



# SHALE MAIL

JULY 2020

Orange County Mineral Society, Inc

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**Our next meeting is scheduled for Friday July 10<sup>th</sup>, 2020 at 6:30 pm and will be held digitally on Zoom due to covid-19. Details will be emailed to you, if you don't receive the email please contact Heather Shields or Mark Kucera.**

**Speaker: Frank Vigilante**  
**Topic: Fossils (Big Brook)**

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# Fossils - At Big Brook

By: Alison Pacut

The entire title of our July presentation is “Fossils - A Preview to the Big Brook Field Trip (Date TBA - upon the extinction of covid - 19!!!)”. Frank Vigilante will be giving this exciting presentation on Zoom July 10<sup>th</sup> at 6:30pm. I hope to see you all there!

Frank will be reviewing the history and the finds of the Big Brook, New Jersey fossil site. I am sure that many if not all of us have been collecting there!

I don't know about the rest of you, but Big Brook is my all time favorite collecting site. Donning your old shoes and clothes you walk right into the stream. It's incredibly refreshing on a hot summer day!

Collecting sharks teeth is awesome here as there are so many different types of teeth to collect! Some are so small you practically need a magnifying glass to see them. As the current flows down the stream fossil finds are constantly being dropped for us.

If Big Brook is a favorite site for you and your family to collect at or if you just want to learn more about it Please Join us via Zoom! You can connect using your cell phone, tablet, ipad or computer. You don't have to use the camera if you don't want to but voice is good so you can communicate with the group so please don't be shy, join us! If you have any problems connecting please contact Mark or Heather for assistance.

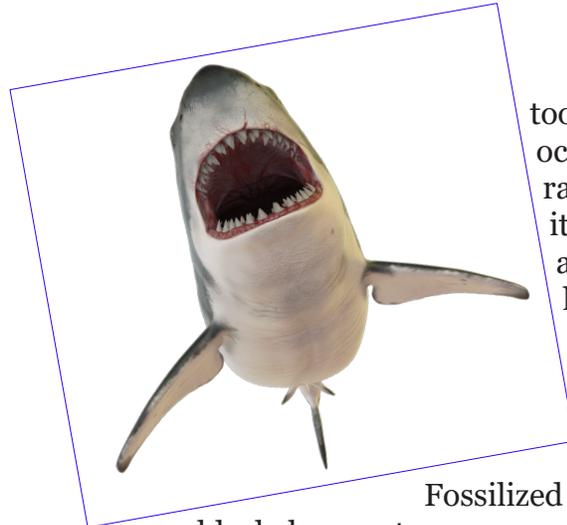


Here is John, he found a sharks tooth at Big Brook in May 2018. Way to go John!

# Shark Teeth

Researched By: Alison Pacut

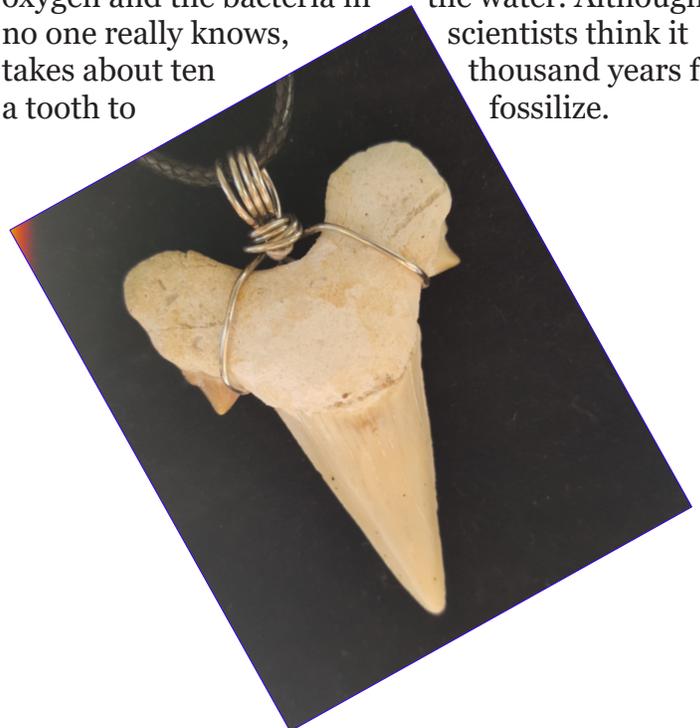
## Fun facts about sharks teeth!



As a shark tooth falls to the ocean floor its razor sharp. If its found right away it needs a little respect. If its not handled carefully it will make you bleed.

