



## *Oh, Beautiful Land of Mountains !*

In 1872, Landon Carter Haynes was attending a party in Jackson in honor of the members of the Tennessee Bar Association during a session of the Tennessee Supreme Court in that city. General Nathan Bedford Forrest served as toastmaster and during the evening stood and said,

*"Gentlemen I propose the health of the eloquent gentleman from East Tennessee, a country sometimes spoken of as the God-forsaken land,"* Haynes smiled, arose, and began:

*"Mr. Toastmaster and Gentlemen:*

*I plead guilty to the soft impeachment. I was born in East Tennessee, on the banks of the Watauga which in the Indian vernacular means beautiful river, and beautiful it is. I have stood up on its banks in my childhood and looked down through its glassy waters and beheld a heaven below and then, looking upward beheld a heaven above, reflecting, like two mirrors, each in the other, its moon and planets and trembling stars. Away from banks of rock and Cliff hemlock and laurel pine and cedars stretches a vale back to the distant mountains as beautiful and exquisite as any in Italy or Switzerland. There stands the great Roan, the great Black and the great Smoky Mountains upon those summits the clouds gather of their own accord, even on the brightest day.*

*There I have seen the Great Spirit of the Storm after noontime go and take his evening nap in his pavilion of darkness and of clouds. Then I have seen him aroused at midnight like a giant*



*refreshed by slumber, and let loose the red lightnings that ran along the mountain tops for a thousand miles, swifter than an eagle's flight in heaven. And again I have seen the lightning stand up and dance like angels of light in the clouds, to the music of that grand organ of nature whose keys seemed to have been touched by the fingers of Divinity in the halls of eternity.*

*Then I have seen the darkness drift away beyond the horizon, and the morn arise from her saffron bed like a queen put on her robe of light, come forth from her palace in the sun, and stand tip-toe on the misty mountain tops and while night fled before her glorious face to his bed-chamber at the Pole she lighted the green vale and beautiful river where I was born and played in childhood with a smile of sunshine. Oh, beautiful land of mountains, with thy sun painted cliffs, how can I ever forget thee!"*

# Preserving Our Mountain Vista

--Jerry D. Greer

A few weeks ago I asked my friend about Hawksbill Mountain which overlooks the Linville Gorge in mountains of North Carolina. He had a few black & white images from the summit but I had never seen photographs published from the summit before. A place I knew of but had never made the trek to the summit for photographs of its amazing view. I have always limited myself to the Wiseman's View area for images of the gorge. While putting the finishing touches on my book "Appalachia – The Southern Highlands" I made the hike to Hawksbill's neighbor just to the south, Table Rock which offers great views down the gorge and also to Grandfather Mountain to the North. The only thing missing was Table Rock itself. Table Rock is a massive exposed rock called "Attacoa" by the Cherokees; the rock was their mystic altar for sacred ceremonies. This is why I was so drawn to the summit of Hawksbill with its view down the gorge that contained Table Rock.



My friend and I parked our truck at the trailhead parking area. We shouldered our heavy photo gear and made our way up the trail in hopes of a great evening of calm wind and sweet light. The climb was to be a short hike but we knew that the summit trail was

also going to be very steep. Adding to the difficulties was the June heat wave and after a few breaks for needed water and to catch our breath the trail leveled and the forest opened up, the exposed summit was within site. To my surprise we only passed a couple of hikers and we were alone at the top. Unlike my earlier trip to Table Rock, which was littered with kids in sleeping bags and beer cans everywhere.

The evening was calm but large clouds were forming to the north and threatening our hopes of warm light painting the awesome vistas we were to capture on film. It was early and we had a couple of hours to explore and photograph the details of the sculpted rock and plant life along the exposed summit. As we were photographing Hawksbill's natural details we noticed that the wind was getting stronger and the clouds getting darker. Our hope of photographing that beautiful vista was quickly becoming history. So we packed our gear then retreated to the truck. Disappointed with the weather though ecstatic with the potential to capture the wondrous image of the Linville Gorge displaying its most desirable features. I made the decision to do it all over again tomorrow.

According to the weather service the front passed through leaving calm winds and sunny skies forecasted for the weekend. Weekend! My memory raced back to that Saturday morning trip to Table Rock with the kids and beer cans. Weekends are a photographer's nightmare! But the weather was to be perfect so the decision was made, and this trip I was to be alone for my friend had a prior engagement that was unbreakable. To my surprise nothing had changed with this trip

to Hawksbill summit. The kids were not here! No beer cans or sleeping bags! I could not understand where they were. I met a couple groups of hikers, which totaled about seven people. That was it, no besiege of people walking in front of the camera or covering the summit making the photography impossible. The evening was exceptional as was the photography. I did get the photographs that I wanted so dearly with the warm light painting the foreground rocks, Table Rock and the cliffs of the Linville Gorge a reddish glow with golden overtones. This trip was a success beyond expectation.

