsolidated, poorly sorted clay, silt, sand, and gravel. As there is generally no impervious layer above these deposits, the aquifer is unconfined. The aquifer holds nearly 3,700 cubic kilometers of water, a decline of roughly 10 percent since large-scale irrigation began in 1950s.

The Ogallala was laid down about 10 million years ago by fluvial deposition from the Rocky Mountains. As subsequent erosion has removed the deposits between the mountains and the Ogallala's western boundary, there is no longer recharge from the Rockies. Recharge from local rainfall and snowmelt is roughly 3 cm annually for the aquifer as a whole.

Depth to the water table varies from almost 125 meters in the northern plains to between 30 and 60 meters in the south. Corresponding saturated thickness ranges from more than 300 meters to between 15 and 60 meters. Typical groundwater velocity is in the range of 1 meter/week. The Ogallala is doesn't flow like a river.



But rather than simply declare the scientific facts of things -- which given the progress of scholarship, too often turn out to be not quite the facts -- we'll look the journalism, in this case, the Fort Worth Daily Gazette of August 3, 1890. An inquirer raises a question regarding the aquifer east of the Ogallala, the Edwards aquifer, of which we'll again speak in Chapter 86, Veins of the Heartland. The Daily Gazette's plain-talk response is reasonably correct.

Our Underground River. I was deeply interested in your late article on the great artesian well area stretching across the State of Texas from about Denton to Laredo. No doubt, as you predict, this important discovery made by our geologists will eventually cause the area pointed out to be converted into a grand agricultural region, sure enough. It covers our very best agricultural lands which have heretofore been held back from fullest development on account of imperfect water supply only. But there is one thing in your article that I do not clearly understand though doubtless you can explain it all easily enough. You speak of this remarkable artesian area as being above a great underground river. If this be so, whence comes the water of that river and why does it not at some point find its way to the surface and there cease to be an underground river? Why should Texas have great rivers underground and but comparatively insignificant rivers on the surface? -- A Thinker, Fort Worth Tex

The foregoing was evidently intended for our "answer to correspondents" column, but feeling a desire to answer it at greater length than space in that department would consistently permit, we have concluded to give it a hearing here.

What we figuratively called an underground river is of course no river at all. Professor Robert T Hill says it is more like a great saturated sponge or rather a series of great saturated sponges. These "sponges" (the water bearing strata) are composed of coarse sand and pebbles lying between strata of stone impervious to water. In a word, there is a deposit of sand and pebbles which for convenience we may term the lower water bearing stratum. It is continuous from the head of the artesian urea described last week, to where Texas loses interest in the area by its passage from her territory at the Mexican line. Above this stratum lies a thick stratum of stone

that water cannot pass through. Next, on top of this comes another water-bearing stratum of sand and pebbles, then another stratum of stone and so on until the five or six water-bearing strata as lately worked out by Professor Hill are made up

For another example of the casual usage of "underground river," and the like, for what's simply a porous-media aquifer, we can open Kansas: A Cyclopedia of State History (1912), edited by Frank Wilson Blackmar.

The US government made investigations in western Kansas that led to the discovery of an underflow of the Arkansas that amounted to practically a subterranean river. In 1905 it installed at Deerfield, in Finney County, an irrigation plant that pumped water from wells drilled to this underground stream.

Where the Allegheny and Monongahela meet the Ohio, long-time Pittsburghers say that there's a third river flowing below.

The proper name of this "underground river" is the Wisconsin Glacial Flow, its size varying from one to three kilometers in width and 5 to 12 meters in depth, forming an oval tunnel completely filled with rocks and gravel.

The bed and banks of this formation were carved when the Ohio and Allegheny rivers flowed northward to the St. Lawrence. When the outflow was blocked by glaciers, the beds filled with gravel, southward exits were created and clay and silt sealed the old channel from the surface above. Through this deposit, Pittsburgh's underground river flows at the remarkable rate of 10 kilometers/day.

Pittsburgh's underground river differs from other aquifers in that it's not widespread and follows a defined channel.

The most visible evidence of Pittsburgh's fourth river is Point Park Fountain which spews groundwater mechanically pumped to the surface.



Samuel Sanford got it correct in The Underground Water Resources of the Coastal Plain Province of Virginia (1913).

The belief held by many persons that underground waters in places outside of limestone regions lie in lakes or move as rivers, has little foundation in fact. The lakes and streams reported by well drillers are merely beds of saturated sand. The rivers described with great particularity by some water finders often are pure fiction, the stated course of an underground river having no relation whatever to the geology of the district.

And the misrepresentation continues, even in arenas where we might expect the perpetrators to know better.

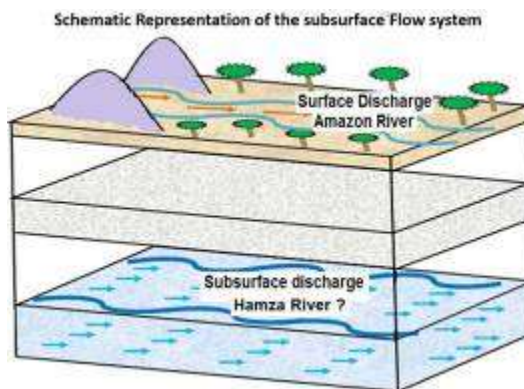
It was the title, "Indications of an Underground River Beneath the Amazon River: Inferences from Results of Geothermal Studies" by Elizabeth Tavares Pimentel and Valiya Hamza, presented at the 12th International Congress of Brazilian Geophysical Society, August 2011, that propelled the story to newspapers and social media web sites worldwide. A typical headline: "Scientists Believe Brazil has Huge Underground River," Irish Times, August 27.

The scientists deduced a "Rio Hamza" (named for the senior investigator) flowing from under the Andes to the depths of the Atlantic from anomalies in the dispersal of geothermal heat in 241 inactive oil wells drilled in the 1970s and 80s. Analysis suggests that subterranean water seeps vertically downward for about 2 kilometers and then horizontally along the basal strata 4 kilometers below.

If they are correct -- and indeed, they may be -- there's a lot of water flowing, though by no means as much as that transported above.

A few comparisons:

	Amazon	Hamza
Length (km)	6110	6000
Width (km)	1-100	200-400
Velocity (m/s)	0.05-5	0.000000001 - 0.000000010
Discharge (m ³ /s)	133,000	4,000



University of Bahia geologist Olivar Lima, who was present at the conference, noted that while the preliminary results appeared numerically valid, discussion would be necessary before the subterranean system can be classified as a "river."

Calling the discovery an "underground river" is indeed premature, agreed hydrogeologist Larry Murdoch of Clemson University in "Is underground Amazonian river really just groundwater flow?" Nature News, August 26,

This sounds like an interesting study that could contribute to the understanding of groundwater in the Amazon Basin... [But] it would be worthwhile trying to explain the temperature measurements in the context of a conventional groundwater flow system before inferring the existence of a new underground river.

As reported by BBC News, August 27, in "Subterranean Amazon River is not a River," Professor Hamza clarified the wording.

We have used the term 'river' in a more generic sense than the popular notion... This is water flowing through porous rock, mainly sandstone and under that, conglomerate... Unlike a true river, this underground water flow has no fixed boundary.

Jorge Figueiredo, geologist with the energy corporation Petrobras, was more to the point.

The word "river" should be burned from the work - it's not a river whatsoever.

Had the presentation been properly titled "Indications of an Aquifer beneath the Amazon River: Inferences from Results of Geothermal Studies," there would have been zero press attention.

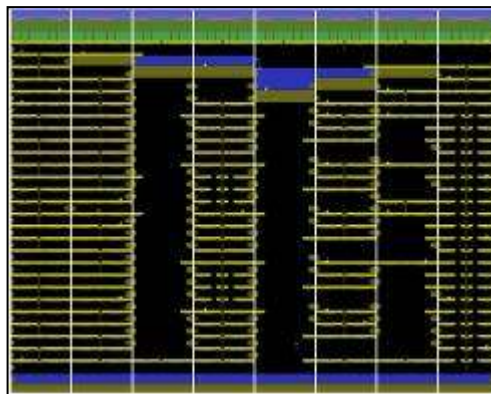
The title notwithstanding, the researchers seem not to have consulted with the long-time locals regarding the direction of flow. According to Christine Hugh-Jones' study of the Barasana Indians. From the Milk River: Spatial and Temporal Processes in Northwest Amazonia (1979),

A further significant contrast lies in the nature of the journeys in the Underworld. Manioc-stick Anaconda travels upstream along the Sun's River towards the east in a canoe, and Live Woman travels downstream by swimming with the current. There is good reason to suppose her journey was westwards: we know the Underground River flows west.

Perched aquifers are unconfined aquifers trapped above unsaturated media by an impermeable dish-shaped stratum.

