Flatirons Facets

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Fluorescence, a Lifelong Hobby

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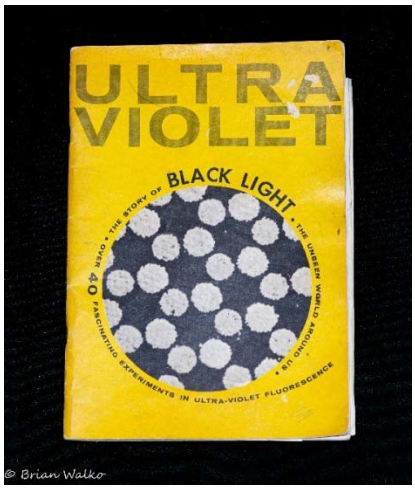
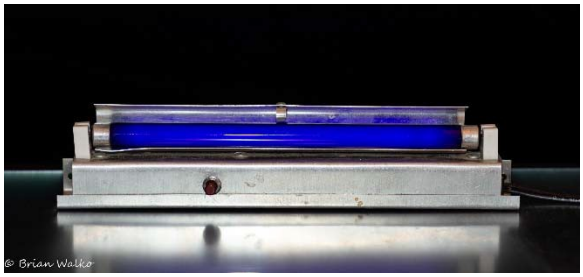
My interest in fluorescence started in elementary school. As a kid I always was interested in collecting rocks and fossils. While attending a local rock and mineral show, I saw a display of fluorescent minerals from the Franklin, New Jersey, area. That influenced me for life.



I saved my newspaper route money and purchased a black light kit from Edmund Scientifics. It included a longwave lamp, fluorescent paint, invisible ink, crayons, a piece of wernerite, chips of fluorite, and the book, "The Story of Black Light", which I still have.

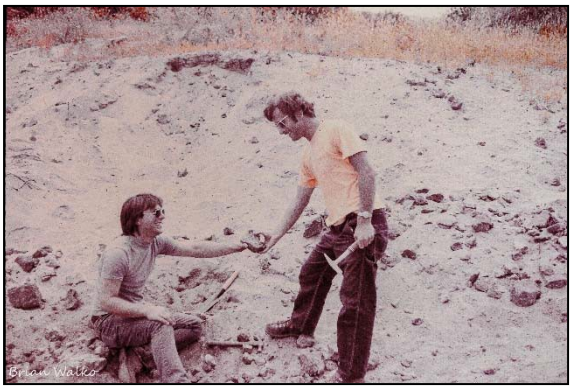


Edmund Scientific's black light kit purchased in the 1960s

Studying this book helped me learn about ultraviolet (UV) fluorescence, the electromagnetic spectrum, and electron shells. The book also included experiments with filters, optical bleach, phosphorescence, tracer powder, and minerals.

In seventh grade I entered my school's science fair. I constructed a box lined with black cloth, a viewing window, and my best fluorescent material. It was illuminated by one seven-inch longwave lamp. The judges were scientists and engineers from the local Bell Labs. Besides viewing my project, the judges asked me questions. My effort paid off; I won first place in the physics category.

This was the catalyst to start building my fluorescent mineral collection. I purchased an electric longwave/shortwave (LW-SW) lamp. My parents drove me to the Franklin, New Jersey, mining dumps to collect specimens. The collecting fee was nominal by today's standards. I had to dig down through the dirt, find prospective minerals, carry them to a shed, plug in my lamp, keep the best and return the others. Hard work in the hot New Jersey summer.



While in college, I continued visiting the Sterling Hill dumps and brought back material to Colorado. My goal was to have enough material to build a fluorescent fireplace.

