

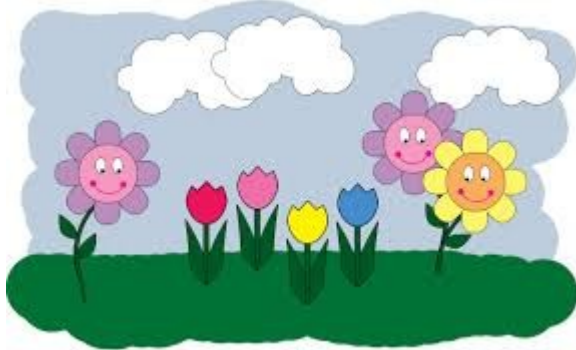


A monthly publication of the Clear Lake Gem & Mineral Society

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NUMBER 3



**NEXT MEETING:** March 16, 2020  
**TIME:** 7:00 p.m.  
**LOCATION:** Clear Lake Park Building  
 5001 Nasa Parkway  
 Seabrook, Texas

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Field Trips. Riotinto Mine	3-7	<p>For March program, we are going to do a show report and feedback. We are also going to do a SHOW and TELL on what you purchased at the show and why?</p>
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		<p><a href="http://www.clgms.org/">http://www.clgms.org/</a></p>

MINUTES OF THE February CLGMS GENERAL MEETING

February 2020 Meeting

Started at 7PM at the Clear Lake Park Building

**Non-show items**

- Stoney statements was approved
- One of last year's scholarship recipients sent us a letter with an update from them and a report of how they used the money. The letter was available for members to read.
- 3 upcoming field trips for spring
- Want to set up workshops for summer
- Treasure report was given
- Website has moved to a new host
- After the show Mike and Morgan will take a look at the products donated by Microsoft for us to use.
- Time to renew membership!
- Had a picture from Maas Nursery of a rock they would like to identify.

**Show items**

- Thursday at 6pm we will load the stowage facility to load the locker.
- We will also put out bandit signs around Pasadena Thursday
- Tonight folks can take magnet signs and bandit signs to advertise on their vehicles and around their neighborhoods
- All signs need to be picked up Sunday or Monday after the show.
- There were 2 donations of rock for the scouts
- Trina's last year running the scout booth. Will someone else take this over? If not it will not continue next year.
- 238 tables are sold for the show with 48 venders.
- We need more roles of plastic cover for tables.
- Security is all set

MINUTES OF THE March CLGMS BOARD MEETING

Preliminary report from the 2020 show:

- The revenue is pretty much the same as last year show due to extra expenses for supplies, swag bags and tablets for credit card tickets purchase.
- The club will be giving out scholarships again this year (3x\$2000). Please inform all your relatives/friends who have children going to

college or already in college that are majoring in Earth Sciences to apply.

- The Gem Mine have been requested to participate in several school activities as a fund raiser. The first one will be coming soon – March 28<sup>th</sup>, 2020 from 10-2 at the Armand Bayou Montessori School. 16204 Hickory Knoll Dr., Houston, TX 77059. Several volunteers are needed to help out. This will be a lot of fun.
- Several Club positions will be open, and we are in need to fill those positions. Please consider helping the club by filling at least one open position. This will help the club with fresh ideas and also helping the veteran to have a break.

### **Upcoming events - We are looking forward to the following programs.**

We are going to have a show and tell. Tell us what did you purchase at the show and why.

### **Field Trips Announcement**

Two field trips are planned for the spring. On April 25, we will travel to Lovelady, TX, in search of petrified wood. Petrified wood is the name given to a special type of fossilized remains of terrestrial vegetation. Petrification is the result of a tree or tree-like plants having transitioned to stone by a mineralization process that often includes pre-mineralization and replacement.

On May 30, we will travel to Oglesby, Tx, in search of turritella. The fossil remains of turritella are the shells or the cast of shells from soft-bodied mollusks. Turritella are a type of sea snail with tall spiral shells. They vary in size from about 1/2 inch to 6 inches long.

More details will follow. If you are interested, please send me an email, [annabel.brownfield@gmail.com](mailto:annabel.brownfield@gmail.com) or call/text: 281-486-1866.

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Taken from the Oct 2010 Mineral Minutes newsletter Mineralogical Society of the District of Columbia

### **Spain's Riotinto Mine: The World's All-Time Favorite Mineral Site?**

By Andrew D. Thompson

Several academics have praised the Riotinto mine in southwestern Spain as a geologist's paradise. Why so? At practically no other place on earth "has nature exposed in one spot such richness and variety of minerals," claim anthropologists from the University of Seville (see *Archeology*, September-October 2010). Beyond its legendary silver and copper, there's an abundance of additional metal ores. But why would professors outside the geology department be so interested in this particular mine site?