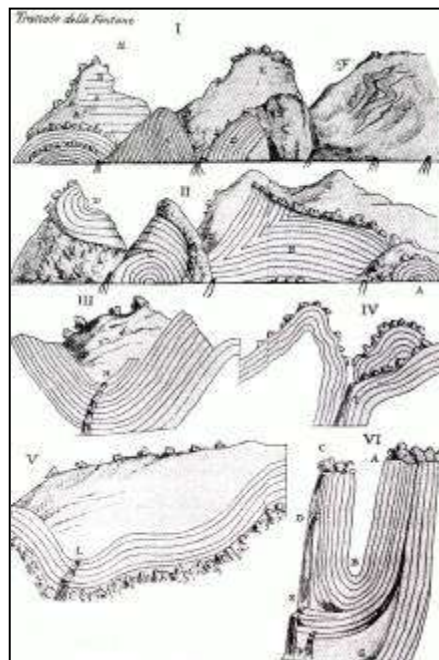
We discussed video games in Chapter 28 -- a far cry from geology, some might claim -- but we can employ a Pitfall III subterranean screenshot to illustrate the definition.

The water trapped near the top-center is perched.
The water in the lowest level is not.



Confined aquifers are those where an impermeable overlying strata holds the aquifer under pressure. Think of a large sandbox with a sheet of plastic buried half way down. Insert a hose into the bottom layer, turn on the spigot, and it's a confined aquifer. How could we prove it? Punch a hole in the plastic and watch the water leak upward.

For a Northeastern Italian today, an Alpine excursion is a common weekend option. Three hundred years ago, however, mountains were considered to be ungodly places, blots on Creation. But biologist Antonio Vallisnieri (1661-1730) saw the geology as a window into the earth. The only cross-section of folded strata earlier than Vallisnieri's Lezione Accademica Intorno l'Origine delle Fontane (1715) was by da Vinci.



Above the tree line, Vallisnieri encountered "grottos, abysses, declivities, cracks, great valleys, caverns, trenches, ponds, gorges, craters, precipices with many basins and receptacles," sites in which water collected from the uphill "eternal reservoirs" of ice and snow did not appear to be released. Vallisnieri concluded that the snow, rain and condensed mist near summits filters downward through permeable sand, loose rock and earth until blocked by impermeable clay or solid stone.

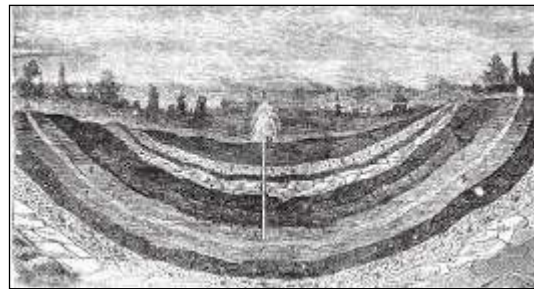
The rain water [is carried] down into the interior of the mountain whence it passes away in subterranean channels.

Noting springs fed by strata dipping down and then turning upward, he recognized that pressurized water was following a confined pathway. Water disappearing into rock fissures in the Apennines must be the origin of the artesian wells of Modena. Likewise, recognized Vallisnieri, the Muota River in central Switzerland must be fed from springs supplied from sinkholes in the surrounding hills.

A graphic, albeit exaggerated, illustration of artesian springflow comes from Elisee Reclus' The Earth: A Descriptive History of the Phenomena of the Life of the Globe (1871).



"The Saline Springs of Touzla"



Artesian well, Industrial Encyclopedia (1875)

Even a rudimentary understanding of strata can at times help resolve what seems to be a perplexity. As will become more and more obvious in the chapters to come, newsprint of a century ago tended toward embellishment. Take, for example "Roaring Underground River," a report from Washington State in the March 9, 1896, Omaha Daily Bee.

Browder D. Brown, who returned seven days ago from a trip through the country south of Lake Park, reports on an interview published in the Tacoma Ledger, that an underground river has been discovered on the farm .of John Hanson, a Swedish farmer, six miles south of Lake Park. "It is the first underground stream I ever saw," said he, in describing it, "and is quite a curiosity." It was discovered some time ago. Hanson and his neighbors were digging a well at a depth of fifteen feet they began to hen a strange roaring sound. The diggers became frightened, but continued their work. At twenty feet the earth broke through, revealing a swiftly running subterranean stream. The water tastes much like the ordinary well water found in that region.

The roaring of the water can be hear a distance of fifty yards from the top of the well. The day I was at the farm no one was present save a small boy, Hanson's son. All he could tell me about the river was that it ran faster and roared louder in winter than in summer. The water runs unusually swift and the incline of the river-bed at the point I saw it must have been quite sharp. Hanson has an old fashioned, oaken bucket and a box rigged up over the well. He lost the first bucket he put in and was unable to recover it. He pays but little attention to its singing. The course of the river at Hanson's appears to be in the direction of American Lake. It is my opinion that it flows into that bed of water, passes through it and flows then underground to the Sound. As is well known, American lake has no visible outlet. The source of the subterranean stream is probably in the foothills of Mount Tacoma.

As a century of subsequent well drilling reveals no such underground river, was the account thus a total fabrication, a ploy to hawk Omaha newspapers?

Perhaps not totally, given recent hydrogeologic assessment at nearby Ft. Lewis.

American Lake today has a visible outlet, the drainage canal within the red oval to the right, but before it was excavated, the terrain was marsh through which an observer might not have recognized a flow path.

So what might have John Hanson, the Swedish farmer, encountered?

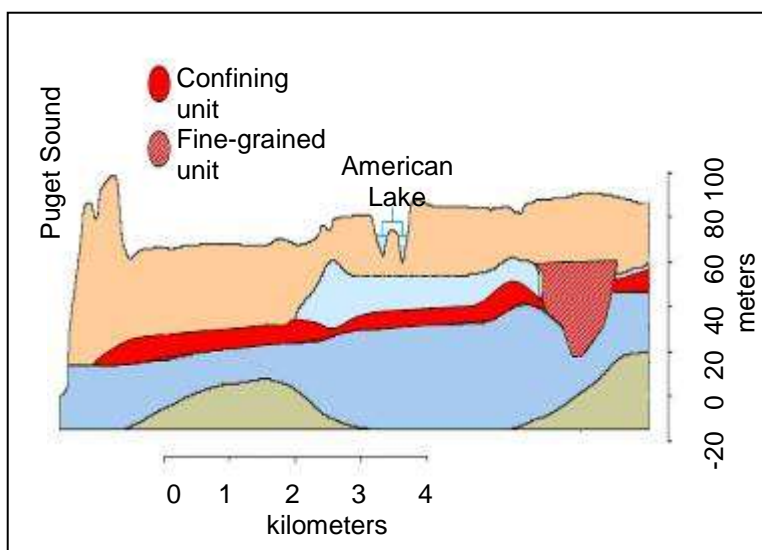
To answer that, we'll look at the geology.



The cross-section shows a confined aquifer pressurized by lake surcharge.

As the strata are comprised of glacial and non-glacial sediments, an underground conduit is most improbable, but the confining unit might overlie pockets of unconsolidated gravel. The "singing" might have been the clatter of its adjustment after disturbance.

As for the lost oak bucket, it's probably yet at the bottom of the shaft.



If a sufficiently-pressurized confined aquifer is punctured, water can spout above the land surface, creating an artesian well, so named from the flowing well dug by monks in Artois France in 1126.

As with unconfined aquifers, velocity in confined strata is far less than that of surface flow. A constricted exit, however -- the artesian well in Rocky Ford, Colorado, pictured to the right, being an example -- can give the superficial impression of an underground vein.



Here's another example, "Subterranean Lake in Indiana," Brooklyn Daily Eagle, September 3, 1850.

Near the town of Williamsburg, Johnson Co., is what might be called a subterranean lake. A gentleman there digging a well, at about the depth of thirty feet, after passing through five or six feet of bluish earth, thought the earth sounded hollow as the mattock was driven into it. A small stick was forced downward six or eight inches, and on its withdrawal a stream of water gushed

forth five or six feet in height. The man was immediately drawn out, and scarcely had he reached the surface when the bottom of the well burst upward, and a volume of water rushed out with great force. The water has a disagreeable odor, and is unfit for any purpose. Several pieces of rotten wood were thrown out. We have these facts from unquestionable authority.

Scientific American, January 10, 1857,

A subterranean river has been struck by the persons engaged in boring an artesian well at Henderson, Ky., from which a jet of water is forced up through the bore, and thrown to the height of fifty feet above the surface of the ground.

Idaho Avalanche, December 19, 1885,

There was thrown from an artesian well, recently sunk near Colton, Cal., a granite boulder weighing 6 pounds 11 ounces. The well is 133 feet deep, and flows about 100 inches. Apparently there must be an underground river of no mean proportions.

An "inch" or "miner's inch" of discharge in the western United States is the flow through a 1-inch hole at a given head. In California, 100 miner's inches corresponds to 71 liters/second.

In 1886, the city fathers of Belle Plaine, Iowa engaged Willy Weir of nearby Monticello to water-witch the site of a new water source and Weir found Jumbo 60 meters below the ground.

