

April 2022



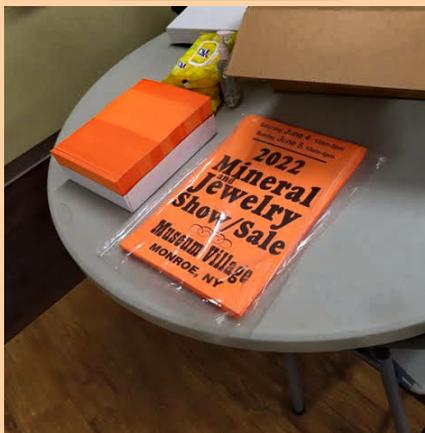
# OCMS SHALE MAIL



**Welcome to our hybrid Meeting Friday  
April 8<sup>th</sup>, 2022 at 6:30 pm!**

If your joining us in-person see you at: 81 Laroe Rd Chester, NY (Town of Chester Recreation Senior Center), (From KINGS HWY, Turn left on Laroe Rd by UPS office building)

[CLICK FOR MAP](#)



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## President's Message!

By: Mike Tedford

Two months until our annual Mineral Sale and Show at Museum Village! Please share your ideas for running a successful show June 4 & 5, 2022. Also, please contribute your ideas for updates, activities, posts, shares and likes for our OCMS Shale Mail, website OCMSNY.org or <http://www.orangecountymineralocietynewyork.com/> and [facebook page Orange County MineralHome Society of NY](#). Please like and share our pages and mention our website in your posts to build awareness. We had a discussion at our meeting regarding including the word SALE in our advertisements to attract shoppers and buyers. You will not find a more scenic location for an outdoor mineral sale than Museum Village in June!

Please join our OCMSNY April 8, 2022 meeting at the senior center this Friday. We are planning a full-scale live meeting following the senior center guidelines. The agenda includes Annual Show discussions, committee reports, old business, new business, refreshments and a mineral raffle. Thank you, geologist Eric Orlowski, for your colorful presentation on fluorites at our February meeting. Thank you, Dr Merguerian on the historic and ongoing gold mining in the USA in March. Dr Alex Bartholomew, geologist at SUNY New Paltz will present "The Concept of Fossil Species," an understanding of species from a biological perspective and also how Paleontologists define a fossil species and what that means. Google T rex species to whet your whistle!

### OCMSNY March 11, 2022 Meeting Minutes

Meeting hall and OCMSNY attendance sheets were completed, Name tags were issued.

Chester senior center COVID 19 precautions were observed including sign in, hand sanitizers, social distancing, and some attendees wore optional masks.

Meeting preparations included refreshments and the hybrid live meeting with zoom compo-

## Minutes of the Meeting!

By: Mike Tedford

ment.

The mineral book and journal swap table and the 16 raffle specimens were set out.

Thank you, Mark Kucera, for again achieving a satisfactory zoom, with audio assistance via Gary Kerstanski's laptop.

OCMSNY president Mike Tedford called the meeting to order at approximately 6:38 PM, welcoming the attendees.

Meeting attendees introduced themselves.

Mike Tedford introduced the mineral book and journal table for free use, borrowing or swapping by members.

Members confirmed they are receiving the emailed Shale Mail and appreciate the breadth and quality of the articles. The meeting minutes in the Shale Mail were reviewed by members and accepted.

Ron Nelson read the balances of the main checking account and show account. The Treasurers report was accepted.

Ron Nelson reported the Annual Mineral Show and Sale June 4 & 5, 2022 at Museum Village has 25 vendors already registered, exceeding our registration rates of previous years. Updated Sale and Show flyers were distributed to members. Our website and Facebook page continue to be updated. Members were reminded to like, post and share posts on facebook to increase our visibility and attract vendors and shoppers. Please review and suggest any more updates. Thank you.

The membership voted to not have a June meeting the week following our Mineral sale. In addition, with an eye towards simplifying the Rock Barbecue, the membership voted to attempt to hold the rock barbeque at the Chester grounds adjacent to the Senior Center. Ron Nelson

Thank you to Dr. Charles Merguerian for presenting the gold mining history in the USA.



