

Your Field Trip to Lookout Mountain

On your field trip to DeSoto Falls and Little River Canyon, you will see many interesting geological features and beautiful scenery. In each area, sandstone can be observed as distinct layers or strata in the walls of the gorges. Individual pieces of sandstone that have been loosed from the layers of rock litter the canyon floor and the top of the mountain. These rocks vary in size from pebbles to house-sized boulders. This sandstone is composed of individual grains of sand that were cemented together. Hold a small piece of the sandstone in direct sunlight. You can see the sparkle of the sand grains as sunlight plays across the rock.

Geologists have named this sandstone the Pottsville Formation. This formation covers much of north Alabama and extends into Georgia, Tennessee, and to the northeastern states. During the Flood of Noah, great volumes of loose sand were transported across what are now these states by powerful forces present during the Flood. The sand was deposited over thousands of square miles up to a depth of 1,000 feet across this large area. A cementing agent, quartz, was added to the sand, causing it to quickly harden into the sandstone we observe today. Below this sandstone are other Flood deposited sediments that extend to a depth of about two miles! Imagine the catastrophic events happening during Noah's Flood that deposited these deep sediments that later hardened into rock!

While the waters of the Flood were retreating from the land surfaces, floating mats of trees and vegetation were mixed in the sand as violent water currents, tidal events, and seismically generated tsunami shock waves hundreds of feet high deposited this sand in layers and pounded the newly risen land surfaces. Near the dam at DeSoto Falls, we will see petrified trees that are crisscrossed in a random pattern indicating their entombment by rapid deposition. Logs and sticks were broken in the water movement and then deposited in the sand, attesting to the violence of the forces that placed them in their final resting places. Note that there are no limbs on the tree trunks, further evidence of their being broken off in moving water just as we can observe in modern floods. On some of these logs can be seen the bark patterns of the once living trees.

Evolutionary doctrine teaches that the deposition rate of the layers of sand you see in the Pottsville Formation would be about one inch of sand per thousand years. If this were true, it would take thousands of years for these slow processes to completely cover even a small log. From experience, we know that logs exposed to the elements will not last but a few years before decay destroys them. The bark of trees will deteriorate even more rapidly. Further evidence clearly demonstrating the rapidity that logs were deposited in this sand, are logs that are preserved in the vertical position, having been buried standing erect. There are examples of this in the local sandstone that we cannot easily reach and many other locations scattered around the world. All of these fossil logs speak of cataclysmic forces acting quickly to bury them, and not a slow burial over many years.

The dam across the west fork of the Little River at DeSoto Falls is a bit of history itself. The dam was constructed in 1925 to generate electric power for the people living in the area. Some of the concrete structures remaining from this project can be seen on your walking tour of the waterfall. The water over DeSoto Falls drops 105 feet through the air before crashing into the

plunge pool below. Directly below the falls, the water depth is 35 feet! Some years ago, a young man jumped off the ledge where the water of DeSoto Falls rushes over the ledge to the pool below. His fiancée was nearby and became very alarmed when she heard what he had done. They are now happily married and good friends of the writer and his wife. Now, of course, he does not recommend diving over the waterfall even if given a double-dog dare!

On your walk to DeSoto Falls, notice the small white pebbles contained in the sandstone under your feet. This is quartz, which was tumbled in the sand as it was moved and shifted during the Flood. The pebbles are worn and polished smooth as if processed in a rock tumbler. As the quartz pebbles were mixed in the loose sand and rolled around for a period of time, the sand acted as an abrasive to polish the rough edges from the small fragments. These small pebbles also clearly show that cataclysmic forces were at work during the time of their burial. When smooth pebbles are mixed in the sandstone, the rock is called *conglomerate*.

While you are observing DeSoto Falls, notice the layering of the sandstone on the cliff wall across the gorge. There are many horizontal layers of varying thicknesses. Each layer or stratum is probably the result of a singular Flood event, perhaps caused by cyclic tidal action in only a few minutes or hours.

You will notice that interspersed in the parallel layers of sandstone are other layers that exhibit slanted, rather than horizontal layering of the strata. Some of these layers tilt at about 30 degrees. This is called cross-bedding of the sandstone. These features were formed by sand waves, the underwater equivalent of sand dunes that originate on land. These might be called petrified features left from the Flood. Once a sand wave formed underwater, increasing water current velocity would shear the top of the sand formation, leaving only the tilted layers for us to observe in the rock.

Another stop on our field trip as we leave DeSoto Falls is the Sallie Howard Memorial Chapel. This is a quaint church built in 1937 by Col. Milford Howard in memory of his deceased wife. The church is still used for services on Sundays and is left open at other times for people to browse through and enjoy its unusual features. To tell you what is so interesting about this small church would be like someone revealing whodunit before you finish a mystery novel. One clue is that those who worship in this church can study biblical geology as they contemplate the Rock of their Salvation! You can even pay your respects to Col. Howard while there.