Willy Weir's 5-centimeter hole blasted water 15 meters into the air, and Jumbo was quickly a 3 cubic meters/second geyser erupting out of a meter-wide crater. Reporters nick-named Old Jumbo the "Eighth Wonder of the World." A Paris newspaper published a cartoon of Belle Plaine submerged in Old Jumbo's water, with small children standing on roof tops calling for help.

Old Jumbo was still thundering at more than 0.1 cubic meter/second 14 months later when foundry-owner George Palmer tamed the flood a custom iron cone 1 meter in diameter and 8 meters long requiring,

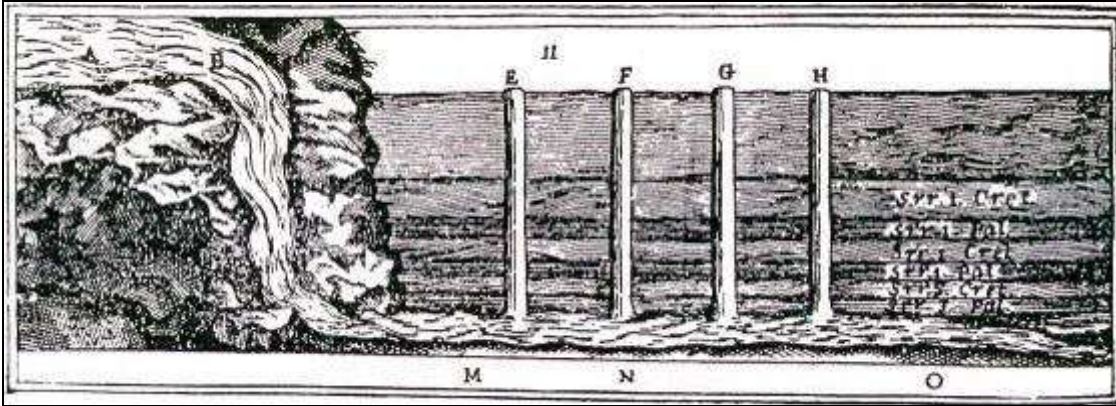
- 50 meters of 0.45 meter pipe
- 24 meters of 0.40 meter pipe
- 18 meters of 0.13 meter pipe
- 40 train-cars of stone
- 130 barrels of cement

A recent artesian claim from Afghanistan,

Of note are eyewitness reports in Kabul, of waterspouts rising from bomb craters immediately following impact. These points of impact are not situated close to public or private, water-works' infrastructure; they are reported to be natural springs and underground watercourses. In Bagrami, a farming community outside of Kabul, the bombs penetrated an underground river, causing a flash flood over several hundred hectares of crops and grazing land. -- Field Team Report on Afghan Trip #2, Uranium Medical Research Center (September/October 2002)

A mammoth upwelling only makes physical sense for an artesian aquifer (one in which pressurized groundwater is confined by an upper stratum, Chapter 39, Hydrogeology) near the surface, but un-breached naturally. Had a well been excavated, the upward flow would have likewise inundated the hectares, just not as quickly as via a bomb-size hole.

Ramazzini's (Chapter 7) 1691 illustration of artesian springs recognized the pressure relationship, but is unduly dramatic in its presumption of the subterranean channel. In reality, the water's percolating through a confined porous stratum.



Nathaniel S. Shaler's discussion of artesian wells in Outlines of the Earth's History, A Popular Study in Physiography (1898) was a bit more complex.

It may be well to note the fact that the greater part of the so-called artesian wells, or borings which deliver water to a height above the surface, are not true artesian sources, in that they do not send up the water by the action of gravitation, but under the influence of gaseous pressure... In all cases this water contains a certain amount of gases derived from the decomposition of various substances, but principally from the alteration of iron pyrite, which affords sulphuretted hydrogen. Thus the water is forced to the surface with considerable energy, and the well is often named artesian, though it flows by gas pressure on the principle of the soda-water fountain.

The soda-water fountain analogy is bogus, it turns out, but imagination's always played a large role in underground river speculation.

Another example of unsubstantiated presumption comes from "Hydrographie Souterraine," Memoires de Academie des Sciences, Belles-Lettres et Arts de Lyon (1858) by Joseph Fournet.

Let us not forget that, as well as the layers of [underground] water which are known to exist here and there, artesian borings have shown the existence of very rapid currents flowing in unknown channels.

Artesian behavior, however, is evidence of pressure not velocity.

And while we're dealing with erroneous explanation, readers of "The Artesian Well," Western Rural and American Stockman, February 22, 1894, were informed that while most artesian discharge is via an underground river from a higher elevation, some artesian wells are due to subterranean gasses, an mechanism somewhat Kircherian in nature.

The philosophy of the flow of water from artesian wells is generally known. No matter how deep in the earth the well may have been sunk to strike a subterranean vein or pool of water, one of two causes must operate to force a flow of water to the surface. One of these causes, and the most common, is the existence of a fountain or source of supply situated at a higher altitude than the point of discharge at the surface of the ground where the well is situated, and generally a long distance away. The other cause, as a whole or in part, is the expansive force of air and gases, which operating under the column of water to be forced to the surface, supplies the power needed to do the work which the gravity pressure from a distance and higher fountain head has failed to do.

John Wesley Powell, oft cited for insight into water issues that would come to define the economic development of the American West, can be credited for a portion of the misinformation that has led to confused groundwater management. Here's a portion of his "Irrigation. History of Irrigation. The Extent of Our Arid Lands. How They Are to be Made Productive. The Water Supply," published in the Independent, May 4, 1893.

In addition to the perennial waters of streams, underground waters are utilized in various portions of the world. Wells from which the water is pumped are very common in some portions of Asia, where millions of people gain subsistence by bringing the water up and out of the earth and pouring in on the ground. Artesian waters are also used, perhaps more extensively in the United States than anywhere in the world. The supply of water from these fountains is usually small and limited, as it is accumulated in artesian basins, within which too many wells must not be sunk or the supply will be exhausted. From two to ten acres are sometimes irrigated from one artesian well, and there are a small number of wells in the United States that irrigate much larger areas. There is still another supply sometimes used in various portions of the world, and now being used to slight extent in the United States; this is found in the sands of flood-plain valleys that become saturated with water during storm seasons or by great river floods, and such are tapped for the water which they yield. The supply is narrowly limited and its utilization rarely extensive.

Powell's use of "artesian" appears to be broader than the meaning of today. He seems to suggest the narrow thread-like karst subsurface streams (the subject of the chapter to follow) with which he would have been familiar from his days in Ohio.

The water for which he saw little demand was in the "sands of flood valleys," what would turn out to be the vast alluvial fans on either side of the Rockies.

Maj. Powell did not foresee that American groundwater withdrawals would triple between 1850 and 2000, coming to serve 30 to 40 percent of American irrigation. National water policy, however -- as we will note in Chapter 69, The Law of Subterranean Streams -- is still trying to catch up.

Let us not second-guess the explorer too harshly, however. It would be decades before such nationally-influential periodicals as the Independent would begin to recognize the significance of the less-interesting water "found in the sands."

Powell went on to serve as the second director of the US Geological Survey, and in that capacity helped formulate national policy regarding development of the arid West. We quote two documents in which Powell did his best to correct popular misconceptions regarding "underground rivers" of that zone.

When streams disappear in this manner, never to appear again at the surface, it is often popularly supposed that underground rivers exist, but there is no foundation for this popular error, as it is well known that the rivers are caught by the sands and evaporated, a sand plain constituting a more efficient evaporating surface than a body of water. These streams which do not roll on to join others are in the West known as "lost rivers," and Director Powell calls the natural districts which they constitute "lost-stream districts." -- Report of the Special Committee of the United States Senate on the Irrigation and Reclamation of Arid Lands (1890)

There is a popular belief that there are many underground rivers of this character in the dry regions of the far West. In all regions there are underground waters, as the loose soils, sands, and gravels retain much water; and the sands at the mouth of a vanishing stream also contain more or less subterranean water of this character, which is more slowly evaporated into the heavens; but these so-called lost rivers, carrying waters from mountain streams of arid regions, do not exist, and the popular error in this respect has no foundation in fact. Yet there are lost rivers of another character, where streams disappear from the surface and run in underground channels, to reappear below. -- The Physiography of the United States (1896)

American hydrologist R.E. Horton's "Idiosyncrasies of Ground Water," Proceedings, Connecticut Society of Civil Engineers (1915) disputed the prevalent belief that many wells were "inexhaustible" because they are fed by rapidly flowing "underground rivers."

So how about an underground river of oil?

"An Underground River of Petroleum" appeared in the North American, September 26, 1879.

There is said to be an underground river of petroleum flowing through the subterranean cavities of Texas

Such an idea remained plausible to the Washington Post, as evidenced by the edition of March 5, 1922.

