

Trip Report for National Limestone Quarry at Mount Pleasant Mills, PA July 31, 2021

by Dave Lines



(“blue celestite xls with strontianite“ by Tom Zunino)

Free at last! Our first club Field Trip to a quarry since the fall of 2019! And what a great trip it turned out to be. Twenty (20) folks from the Southern Maryland Rock and Mineral Club signed up and all 20 of them attended --- Sondra, Joe and Paula, Cheryl, Harry and Tina, Ralph G. and Mary, Ralph B., Orion and Kim, Jim, Tom Z., Mike, Tim F., Teresa and Alton, John V.W., Sam (guest), and Dave. The weather was fantastic --- a cool Pennsylvania start of 60 degrees warming to the high 70's on a mostly sunny day.

Wow! Everyone was happy to see each other as well as excited about the prospects of what would be found. It was just good to be out finding rocks again. We shared the quarry with 2 other clubs --- Delaware Valley and Baltimore Mineral Society who had 13 people between them.

The quarry owner Eric had said to meet him at the quarry office at 9:30 am, but he was there 30 minutes early chatting with everyone. He, too, was excited because they had completed a new shot just a week before and he wanted us to find and rescue the crystals before they went to the crusher. Eric has been letting rock clubs do this for over 30 years. Why? Because he uses the opportunity to tell everyone that the only price of admission to his quarry is to listen to his Christian testimony. Hundreds --- probably thousands --- of rock club visitors have heard him explain about becoming “born again” by putting their faith in Jesus Christ.

He also explained that the new shot (miner's term for a “blast of explosives that break up a large section of rock in a quarry”) was immediately adjacent to where blue celestite crystals (a first for this location) had been found earlier this year and he hoped we would find more. He also described areas where we could also find calcite, wavelite and strontianite. He cautioned us to remain safety conscious and to stay away from the high walls. On that note, we caravanned into the quarry, parked our vehicles and spread out to look for specimens.



(#1 of 3 flats of calcite xl clusters found by Dave)

This is a limestone quarry where rock is crushed for road gravel (aggregate) as well as sorted into different sizes for rip rap or erosion control. It requires large rugged machinery like huge excavators and humongous haul trucks with 6 foot diameter tires in addition to fixed machinery such as rock crushers.

The area of the recent shot was very obvious where the blast had knocked down a section of the eastern highwall about 200 feet wide and about 40 feet back into the wall. During the week or so since the shot, there had already been significant mining activity to separate out the different rock types and sizes --- larger boulders were being separated into a pile for further reduction in size; smaller weathered rock into another pile; and a haul road had been made through the rubble of broken rock. There were many places to begin our searches for crystals, so we spread out and began investigating. Within a few minutes one could hear the sounds of rock hammers tentatively chipping rocks throughout the quarry.

My initial walk around showed that there were quite a few larger boulders which had vugs or holes containing calcite crystals ranging from druzy up to $\frac{1}{2}$ inch. I also saw some purple fluorite in both massive white calcite and in seams directly in dark gray limestone. I did not see any blue celestite, although someone showed me a small specimen of what looked to be clear, dogtooth shaped calcite crystals about $\frac{1}{4}$ inch tall. This crystal habit was different than any calcite I had previously observed at Mount Pleasant Mills. I should have stopped right there and investigated further --- but I did not.

Some of the group began doing some more serious splitting of the large boulders using chisels and sledge hammers. Joe, Harry, Tina and Paula were especially active doing this and had amassed numerous nice plates and clusters of calcite crystals including some

with dogtooth shaped habit. And interestingly, some of these, when viewed with a 10 power loupe, showed tiny creamy white colored balls on the crystals. We assumed the whitish balls were either calcite or strontianite.



(Classic honey calcite xls on matrix of white (?) by Ralph Gamba)

Most of the activity seemed to center along the eastern edge of the haul road. I saw Kim and Orion with a nice group of calcite clusters. Sam had a wheelbarrow full of limestone that was laced with pockets of calcite crystals. Ralph G. and Mary had found numerous calcite clusters including a nice one of honey colored calcite crystals about 3/4 inch in diameter. Sondra, Cheryl, Ralph B., Tom, and Alton and Teresa all found nice plates of sparkly calcite crystals.

