

STORY FOR ALL AGES



A Rock Can Tell You a Story

BY GAIL FORSYTH-VAIL

WHAT IS THE MOST SOLID THING YOU CAN IMAGINE? ROCK?

It never seems to change.

A boulder, a cliff, a mountain, a cave, or even the stone you found outdoors and keep on your windowsill . . . these are structures we can count on to stay the same, year after year after year.

Rocks have been here on this earth for billions of years. But this may surprise you: No matter how solid they seem, they move and change, very, very slowly, shaped by extraordinary physical forces and the steady passage of time.

Think about it. Where did rocks come from? How did they get to be what and where you find them? Your special rock or your special rocky place may have begun its story millions and billions of

years before living creatures came along. Its story has drama: heat, pressure, motion, collision, breaking, melting, forming, and reforming. And its story has a message. It reminds us that changing from the inside and being changed from the outside happen to all things in our universe.

So what is the story of your special rock or outdoor rocky place? If you look closely, you will find clues. Examine a small rock for layers, bits of shiny material, or streaks of different colors and textures. A large rock surface may have wavy streaks that tell you the rock folded on itself a long time ago when one massive section of our earth bumped

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**Geology:
The Study of
Wondrous
Transformations**

**The Families pages
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Photos by Susan Lawrence

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into another. How are the big stones arranged in your rocky place? It is possible that deep motions in the earth's crust, perhaps an earthquake, cracked giant rocks and tossed them about. Your rocky place may show signs of scraping from long ago glaciers, or be worn smooth from the force of water rushing by. You may find a piece of rock with ancient fossils, or one that formed as lava cooled.

Explore your rocky place by sight and by touch. Solid? Unchangeable? Maybe for you in your lifetime, but changed and shaped over time, part of the long and wondrous history of our beloved planet.



Photo by Susan Lawrence

EXPLORING TOGETHER

Rocks can be tiny, like a grain of sand, or colossal, like the Grand Tetons. Rocks may look and feel as if they have been and will be here forever ... but every rock in our world is in the midst of its own slow transformation. While we marvel at rocks, we also use them. Rocks are made of minerals, and we take them from the earth to make the everyday items and fuel the technologies we depend on.

What's your relationship with rocks?

Meditate in a Garden of Stones

Create a rock garden. You don't need a large space—just a small, outdoor clearing or a corner indoors for a wide, shallow clay pot. Find rocks outside or buy some at a craft store or a rock and mineral fair. A rock garden is literally pieces of our Earth. It reminds us of our permanent connections to one another and the planet we share.

- Let your rock garden be a physical place where you can bring your spiritual self.
- Quietly rearrange or simply sit with your rock garden. Is it calming, mysterious, awe-inspiring, or all of these?
- Contemplate the rocks...

How old are they? Where have they been? What has changed them?

Connect with Rocks ... and Each Other

A birthday, an anniversary, or any planned family time outdoors can be extra meaningful and memorable when celebrated among nature's large rocks. A beach, a riverbed, or a mountain trail are excellent places to experience rocks in their "habitat." You might spread a picnic on a large, flat boulder, watch the tide crash into a rocky coastline, or, if you are able, climb to a rocky hilltop above the tree line. All of these are likely places to find interesting, small rocks you can take home. Soon you will have collected a little bit of many places you've been.

- You may want to start a formal rock and mineral collection.
- Look up rocks and minerals online to identify the ones you have found, and label each of your specimens.
- Display your collection in a large shoebox or a plastic container.



Photo by Tompikak

It's All Star Stuff

Give one rock your full attention. Hold it in your hand. Look for lines and patterns. What story do they tell? "A natural object, if you look closely, will tell you the story of how it was made and what a wonderful miracle that creation is," says Kari Kopnick, a UU religious educator in Seattle, Washington. "Most of our rocks on the Puget Sound are granite or basalt. They were formed way, way under the earth—right under our feet here in Seattle. Like everything that is part of the earth, our bodies, and the food we eat, we are all made of the same exploded stars."



Photo courtesy Kari Kopnick.

HOLD A ROCK IN YOUR HAND, AND SAY:

**This rock is made deep in the earth.
The earth makes the food that grows.
I eat the food, and it becomes me.**

What's a Rock for?

Choose a rock that feels nice to hold. Sit together in a circle. Pass the rock around. Take turns naming one way to use a rock until you run out of ideas.

Paperweight

Doorstop

Friendship gift

Homemade jewelry

Game pieces (mancala, hopscotch)

Paint a chalice, a heart, your name, or the word "LOVE" on a rock and give it to someone who matters to you



Photo by Tompikak

Find the Minerals

The mineral resources in the left-hand column are extracted from the earth and used to make everyday items. Match each item with a mineral it contains.

