

March 2011

THUMBlickER

Newsletter of the Central Florida Mineral and Gem Society



CFMGS Officers, Committee Leaders and Instructors

President: Michelle Bogle

1st VP: John Piziak

2nd VP: Bob Cole

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Includes webmaster and editor

Treasurer: Wynn Taylor

Includes membership

Show Chairman: John Piziak

Asst Show Chair: Fred Tunderman

Field Trip/Activity Director: Michelle Bogle

Shop Director: Byron Wertz

Instructors

**Cabochon: Michelle Bogle, Fred Tunderman,
Emilio Garcia, Hendric Allison, Byron Wertz**

Faceting: Emilio Garcia, Fred Tunderman

Wire wrap: Linda Bycz, Byron Wertz

Silversmith: Agnes Weessies, John Piziak

Stained Glass: Emilio Garcia

Intarsia, Chase & Repousse:

Tom & Kay Benham

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The Central Florida Mineral and Gem Society is a member of the Eastern Federation of Mineralogical and Lapidary Societies.

The CFMGS was established in 1961 and now has 94 members and sponsors two (2) large Mineral and Gem shows each year.

Including articles on petrified wood from the Fair.

Meeting called to order- March 15th 7:40 pm

Stood for the Pledge of Allegiance

President – Michele Bogle

The fair went really well this year. I was very pleased with the volunteer turn out. We had a nice double spot. There always seemed to be just the right amount of volunteers for the crowd size. Thankfully, we didn't have any problems this year. I want to thank all volunteers for your time. I appreciate all of your help. Special thanks to John & Ann Piziak, Betty Sumner and Paul Hayes for coming in extra early to attend the School fieldtrip day. That day is always a bit hectic. Also, special thanks to Karen Carson for her help, not only thru out the week, but also for staying to help Byron and myself pack up and break down. Thanks to Byron Wertz for bringing club equipment and helping me to bring in all that heavy petrified wood. I had a lot of compliments on the educational display. I was pleased with the way it turned out myself. When I first thought to use petrified wood as our display this year, I wasn't sure how it would look. And naturally, we gave out small pieces of petrified wood to the kids and some parents that wanted some. I left several large pieces out so people could touch and get a feel of what petrified wood feels like. A couple years back, I started to write up educational pamphlets to be given to the Teachers on fieldtrip day. This has always been appreciated, and any left over pamphlets are given to families that show a strong interest in the display subject. We had a lot of requests for the leftover ones this year. I think everyone had fun this year. Ray Miller's enthusiasm is always apparent. He loves bringing some of his tumbled stones and giving them out to the kids, and the kids love getting them. I was also pleased by the amount of members that asked for passes to just come with their families and enjoy the

fair. Every year, we get passes for our members, but they're not always used for just the fun of coming to the fair. You don't have to volunteer to get passes to come and enjoy yourself.

I received an email and phone calls from members and vendors concerned that we were not going to send out post cards from our mailing list for the up coming show. This is incorrect, as a matter of fact, John & Ann, Winn, Me & my son Dylan labeled over 400 of them just prior to the meeting tonight. Winn will send them out in the morning, which will get them to people a week before the show. We agreed that people may misplace, or forget if we sent them any earlier. The Show Chairman and committee put a lot of extra work into advertising this year. I myself created a Google profile on our club that gives the details of our show. I also created a facebook page for our club. This page allows us to advertise any event including our monthly rockfest. In the event area, I gave details of the show, and have been pasting it to other clubs' facebook page and putting it on Fox news' discussion boards and on their wall. There is a facebook page that was created by a website that is just for Mineral & Gem clubs. It is used for clubs to announce their up coming events. Our event was posted several times there. Also, I have been getting it out on peoples private pages. Doing this allows all their friends to see it to. It's like a chain reaction. So if anyone uses facebook, twitter or any other type discussion sites, please go to our clubs page, bring up our event, and copy the link in your browser. You can then paste it on any discussion site. After you paste it, you will see the clubs logo with show info. This is also a link, if they click on it, it will take them to our event page for more information. If you have a favorite radio station or news channel, then I would ask you to take a few minutes to paste our ad there. The more people that do this, the more likely we will be seen. This is a free way to advertise and only takes a few moments of your time. If you are a vendor in our show, then you would be helping yourself as well as our club by doing this.