There is strong evidence that for at least the past five thousand years, the Riotinto mine has been worked by succeeding cultures. Iberians and Tartessians began mining the site and centuries later they were followed by the Phoenicians, Greeks, Romans, Visigoths, Moors and finally by the British. The local on-site museum contains artifacts which span the millennia, beginning with a 5,000 year old stone hammerhead, Tartessian pottery and Phoenician oil lamps. From the Roman-period the museum displays iron picks, hammers and a large wooden waterwheel. These findings encourage researchers to see the Riotinto as "perhaps the oldest major mine in the world" ([www.mindat.org](http://www.mindat.org)). Tourists may want to visit the museum electronically before finalizing travel plans.



The mine site itself provides evidence that the Copper Age's local inhabitants of the third millennium B.C. had been extracting malachite and azurite. Both are soft copper carbonates which were used for beads and light green and deep blue pigmentation, respectively. But it has been the mine's silver and copper veins which have claimed the major attention of later generations. By 1100 B.C., the Phoenicians arrived and traded their textiles, ceramics and jewelry in exchange for the local Tartessians' metal ore. Phoenicia desperately needed the silver to pay its debt to the Assyrians. That increased the demand and moved the mine toward industrial levels of production.

By the 7<sup>th</sup> century B.C., the economy of the eastern Mediterranean incorporated silver and copper coinage causing even further ramping up of metal production. With the ascendancy of Rome and its need for metal coinage to pay its soldiers, building laborers, and the farmers who grew the subsidized grain, the Roman empire further increased the demand for silver which resulted in Riotinto becoming the largest silver mine in the entire empire. Centuries later, when the emperor overspent, he devalued Rome's currency by substituting copper for the dwindling supply of silver. The demand for metal was there



and the mine provided the supply, making it seem like a match made in heaven with a fairy tale ending. But there seems to have been more to it.



### Best Or Worst Of Mines?

The Riotinto mine is part of the Iberian Pyrite Belt, consisting of eight very large mines, making this area of Spain south of the port city Huelva, one of the largest sources of sulfide in the world. Pyrite, iron sulfide, decomposes when exposed to air resulting in a release of sulfur dioxide which is toxic to the environment. Researchers have tested core sample drillings in Greenland dating back many centuries and have found deposition of toxic chemicals having the identical signature of the Riotinto mine. Additional environmental studies found clamshells, dating from 2475 B.C., polluted with heavy metals, again associated particularly with this mine. On the other hand, for the centuries when the mining at Riotinto had ceased, environmental scientists found less pollution had been deposited in the earth's crust.

This site seems to have always been a source of a basic level of pollution. Even before mining began, the atmosphere was decomposing the pyrite which was on the ground's surface, turning the local river a red, wine-colored tint (rio tinto), which killed off fish and vegetation. So imagine the impact of having open-pit mines, with their vast slag heaps, for thousands of years, leaching sulfides into the surrounding land, air and water.

The cause of the toxicity is that this pyrite laden mine has one of the greatest concentrations of sulfur found anywhere in the world, with a content ranging between 0.5 and 2 percent. Valuable as that is in itself for industrial producers of sulfuric acid, the economic value of the sulfur is secondary to the mine's high silver and copper content. That explains the large number of employees working at the Riotinto mine which peaked in 1910 when there were 17,822 people on the payroll. Although it closed in 2001, the

Cyprus-based mining company, EMED Mining, recently bought the property and hopes to reopen its operation in 2011.

Historically, there was one lengthy period shortly after the decline of the Roman Empire, when the mining activity slowed considerably. This was due not only because of the dark ages' loss of Roman engineering know-how, but also because local forests had been depleted due to the high demand for lumber to fire the smelting furnaces. Centuries of inactivity followed. In 1556, Spain's King Phillip II sent a priest named Diego Delgado to search for new mines and he "discovered" Riotinto, documented his find and sent the King small silver samples, but to no avail. By this time, Spain was receiving large shipments of inexpensive silver from the new world.

It was not until the arrival of the British in the mid- eighteen hundreds that mining revived on this site. In 1873 a modern mining firm reestablished industrial- strength metal extraction and took the name Rio Tinto Plc, as distinct from the name of the mine and region, Riotinto. That firm expanded its holdings and is currently mining on six continents. Its shares trade on the New York Stock Exchange under the symbol RTP. In August of 2010, the company announced record earnings. Rio Tinto is not the world's largest mining company. That honor goes to BHP Billiton, the Australian mining giant that made news in August by initiating a hostile takeover of the world's largest producer of fertilization minerals, the Potash Corporation of Canada.