The return drive home was just under two hours, which allowed plenty of time for contemplation. I then became a little hesitant; the summit is so

extremely fragile. Could I contribute to the bringing of hundreds more visitors to the summit? Would the publishing of my photographs bring the kids, beer cans and destruction that I experienced on Table Rock?

As photographers, we must think cautiously about the impact of our photographs. Will the publishing of these images contribute to the overuse of Hawksbill summit and other sensitive areas we choose to photograph? Each photographer must make this difficult decision. My hope is that the people who seek out the fragile areas they see in our photographs will take part in the protection of these beautiful but fragile places.

**Jerry will be our Friday evening speaker at the Fall Naturalists' Rally. His program is "Southern Appalachian Highlands – The Gentle Mountains. For calendars, books, posters and online photo galleries, visit [www.jerrygreerphotography.com](http://www.jerrygreerphotography.com)**

## ROAN MOUNTAIN BUTTERFLY COUNT

(Submitted by Don Holt)



Hey people,

The 10th consecutive annual butterfly count at Roan Mtn. was held Sat. July 27, 2002. Participants were Allan Trently, Jerry and Sally Nagel, and yours truly. The weather was partly to mostly sunny, in the 70's and 80's F, with occasional light winds. Allan counted in Engine Gap and near Carvers Gap on the NC side, Jerry and Sally counted in the Ripshin Lake area, I counted in the State Park and Hampton Creek Cove, and the Rhododendron Gardens were covered in the afternoon by Jerry, Sally and myself.

Individual butterflies counted totaled 1,411. Number of species seen was 25. Highlights include 376 Pipevine Swallowtails, 01 Diana Fritillary (Ripshin area), and 585 Aphrodite Fritillaries (a new record high for the Roan Mtn. count, breaking the old continental high record). The Aphrodites in the Rhododendron Gardens were mainly nectaring in Red Clover beside the paths and roads. It was not uncommon to see 10 to 15 Fritillaries in a square yard. They would sit calmly as we walked past, making counting easy and fairly accurate.

Pipevine Swallowtail (376)	Diana Fritillary (1)	Common Wood Nymph (12)
Eastern Tiger Swallowtail (48)	Great Spangled Fritillary (17)	Monarch (2)
Spicebush Swallowtail (3)	Aphrodite Fritillary (585)	Silver-spotted Skipper (126)
Cabbage White (27)	Meadow Fritillary (14)	Least Skipper (12)
Orange Sulphur (13)	Pearl Crescent (38)	Peck's Skipper (5)
Clouded Sulphur (8)	Eastern Comma (1)	Northern Broken Dash (2)
American Copper (2)	Red-spotted Purple (2)	Sachem (46)
Eastern Tailed-Blue (42)	Common Buckeye (3)	Dun Skipper (4)
Summer Azure (22)		



## BAD DAY AT BLACK ROCK

—Robert Whittemore

**A mountain, a river, a cavern. From windswept heights to shady creek banks. Here is a ravine with cascades of frothy water, and there is a low, squat hill.**

Why is a mountain where it is? Because everything has to be somewhere, right? Clever, but it dodges the issue. The plain fact of the matter is, all geological features have a reason for being where they are. Waterfalls, for example, in a wide majority of cases I have observed, are found at any point where a stream crosses a hard, resistant ledge of rock that lies directly above softer rock that is more readily eroded. The turbulent water at the base of the falls churns up harder gravel that digs away at the softer rock, thus undermining the hard, resistant ledge. The ledge tends to break away more episodically than the soft rock; but, caught in the turbulence, it may become part of the gravel that grinds away at the bottom of the falls. Thus, a vertical (or even overhung) drop is maintained. This phenomenon has influenced many cultural activities, from the site selection of mill wheels to the covert location of whiskey stills.

From a prominent vantage point, such as Roan Mountain's Round Bald, or the Cloudland Hotel site west of Carvers Gap, one may look to the southeast into North Carolina and see a rugged landscape, studded with sharp peaks in seemingly random array. Hawksbill, Table Rock, and Linville Gorge feature steep precipices, while Mount Mitchell looms in the mist. Turning 180 degrees to the northwest, toward Tennessee and Virginia, we see another rugged, mountainous landscape, but the difference is immediately striking. The mountain ranges and ridges seem to follow a more orderly pattern. From this distance, the ridgetops appear to be nearly horizontal and subparallel to each other. Some may snake their way through graceful curves, while others are abruptly truncated.

The underlying difference between these two contrasting topographies is what lies beneath the landscape. The North Carolina mountains are

supported by mostly metamorphic rocks with some igneous rocks for variety. The eastern Tennessee-southwestern Virginia ridges and valleys are defined by a substrate of sedimentary rock. The metamorphic rock domains were either crystallized by heat, pressure, anatexis, or metasomatism; or brecciated and mylonitized by sheer forces; all of which could be regional or local. Igneous rocks, on a geological scale, are the most localized of the three major types. Sedimentary rock horizons, forming at the bottom of vast inland seas, are the most territorially pervasive. The contorted and compositionally-altered metamorphic terranes of the Carolina Blue Ridge and Piedmont are decidedly lacking in continuous ridges.

