From the Director’s Desk

Greetings Friends,

No need for me to remind you of the highly unusual world we live in today. The museum has been closed since March 11, per New Mexico Governor Lujan Grisham’s orders. Shortly after closing, we were still working in the facility until orders came down for everyone to work from home. Subsequent reviews of the policy now allow us to go into work for some tasks, like get more info for what we are working on at home or run some analyses in the x-ray diffraction lab. Silver Lining—We even started on the newsletter about a month early!

We all have plenty of work to do however, even at home. The closure allows us to pursue some projects that we often don’t have time for during open hours. I have been reviewing scientific and magazine articles for journals in addition to writing some of my own. Right now I am concentrating on finishing my analytical work on manganese oxide deposits from New Mexico to use as analogs for manganese deposits recently found on Mars. My other colleagues from Los Alamos National Labs, University of New Mexico, Cal Tech, and Florida State University also have more time so we are making good progress and hope to prepare another grant proposal next spring.

I don’t want to steal Kelsey’s thunder, so I will let you read about our recent donations in her Curator’s Corner (or is it Cornered Curator?) column. Kelsey has developed a number of new exhibits during the closure so when we open up there will be a plethora of new exhibits and specimens to check out!

“During this “downtime” I’ve decided to highlight in this column, my “favorite recently purchased or donated mineral” and why I am so fond of it. I’m calling this short column, “Director’s Choice.” Now be prepared, you know my favorite mineral on this planet and on Mars is jarosite so, anything goes!”

See “From the Director’s Desk” continued on page 2.
**Director’s Choice**

At the Tucson Show this year I ran into a barite from an unusual locality, Logan County, Kansas. This part of western Kansas is almost “table top” flat. Lisa and I drive through it often on our way back to Wisconsin and it never occurred to me there could be any collectable minerals in this area of mind-numbing flatness. Although the location information is lacking, I believe it comes from an area south of Oakley in the vicinity of the Little Jerusalem Badlands. In and around the park, Cretaceous age Niobrara Limestone (chalk) crops out and creates the badlands topography which is capped by Pierre Shale to the north. Mindat reports these barites occur in concretions and veins in the Pierre Shale, similar to the Elk Creek, South Dakota, specimens. What I like about this specimen is the small-cabinet size, brown color zonation, and the jagged edges along the normally flat intersection of prismatic faces that appear to be oriented (epitaxial) overgrowths. In addition, the Oakley Stone Meteorite occurrence is located nearby!

As you can tell, the occurrence of a collectable specimen in an unexpected place is why this one “turns my crank.” I just need to find some other specimen localities along the “Midcontinent Highpoint” trip from southern Minnesota, northeastern Iowa, and the whole state of Nebraska (Where I did purchase a quartz after gypsum from Dawes County, one of my finest online purchases ever!).

**From the Director’s Desk . . . from page 1.**

Last year went great with respect to donations, both monetarily, and specimen material. I’m anticipating a significant fall-off in donations this year so if you can help, we probably could use some. With the museum closed, we are not generating any revenue from mineral sales either. Like many others we probably will be hitting the shows with empty pockets this summer and fall, if the shows go on at all.

We are still planning on hosting the 41st Annual New Mexico Symposium this fall. Already lining up speakers and hoping the COVID-19 pandemic calms down and we can get back to what we like to do best, preserve minerals and share with our friends who love them.

I hope this newsletter finds you and your loved ones well. We are hoping you all can come back for a visit soon.

— Dr. V

**Curator’s Corner**

Greetings friends,

I hope this article finds you all doing well amidst the uncertainty of the pandemic. Hopefully, you decide not to use this newsletter as toilet paper, but if the going gets rough, it will work! With closure of the Mineral Museum, we have still been busy behind closed doors with collection organization, research, and XRD work.

Quartz epimorph after fluorite, Cookes Peak District, Luna Co., NM. Gift of Rex Nelson.

Gonnardite, Grapevine Camground, Grant Co., NM. Gift of Rex Nelson.
We have added four new displays (Trinity Site, Pseudomorphs (educational), Mt Saint-Hilaire pseudomorphs, and the Rex Nelson NM Collection) to the empty Waddell cases. In addition, the New Acquisitions display has many freshly-cataloged, showy pieces on the shelves; and the tabletop display of NM Ricolite has been replaced with NM turquoise from the Rex Nelson Collection. Come Symposium-time, there will be many new items for each of you to feast your eyes upon!

**New Acquisitions Photo Gallery**

We had a boom in mineral donations at the end of 2019. Big thanks to our generous donors! Since the last newsletter, I’ve catalogued over 350 minerals into the database. Please enjoy this photo gallery of a small portion of the many new pieces, from New Mexico and beyond.

Some of the pieces we received were extra-large in size and required some heavy lifting! Four Brazilian amethyst geodes were donated by Cortney Stewart and Anne Brenner of Taos Rockers. The largest piece (the “igloo”) is now on display in the Bureau atrium. The smaller, cylindrical pieces will be converted to end tables by Jay Rosenbauer. We would also like to thank Brian Wheeler, Frankie Lopez, and David Griego for the moving logistics; and Albert Baca for his carpentry skills.

Hemimorphite, Stephenson-Bennett Mine, Organ District, Doña Ana County, New Mexico. Gift of Rex Nelson.

Pyrolusite from the Little Florida Mountains District, Luna Co., NM. Gift of Rex Nelson.

Amethyst scepter, Desert Jewel Claim, Grant Co., NM. Gift of Rex Nelson.

Proustite with an iridescent coating, Bad Schlema, Erzgebirgskreis, Saxony, Germany. Gift of Joan Massagué.
Barite with realgar inclusions!! Baia Sprie Mine, Maramureș, Romania. Gift of Joan Massagué.