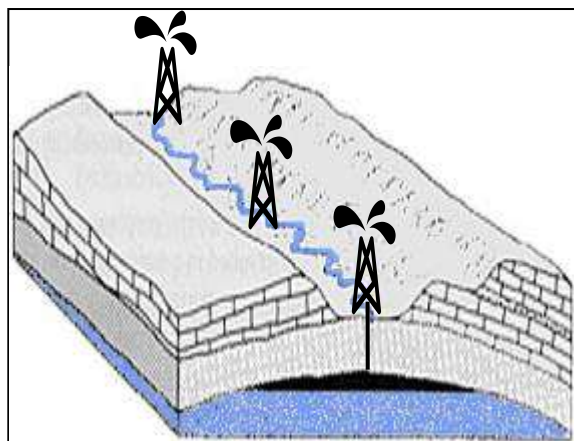
In Chiapas [Mexico] are pyramids which are "doting with antiquity, forgetting the names of their founders," and there is reason to believe that fires were maintained upon them, fed by everlasting streams of petroleum fetched from the bowels of the earth.

Petroleum prospecting in the mid-1800s used the terrain surrounding a producing well to suggest where to next drill. If a well had hit oil on the side of a hill, they measured from the crest of the hill to the location and the base, then found hills of similar dimensions and drilled on a corresponding site. Other prospectors analyzed vegetation and took samples of the soil, attempting to locate oil by the effects a subsurface pool might have on the topsoil above.

Jeremiah Smith had another solution. As oil was found as far north as Nebraska and as far south as the Gulf of Mexico, these oil lakes must be connected by underground rivers. But as the face of America sloped to the south, oilmen would have to hurry, lest these underground conduits drain America's oil wealth into the Gulf. There was talk of attempting to find one of these underground rivers of oil and building a dam to impede its course, but as no one was sure a single dam would suffice and no one had actually found one of these rivers, Smith's theory likewise faded into oblivion.

Further theories arose based on that of Smith, and thus emerged the theory of "creekology," that an oil river would lie below a running stream.

Holes were drilled along watercourses, some successful, the dry ones forgotten. An 1878 US Geological Survey publication detailing streams coated with petroleum, areas devoid of growth because of natural gas seeps and water that livestock refused to drink because it was tarry seemed to support this theory. Pointedly, however, the document dealt with petroleum reservoirs, not petroleum rivers.



The Oklahoma oil rush later dispelled any correlation of petroleum reserves with creek beds, but the name "creekology" stuck -- oil prospecting by associated landform.

We'll conclude our discussion of groundwater science with a citation from Rachel Carson's Silent Spring (1962).

Chemicals sprayed on croplands or forests or gardens lie long in soil, entering into living organisms, passing from one to another in a chain of poisoning and death. Or they pass mysteriously by underground streams until they emerge and, through the alchemy of air and sunlight, combine into new forms that kill vegetation, sicken cattle, and work unknown harm on those who drink from once pure wells.

Mysterious! Alchemy! Unknown harm! Carson was a bona fide scientist, not one to see things as unexplainable. She most certainly didn't believe in alchemy. DDT's proven dangers were a basis of her work. The world's preeminent environmentalist employed the underground river allusion not in ignorance of groundwater science, but to speak of our broader senses.

When we use the term "underground river," we, too, are speaking to our senses. By objective measures, the dimensions of the flow path being one, velocity being another, it's not really a river.

But as with most of nature, there may be exceptions.

CHAPTER 40 KARSTOLOGY

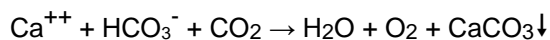
*Quid magis est saxo durum, quid mollius unda?
Dura tamen molli saxa cavantur aqua.
What could be harder than stone, or softer than water?
Nevertheless, water will hollow every stone.*
Ovid's Art of Love

Karst Chemistry

"Karst" stems from the Serbo-Croatian "krs" and the Slovenian "kras," meaning stony bare ground. Karst is the geographic name of the plateau between today's Italy and Slovenia, a landscape typified by an abundance of limestone. We'll take a closer look at this area in Chapter 78, Underground and Balkanized.

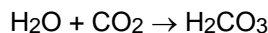
Here we'll deal with "karst" in its encompassing sense, the geo-chemical process associated with limestone landscapes. Karstology, the study of karst, must not be confused with the Koreshenity of Chapter 15, Hollow Earth Geophysics. Karstology is bona fide science.

A series of chemical reactions explains why underground caverns are common in karst terrain. Limestone (primarily calcium carbonate) is derived from bicarbonate seashells, coral and detritus deposited on the sea bed. Using carbon dioxide from the ocean water, photosynthetic cyanobacteria of 500 million years past initiated the calcium carbonate precipitation.



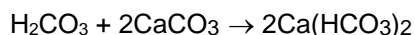
With subsequent tectonic uplift or sea-level fall, the limestone becomes a terrestrial stratum.

Rainwater absorbs carbon dioxide from the atmosphere to form weak carbonic acid.

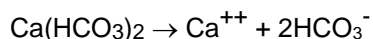


As the carbon dioxide concentration between soil particles can be 300 times higher than that in the air above, infiltration through topsoil further drives acidification. By chemical definition it's still a "weak" acid and we'd not deem it acidic to taste, but a chemical agent needn't be concentrated if given millions of years to do its job.

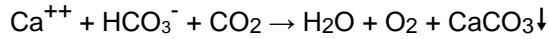
The carbonic acid joins with the calcium carbonate to form calcium bicarbonate.



The calcium bicarbonate dissociates into its highly-soluble ionic components, a calcium cation and two bicarbonate anions.



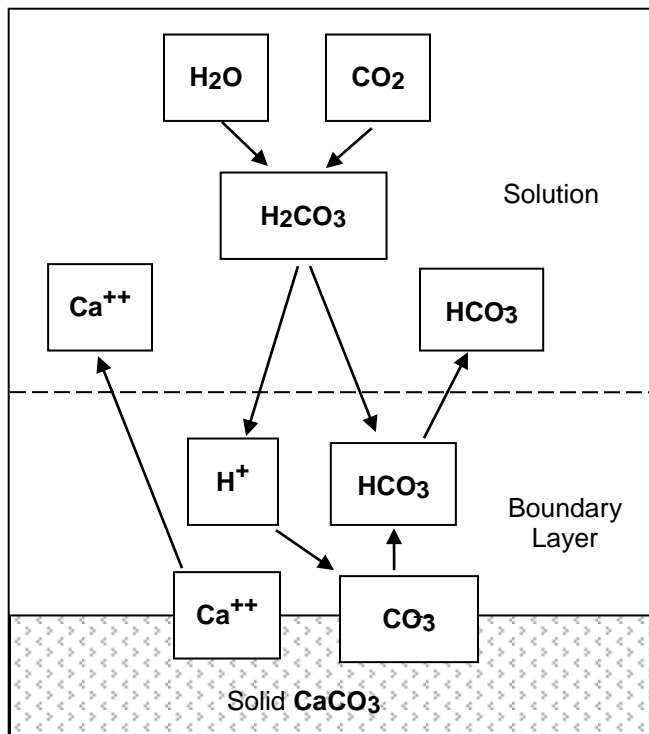
The ions flow onward with the groundwater until reaching an environment where carbon dioxide is present, causing calcium carbonate to re-precipitate as stalagmites, stalactites or caliche.



Most of the cations, however, ultimately reach the sea to again nourish cyanobacteria, thus closing the cycle.



For those less inclined toward chemistry equations, we can reduce the geochemistry to a diagram.



The photo is from Krizna, Slovenia, the two explorers colorized to give perspective. The shallow water on the cave floor is the vehicle of arriving carbonic acid, departing calcium bicarbonate and ultimately-reconstituted calcium carbonate. Flow velocity in this cave is in the order of 0.5 meters/minute, a veritable geological calcium racetrack.

We'll paddle a deeper reach of the same cave in Chapter 78, Underground and Balkanized.



About ten percent of the earth's carbon dioxide is absorbed in limestone, making the karst process, like mangrove swamps and rainforests, an agent of atmospheric buffering.

We'll insert a portion of a February 1917 Scientific Monthly article by H.L. Fairchild in which a chatty water molecule, having told of experiences in the atmosphere, now speaks of his subterranean sojourn.

ADVENTURES OF A WATERMOL

A ROMANCE OF THE AIR, THE EARTH AND THE SEA. II

All the underground river channel and the cave had been the work of other watermols, my predecessors, for thousands of years. But not only had they dissolved and removed the rock to make the cave, but to show that they could build as well as tear down they had formed beautiful objects in the cave as samples of their construction.



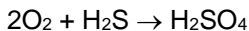
"Watermol Architecture"

Long masses of translucent limestone, of white, yellow and pink color, and shaped like icicles, were left hanging from the roof of the cave-stalactites. In some parts of the cave, which the lake did not cover, conical, needle-shaped and columnar masses of the same elegant material rose from the floor-stalagmites.