# The Concept of Fossil Species!



By: Dr. Alex Bartholomew

We are lucky that Dr. Alex Bartholomew is taking time out of making maple syrup to present to us April 8<sup>th</sup>, 2022 at 6:30 pm. Join us via Zoom or in person at the Senior Center.

He is looking forward to the April 8th talk. He is planning to talk about: "The Concept of Fossil Species". A recent paper about possible multiple species of Tyrannosaur species has gotten a lot of play in the news.

Many folks might not know what exactly a species is and how it is defined in both a biological and paleontological sense.

His talk will present an understanding of species from a biological perspective and also how Paleontologists define a fossil species and what exactly that means.

He truly hopes everyone will find this interesting!

# Gold Mining History & Geology of the Sierra Nevada Ridge!

By: Dr. Charles Merguerian, PG

Dr. Charles Merguerian gave a wonderful presentation on March 11<sup>th</sup>, 2022. He shared his vast knowledge about the history of gold mining in the United States. The focus of his lecture was primarily on gold mining in California. He also shared with us the geology of the ground so we would know how the gold got there? He also shared the mining methods they used. To top off this interesting and informative presentation Dr. Merguerian showed us some really awesome pictures of specimens from the California gold belt.

The 49ers miner were the true pioneers of the gold rush because once everyone heard there was gold in them there hills they all flooded in changing the demographics of not only California but the United States.

## SOME EARLY GOLD DATES

**Early 1500's** – Spanish legends of California golden riches. World different had Spanish exploited deposits

**1753** – Ponce de Leon lands in Florida - told of Indian tribes with much gold. Indigenous Indians cry out - "Well, there goes the neighborhood"

**1799** – 28-pound gold nugget found Reed, NC

First American "gold rush" from 1799 to 1828

NC gold mining produced \$110,000 @ \$20/oz. = 345#

In 1829 gold was discovered near Richmond VA. The Belzoro Mine was traced to gold+pyrite in schist-gneiss.

**~1830s** – Gold rushes in GA and AL results in US Mints in Charlotte, Dahlonega, and New Orleans.

**1804 to 1866** – Appalachian production amounted to \$20,000,000, far exceeding earlier NC show Eastern miners paramount in exporting means and methods to CA when gold was discovered there **1848**

Appalachian gold in Connecticut



Arsenopyrite Mine,  
Cobalt, CT

In 1825, Jedidiah Smith found gold near Mono Lake, CA. In 1826 he lead a trapping party

for the American fur company which ended with that trip after the entire party was killed.

1839 was when John Sutter settling in a Fort near Sacramento CA with all the Russian holdings he purchased from Fort Ross. These items included an arsenal, ships, cattle and farm implements.

There was gold discovered by the Jesuits in 1842 near San Fernando however, it was largely ignored. It was not rich enough but some was sent to Philadelphia for coin. The American government did not publicize the discovery until California became the 31st state in September 9<sup>th</sup>, 1850 so they could populate the state.

In 1844 John Bidwell had a Mexican employee as for a "batea" which was a bowl for finding gold. Misunderstanding what the word meant, the worker was ignored. The 19<sup>th</sup> of January 1848 James W. Marshall discovered gold in his bosses (John A. Sutter) sawmill in Coloma, CA. In fact those original 4 to 5 pieces of gold are sitting in the Smithsonian Institute. The 24<sup>th</sup> of January a few ounces of gold were delivered to Sutter initiating the gold rush and opening up the west. Using Donner and Carson passes the settlers crossed the Sierra into the gold belt.

Along Route 49 traveling along the Sierra Foot Hills are metamorphic. There are intrusive quartz veins into these metamorphic rocks which is what brought the gold in.

During the gold rush there were a lot of people that came out. There were a few woman but not many. Life was extremely hard in the Sierra. There were many deaths Burials were common in the forested areas in California during this period.



# Gold Mining History & Geology of the Sierra Nevada Ridge! - Continued



If you look at the plate tectonics around the Appalachians about 450 to 360 million years ago that's where all the gold was found. Today, all of that gold has been put out into the ocean. Although it does partly exist as tiny flakes on the bottom of the floor.