The valley and ridge province to the northwest owes its semblance of regularity to the same phenomenon as the waterfalls: alternating strata of hard and soft rock. Since these sequences of rock were deposited in layers that were originally horizontal, and later folded or faulted to varying attitudes, erosive forces are able to attack the softer lithologies, leaving the more resistant ones standing high and dry. Ledges standing at a steep angle to the horizontal are more readily attacked by erosive forces while the more nearly horizontal strata are more resistant. This further accounts for the variation in altitude along a single ridgeline. Thickness and composition add spice to the picture.

From our vantage point, the farthest ridge to the northeast is probably Clinch Mountain, which reaches its most lofty altitude between Gate City and Mendota. It is a favorite location among birders for viewing the annual hawk migration. Panning to the left, we see the northern terminus of Bays Mountain just southeast of Kingsport. Here the resistant Bays Mountain Sandstone is folded into a tight syncline (trough-like) whose axis surfaces at that point. The majority of the

valley areas are underlain with limestone, which tends to be hard but brittle in addition to being subject to solutional as well as mechanical erosion. The steep slopes are often underlain by shale.

As engaging as these vistas are, we must sooner or later become aware that we are looking down upon them. With the exception of Mount Mitchell somewhere off in the mist, Roan Mountain towers above its nearby neighbors. Why? Hard rocks. The light-colored rocks we see along the trails and bare areas are a hard metamorphic rock known as gneiss (pronounced "nice"). It shows traces to bold patterns of compositional banding, known as foliation; but it does not separate easily along those bands. The mineralogy is similar to granite, which leads us to a juncture beyond which, in order to proceed we must first slay two mythical dragons.

Myth #1 -- there once was a continent called "Atlantis" that sank into the sea. Myth #2 -- someday, California will sink into the Pacific Ocean. Fact -- continents have always been, and always will be continents. Oceans have been, and will be oceans. They may migrate around on the surface, but continents do not sink. If we were to drill a deep hole most anywhere in a continental area, we would penetrate hundreds or even thousands of feet of any of hundreds of types of surface rocks; but at some point, we would hit granite. Granite has a density of 2.7 grams per milliliter. Drill a similar hole out in the ocean, and somewhere below the whale poop and sunken treasure ships, you will strike basalt. Basalt has a density of 3.0 grams per milliliter. The difference between the two is a whopping 0.3 grams -- that is a difference of ten percent -- granite cannot "sink" into basalt. It will always float.

The hard, granite-like gneiss of Roan Mountain is hard enough, but geological history has endowed this massif with a bonus: intrusions of an even harder, more resistant igneous rock. When the gneiss was still buried deep in the earth's crust, it was part of a supercontinent that collided itself into existence about one billion years ago in an event known as the Grenville Orogeny. About 180 million years later, the colliding lithospheric plates reversed their motion, and

the continent began to rip itself apart. As the core of the continent separated, the terrane became extended. Where the stretching was slow, large blocks of real estate sank, often rotating several degrees in the process. Where the extension proceeded more rapidly, the rents ran deeper, finally penetrating the entire thickness of granite-like surface rocks, and allowing the thick, black basaltic rocks in the form of magma to enter the rifts. Driven by pressure exerted by the sinking, rotating surficial units, the thick, black magma forced its way upward, filling every nook and cranny as it went. As the forces stabilized, the magma cooled, and there it remains to this day.

Looking at the topographic map of the area, one would take note of several prominent spurs that jut out like buttresses from the flanks of Roan Mountain. Most of these are the surface expression of tabular bodies of igneous intrusions known as dikes. Some of these dikes show signs of having been intruded several times, and are over 40 feet thick. Two of the larger dikes are well-exposed on Route 143 a mile or two below Carvers Gap on the Tennessee side. Starting at Roan Mountain State Park, and taking 143 south toward Carvers Gap, after you pass Mile Marker 3, every road cut on the right side of the road exposes hard, black rocks of a volcanic intrusion. This complex of intrusives is known as the Bakersville Gabbro. Gabbro is much like basalt, the main difference being that basalt is generally an extrusive rock, cooled subaerially or subaqueously, and therefore having more of a fine, isotropic texture, while the gabbro is an intrusive that crystallized more slowly, thus has more of a grainy texture. Gabbro is almost always black. The gabbro outcroppings on Route 143 also contain tiny pyrite crystals (iron sulfide) that may have been the basis of all the iron formations that have occurred in this area.

So, underpinned by thick, black ribs of gabbro, and supported by hard granulite gneiss, Roan Mountain has withstood the ravages of time and erosion. And that, gentle reader, is the *real* reason the mountains are where they are.

**Robert E. Whittemore, Chief Geologist at General Shale Brick in Johnson City, TN, will present Saturday evening's program, "Tracking Ancient Climates". He is also the incoming President of Friends of Roan Mountain.**