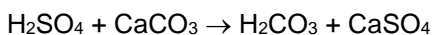
Very slowly the drift carried me through the lake and finally out of the subterranean channel into the open air and light.

Less common than dissolution by acidic rainwater, but potentially more dramatic, is karstification by sulfuric acid, New Mexico's Carlsbad Caverns (Chapter 27) being an example.

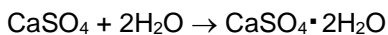
Oxygenated surface water seeps into a terranean substrata containing petro-carbons where it oxidizes hydrogen sulfide to form sulfuric acid.



The sulfuric acid migrates upward into calcium carbonate to form carbonic acid and calcium sulfate.



The calcium sulfate hydrates into gypsum.



The acidic upflow causes the cave to form from the bottom up, the opposite of rainwater karstification. Degradation accelerates as the cracks widen, causing rapid cavern enlargement and probable eventual collapse of the entire cave structure.

Another less-common karst phenomenon involves the granular transport of calcite, a relatively stable polymorph of calcium carbonate.

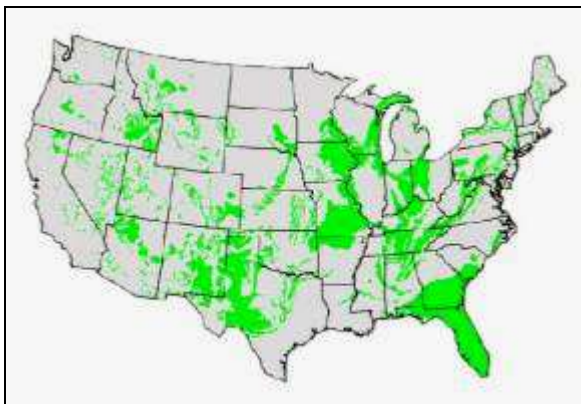
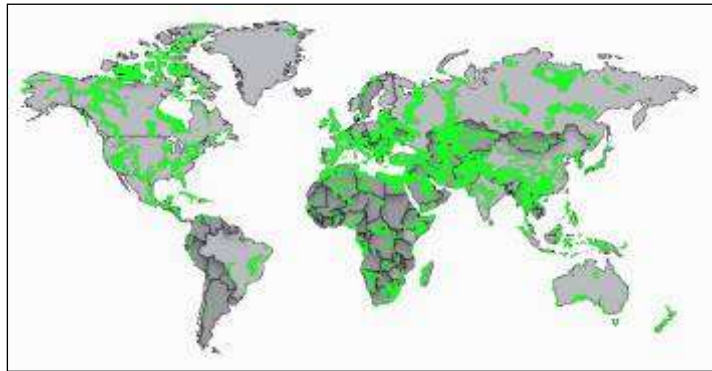
Snowy River in New Mexico, thought to be the world's largest continuous calcite formation, recently began to flow after 150 dry years. The passage is 3 kilometers in length.



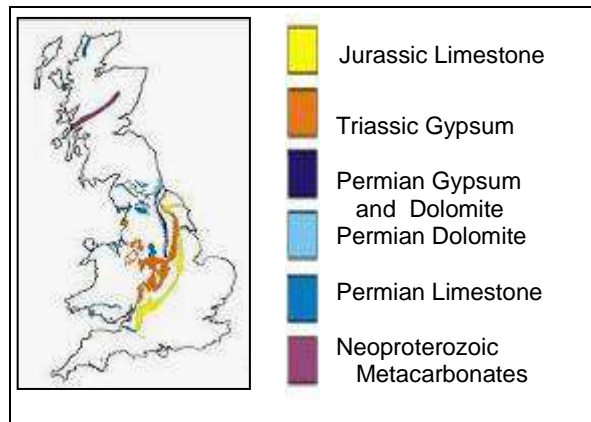
Geographic Occurrence

Karst landscapes occupy approximately one-sixth of the earth's ice-free land surface and are home to one quarter of the world's population.

The US Geological Survey estimates that roughly 40 percent of the groundwater used for drinking in the United States comes from karst aquifers



United States Karst Regions



British Karst Regions

Swiss Cheese, It's Not

Let us begin with a flawed description of karst structure, but one we might enjoy investigating in person.

The Jura plateau -- the source of the geologic era "Jurassic" -- on the Franco-Swiss border is almost entirely limestone. The source of the River Loue draws under the mountains from the River Doubs, the connection discovered in 1901 when a spill from the Pernod distillery appeared on the other side.

Elisee Reclus describes the terrain in The Earth: A Descriptive History of the Phenomena of the Life of the Globe (1871).

Many mountains are penetrated in every direction with caverns and passages, just as if the whole rocky mass was nothing more than an accumulation of cells.

Reclus' "an accumulation of cells" brings to mind the structure of Swiss cheese.



Swiss Cheese



Franco-Swiss Karst



Have we thus a picnic of Swiss cheese, an Alpine landscape and a French liqueur?

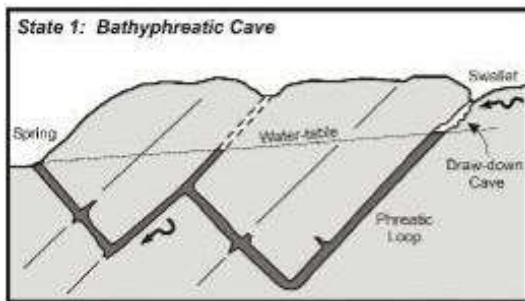
Unfortunately not.

Younger karst formations tend to transmit discharge through ubiquitous micro-structure, but as such porosity clogs with time, flow concentrates in the larger, less-impeded, channels. Unlike Swiss cheese, the karst process is one of continuous pathways, not individuated cells.

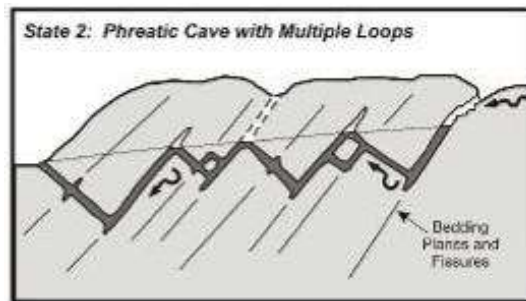
The Water Table

Limestone dissolution occurs at or near the water table, the boundary between the atmospheric gasses and saturated media. If the water table rises, the zone of karstification elevates accordingly, leaving below a saturated, but oxygen-deprived stratum, but unlike sugar cube that will keep liquefying at the bottom of a coffee cup, limestone that's no longer dissolving.

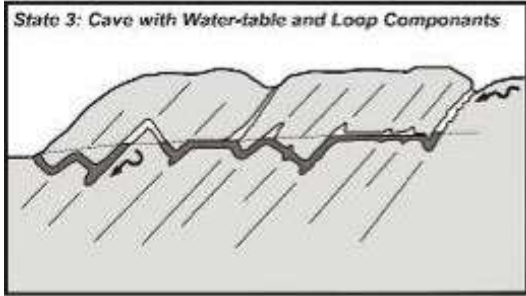
The cross-sections below illustrate differences in cave formation in relation to the water table.



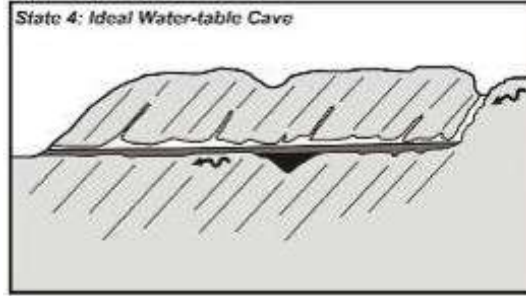
Where fractures are widely spaced, cave systems follow deep flow paths because no shallower routes are open.



When the frequency of penetrable fractures is higher, caves with deep phreatic loops develop, separated by short vadose stretches.



Caves with a mixture of shorter, shallower loops and quasi-horizontal passages develop at or near the water-table

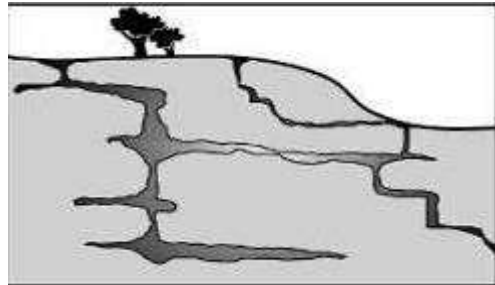


Where fractures are aligned in the direction of regional flow, direct routes to a spring can develop at or close to the water-table.