Silica



Iron



Silver



Coal



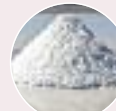
Mica



Copper



Lithium



Graphite



Faucet



Mirror



Plastic container



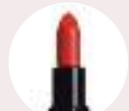
Pencils



Electric wiring



Synthetic fabric

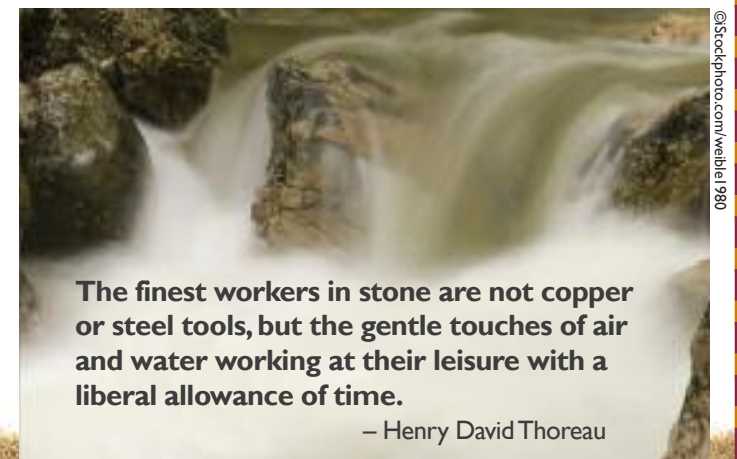


Lipstick



Batteries

Answers, page 4.



The finest workers in stone are not copper or steel tools, but the gentle touches of air and water working at their leisure with a liberal allowance of time.

— Henry David Thoreau

Raised Unitarian Universalist ... and Geologist

BY CHARLOTTE LEHMANN, M.S., M.DIV.

I grew up Unitarian Universalist with a father who was a professional geologist. As a kid, I pored over books about the earth and plate tectonics. We had mineral specimens, hard hats, head lamps, rock hammers, and all kinds of stuff, and with my father in the lead, we explored. I made fossil expeditions on my own, riding my bike around the lakes in Minneapolis.

My geology major in college brought me outside in a way other academic disciplines didn't. As a young adult, I worked summers for my dad. The mineral exploration business involves research and discovery—staking claims, sampling rocks, and finding out the ore content to determine whether there is an economic advantage to extracting a resource.

Because of my father, I know in my bones our dependence on the extraction industry. We simply can't live as we do, using computers, talking on phones and driving everywhere, without extracting resources from the earth.

As a Unitarian Universalist, I also know our stewardship responsibility. The Seventh Principle means more than an interconnected web of life—it is actually “all existence” that we're connected to: rocks, water, everything. No, we cannot live the way we do without an impact on

the Earth. How can we be more measured and better understand both sides: the business side which supports technology we count on; the environmentalist side which looks out for our interconnected web?

My father died in December 2013. The minister who delivered his eulogy had picked up on the depth of Dad's connection to the Earth. Paraphrasing the Rev. Jeffrey Sartain: The land is not simply a vehicle or only a resource; it is a friend, a mysterious companion, an object deserving respect, and even reverence.

As my father's daughter, I am humbled and awed by the magnificence of the Earth in its grandeur and its detail of form and function. The variety and beauty of minerals and the creativity of Creation inspire me daily. I habitually pick up rocks and put them in my pocket, even now. I still carry a rock hammer in my car, just in case.



Photos courtesy Charlotte Lehmann.

- **What is your passion or vocation?**
- **How do you share it with your children?**
- **What do your children do or ask in response to a parent's vocation?**
- **What lessons of faith, spirituality, or ethics do you transmit, along with information or skills?**

Answers to “Find the Minerals”

Silica: Plastic container; Iron: Faucet; Silver: Mirror; Coal: Synthetic fabric; Mica: Lipstick; Copper: Electric wiring; Lithium: Batteries; Graphite: Pencils

FAMILIES: WEAVE A TAPESTRY OF FAITH

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FIND OUT MORE

■ On the Mineral Resource Program website of the U.S. Geological Service, explore how and why we take minerals from the earth and how our consumption affects the environment: minerals.usgs.gov

■ Rock and mineral collecting is a popular hobby and a great excuse to give the outdoors our time and attention. To get started, visit “Guide to Collecting Rocks” at kidsloverocks.com and the family-friendly geology activities and reference materials at rockhoundkids.com. The Smithsonian Institution's “Collecting Site for Kids” (smithsonianeducation.org) offers education and inspiration.

■ Who isn't fascinated by the stalactites and stalagmites found in deep caves? Visit Carlsbad Caverns in New Mexico or Kartchner Caverns outside Tucson, Arizona, to experience the giant crystal formations first-hand. Or, grow your own rock crystals at home using baking soda or Epsom salt; search this simple experiment online.

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