

What's an Ultrasonic Dismembrator?

By

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Those of us (*) who attended the recent club field trip to James Madison University (JMU) were treated like royalty. As soon as we arrived at the Geology Lab, Dr. Lance Kearns (**) personally greeted each of us with fresh pastries, coffee and a big smile! He immediately pointed out the counter space in the back of the lab which was covered with flats of beautiful mineral specimens, all of which were in excess (for JMU). And the prices were outrageously *CHEAP*. At least 10 flats had no prices --- any donation amount was acceptable. As the various attendees from the two clubs (Southern Maryland and Shenandoah Valley) arrived, the activity around the specimen flats grew to a feeding frenzy! It was GREAT!! Everyone found something they were pleased with and the donations were for the benefit of the Mineral Museum.



At about 9 a.m., Dr. Kearns invited us to go see the Mineral Museum. It is spectacular. It is small --- only about 600 square feet according to the brochure --- but the specimens have been carefully selected and are top quality. Systematically arranged in beautiful, state of the art cabinetry around the perimeter of the room, each cabinet represents a class of minerals, such as carbonates, sulfates, sulfides, et cetera. Additionally, there are cabinets occupying the center of the room which are devoted to Virginia.



There are also cabinets for small specimens and many spheres from Virginia material. There is also a room entirely for an ultraviolet display from Franklin and Sterling Hill, New Jersey. Everything is very nice. Lot of glittery, sparkling, colorful eye candy.

I asked Dr. Kearns what his favorite specimen is. Without hesitation, he replied “The turquoise crystal specimen from Lynch Station, Virginia. Not because it is the most valuable (the large crystal gold has that honor), but because it is irreplaceable.” Indeed, crystals of turquoise are found only in one place in the world --- Virginia --- and it is a closed and mined out location. This specimen is not only large --- it is one of a kind and is truly impossible to replace. That is the quality of this museum.



After 30 minutes or so viewing the museum, we returned to the Geology Lab where Dr. Kearns spent much of the rest of the morning to identifying our “unknown” specimens. What a treat! Of course, he was able to identify most of the specimens just by looking at them. But to confirm his identifications, he readily resorted to standard simple, but tried-and-true techniques such as a streak plate. His depth of knowledge of the physical properties of minerals --- such malleability --- was often the deciding factor. When he was unsure, he brought out the big gun --- x-ray diffraction analysis. To use it, he scraped off a tiny amount of the specimen under a microscope and placed a portion in the machine. About 20 minutes later, it produced a unique signature readout on screen of the sample and precisely matched it to the correct signature on file in the computer. Very nice. On a personal note, the x-ray diffraction analysis was the best part of the entire field trip because it *firmly identified* my specimen --- sillimanite from the Champion Sparkplug Mine in the White Mountains of California. Perhaps fellow club member, Mike Bolster, best expressed the successful x-ray diffraction analysis of Mike’s massive rutile from the U.S. Silica mine near Montpelier, Virginia --- Mike said it was “deeply satisfying”.

Oh --- the ultrasonic thing? Well, after Dr. Kearns visually identified a mineral that I collected in 1999 in Silverton, Colorado as “huebnerite” --- a tungsten ore --- I asked him how to best clean it. Dr. Kearns’ answer --- the ultrasonic dismembrator. I am not kidding. Not only that, Dr. Kearns offered to clean my specimen for me. Ten minutes in the machine and my huebnerite looked great.

If you missed this trip, you missed *ROCKHOUND HEAVEN*. Better sign up next year.

Notes:

(*) Southern Maryland Rock and Mineral Club attendees included Alex and Sam Schuman, Mike Bolster and Dave Lines.

(**) Dr. Kearns is a “Rock Star” (pun intended) in our hobby. He has published numerous papers and articles about minerals over a long and distinguished career. Not only is he highly respected professionally as a University educator specializing in Virginia minerals, he is a very genuine and likeable person.