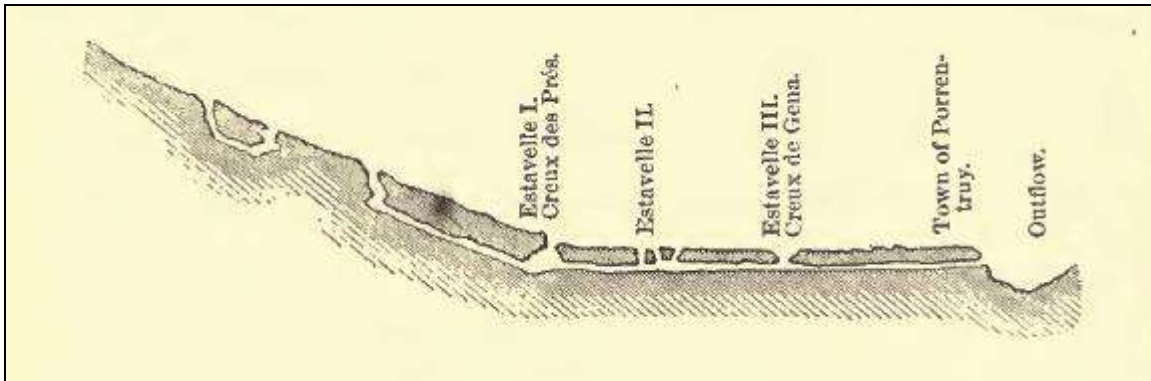
"Phreatic loops" are formed where water descends down-dip along a bedding plane and then must rise up a joint or fault to regain a higher bedding plane. The more joints and bedding planes, or the longer they are, the more likely a cave will develop at or close to the water table.

The horizontal path is not random, however, but follows the path of least hydraulic resistance, a route that typically follows vertical fault lines to the lateral plains of sedimentary bedding.

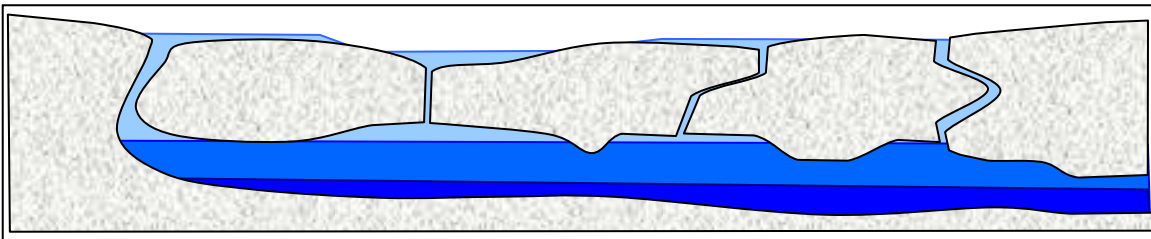
Karst conduits tend to be steeper than their surface counterparts because until they reach the water table, fissures can keep dissolving their way downward.



An "estavelle" is an orifice which, depending on weather and season, can serve either as a sink or as a source of surface water. "Estavelles of Porrentruy" is from Reclus reference.

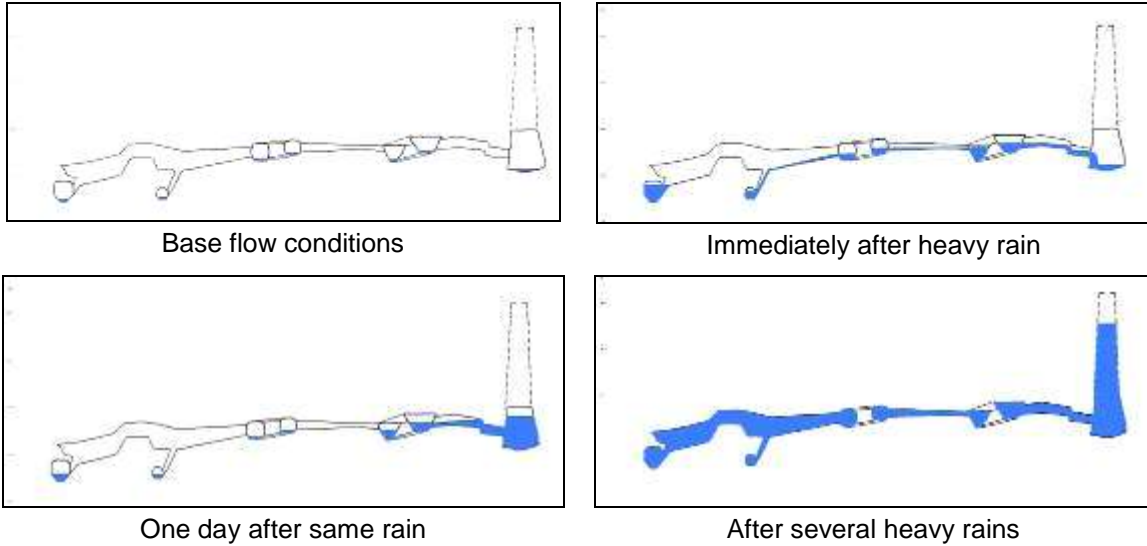


As upstream caverns flood, water in downstream perforations may flow upward.

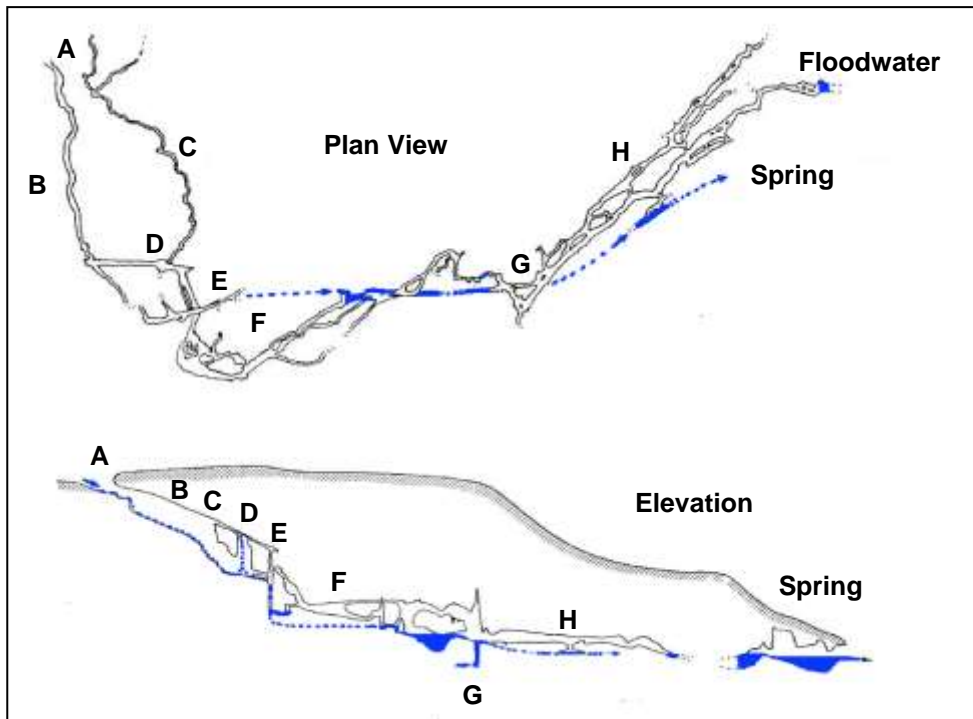


The dark blue shows the dry-season "underground river" flowing to the right. Medium blue represents the caverns mostly filled, the flow yet downward in all columns. The light blue illustrates reversed flow direction in the second column.

J.F. Quinlan, R.O Ewers and T. Aley, *Practical Karst Hydrology* (1991), National Ground Water Association, provide a set of water surface elevations from Kentucky's Parker Cave System.



The hydraulic complexity of New York's 1.7-kilometers karst Onesquethaw Cave System is illustrated below. The elevation's vertical scale is exaggerated. Spring discharge is normally a few hundred liters/second, but increases during times of flooding to several cubic meters/second.



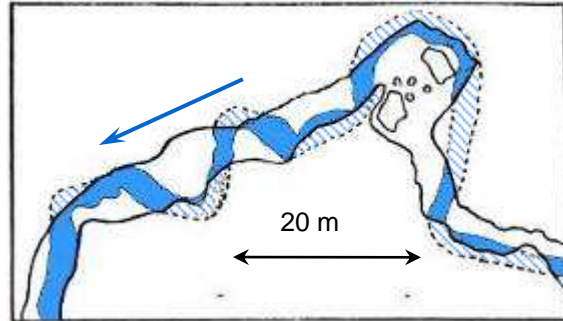
Hydrologic features:

- A Cave entrance, inflow during wet season and floods.
- B, C Canyons with free-surface stream.
- C Earlier main stem passage, now a tributary fed by seepage.
- D, E Shafts with nearly vertical walls.
- F Transition from vadose to phreatic conditions signified by change from steep shafts and canyons to undular tubes of low gradient.
- G Low flow sink fissure several hundred meters upstream.
- H Complex bypass around constriction.