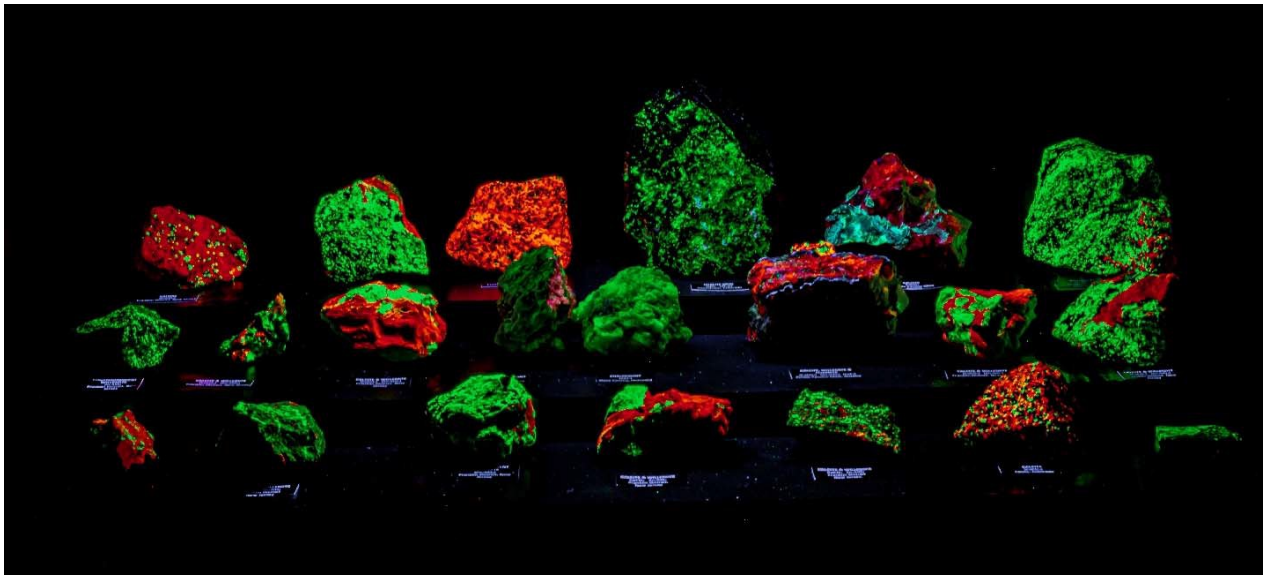
My first job out of college was teaching Earth Sciences in Chadron, Nebraska. The students loved the day when I demonstrated fluorescent minerals. Additionally, I collected local agates, chalcedony, and calcite checking for fluorescence. Then, I started selling my Franklin material to other collectors. While attending Chadron State College graduate school in geology, I taught a unit on UV radiation and fluorescent minerals for one of my professors.

Fast forward many years and I'm still collecting fluorescent minerals. The UV lamps are more powerful, portable, and battery powered. My field geology/prospecting skills have improved due to what I learned attending lectures at Colorado School of Mines. I participate in various Denver area mineral clubs and professional societies' field trips.

Modern, battery-powered UV lamps

I have ventured into the scientific world of fluorescent minerals by joining the Fluorescent Mineral Society (FMS) and have worked my way up to a FMS director. I am collaborating with some of the most knowledgeable people in the fluorescent mineral world. I have had opportunities to buy and trade spectacular minerals from around the world, but I hold true to my philosophy to only have self-collected minerals in my collection. Next year I will be helping the FMS at the Tucson Gem and Mineral Show® as a tour guide for the 75+ case Fluorescent Room. Additionally, with the help of Gerry Naugle, Flatirons Mineral Club (FMC), and Conrad North, FMS, we host the Fluorescent Room at the Denver Gem and Mineral Show. Plus, Gerry and I do the Fluorescent Room at our annual FMC Rock & Rails show.

Another way to show off my fluorescent minerals is to post photos of them on the internet. Photographing these minerals is almost as challenging as finding them. The art of making a digital representation look like the original is difficult. It is very tempting to use Photoshop to over enhance a mineral's color. I've been fortunate to photograph the past three Denver Gem and Mineral Show's Fluorescent Room cases and had the photos published.



UV display from the Denver Gem and Mineral Show

A new area of fluorescence I am investigating is bioluminescence. Living things, such as lichen, plants and insects, can also fluoresce. This past winter I was in a mine looking for minerals. I turned off my headlamp and turned on my Convoy longwave flashlight. There were lots of multicolored squiggly lines on floor. Turning on my headlamp I could not see any different mineralization that would indicate what could be fluorescing. During a snack break the answer poked its head out at me: a pack rat. These fluorescent lines were its urine tracks. This same technique can be used to find where your dog or cat has urinated on the carpet.

Field trips for fluorescent mineral collecting are thrilling. In the daytime I use a large dark BBQ grill cover to create semi darkness and search. However, I prefer to collect at night with a small group of people. One person in front scouts the area with a spotlight. Two people have UV lamps. Another person follows up the rear with a spotlight to ensure no critters are stalking us. Whatever method I use, I find it very rewarding to discover my own fluorescent minerals. I still feel the same excitement I did as a kid.

Crawford, Nebraska, fluorescent minerals, white and UV light