Fossilized teeth can be black, brown, tan, grey or white. This vast array of colors is created by the different colors of the sediment that encases and replaces the tooth's natural calcium phosphate as it fossilizes.

Fossilization can only occur if the tooth is completely encased in the sediment. The sediment protects the tooth from the decaying effects of the oxygen and the bacteria in the water. Although no one really knows, scientists think it takes about ten thousand years for a tooth to fossilize.



# Big Brook Fossil Identification Chart

## A Note From The Editor

By: Alison Pacut

Mosasaur Teeth  
Cretaceous - New Jersey

Mosasaur teeth superficially look like crocodile teeth, have a distinct cutting edge (seen in the top center view). The cutting edge is the easiest way to distinguish mosasaur teeth from crocodile teeth.

Archaeolamna kopingensis (Davis 1890)  
Extinct Mackerel Shark  
(An example of a lateral tooth.)

Archaeolamna kopingensis

Goblin teeth are probably the most common cretaceous teeth found in the Big Brook area of NJ. They can also reach sizes of over 2". A defining characteristic of goblin anterior teeth are their striations on the lingual side of the tooth that continue onto the root (in unworn specimens).

Squalicorax kaupi (Agassiz, 1843) Extinct Crow Shark

Squalicorax kaupi

This species is smaller than S. pristodontus, and has a distinct notch on the distal shoulder of their crowns.

Squalicorax pristodontus (Agassiz, 1843) Extinct Crow Shark

Squalicorax pristodontus

This species have larger teeth than S. kaupi, and does not have a distinct notch on the distal shoulder of their crowns.

Cretolamna appendiculata (Agassiz 1843)  
Extinct Mackerel Shark

Cretolamna appendiculata

Squatinid (Angel Shark) vertebrae  
Cretaceous  
Ramapo Brook, NJ

Always seem to have either the cartilage or the prismatic cartilage marks all over them (those are the little hexagon dots all over the vert in the image).

In last months newsletter I asked if anyone had any comments on the Shale Mail thus far. I got only one reply from the President of the EFMLS. He simply asked that I not use the term “Club” anymore but rather use the term “Society” instead.

I started thinking about the difference in the two words. I began researching the two words to see if I could find the difference. A club is a group of members who join together for a common purpose (usually sports or recreation). A society is a group of people who meet from time to time to engage in a common interest (rocks, minerals, fossils, earth science).

I contacted David Nock to see if he could clarify a little using his research on the subject. He also sent me to Christine Conlon who has done a lot of research on club vs. society. I emailed Christine as well who returned with some definitions of her own. A club usually suggests such privacy that admission to membership is only through election and invitation; it often also implies quarters for the meeting and entertainment of members and therefore is applied to the buildings or rooms as well as to the organization (such as a country club or a bridge club). A society is often used interchangeably with association, but it tends to suggest a more restricted aim, a closer union of members, and their more active participation, and sometimes a narrower field of choice of membership (such as a secret society or a philological society).

David also reminded me that the word club has many different meanings:

- A club can be a weapon.
- We can go clubbing at the local night club.
- There is a country club.
- An after school club such as a chess club.

After reviewing all the evidence I concur with David Nock that the word society has a degree or sense of civility. It means so much more than just a club so if you catch me using the word club in the Shale Mail again I invite you to call me out on it!

## Show Announcement

The Herkimer Show has been canceled for anyone who was planning on attending.

# Minutes of the Meeting

June 12, 2020

By: John Pacut

Conducted on Zoom. Participation was a little slow.

**Minutes:** President Mike Tedford called the meeting to order. Mike welcomed everyone. He introduced David Nock and Carrie Meyers as the EFMLS President and Region 3 Vice President. Cheryl Neary, EFMLS Region 2 Vice President and an AFMS officer also was welcomed. Mike also shared the current status of the COVID pandemic in Orange County and the possible impact on our July show.

The minutes of the June 10<sup>th</sup> meeting had been sent out with the Shale Mail. The minutes were accepted.

**Treasurer's report:** The treasurers report was read by Ron Nelson and accepted.

## Committee Reports:

### Webmaster/FB:

**Programs:** Under the circumstances Mike said we would be using Zoom for future meetings. Invites will be sent via email each month, we encourage everyone to join us. When the status changes concerning our meeting we will email the information out as well as post it in the Shale Mail.

**Show Report:** Barring any catastrophe concerning the pandemic the date for our show is still set for July 25<sup>th</sup> and 26<sup>th</sup>.