Planform

Stream meanders, above or below ground, are a geomorphic adjustment of watercourse slope in pursuit of dynamically-equilibrated energy dissipation

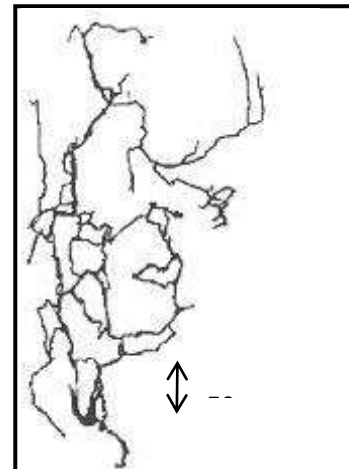
Channels incised in karst floors can likewise meander, as seen in the Cave of the Mounds, Wisconsin, the figure adapted from "Vadose and Phreatic Features of Limestone Caverns," Journal of Geology, August 1942, by J. Harlan Bretz.



In plan view, subsurface karst drainage exhibits a blocky structure, not the leaf-like dendritic pattern more common to above-ground drainage networks. Peacock Springs Cave in Suwanee County, Florida serves as an example of flow paths directed by geologic bedding, not by the geologically more-recent evolution of surface topography.

Unlike a uniformly-porous aquifer -- the subject of the last chapter -- in which flow enjoys a broad spread of flow paths, only a minute fraction of a limestone cross-section is in conduit form.

We will touch on the topic of water dowsing in Chapter 49, but the figure illustrates the dowser's challenge. A well drilled into a black line hits a passageway which may or may not currently contain water. A well that misses may be dry.



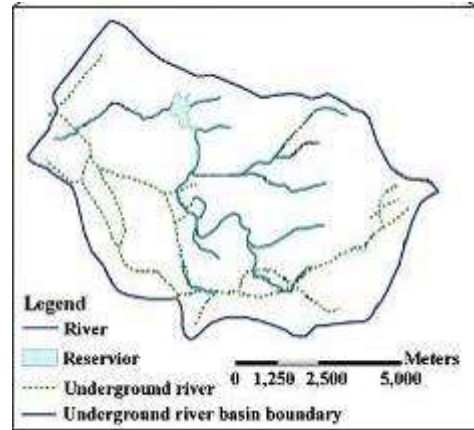
"The Mystery of the Far-Famed Indian River Which Loses Itself," Saint Paul Globe, July 25, 1902, notes separated subterranean streams.

Another peculiar feature connected with the gulf [a location along Indiana's Lost River, which as we noted in Chapter 21, More Boys Club Serials, is just one of several rivers by that name] is the two streams that burst from a ledge of rock at one side. After a rain one stream, will always run muddy water, while the other will remain perfectly clear. This has never been accounted for, being put down as one of the mysteries and freaks of Lost River.

Karst watercourses are in fact often interlaced by multiple connections, but in 1902, when the evidence of an underfoot channel was but a sinkhole and a spring, it was common to assume a pipe-like communication.

As does runoff on the surface, subsurface channels form branching networks. Watershed boundaries, however, above and below, are not always the same.

"The Hydrologic Function and Behavior of the Houzhai Underground River Basin, Guizhou Province, Southwestern China" by Lihong Liu, Longcang Shu, Xunhong Chen and Thomas Oromo, *Hydrogeology Journal*, September 16, 2009, illustrates an underground river basin.

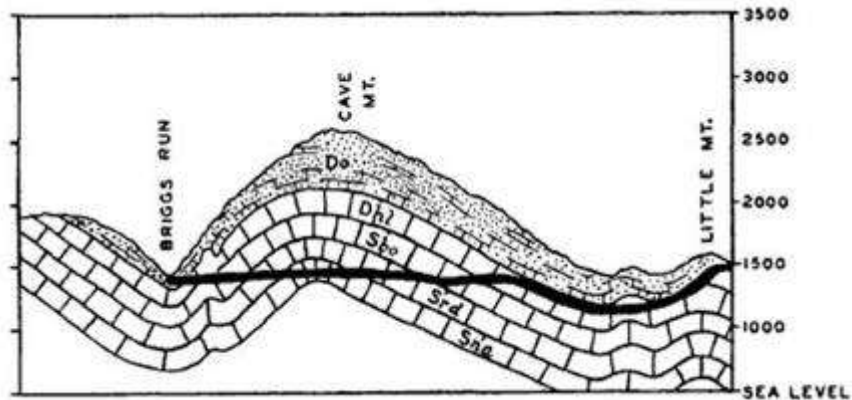


Piracy

"Subterranean Stream Piracy in the Ozarks" by C.L. Dake and Josiah Bridge brings to mind swash-buckled moonshiners, but the *Bulletin, Technical Series 7:1*, School of Mines and Metallurgy, University of Missouri, 1924, is not as folkloric.

Surface water that seeps into cracks in channel bedrock can lead to chemical exfoliation and freeze expansion, enlarging the crack, which in turn allows more water into the crack and accelerates erosion. When cracks combine to create an alternate subsurface pathway to a nearby stream, subterranean stream piracy occurs. The pathway may enlarge until most, if not all the water flows through it, rather than the original route.

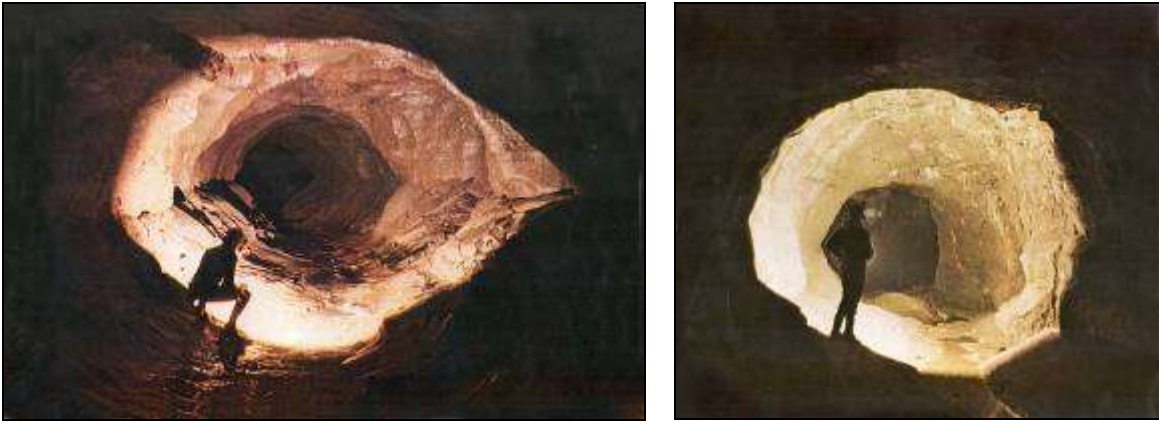
A stream piracy reference, *Solution and Stream Piracy* (1939) by H.M. Fridley, is based on the 3-kilometer subterranean piracy of the South Branch Potomac in West Virginia.



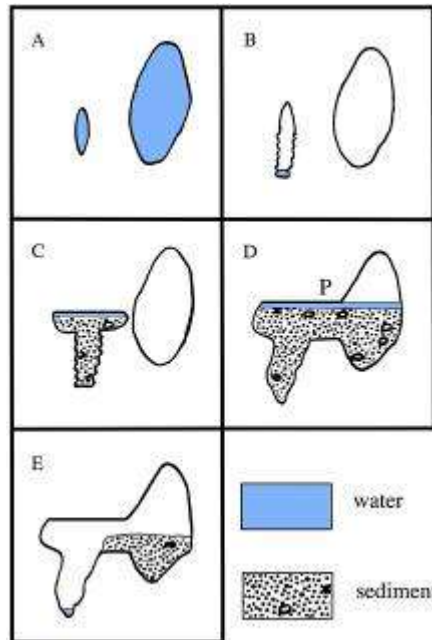
We will have more to say on the subject of subterranean stream piracy in Chapter 88 where it has to do with scoundrels and cutthroats who operated in New York Harbor.

Cross-Section

A "phreatic cave" formed by a completely filled cross-section can be identified by its circular shape. Nature prefers circles, a concept we chronicled in Chapter 7.



Most karst conduits aren't cylindrical for long, however. The photo below from Spring Valley Cave, Minnesota, illustrates progressive down-cutting. The diagrams show the process of paragenesis, the terminal stage being a flat-bottomed floor of sedimentary material.

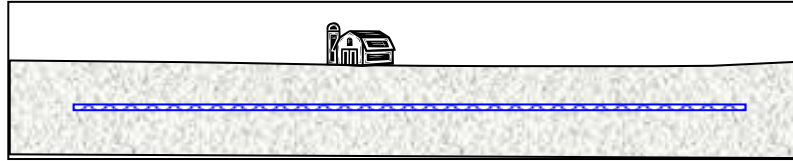


Not all that's reported about cave geometrics, however, should be believed, as evidenced by "A Mysterious Underground River," New York Times, April 23, 1893.

Charlotte, N.C. -- An oil and fertilizer mill is being erected in the suburbs of this city, and Mr. Knox, the engineer, in prospecting for water struck a great underground stream strongly impregnated with iron. Other wells were driven down, and it was discovered that the stream is 700 feet wide and 6 feet deep. This underground river is 45 feet from the surface.

