

## Why Study Caves According to Morgan Perrone



### Why Geology?

Most of my childhood was lived in my imagination. I adored reading and spent hours thinking of great adventures and incredible challenges that would test my courage and strength. I wanted to learn as much as I could about places I had never been to and do things I had never dreamed were possible. The world was unknown and strange and filled with such incredible beauty. So looking back, it comes as no surprise that I would find my lifelong dream on the pages of a book.

You know that feeling just before a storm, how everything in the air is humming with excitement and you can feel the electricity all around you? There was no storm that night, but I felt that strange sensation as soon as I walked into the bookstore. The book caught my eye, and I knew I had to have it. Inside was a story of courage and adventure and of discovering who you truly are. It also had beautiful passages describing rocks and minerals. Fantastic and bizarre names were matched with peculiar and lovely descriptions. I had to see these things for myself.

It started with visits to a small stand in our mall that sold pieces of stone attached to string and little carved figures. And then I found out about the gem and jewelry convention. Every year, our convention center would be filled with nothing but gems and minerals. I remember standing there and being so overwhelmed that I began to cry. I could never describe to anyone what it was that touched me or why I constantly felt as though I was reaching for something I could not grasp. I daydreamed about becoming a geologist, going on adventures and finding new and beautiful stones. I even created a cave filled with every crystal imaginable, complete with its own history and a map. I had my dream. I knew no matter what I did in life, no matter where I went, it would lead me to geology somehow, and I would find my adventure, I would find my courage, and I would find myself.

## Why Caves

I was 14 years old the first time I saw a cave. It was a family trip to Mammoth Caves in Kentucky. I had always wanted to go to one, but I had no idea what to expect.

It was a hot day and I remember the relief that came from the cool gusts of wind that hit us at the entrance of the cave. It was so thick and strong; it seemed to cover my body. The smell, which I later discovered was due to a mix of bacterial reactions with rock as well as bat guano, was something I never forgot. For some reason, I loved and still love that musty smell. I find it comforting and somehow pleasant. So, despite my claustrophobia, I felt comfortable and happy to be there. It was neat learning about the history of the cave and how it formed. I liked the formations and enjoyed the sound of dripping water. I was even delighted when they turned off all the lights, and I got to experience complete darkness. Yes I was happy to be there. But then we started to walk through some tight spaces. I had to bend down and squeeze through cracks. I wasn't so sure about that. My heart started to race, and I was scared. I recorded what happened next in a journal:

“Suddenly, I came to an opening. I can't begin to describe how huge this space was and how small I was in comparison. All around me limestone towered above me. It seemed to go on forever. I held my breath and I became calm. I was so amazed at the size—it took millions of years for water to slowly carve this path. And here I was, all that time later, one small girl witnessing a miracle.”

A miracle. I knew right then and there that caves were for me. I wanted to learn more about them, understand how something so incredible could happen. Questions raced through my head, and I was overwhelmed. This was it. This was what I was going to do with geology. Caves. Maybe I could learn enough so I could protect them. Maybe I would discover new caves. Maybe, possibly. Deep within my heart these images, thoughts and hopes were buried. No matter what I did, I would always come back to caves.

I think it was then that the caver in me was born, though it would be years before I would do any actual caving. I understood right away why it was important not to touch formations, why I needed to be extra careful of how I moved, and why throwing trash on the floor was a horrible thing to do. Millions of years of craftsmanship could be ruined by the touch of my hand. I would always remember that it was okay for the cave to touch me—with water droplets from the ceiling, with the cool kiss of cave air, with invisible creatures or small bits of rock—but I could not touch the cave. That's how it is with something you love—you do what's best for it so it can grow and not be hurt by your actions. This lesson would also be something I carried with me and tried to pass on whenever I could.

And so, I had my dreams and my plans. But neither would happen until I found strength and conviction within myself.

## The Choices We Make

“You know there are no jobs in geology unless you get into the petroleum industry.” I groaned. Everyone had been telling me that. And so, like the naïve 16 year old I was, I listened to them and doubted myself, because I thought everyone knew better than me.