Each week I get a report from facebook showing how many visits, wall posts and people clicking the like button. It gives me details that tell me we had 35 more visits this week than last week. This past week, we had 75 more visits than the prior week of 35. When you visit our page, be sure to click the like button. It's a little thumbs up symbol. What this does is actually help to get our page noticed more. This page is created for all members' use. I want members to post their favorite websites, make comments, start discussions and add photos. It is not designed to take the place of our website, but allows everyone to share their projects and to ask questions when they need advice on a project. It is very easy to use.

1st Vice President – JohnPiziak

Following up on advertising for our show, John put out a press release on March 6th thru Google. This will be seen nationwide. Also, John has been advertising through Events Crazy.com. So far we have had 815 hits on this site. Events crazy.com also has a facebook page. These are the two sites that give reports. John is using other sites as well, they just don't provide reports. So our show ad is out there. We have gone the extra mile this time around to be seen.

2nd Vice President – Bob Cole

Reported members' attendance. 16 members and no guests tonight.

Treasurer – Winn Taylor

Winn gave monthly income report. All bills are current. February's income was up due to Aggies' silversmith classes. At this time, we have 106 paid members, with 14 new since January 1st, and three new since our last meeting.

Show Chairman – John Piziak

As we all know, the December show was a disaster. John has had a lot of undo flack over it. He has been guaranteeing some vendors that it will not happen again. He has help from some of these vendors to console other

vendors that will no longer do business with us, this will not re-occur. Out of the 51 vendors we had in December, only 34 have signed up for this spring show. Therefore, we will not have the building capacity full. Hopefully we can make up for this with the door entry. The vendors should do well this show, with all the additional advertising we have been doing, and less vendors present. John is using an advertising website that gets high traffic, his assistant; Fred Tunderman put a wonderful ad in the Conway newspaper. This newspaper covers a very large area in Orlando, including Belle Isle and Lake Nona areas.

He is hoping to continue exploring other areas in the future for advertising as well as keeping what we have been doing. This should make for successful shows, and hopefully the other vendors may return.

What we need most at this point is hours of volunteers. All volunteers please fill in the days and hours on the chart when you will be available to help. Please don't just write in your name on a day, John needs to know when; unless you are volunteering the entire day as a floater. Also, we have a lot of positions to fill, so please consider helping out our club. Volunteers will earn shop time to be used for classes. This is a nice bonus to use with Aggies silversmith classes. For every hour you will receive ½ hour for your time. You must write your time in on the volunteer chart. John will give your hours to Winn, and she will write them on a card with her signature. They will be presented to instructors the same as payment and the instructor will deduct the time you use and sign for it. This is the same as money, so don't lose it.

We are doing something different in the demonstration area this year. In the past, the equipment sits there more than nit is used. People come by, look at it and don't know what they're looking at. At the Fair, we attract a lot of attention by using our equipment. John even had kids come and watch and allowed some to cut stones. They were having a blast. So this year, we are looking at

demonstrating cabbing, faceting, wire wrapping, flint knapping and silversmith. Each category will have its' own table, which will provide plenty of space for the demo artist to display and/or sell their items. We did this at the fair and it was a big success. We had a lot of demonstrating, with members selling their goods.

We also have tables set up for members who have equipment to sell. This is the first time we have offered this. There will be no charge for selling your used equipment. Be sure to visibly display the contact information on your items and your asking price.

We need help on Thursday; this is the clubs setup day. I cannot express how much need help in the volunteer dept. All club tables need to be setup and ready to go.

Show hours are; Friday 1pm – 6pm, Saturday 10am – 6pm, Sunday 10am – 5pm.

Vendors' setup on Friday from 7am – 1pm.

Volunteers for Friday should come in around noon.