In contrast the western cordillera of California is still active because the plate is subducting under the west coast of America. It's still responsible for volcanic activity and deformations.

California has three basic elements the Coastal, the Great Valley and the Sierra ranges. Each of these can be subdivided into several different geological elements. The coastal ranges



are typified by knockers. These are very exotic rocks that stick up in the hillside. They are different from the surrounding rock which begs the question. How do they get there? It got there because in the late Cretaceous period about one hundred million years ago subduction of the ancient Pacific happened. Driven down into that

subduction zone was an accumulation of highly sheared deep-water oceanic sediments. The great valley was nothing more than a great depression left by sediment that had been scraped off the oceanic floor and the upper mantle then jammed into the trench that depressed the continental margin. The Sierra Nevada Range formed from an Andean type volcanic arc that was fed by partial melting of the down-going plate during the Cretaceous and Jurassic time. The uplift and tilting of California took place in response to significant offset and uplift to the West of the major faults, along the eastern margin of California. The erosional buzz saw that stripped all of the land away eventually exposed the very base of this volcanic arc. The gold formed from those plutons.

The typical Great Valley is Mount Shasta, which is still an active volcano in response to the continuous subduction that is taking place there. Mono Lake has a hot spot where the hot fluids bubble up along this fault system. Even today this part of the earth's crust is still moving upward and exposing parts of this gold belt day by day.

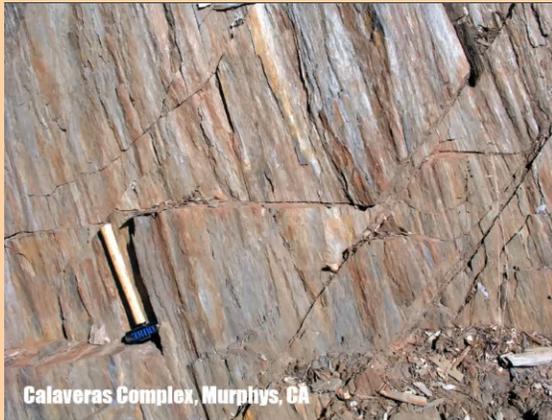
Most of the gold mining was done in the streams allowing nature to sort out the heavier materials.



Gold has eroded away but this is the host rock

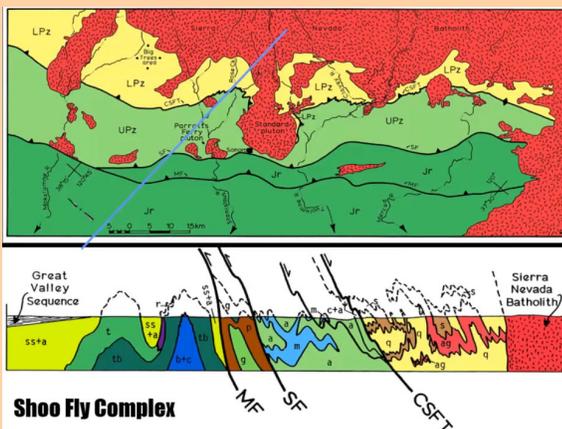
These greenish slates are part of the Jurassic slate belt. They are very similar to our Western New York tectonic rocks. There was plenty of gold but it's all been eroded away.

# Gold Mining History & Geology of the Sierra Nevada Ridge! - Continued



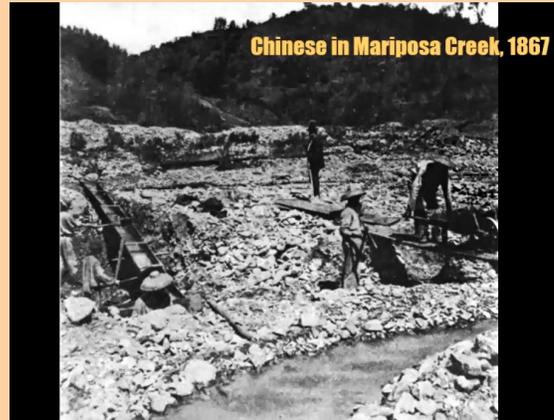
Calaveras Complex, Murphys, CA

Here is the Mahoney Fault which is another shear zone. It comes from the Calaveras Complex and is a rather deformed slate. Some of the awesome specimens come from here.