I decided to explore a different area of the quarry that was above the quarry floor and to the left of the shot. Access had been described by Eric as a "steep road". It was very steep --- 30 to 40 degrees in places. I told a couple of our club members to watch for me and I would signal them if I found anything worthwhile up there. The top was a very rough area that contained a pit about 100 feet across that had sloping sides covered with smaller rocks. I carefully walked/climbed across one side and down into the bottom looking for specimens while leaving strips of newspaper marking the numerous areas where were crystals showing. I saw lots of flowstone (travertine) from the inside of an ancient limestone cave --- some with interesting formations. I called several of our club members on their cell phones --- only to reach their answering service --- so I left messages for them to come join me. I finally reached Harry and he spread the word and eventually about 5 or 6 folks came up and collected specimens. I worked there about two hours collecting about two 5 gallon buckets full of wrapped specimens.

Since my wife and I had driven up the day before to visit a cousin at an assisted living facility, my wife had our car and had left me at the quarry without a vehicle. Joe and Paula had graciously ferried me and my tools to the quarry floor. My wife had promised to come pick me up at the quarry office at 2 pm, so I walked out of the quarry and met her. Then I returned to the quarry with our car to pick up my tools and my rocks.

There were only 6 people remaining in the quarry --- 2 from the Baltimore club and 4 from Southern Maryland --- Joe, Paula, Harry and Tina. And just before leaving, I checked out with them. Harry showed me a beautiful small cluster of blue dogtooth shaped crystals about ¼ inch high. I was skeptical at first, but with the loupe, they were definitely a nice light blue and some had little white balls on them --- strontianite on blue celestite crystals??? And Joe was breaking them out of a huge vuggy boulder. Oh, I wished I could have stayed at that point, but we had a long drive back and I wanted to be home before dark, so I bid them all good luck and a good bye.



(Dave's largest calcite xl --- 1-1/4 inch long by Dave Lines)

For the next few days, folks started sending me pictures of what they had found --- and several had those dogtooth crystals --- some clear and some blue. Sam shed some crucial information on them by noting that he had found both types – clear and blue. Blue celestite is very sensitive to light and will lose its blue color in sunlight. Sam said the dogtooth habit crystals that he collected that had been exposed to sunlight were clear – and the ones that he had broken out from the inside of rocks were blue. Bingo. Were they both celestite?



(larger calcite xls by Dave Lines)

Ralph G. (a chemical engineer by profession) added another twist --- he tested his clear dogtooth crystals with weak hydrochloric acid --- and they emitted bubbles --- a classic indication that they were calcite crystals. Dilemma. So I googled the chemical composition of celestite --- and Wikipedia says it is SrSO_4 --- strontium sulfate --- and Wikipedia further stated “ **SrSO_4 sometimes contains minor calcium and/or barium.**” Could the calcium be in the form of calcite (CaCO_3)? My best guess is that these clear and blue dogtooth habit crystal specimens are all indeed celestite. If we could get Dr. Lance Kearns (or his PhD wife Cindy) at JMU to test them, we would know for certain. Tom Z. found some nice blue celestite with white strontianite crystal balls on the specimen. (see close up picture)

We will give a special shout out to Joe who changed the flat tire of one of the Baltimore club members (Lyle). Makes it kind of well deserving that he found that big boulder full of celestite crystals. Thanks Joe --- rockhounds like you are what makes our hobby so great.

Many of us wait until we were home to trim and clean up our finds. I suspect that everyone was pleased if their specimens cleaned up as beautifully as mine did with just a garden hose. I was pleasantly surprised at a specimen that Ralph B. gave me just before I departed. It was a very dirty, fist sized piece (actually 2 pieces) of matrix with druzy calcite crystals and one broken/split white ball which I assumed to be strontianite on one edge. As it turned out, when I washed the dirt and mud off it with a hose, the strontianite balls (many more than I had seen) turned white and were spread all over the piece. The 2 pieces fit together perfectly to make a stunning specimen. Thank you Ralph!

Overall, our trip to National Limestone’s quarry at Mount Pleasant Mills was terrific. Great weather. Interesting and beautiful specimens were plentiful enough for everyone (with some work) to find some. And we all stayed safe both driving and at the quarry. See you next time.



(best pic of celestite specimens --- classic light blue color – crystals are “pointed” (dog toothed habit) --- best specimen is in upper center – “white calcite balls on blue celestite dogtooth xls – all on calcite drusy xls in a vug in limestone” by Harry and Tina League)



(close up of same xls above)



(2 flats of celestite and calcite xls by Harry and Tina League)



(white strontianite "balls" on drusy calcite xls by Dave Lines)



(calcite xl clusters found by Dave)



(druzy calcite by Dave Lines)