Doorprizes will be the same, with each vendor donating an item. In addition, one thing we will be doing new this year is a drawing to win tickets to Disney. They are four park passes for a family of six. Visitors can get tickets for an asking donation of \$5.00 each. At the end of the show, we will draw the name of the winner. This is something we are trying out; we'll see how well it's received.

Also, vendors usually get coffee and donuts in the mornings; we are going to be adding bagels this year for those who don't like donuts. Michele is donating a toaster for persons that want toasted bagels.

Old business – no discussion

New business – no discussion

Instructors – Emilio says 'no students'. We have noticed that classes have slowed down somewhat. Part of this is students taking cabochon or faceting classes have signed up for Aggies' silversmith classes. This is a great

benefit to them. However, we need to get the word out that we have openings for cabbing & faceting classes to bring in new students.

Shop Director – Byron Wertz

Byron is absent tonight, however I would like to remind everyone that Byron is a volunteer. He is not a paid employee. I think he does a wonderful job keeping the equipment in good working order. He comes in when he is able to. He does have a personal life. If you discover something is broke, please let him know. If you feel he has not fixed it in a timely manner, please do not complain to John, Emilio or myself; we cannot fix it. Byron will get to it as soon as he can. But if you would like to fix the problem yourself, please feel free to do so. Also, I would like to remind instructors that he is not here to clean up after us. Instructors are asked to clean their area after classes.

General Discussion

Ray Miller brought up that someone from UCF approached our club at the fair and asked us about doing a month long display at their college. This is something that we will definitely want to do. The Director of Events will make contact with this person after the show is over for more information. If anyone would like to help with this display, please see Michele Bogle. Michele had one person help her for the Lake Mary Historical Museum. The museum did the actual display setup, but we will be doing all the setup for the college. So please consider getting involved and helping out.

Michele tried again to get in touch with Nick Sourant. He is one of the first members of our club. This is to interview him on our clubs history for articles in our newsletter as part of our 50 yr. anniversary. If you know of anyone from our clubs past, please have them get in touch with Michele or ask for their ph#. Or, if you have the time to interview them yourselves, that would be great. We are already in our third month this year. I would like to get started on our history as soon as possible.

As for our 50th anniversary event, I would like everyone to think on what we should do. This should be something all members get involved in. This is our club and 50 years is something to be proud of. As I like to say, "We are 50 yrs. Strong". So please come up with ideas for an event that will involve inviting other clubs to and be open to the public. Whatever we decide to do will take time getting it together, so let us all focus on this. For members that don't come to the meetings, please get involved with this through emails, phone calls or standard mail.

Emilio met someone at the Fair that told him there was a 'Mary' and her husband that started the club. Mary and her husband were the owners of a rock shop on Clay Ave. in Winter Park. If anyone knows anything about them, or any living relative, please get their contact information.

50/50 won by Paul Hayes

Door prizes-

Ray Miller – a colorless rock

Fred Tunderman – a nice slab. Donated back to club for silent auction.

Jim Johnstone – Green flint. Donated back to club for silent auction.

Anne Piziak – Green flint

Betty Somner – Cabochon

John Piziak – green Flint

Keith Woodard – Green jasper

Michele Bogle – Mounted selenite rose. Donated back to club for silent auction.

Bob Cole – Slab. Donated back to club for silent auction.

Ray Miller – Black Jasper. Donated back to club for silent auction.

Bill Burrage – Mounted specimen of Patterson, NJ Bowtie stilbite. Donated back to club for silent auction.

Thanks to all the members who donated the door prizes for tonight's meeting.

Bring & Brag

Jim Johnstone took a few of the clubs tumbled clear quartz and faceted them to donate back to club for door prizes or auctions. He did Rutilated quartz also. He did a great job

Emilio Garcia showed off a Chinese Jadeite cabochon set in 14k gold filled setting. He used scrap wire from past wire wrap projects that he melted and re-worked. He also had a water cast sterling silver pendant. They were both beautiful pieces.

John Piziak reminded us that our monthly Rockfest was this coming Saturday. It is always the 3rd Saturday of each month.

Motion to adjourn for refreshments and socializing.