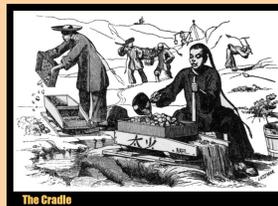
Shoo Fly Complex

In the photo, Dr. Merguerian concentrated on the yellow areas because those were the rocks he was familiar with in the New York and Connecticut Appalachians. They applied Appalachian mapping techniques to a terrain that was simply amalgamated as the metamorphic rocks. "About 2:15 years ago, someone published a paper that suggested that a piece of the Appalachians was actually sheared off, dragged across the southern part of North America, and then slammed up against North America as a separate micro-continent. " The rocks were lower Paleozoic, about the same age, they even looked like the New York City rocks. Dr. Merguerian says, "he was standing there looking at New York, Bronx there.



Chinese in Mariposa Creek, 1867

At the time of this photograph, the Chinese were basically used as slaves. They had this uncanny ability because of their meticulous work ethic to go into areas after the Americans and find the gold they had left behind. Looking closely, the material is loose, there are a bunch of wooden riffles along the bottom to catch the heavier gold while the sluicing was taking the clay and sand away.

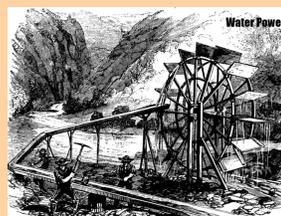


The Cradle

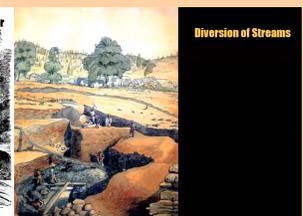


Water Power

They used the cradle by putting a shovel full of debris on it and adding water then shaking the cradle back and forth. They used the sluicing process and water power. But, I agree with Dr. Merguerian that the most amazing process they used was the dispersion of streams. Using an ex-



Water Power



Diversion of Streams

isting stream and slowly pushing it off to the side with wooden planks then mining the silt.

Thank You Dr. Merguerian! Awesome Topic!

# Light Sensitive Minerals

By: John Pacut

Collectors all over the world have experienced the degradation of their prized minerals due to light exposure and improperly displaying their specimens. All of us as collectors have experienced this as well. So what is this phenomena? Color is the most important characteristic of gemstones, though in the case of most diamonds it is the absence of color which is most important. What is responsible for the variations in color?

Color is produced by the way a gemstone absorbs light. Light is an electromagnetic vibration at certain wavelengths, but the human eye can only perceive certain wavelengths. The field of the visible colored spectrum includes red, orange, yellow, green, blue and violet. There are several different reasons why the various gemstone varieties absorb light differently.

Some gemstones are said to be idiochromatic or self-colored. They absorb certain wavelengths of light due to characteristics of their chemical structure. Most gemstones are allochromatic. They are colored by impurities or trace elements in their crystal structure. If all the different wavelengths of light pass through a gemstone, it will appear colorless. On the other hand, if the gem material absorbs all the light, it will appear black. If a stone absorbs all wavelengths except those in the red spectrum, the gem will appear red.

The relationship between a chemical impurity and a gemstone color is not a simple one. Sometimes a similar color can result from different trace elements. Also, a single trace element can produce different colors in different gem varieties. Another way in which gemstones acquire color is in human intervention in the form of gem treatments. Heat treatment is often used to change the chemical state of an impurity to deepen or lighten color, reduce a certain hue, or improve clarity. Gemstones are also dyed, treated with chemicals, coated with chemicals or metals, irradiated and artificially colored in many other ways to alter their appearance. All gemstone treatments must be disclosed by the vendor prior

to the sale of the gemstone.