## **Conclusion**

For five millennia, this mine has brought unprecedented wealth to its owners. But it was not without cost to the miners, local inhabitants and environment. The high concentrations of sulfur and heavy metals undoubtedly took its toll on the health of all involved. Even today, some of the ancient artifacts in the museum continue to reek of sulfur. Nonetheless, if traveling in the area, readers may want to consider visiting the museum. The very name of the river, in effect "red river," with its absence of fish, signaled to one and all that this water could not be drunk without ill effects. Perhaps this powerful interaction between the mine's wealth and its danger to the successive cultures which worked it, has helped bring the Riotinto mine to the attention of modern anthropologists. What we see here is evidence of a new emerging discipline, the anthropology of mining.

For some reason, the Disney movie of Snow White and the seven dwarfs comes to mind. That 1937 film was based on a story collected by the Brothers Grimm in Germany in the early eighteen hundreds, when mining in Europe was a growing and key industry. Each day, the seven dwarfs left their home in the forest and their treasured, pure Snow White, happily singing their Heigh-Ho song. Off to the mine they would go, only to discover, one day, their Snow White had been poisoned by the wicked queen. In the fairy tale, a prince saved the day and brought her back to life. One wonders if modern technology one

day will be able to replicate this princely deed, free everyone from the ill effects of its toxicity and bring the world's favorite historic Riotinto mine back to life.

### Riotinto Mine:



Some pictures from the 2020 show.



david tjok





### SCFMS and MEMBER CLUB GEM SHOWS

Mar 23-24, Cedar Rapids, IA, Cedar Valley R&MS & AFMS Convention Hawkeye Downs Expo Center, <a href="http://www.cedarvalleyrockclub.org">www.cedarvalleyrockclub.org</a>	Apr 13-14, Abilene, TX Central TX G&MS, Abilene Convention Center, <a href="mailto:kmcdaniel23@suddenlink.net">kmcdaniel23@suddenlink.net</a> Apr 19-21, Alpine, TX Chihuahuan Desert G&MC, Alpine Civic Center, <a href="mailto:ocoent895@gmail.com">ocoent895@gmail.com</a>	Apr 19-21, Alpine, TX Chihuahuan Desert G&MC, Alpine Civic Center <a href="mailto:ocoent895@gmail.com">ocoent895@gmail.com</a>	<b>May 4-5, Waco, TX, Waco G&amp;MC, Extraco Events Center</b> <a href="https://wacogemandmineral.org">https://wacogemandmineral.org</a>
May 25-26, Ft. Worth, TX, Fort Worth G&MC Will Rogers Memorial Center, <a href="http://www.forthworthgemandmineralclub.org">www.forthworthgemandmineralclub.org</a>	Jun 1-2, Lubbock, TX Lubbock G&MS, Lubbock Memorial Civic Center, <a href="http://www.lubbockgemandmineral.org">www.lubbockgemandmineral.org</a>		
STONEY STATEMENTS Clear Lake Gem and Mineral Society, Inc  PO BOX 891533 Houston, Texas 77289			
Meeting 3rd Monday of the Month <b>7:00 P.M.</b> Clear Lake Park Building 5001 NASA Parkway, Seabrook, Texas			



				
		Member of		
<b>Next Annual Show</b> February 20-21, 2021 Pasadena Convention Center			 American Federation of Mineral Societies	 South Central Federation of Mineral Societies
CLGMS is on the Web: <a href="http://www.clgms.org">http://www.clgms.org</a> 2 / 20-21 / 2021				
<b>Clear Lake Gem and Mineral Society, Inc</b>				
MEMBER: American Federation of Mineralogical Societies and South Central Federation of Mineral Societies  PURPOSE: To promote education and popular interest in the various earth sciences; in particular in those hobbies dealing with the art of lapidaries and the earth sciences of minerals, fossils and their associated fields.				
2020 OFFICERS:	President Vice President Secretary Treasurer Program Director Board of Directors:  Newsletter Editor	David Tjiok John Caldyne Trina Willoughby Morgan Davies VACANT Sandra Christiansen John Caldyne Jim Edwards Donna Nelson Sara Tanner VACANT	832-423-4802 832-282-4270 713-815-0275 281-224-2444	
Annual Show 2020 ..... Sandra Christiansen Constitution & Bylaws.....Sara Tanner Community Benefits.....Charlie Timme Historian.....David Tjiok Publicity..... Cynthia McGowan Facebook.....Trina Willoughby Membership.....Mike Flannigan WWW System Admin.. .....Mike Flannigan Refreshments.....John Caldyne Education/Field Trips.....Annabel Brownfield				
Membership Dues Jan. to Dec. 2020: Adult \$15:00, \$5.00 per additional adult at same address, Junior \$5.00, Family Dues \$20.00 (4+) at same address. Send Dues to CLGMS, PO BOX 891533, Houston, TX, 77289-1533				