Ron has 34 vendors signed up for the show already. There was a discussion about requiring masks and social distancing at the show. Ron expects about 200 or less patrons to attend the show based on years past so social distancing should not be much of a problem. Then John Pacut mentioned he is planning to have disposable gloves available at his table and suggested others do the same. John also asked that members post our show to the different counties via social media.

**Membership Report:** Ron stated that he has 4 new members. Ron reminded everyone that the date you joined the club is your renewal date each year.

## Shale Mail Report:

### Old business:

**New business:** There was a small discussion concerning our annual picnic in light of covid-19 and a reminder from Mark that as of this meeting Wild Acres is taking applications.

# Zoom Meeting Agenda

July 10, 2020

By: Mike Tedford

**Call to order:** 6:30 PM Thank you Mark Kucera for hosting ZOOM

**Welcome:** Introduction of officers and members.

## Review and acceptance of June minutes

### Committee/officers reports:

Treasurer

Show Chairman

Membership Chairperson

Field trips

Other Shows

Next meetings schedule August, September, October, November, December. Zoom/senior center/Hansen Park

Webmaster

Shale Mail Editor

Facebook update

Mail Chimp update

Other old business

### New business:

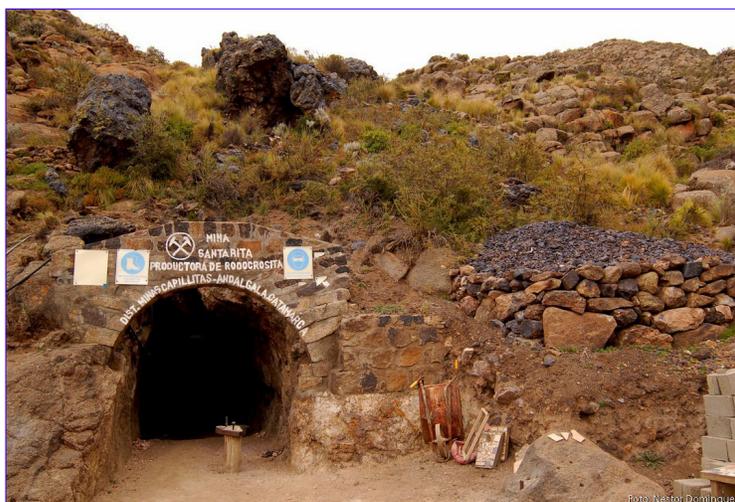
**Adjourn business meeting:** for Frank Vigilante's Zoom presentation on Rocks and Minerals of Massachusetts.

# Rhodochrosite

By: Keith Chip Allen

In 1989, after being fired from his job, Miguel Yampa invested all his money for a permit to explore the Capillitas Mountains for Rhodochrosite deposits. In 1992, after only finding 7 tons of Rhodochrosite in 3 years and out of money, he found a large vein. Praying to Santa Rita for help, he promised he would build a church in her honor, if she helped him. The first main structure build was the Santa Rita Church and he named the mine Santa Rita.

The Santa Rita Mine is the believed to be the world's largest mass of rhodochrosite - famous for its unique formation, occurring as stalactites and stalagmites. Yampa began giving money to the community and soon 200 people would journey up the mountain to attend church. He built a hotel and community center for his visitors and became known as "the lord of the rhodochrosite.



Rhodochrosite is a manganese carbonate mineral with the chemical composition  $MnCO_3$ . The mine is located in the Andalgalá Department, Capillitas Province, in northwestern Argentina at an elevation of 10800 feet.

Mined since Incan times, the polymetallic sulphide veins at the Capillitas Mine were worked in the 17th century for silver, and later for lead and zinc. Today, sulphides extraction is no longer economical, but the mine is still being worked for and lapidary material for specimens and carving, producing 100-200 tons of material a year. The banded rhodochrosite is often sliced and polished into slabs

for collectors.

Rhodochrosite from the Capillitas Mountains was first described in the literature in 1873, when it was given the name, "Inca Rose" rhodochrosite. Indigenous people probably mined the nearby placers for gold in pre-Colombian times. From the 13th through the 15th centuries, rhodochrosite was mined here by the Incas. In the 17th and 18th centuries, the area was mined by the Jesuits for silver, gold and copper. From the 1850's onwards mining was carried out by Spanish, English and German companies. In 1940, the mine was taken over by the Argentine military to mine copper. More than 20 miles of adits have been driven at the mine, making it the largest mine in Argentina.