Upon exposure to different kinds of light (strong sunlight or daylight) many minerals and gemstones go through changes in color. Some fade, others darken, temporary changes may occur as permanent ones as well. Certain parts of a mineral can be affected or not.

Some minerals and gems like hiddenite /green spodumene and yellow phenakite can fade with as little as one hour exposure to bright light or sunlight.

Why minerals are light sensitive can happen by different mechanisms. The first type can happen because of photochemical reactions. Silver bearing minerals turn black when exposed to light, oxygen and sulfur. Realgar changes to orpiment this way too. Another process is due to light heating color centers in minerals. Color centers are structural defects in minerals that happen during growth or afterward when exposed to radiation. Examples of color center minerals include amethysts, smoky quartz, fluorite, diamond, topaz and halite.

Much of the color in minerals is due to the presence of chromophores (elements in structural positions in crystals that make their electron orbital's susceptible to absorbing or admitting light). If anyone wants the complete list of the different elements, minerals that can be affected by light [mindat.org](http://mindat.org) has the most complete list I have seen so far.

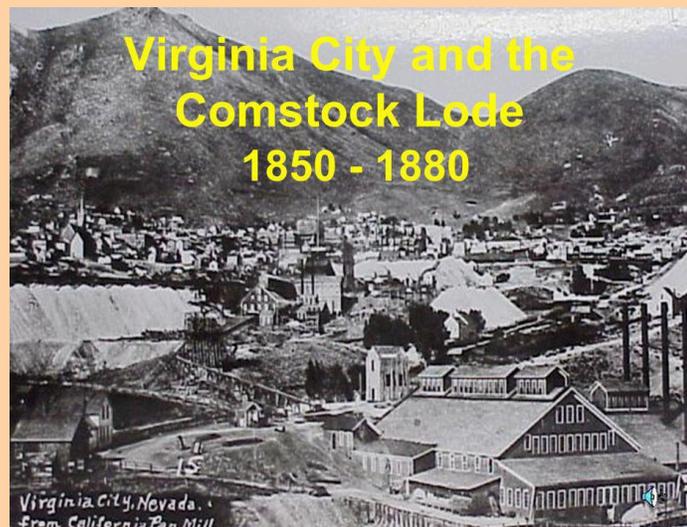
Here are some suggestions to protect your specimens, firstly, avoid exposure to direct sunlight and strong day light, avoid the combination of light, heat, moisture and reactive minerals that contain sulfur. Some collectors store their most delicate specimens in a closed box (close-up archival material) or drawer. Keeping your display room dark when not in use is helpful. The safest light sources would be IR-UV depleted source transmitted by fiber optics, this method avoids the extra heat from traditional light sources. For the most susceptible minerals.

# Virginia City

By: Keith Allen

Virginia City lies in extreme western Nevada nestled on the eastern slopes of the Virginia range, in the shadow of Mount Davidson.

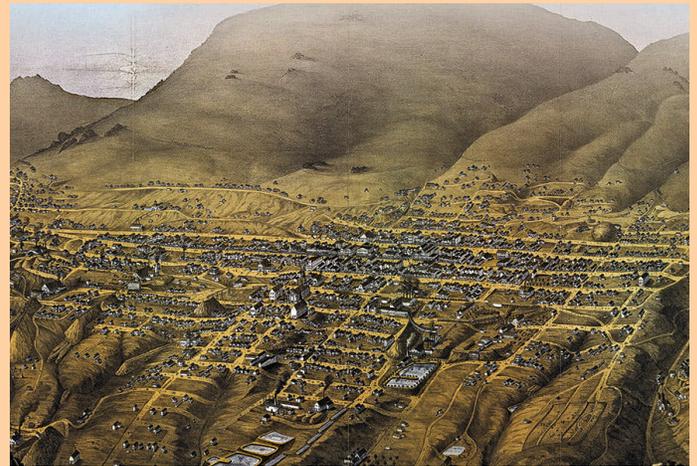
“Even the devil would be homesick in Nevada,” wrote Mark Twain after his short sojourn in the sagebrush territory destined to become the Silver State. Mark Twain is arguably Virginia City’s most famous early resident. He developed his writing style and adopted his famous penname in an almost two-year stay in booming Virginia City from late 1862 to May, 1864. Virginia City sprang up after the discovery of the Comstock Lode of silver ore in 1859. Thousands of people, Twain included, journeyed to Virginia City to make their fortune in the mines



or simply to mine the miners.