Copper, Itauz Mine, Karaganda Region, Kazakhstan. Gift of Joan Massagué.

Calcite, Bou Azzer Mining District, Morocco. Gift of Joan Massagué.

Brookite & Quartz, Kharan District, Balochistan, Pakistan. Gift of Joan Massagué.

We drove through a blizzard (!) and brought our best to the Tucson Show this year, as the theme was “World Class.” We had a nice time at the show seeing friends and colleagues.

Unfortunately, the Albuquerque “Treasures of the Earth” Show has been cancelled. We planned to take two displays—one with new acquisitions, and another featuring mining artifacts (courtesy of Bob Eveleth). Even though the show will not go on, many of the new pieces we planned to take are featured in the photo gallery on the previous pages.

Geology of the Amethyst Geodes

These sizeable crystal cavities are mined from several lava flows in the ~130 million year old Paraná flood basalts of Brazil. Large void spaces, from coalescing volcanic gas bubbles and the development of lava tubes, were formed during cooling of the lava flows. Fluid inclusion studies and radiometric dating suggest quartz and celadonite (with lesser calcite and gypsum) formed in these bulbous to elongate cavities approx. 70 million years ago.

Outreach News

The 2020 NM Science Olympiad tournament was held on the NMT campus Saturday, February 22nd. Each year, the top 25 middle and high schools send their brightest scientists to battle it out for a spot in the national tournament. A wide range of scientific events were held across campus, including Heredity,
Ornithology, Geologic Mapping, and even Ping-pong Parachute! This year I (along with our outreach manager, Cynthia Connolly) conducted a comprehensive test on fossils. We supervised the test for ~45 teams. For this particular exam, Albuquerque Academy scored highest for the middle school ranks, while Lovington High School took home first place in the high school division.

**Publications Store News**

The Geology of Southern New Mexico’s Parks, Monuments, and Public Lands is hot off the press and will be available in May. This book is a companion publication to the award-winning northern park version, which has been revised and is also on schedule to make its third debut for New Mexico geology enthusiasts.

This project wouldn’t have happened without the muscles and good humor of Brian and Frankie.

Virgil, Anne, & Cortney are all-smiles after loading the pieces on the flatbed trailer.
A new issue of Lite Geology, a publication light on the argon for the layman and K–12 educators, is now available. This particular issue includes the most fascinating rocks of New Mexico, including (but not limited to) the Capitan Reef Complex (written by yours truly), Shiprock, and Valles Caldera.

**Interested?** A free download can be found at this site: https://geoinfo.nmt.edu/publications/periodicals-litegeology/46/lg_v46.pdf

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**Dangers of Steep Slopes: Landslides, Rockfalls, and Debris Flows in New Mexico**

Slopes are an essential component of Earth’s surface. In development projects, the alignment of roads, and as a defining feature of many of our habitation landscapes, such as Mountain towns, Valley bottoms, and many other features, slope is an essential consideration in most engineering projects, including construction of roads and buildings.

People live and work within areas that are formed from steep slopes. In many regions of the world, these areas are well-harvested, as in many geologic hazards, such as landslides, rockfalls, and debris flows, affect areas that are not just used for their resources but also allow people to live and work. The effects of these hazards can be devastating, resulting in property damage, injury, and loss of life.

Nature of Slope Hazards

In New Mexico, the development of slope hazards is significant. To understand the development of these hazards, it is important to understand the nature of the slope itself. A slope is defined as an angle of inclination of a surface relative to horizontal. Slopes are formed by a variety of processes, including erosion, deposition, and tectonic activity.

There are several types of slope hazards in New Mexico, including landslides, rockfalls, and debris flows. These hazards can be triggered by a variety of factors, including weather, earthquakes, and human activities such as construction.

Landslides consist of the movement of a mass of material downslope along a sloping surface. Rockfalls are the movement of individual rocks or boulders downslope along a steep surface. Debris flows are the movement of a mixture of rock, soil, and water downslope along a steep surface.

In New Mexico, slope hazards are a significant concern for the protection of life and property. The New Mexico Bureau of Geology & Mineral Resources has developed a series of maps and tools to help identify areas at risk for slope hazards, and to help people make informed decisions about the development of new structures.

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**2020 Museum Show Calendar**

**Sept. 18–20** Denver Gem & Mineral Show
Nov. 13–15 41st Annual NM Mineral Symposium

**“Friendly Reminder”**

Annual dues for the Friends of the Museum expire on the weekend of the Mineral Symposium.

You can pay dues on site or remit payment to: NMT—Mineral Museum Gift Fund Send it to: NMBGMR Mineral Museum Friends of the Mineral Museum 801 Leroy Place Socorro, NM 87801

You can use a credit card too, contact: Kelly Luster or Elena Taylor Publications Sales 575-835-5490

Contact Us: Director: Virgil W. Lueth Virgil.Lueth@nmt.edu 575-835-5140 Curator: Kelsey McNamara Kelsey.Mcnamara@nmt.edu 575-835-5148

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**New Mexico Earth Matters**

**Winter 2020**

Interested in learning about New Mexico rockfalls, debris flows, and landslides? Bureau mappers Dan Koning and Colin Cikowski highlight deposits from mass-wasting events, discuss societal risk, and highlight the importance of mapping these features. For a free download, please visit this link: https://geoinfo.nmt.edu/publications/periodicals-earthmatters/20/n1/em_v20_n1.pdf

For updates and photos on what’s happening at the museum, I try to post weekly on our Facebook page: www.facebook.com/NMBGmineralmuseum

The New Mexico Bureau of Geology & Mineral Resources ALSO has a Facebook page! Please check it out at this address: www.facebook.com/NMBGMR

—Kelsey McNamara