The stalactites found at the mine have been cut and polished and sold worldwide, which made Capillitas rhodochrosite famous. A 15-foot-high and 6-foot-wide cavity was discovered in the 25 de Mayo vein, with individual stalactites up to 2 feet thick and 10 feet long. The walls were completely covered with thick stalactite formations, and large stalactites hung from the cave ceiling.

Some pieces have up to 30 fine strips, each a few millimeters thick, but they can be up to 5 cm in thickness. The strips are sometimes interlayered with white or pink crystalline manganocalcite, and rarely chalcedony. The chocolate brown strips are called capilliite, which is very rich in zinc. Probably the most impressive color is the vivid crimson red.

# Rhodochrosite cont.

By: Keith Chip Allen

Unlike most sulphide deposits, most of the Capillitas veins consist almost entirely of rhodochrosite with only minor amounts of lead and zinc sulphides. These veins are the result of hydrothermal mineralization in diatreme volcanics and the adjacent Paleozoic granite. The veins are related to Miocene-Pliocene volcanism, and are said to be of tertiary age. The mine is part of the Farallón Negro Volcanic Complex, which is located at the interface between the Sierras Pampeanas and the Puna physiographic and tectonic provinces. The principal veins are Capillitas, Carmelitas, La Rosario, Ortiz, Restauradora, and 25 de Mayo.



Its powers include drawing love to the wearer, helps release past psychological issues and improves eyesight. Rhodochrosite is thought to relieve stress and is used by healers to cleanse the aura.

Rhodochrosite is also believed to help in the development of inner freedom by helping to resolve inner conflicts and as a stone of love and balance. It is a powerful healer for the 4th chakra and used to cleanse the heart chakra.

Many believe that it can release the suffering based on past lives and energize the pancreas, spleen and kidney. It increases the ability to handle life problems and increase personal self-confidence.

The Incas, who called it Inca Rose, believed that rhodochrosite is the blood of their former kings and queens that was turned to stone.

# Big Brook Fossil Identification Chart

**COMMON FOSSILS FROM THE CRETACEOUS OF NEW JERSEY**

<p><b>Squalicorax kaupi</b> Crow Shark</p> <p><b>Mosasaur</b> Great Marine Reptile</p> <p><b>Cretolamna appendiculata</b> Mackerel Shark</p> <p><b>Archaeolamna kopिंगensis</b> Mackerel Shark</p> <p><b>Anomacodus phasolus</b> Early Drumfish</p> <p><b>Belemnitella americana</b> Squid-like animal</p>	<p><b>Squalicorax pristodontus</b> Crow Shark</p> <p><b>Scapanorhynchus texanus</b> Goblin Shark</p> <p><b>Squatina hassei</b> Angel Shark</p> <p><b>Enchodus petrosus</b> Saber-Tooth Salmon</p> <p><b>Protocallianassa mortoni</b> Ghost Shrimp Claw Fragment</p> <p><b>Ammonite Fragments</b></p>	<p><b>Brachyrhizodus wichtaensis</b> (Roemer) Myliobatoid Ray</p>  <p>Isolated teeth from this ray are fairly common at the site. This image shows 3 views of a tooth that attached to the side of the ray plate.</p> <p><b>Drumfish Teeth</b> Cretaceous - New Jersey</p>  <p>Drumfish have 2 distinct types of teeth. They have battery of flat crushing teeth that enabled them to feed on crustaceans and mollusks. Two of these are shown in the center of the image. They also have oral teeth that look like very thin transparent claws. These are shown on both sides of the image.</p> <p>Drumfish crushing teeth can easily be confused with some of the worn gravel in the area. However, the bottoms of the crushing teeth are hollowed out. The more round looking teet are often overlooked due to the fact that they look like small pebbles.</p>
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**Belemnitella Americana Straight Shelled Cephalopod**

**Belemnitella Americana Fossils**  
Cretaceous - Big Brook Area, New Jersey



A Belemnite is a type of extinct cephalopod. It looked kind of like a squid. The amber colored belemnite fossils found here are the internal shells of these squid like animals.

**Ischyrrhiza mira (Leidy) Sawfish**



Sawfish rostral teeth (the teeth that stick out of the sawfishes' snout) can be found on occasion at Big Brook. These are three teeth that were found within a couple inches of each other on a gravel bar.

**Protocallianassa mortoni (Pilsbry, 1901) Ghost Shrimp Burrows - Trace Fossils**



The long tube like structures are fossilized invertebrate burrows. They are probably from Ghost shrimp. Their burrows filled in with iron rich sediments.