The first lesson in going after your dreams—the only person who knows what you can and cannot do is you. If you start listening to everyone else, especially people who have no idea what they’re talking about (why I felt the need to listen to people who weren’t even involved in the science world, let alone geology, I don’t know), you’re going to start doubting yourself and in the end lose the dream that gave you so much passion in the first place. And so, I put away my dream of becoming a geologist because I did not want to get into petroleum, and after all, that was my only choice (at least, that’s what I thought).

I entered college as a communications major. I knew I wanted to stick with science, so I thought writing about science to the public would be cool. The only problem was I hated communications. I wanted out and fast. So that next semester I decided I was going to become a science teacher. The school told me that the best way to do that was to become a biology major because the biology requirements would cover the greatest amount of science classes. I was crushed. I hated biology in high school. I wanted to avoid it at all costs and just stick to chemistry and geology. Unfortunately, I managed to pick a school that had no geology program, and I knew I didn’t want to do just chemistry. So I toughed it out and changed majors. I probably could have chosen another course, but by that time I was desperate and knew that my only goal in college (other than good grades) was to graduate in four years.

The second lesson in going after your dreams is sometimes the path is not what you expect.

I loved botany. I had never given plants much thought before, but I found myself amazed at their adaptations. This provided enough fascination that I could deal with being a biology major. However, towards the end of my undergraduate career, I started to get depressed. I realized that I didn’t want to teach, at least not yet. And I knew that as much as I liked plants, I wasn’t interested in any careers that involved them. Thoughts about geology and caves swarmed in my head, but I didn’t know what to do about it. So I talked to my professors. They encouraged me to go after my dreams. One professor in particular made me realize that all those people who had told me it wasn’t possible had no idea what they were talking about; if you have the drive and the passion, you can do anything you want to.

So I began doing some research into geology. I hadn’t studied it in awhile, and so I had no idea what was going on within that field. I happened to come across an article entitled “Acid House.” It was about the strange sulfur cave known as Cueva de Villa Luz. It is a place dripping with sulfuric acid created by huge colonies of microbes, many of which hang down from the ceiling and walls, dripping in acid. These crazy pioneers form the base of an even stranger food web. Spiders crawl over acid that would cause burns in a human, fish swim in streams cloudy with sulfur, and bats fly in rooms with levels of H<sub>2</sub>S so high that a person would need a gas mask to survive. Not only was that interesting, but it turns out the microbes are slowly etching out the cave as they munch on the walls. I was blown away. This was it. I could use my biology

background to study these microbes, and I would be studying caves in the process. And then I saw the word that would become a sort of mantra to me—geomicrobiology. I found it. This was my path.

So it was then a simple task of researching graduate schools, applying, accepting, and heading off to get that geology degree. Easy, right? Yeah, except for the fact that no one in my family had ever gotten a masters, I had no idea what to look for in a grad school, I didn't even know what grad school entailed because I had never considered it, and I didn't think schools would accept me into a geology program as I only had a biology background.

The third lesson in going after your dreams—sometimes you just have to jump and hope the fall won't be too long or too hard.

I didn't know if I would succeed or not. But I had to try because I couldn't live my life wondering "what if." Even if geology didn't work out, at least I would know. I talked to as many people as I could, both at my school and at the graduate schools I was considering applying to. That turned out to be one of the best things I could do. I learned a lot about grad school and what the expectations were, and I was able to see what sort of research the schools were involved with. I ultimately chose the school I'm at now because they were the most flexible with helping me make up my geology deficiencies, and because New Mexico seems the place to be for cave geomicrobiology. Another thing I learned is that if a grad school wants you, they will pay money to get you. I was offered free rides and stipends. And as I tell everyone who's applying, expect nothing less.

Everyday I make choices that move me in directions I never thought possible. But I made it. I am on the adventure I always wanted, I found courage and conviction within myself, and I am studying caves and geology. I made so many mistakes along the way, but the one thing I did right, the one thing that allowed me to get on this path, was my passion. I never let that go. Even when I listened to everyone but myself, that passion was always there. I let that guide me.

The only thing more difficult than following your dream is figuring out what that dream is in the first place. I found mine because I was so open to possibility and new experiences. If that's the one thing I can say to anyone, it would be this—try something new whenever you can. Read books, visit new places, take up some new hobby, and meet new people. Because the larger your world, the greater your chances of finding that which makes you most passionate. Even if you make mistakes along the way (as inevitably you will) at least you're trying. And you won't have to look back on your life wondering "what if."