The Comstock Lode discovery and subsequent growth of Virginia City is unequalled in the history of the American West. More money was produced by the Comstock Lode than the entire California Gold Rush a decade before. By 1876 Nevada produced over half of all the precious metals in the United States; over 400 million in the coinage of the day coming from Virginia City’s mines. The wealth supported the Northern cause during the Civil War and flooded the world monetary markets compelling significant economic change.

The town, steeply set on the side of a mountain, perches precariously over miles of tunnels and shafts remaining from the mining glory days. C Street is the main thoroughfare while streets lettered B and A, home of the town’s



wealthy, are up the hill. D Street to R Street continue down the hill, originally home to the redlight district, V&T Railroad depot, the Chinese quarter, Paiute wikiups, and ore stamp mills. The remnants of the mines are scattered throughout the town.

Virginia City became the mother camp to all subsequent silver mining discoveries in the American West. Technological discoveries, for and by Virginia City’s citizens, enabled mining to succeed on the Comstock, and were quickly spread to other finds. Square set timbering prevented cave-ins of large caverns and allowed mining at depth. Air was supplied by root blowers and Cornish pumps removed water. Stamp mills and the Washoe Pan milling process reduced the ore for precious metal removal. Burleigh machine drills, wire woven rope, miners’ safety cages and the safety clutch for those cages were new discoveries for the Comstock mines.



# Virginia City

Silver dominated the town to such a degree that in 1876 one observer reported that in Virginia City, “every activity has to do with the mining, transportation, or reduction of silver ore, or the melting and assaying of silver bullion.” Silver was the monetary equal of gold at the time of discovery, when silver assayed out at twice the value of the gold therein; both metals occurred together geologically. Soon the Comstock boasted some of the deepest mines in the world. Dominated by San Francisco moneyed interests, Virginia City became the sophisticated interior partner of San Francisco with fine restaurants, fashion, theater, and cosmopolitan charm. Mine owners who made a killing in the Comstock mines spent their wealth in San Francisco where a stock market existed for the exploitation of Comstock mining.



leprechaun creatures called Tommyknockers were thought to populate the underground mines and were blamed for the knocking and creaking the miners heard. A bit of bread left in the mine appeased the Tommyknockers and ensured good luck and safe mining.

Congress passed the Mint Act, known as the “Crime of ’73,” and Virginia City’s fate was sealed. The act demonetized silver and ultimately negatively affected the silver mining industry by reducing the amount of silver purchased by the federal government, portending doom. The Comstock mining boom was effectively over by 1880. Virginia City declined, but never completely disappeared. The TV show Bonanza brought Virginia City’s history to a new generation. Today part of a National Historic District, Virginia City welcomes visitors craving an authentic old west experience. In 2009, the town was granted the prestigious Dozen Distinctive Destinations award from the National Trust for Historic Preservation, in part for the authentic retention of many Victorian buildings. Tourists pace the board walks, tour the museums and spend the night, hoping to glimpse a ghost from bygone bonanzas.



Virginia City still retained some of its frontier flavor even as mining made it an industrial center similar to the east coast. Immigrants flocked to Virginia City. Miners came from Cornwall, England where tin mines had similar hard rock technology. The English “Cousin Jacks” flourished as one of the largest ethnic groups. Irish and Germans dominated the saloon and mid-merchant levels, and not surprisingly, the ownership of much of the redlight district. The Chinese settled in large numbers in Virginia City, like other Pacific Coast towns, and similarly faced discrimination in employment. They were left niche occupations such as laundrymen and cooks, and supplied firewood to the town, carried on the backs of donkeys. Ethnic groups brought a touch of their home culture with them;

**OCMS members** are covered by Society-sponsored insurance.

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