This page will help you to identify some of the treasures you can come out of Big Brook with. The page was forwarded to me from Linda Kondor who got it from the Big Brook web site at: <http://www.njfossil->



Looking for fossils at Big Brook.

# ROCKS, MINERALS & MINES OF MASSACHUSETTS!

By: John Pacut

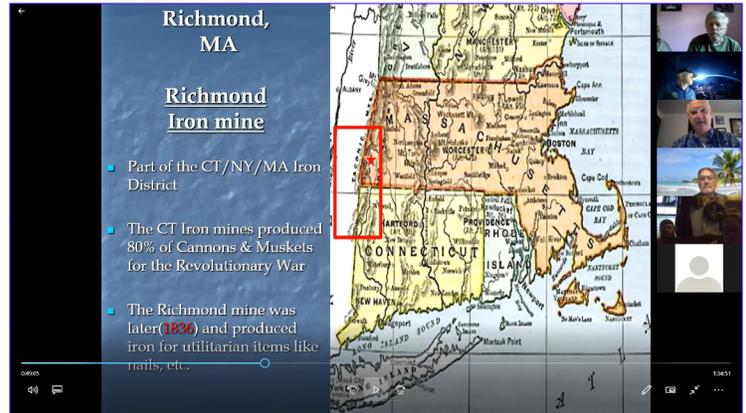
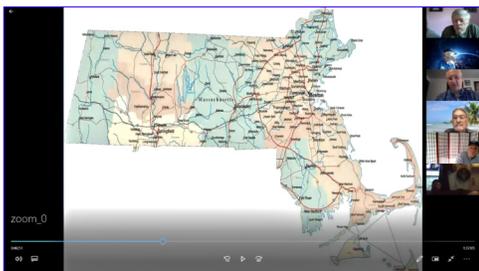
Ted Johnson gave an awesome presentation on June 10<sup>th</sup>, via Zoom on Rocks, minerals and the mines of Massachusetts. He basically divided the state into regions and covered those regions from west to east. In each region he discussed mines that he considered some of the better known classic and type localities for certain mineral specimens. First, he gave a little history of mining in Massachusetts. They were of particular importance because they occurred during a time when we were fighting Britain in the revolution were we needed metals to construct weapons, ammunition and artillery. Without which we would have never been able to stand up to the British.

One of the geologists that first made his mark in Massachusetts was Alfred Hitchcock. He was the president at Amherst College. A minister and a geologist in his own right. He goes on



to discuss the Richmond Iron Mine which is on the border of Connecticut and supplied most of the metal for cannon balls. Many goetheite Stalactites were collected here and is the type locality of gibbsite. He goes on to mention the Lee limestone quarries and the Betts Manganese Mine wonderful rhodonite that has a manganese crust which is black and is considered the state gem stone of Massachusetts as well as spessertine and ferro hornblend can be found here. The next mine is the Davis Mine in Row Massachusetts, which was mined specifically for pyrites that were so pure sulphuric acid was made out of it. Also, beautiful gahinte crystals can be found here. Not too far away, there is a talc mine by Zoar Bridge where soap stone is found.

The next mine he discusses is the Middlefield where a variety of serpentine called Verdegreen which makes beautiful cabachons as well as the mineral chrysotile. The Chester Emery Mines which can still be visited and produced an abrasive of corun-



dum and garnet. Margarite as well as amesite which is the type locality for amesite as well as dyestory farry dravite, epidote, albite, almandine, ilinete, malachite, sphene, and actinolite can be collected here. Amesite was named after James Ames who had a forging company.

He goes on to the new pegmatite near Goshen Dome between the Barris Farm and Clarke Ledge. This is the type locality for goshenite also found here is a rare variety of rose muscovite, green tourmalines, spodumine, a variety of albite, bulls eye tourmaline. The next mine he discusses is the classic locality of Walnut Hill near Chesterfield where one can find spodumene and black schorl.

Ted goes on to discuss at least 30 more locations which I can not cover in there entirety which I would like too so I will make brief mention of them. Russel Garnet Mine, Lanford Mine for aqua beryl, Loudville Mine for lead, Cheapside Mine for babingtonite, Royalston Mine for blue beryl, Quabbin Reservoir for aqua beryl, Molton Limestone Quarry for fluorescent scapolite, and Blueberry Hill by Medford for babingtonite, and a fluorescent calcite and barite association.

At present we do not have a field trip director but if and when we do get one I think the possibility to visit Massachusetts would be a welcome addition to the club. We would like to thank Ted for this most informative lecture and we hope he is able to discuss a part 2 covering mines he hasn't talked about so far.



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