

# LIMESTONE LAYERS

—how Helderberg fossils helped shape my life



By John Van Hoesen  
photos by author unless noted

It doesn't take much to excite a six-year-old. For me, it was as simple as going for a ride with my father in the early 1980s in one of his many reconditioned Volkswagen buses. The high bench seats, expansive windshield, circus-like horn, and the odd fact that most were red made even a routine trip to the gas station seem like a ride at the local fairgrounds.

All too often, however, while I was transforming the road and endless supply of potholes into the tortuous path of an imaginary fire truck racing to save the day, I was jolted back to reality when my father would stomp on the brakes and throw the bus into reverse. We would end up perched precariously on the edge of the road looking down into an expansive ditch. My father would then wander into the ditch or walk across the road to pick up a rock—but not just any rock. Usually they were

flat, semi-rectangular and almost exclusively of the limestone persuasion. Neither my father's fascination with orphaned rocks nor the growing pile he saved made any sense to me until he started building rock walls and flower gardens.

My father also built the house I grew up in. It was originally a seasonal cabin nestled on five acres near Thompson's Lake in the Helderberg Mountains of upstate New York. One of the reasons it remained seasonal for so long was the extremely thin soil covering the local bedrock. When he converted the cabin into a year-round home, rather than blasting through rock for a foundation, he excavated down to bedrock, then built the foundation higher than the surrounding ground. He used his "rock collection" to build walls and raise the ground around the foundation and cover the exposed cinder blocks.

Helderberg limestone fossil



His decision not to use dynamite resulted in the most fascinating geologic feature of the house: the basement floor. It was a modestly flat surface of limestone riddled with ancient fossils—brachiopods, corals, and mollusks called tentaculites. Similar fossils were exposed in the seven-foot-high hearth my father built using the best specimens gathered from our property and local ditches.

Growing up surrounded by geology tutors in the rock walls, basement floor and hearth, my early interest in paleontology was probably unavoidable.

Although the surrounding area was littered with fossils, my interests quickly expanded to include rocks and minerals. My parents gave me a rock hammer and a guidebook when I was nine, and I began spending my time sifting through the rock walls bordering our property and splitting open slabs of exposed ledge in our backyard. Each swing of the hammer brought me closer to the discovery of a new fossil and eventually left our neighborhood shimmering with hundreds of rock fragments reflecting the sun.

My first guidebook, which quickly became filthy and tattered, was dark navy blue with amethyst crystals and an exquisite geode on the cover. It taught me to build my first rock collection. I realized my patience for tedious attention to detail at an early age as I carefully dabbed a small spot of yellow paint on each specimen, numbered it, and recorded its sampling location and brief description in a small notebook. For some reason, I also thought it was necessary to memorize Mohs Hardness Scale and wander around reciting it to people—yes, I was one of *those* kids.

While exploring our land and the exposed ledges along the lakeshore, I began asking about plants and flowers, so my parents added a few more field guides to the bookshelf. Soon I could identify local trees, ferns and flowers—though I remained most interested in rocks and was convinced I would become a paleontologist. I was fascinated by the various textures and the sulfur- and oil-like smells I found in different limestones, but mostly I enjoyed the quest; not knowing what I might find with each swing of the hammer. In my mind, I was a scientist collecting specimens, recording data and identifying rocks.

I eventually finished two advanced degrees in geology. During my studies,

I became fluent in the “language” of geology and my relationship with the landscape of my childhood stomping ground changed. Rather than thinking in terms of a singular rock, I recognized the variety of limestone present in the Helderberg Mountains, in my father’s rock

walls, and our hearth. I had learned that this ubiquitous rock, which I used to see as gray and homogenous, could be categorized into specific formations with names like Manlius, Kalkberg, Coeymans and Becraft. Not only could I recognize individual formations, I understood that



Close-ups of stones in the hearth (pictured above) of my childhood home



Rock wall at author’s childhood home

these formations were associated with specific ages, and I began seeing them in chronological order resting upon one another like German chocolate cake.

Based on the presence of fossils I'd known all my life, I could now tell that the piece of limestone I plucked from our rock pile was roughly 350 million years old. The hearth was no longer just limestone. It was a mosaic of geologic time spanning almost 60 million years, telling a story about how those rocks formed—in deep or shallow water, rough or calm water—and revealing many life forms that no longer exist. What were once just rocks had become time capsules recording the very evolution of Earth.

Even though I enjoyed exploring the neighborhood, towards the end of my college days I grew impatient to leave home and venture west where everything seemed bigger, wilder and better in all ways imaginable. I drove across the country to graduate school in Nevada—the first of many cross-country travels.

And although I developed a geologic and aesthetic appreciation for the barren nudity of Death Valley, the way Yellowstone geysers allude to Earth's internal combustion engine, and the volcanic totems that watch over the Pacific Northwest, I discovered that I feel most connected with landscapes built on some form of carbonate bedrock. For example, on my first trip to Kentucky's Mammoth Cave, when I saw familiar friends in the rocks and forests (lily-of-the-valley, trillium, purple-stemmed cliffbrake, and flowering dogwood) I realized that I was also drawn to the ecology of carbonate rocks; that these rocks were just a substrate nurturing the landscape with which I was so familiar.

Returning home after graduate school, I no longer saw rocks or even formations; instead, I saw my home through a lens sharpened by studying the geological evolution of North America. The rocks that I used to classify into formations based

Frank Knight



bloodroot



white trillium

Frank Knight

on fossils or whether they were deposited in calm, shallow water now represented former ocean basins or the mountains that eroded into them. These former mountains were created the same way as the early Appalachians and modern-day Himalayas. That cycle is what I saw when I returned home to the Helderberg Mountains. I was able to look past simple observations of rocks and begin to tell their struggles—my perception had changed from recognizing words to writing novels.

I am convinced that my father's own rock collection (albeit singular in taste and abruptly collected) helped develop my practical engineering skills and passion for geology. When, after so many springs of dampness and mildew, my

father finally decided to pour a cement floor in the basement, I was torn between being a pragmatist and a geologist. I vividly remember crawling all over that floor inspecting its fossils, feeling its greasy texture on my knees and the distinct smell of wet limestone. So while I understood the need to pour a new floor, I felt like something meaningful was lost in the name of progress.

My parents recently sold their house, and I'm still struggling to accept that I can't wander the rock walls, browsing their contents like shelves in a library. I can no longer sit in the living room and calculate how many millions of years are mortared to the hearth. Nor can I wait for the snow to melt in the spring so I can watch the bloodroot and ram's-head lady's-slipper poke out of the duff. But I am certain that this place—my childhood playground and laboratory—will influence where I eventually build a home of my own and make my own rock piles.

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