

## **MAJESTY OF THE MOUNTAINS**

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**By James Haught**

**Even if you've lived all your life in West Virginia, the immensity of the mountains still can be awesome.**

**Last week I drove down the turnpike to Beckley, then east on I-64 to the Shenandoah Valley, and the colossal convolutions were as boggling as ever.**

**Looming peaks and slopes were especially impressive with October sunshine sparkling on the red-orange-yellow forest. But the crests are as gigantic in any season. They dwarf human activity along the roadways, making it seem trivial, transient.**

**By our brief standard - the outlook that considers the Roman Empire ancient - the mountains are eternal. They stood long before pre-Indians hunted mammoths by the rivers. They'll stand long after our generation is as forgotten as the mammoth-hunters.**

**Around White Sulphur Springs, the strata of roadside cliffs tilt almost on end, and some rock layers twist like pretzels. Obviously, the crust of the planet ruptured in the far past.**

**Signs advertising limestone caverns in Greenbrier County remind us that this land once was an ocean bed. Seashell deposits filled the sedimentary rock with lime, which slowly dissolved to leave caves.**

**The scenic drive spurred me to find a plate tectonics book and restudy how the Appalachians were born. Here's the explanation by Walter Sullivan, science editor of The New York Times, in his 1984 volume, *Landprints*:**

**Earth's surface is fragmented into enormous plates that move perpetually, impelled by currents in the semi-molten interior and by lava extruding from cracks in ocean floors. The North American plate, for instance, moves westward about 2 inches a year. That may seem insignificant, but consider the vastness of geologic time: In a million years, the continent might travel 30 miles - and in 100 million years, 3,000 miles.**

**More than 1 billion years ago, Sullivan says, eastern North America crunched against an unknown land mass in what scientists call the Grenville collision. Then the masses separated, opening the prehistoric Atlantic Ocean, which existed for hundreds of millions of years before closing again.**

**Around 500 million years ago, North America began crushing toward the European and African plates. During the approach, great sections of ocean floor several miles thick broke upward and thrust over the Eastern Seaboard. Volcanos**

sprouted in the region. Then the western edge of Africa jammed into North America, buckling and crumpling the zone from Maine to Georgia.

"It is hard to imagine deformation on so huge a scale," Sullivan wrote. "Some folds were pushed completely over on their sides so that older layers lay over younger ones. The result was a mighty mountain range, largely built of sea-floor slabs...."

"In the final stages of the great collision, sheets of sedimentary rock on the Appalachian Plateau were shoved farther and farther west, some of them almost as far as the Ohio River." This gargantuan compression formed West Virginia's coal from deep bogs of peat left by decayed vegetation.

"It was Africa's final push from the east that helped complete the requirements for fossil fuel maturation," Sullivan said. "This was the Alleghenian phase, between 230 and 280 million years ago." Amazingly, the Appalachians originally rose perhaps eight miles high - compared to today's mile-high peaks. Erosion at a rate of about one foot every 4,000 years gradually lowered the crests, and cut valleys in softer material.

While the mountain range was aging and shriveling, North America was separating from Europe and Africa. Lava rising through a long fault spread the floor of the new Atlantic Ocean, century by century, millennium by millennium.

As North America moved westward, the newer Rocky Mountains were created from Pacific island chains scooped up by the plate advancing "like a continent-sized bulldozer," Sullivan wrote.

All this, according to the best scientific evidence, is how West Virginia came to be a topsy-turvy land - a place of rugged vistas and sparse population - a place too jumbled to be overrun entirely by shopping malls, subdivisions and office complexes, like the rest of America.

The wild tumult may not be commercially advantageous, but it has a beauty and majesty that affect the soul. The psyche of mountain people is marked by their surroundings.

"Mountaineers always love their country," Napoleon said.

He was right.

( Haught is the Gazette's editor. )