The next stop on our field trip is Little River Canyon. This unique geological feature is one of the deepest and largest canyons east of the Mississippi River. It is about 12 miles long, averaging 400 feet deep! Little River flows through the canyon, the only known river in North America originating and existing almost entirely on top of a mountain (Lookout Mountain). Because of sparse farming done in the area and few sources of contamination, the river contains extremely pure water. The river has nervous water that hurries down the steep stretches of the canyon, churns itself foamy white over rapids, and changes back to crystal clear as it relaxes in the deep pools while making its descent.

While in the canyon area, we will stop at some of the overlooks, which give us access to wonderful views of the canyon. At our overlook stops, there are barriers that keep sightseers a

safe distance from the edge of the cliffs. Please do not allow anyone to step beyond these barriers, as it is a minimum drop of more than 100 feet to the rocks below. People who sometimes cross these barriers do not realize that the stone can be undercut and very thin on the edge of the cliff. This could potentially cause events that could ruin their whole day!

While looking into the canyon, observe that the walls of the canyon are very straight with vertical sides that drop about 100 feet before the angle changes. This is indicative of very rapid formation and an origin in the recent past, perhaps no more than a few thousand years ago. If the canyon had been in place for millions of years, the sides would have eroded, causing the canyon to have a smooth appearance with gently sloping features. Given enough time, erosional forces would have reduced the canyon to gentle undulations in the landscape.

Another indication of the recency of the canyon's formation is the lack of high volumes of talus on the floor of the canyon. Talus is the loose rock debris at the base of a cliff. With time, rock fragments (talus) break off of a sharp cliff and accumulate at its base. You can see the talus slopes that begin a significant distance below the tops of the cliffs. If the canyon had existed for long ages, the talus slopes would be significantly larger, sloping up to the tops of formerly sharp cliffs smoothed by erosion.

Ultimately, these rock fragments would be further broken up, carried downriver, and ejected from the canyon at its mouth. As this process goes on for many years, a delta is formed at the mouth of a canyon where the river loses velocity and drops its burden of sediment composed of sand, rock, and debris. These deposits are characteristically fan-shaped. Examples of deltas can be studied at the mouths of the Mississippi and Nile Rivers. As the river builds resistance to its flow by dropping its load of sediment, it can form a network of many channels flowing through the delta deposits forming braided streams.

Little River Canyon has no delta at its mouth. Little River flows straight from the canyon into Weiss Lake, a few miles distant. Why is there no expected delta? The absence tells us that during the formation of the canyon, huge volumes of fast-moving water were responsible for carving the canyon in a short period of time. This cataclysmic origin would provide the ingredients necessary to flush the eroded materials quickly out of the newly forming gorge and transport them miles downriver from the mouth of the canyon, leaving neither a delta nor any visible remains of the tremendous volume of material removed from the gorge. Under such conditions, Little River Canyon could have easily been formed in about one to three weeks!

In the canyon system are numerous waterfalls and cascades within the many side canyons that approach the main canyon from the westerly direction. These waterfalls also speak of a tremendous volume of fast-moving water, which initially gouged out the canyon, originating these waterfalls far downstream from their present location. At the elevations where the forces of erosion were reduced due to the diminishing water supply, the waterfalls would have slowed and stopped their rapid backward (upstream) travel, essentially "freezing" the waterfalls at their present location. For example, Little River Falls at the head of Little River Canyon near Highway 35 would have begun at what is now the mouth of the canyon, 12 miles distant! In a very short time, violent water movement through what is now the main canyon caused Little River Falls to erode upstream, traveling as much as tens of feet per hour!

In the Bible, God tells us of an Earth-covering deluge that literally destroyed the original land surfaces and wiped out all people and air-breathing land animals that lived, except those that were carried safely aboard the great ark. A judgment had come to planet Earth and its inhabitants. The Earth was bathed and refreshed by the waters of the Great Flood. On our trip to DeSoto Falls and Little River Canyon, we will see actual physical evidence of this great event in history.

Noah and his family entered the ark for safety and physical survival during the ravages of the Flood. Today, God also invites us to enter an Ark of security and spiritual survival for our journey through this life and the one to come. That Ark is none other than the Lord Jesus Christ, God Himself, who came to the very planet He created to show us the way to eternal life with Him in Heaven.

As the door of the ark of Noah was open for people to board for safety, Jesus invites us to join Him on the special Ark that God has supplied for each of us. Jesus said, "I am the door; if anyone enters through Me, he shall be saved..." (John 10:9)

How can one enter through that door?

"For God so loved the world, that He gave His only begotten Son, that whosoever believes in Him should not perish, but have eternal life." (John 3:16)

"Whoever will call upon the name of the Lord will be saved." (Romans 10:13)

If you have not done so, why not invite Jesus through your heart's door for salvation right now? He is always present to hear your prayer of invitation for Him to forgive your sins and give you salvation and the assurance that you will spend your eternal life with God in Heaven. Simply ask Him for His free gift. This is the most important decision you will ever make. Why not do that today, even right now?