This immense volume of water has caused considerable excitement, and its iron taste precludes the idea that it is a part of the Catawba River, which is free from stone. Where it comes from and where it goes is a mystery.

The scale diagram below shows the stream's cross-section.

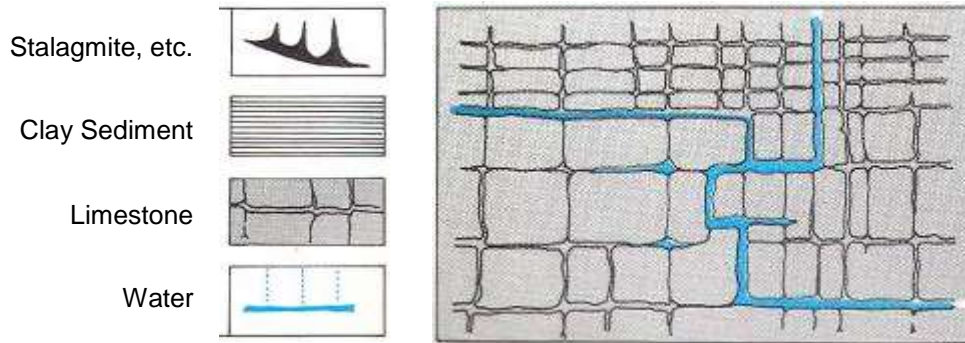


For geotechnical reasons, the thickness of a stable karst roof must exceed roughly half of the cave width. The reported ceiling would likely have collapsed long ago.

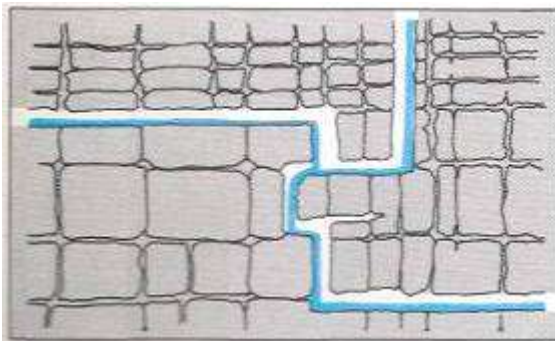
Collapse

We'll look at one dramatic consequence of karst collapse in the chapter to follow, Sinkholes, but here we'll introduce the topic in the framework of the larger karst process.

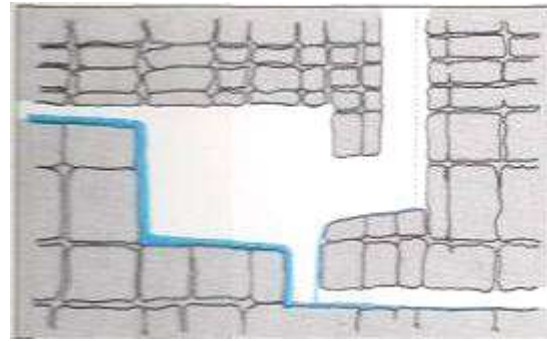
The drawings below, adapted from *Caves* (1974) by Tony Waltham, illustrate the general sequence of cave formation.



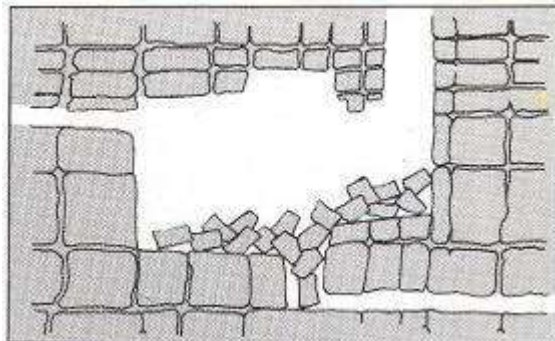
1. Water in fissures -- moving slowly



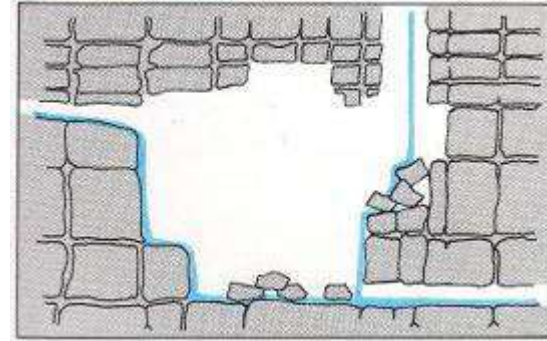
2. Stream caves are established



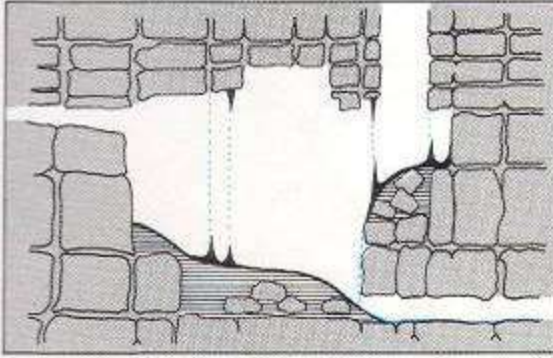
3. Stream erosion cuts out chamber



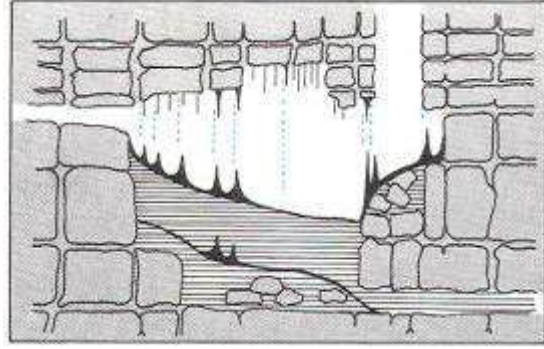
4. Partial collapse of roof



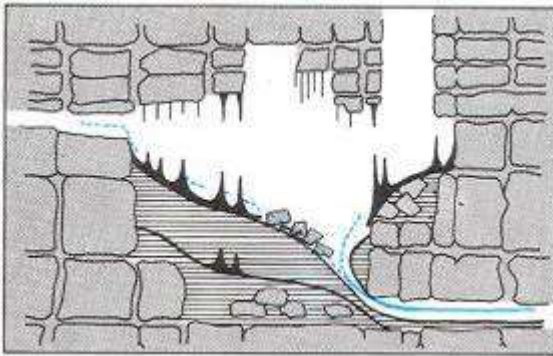
5. Solution of collapse debris and floor



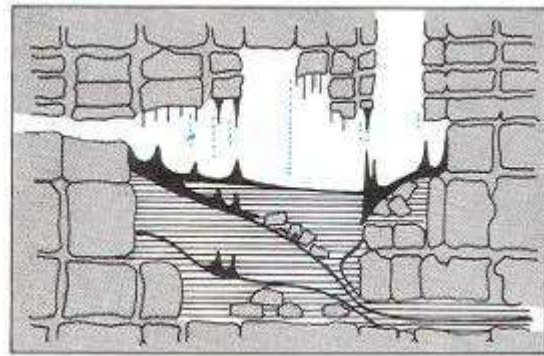
6. Deposition of clay sediments followed by stalagmites



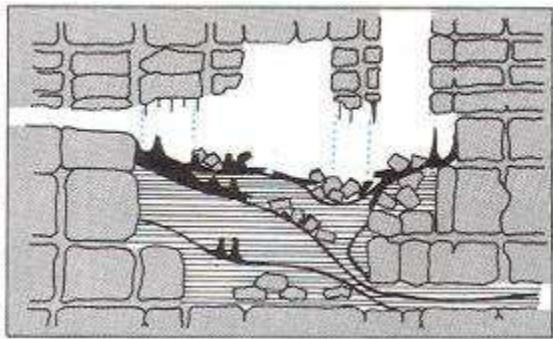
7. Deposition of second phase of clay sediment followed by more stalagmites



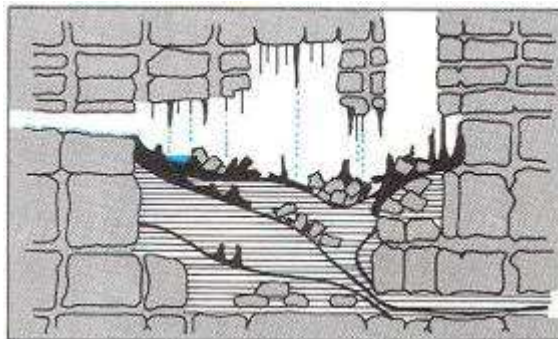
8. Erosion of some of the clay sediments and stalagmite and further collapse



9. Deposition of a third phase of clay sediment and stalagmites



10. Settling of clay sediments, some collapse of stalagmites and further roof collapse



11. Modern phase of calcite deposition

The sequence is measured in geological time, typically 10,000 to 100,000 years to reach traversable size.