Accepted by John Piziak at 8:40pm.

** Note from Fieldtrip coordinator**

As the fieldtrip coordinator, I am always asked "when are we going on a fieldtrip?" Most of the members that do attend them have already been everywhere I know of and don't want to go back. The main place I am asked to have a repeat trip to, is the Peace River. I will check out the water levels and schedule one as soon as the levels allows.

What I would really like is for one of our members to take over this position. I know there are a lot of places left in Florida to go; I'm just not sure of an exact spot as I am not familiar with these places. I have asked members that go on regular personal trips for advice on locations. I am still waiting to hear from them. We have several members that go to, and know of a lot of places in Fla. So I am asking one of you to consider taking this position. It would be a great benefit to the club to have someone more knowledgeable in local areas. This position does not require much of your time, just to schedule fieldtrips occasionally, get the information; time, date, location and directions to the editor in

advance. If you can attend the meetings with this info, that would be better. But at this point, I would be happy to have someone just use emails. As fieldtrip coordinator, you would give a report on our trip afterwards for the newsletter. This isn't much to ask of your time. As of this post, I am currently an Instructor, President, Director of Events, Fieldtrip coordinator and acting Secretary. And quite possibly may be acting Show Chairman if that position doesn't get filled. And when I'm *not having internet connection problems*, I maintain our clubs facebook page. I also hold a fulltime job and have two teenagers. So please, someone consider becoming our Fieldtrip coordinator.

Much Thanks,

Michele Bogle, President

This is the information our club handed out at the Fair this year. All information was taken from *numerous* internet sites, therefore should not be copied and sold. It is expressly for Educational purposes only and freely given for that purpose.

OPALIZED WOOD

Opalized wood is an Opal replacement of Fossil wood.

It is also called 'Wood Opal', 'Lithoxyl Opal', 'Opalised' 'Wood', 'Zeasite' and in Germany it is known as 'Holzopal'.

Conk, which is an opal replacement of cavities in wood thought to be formed by a fungal disease. The term 'conk' is idiosyncratic but in common use among American opal fanciers. It's the most sought-after—and hence the most expensive—of American opal varieties because of its beauty, stability, and durability."

Opalized Wood, or Wood Opals, are minerals classified as a silicates that are composed of hydrous silicon dioxide in the

formula $\text{SiO}_2 \cdot n\text{H}_2\text{O}$ and a part of the silicate mineral group. The mineral was found first in North America and the surrounding regions. Opalized Wood is often used as a material for jewelry making.

Opalized wood is a very rare form of some Boulder Opal.

The internal structure and wood growth lines having been completely replaced with Opal. This sometimes appears in the form of concentric growth rings.

A very durable and hard wearing Ironstone base and perfect for pendants and other jewelry

Opalized Wood is usually white, yellow, orange, red, purple, blue, green, gray, brown, and black in color but can be found in a variety of shades depending on the minerals present in the sample. The mineral tends to be present with chalcedony groups in nature. Opalized Wood has a luster that is classified as waxy and a streak that is considered to be white. The fracture of the mineral is conchoidal and the cleavage is indiscernible.

Opalized Wood is also a 5 on the Mohs scale of mineral hardness. The mineral is non-magnetic and has a gravity of 2.2. The mineral is typically found in regions that have a high level of hydrous silicon dioxide in the environment or underlying deposits of stone and bedrock. The highest quality Opalized Wood specimens tend to come from North America, but there are examples of high grade product coming from other regions as well.

Some Wood Opals retain the color and grain so well, they look like fresh cut trees.

Petrified Forest - Arizona

Petrified Forest National Park contains one of the world's most spectacular collections of petrified wood. Remnants of giant trees from ancient forests of the Triassic Period over 200 million years old, these logs turned from wood to rock after the trees were buried under layers of sand and silt. In some cases, the microscopic structure of the wood was preserved during the process.

In many places small sections of logs lay scattered about the ground. John Muir called the area "a kaleidoscope fashioned by God's hand." As can easily be seen, the petrified wood displays a variety of colors resulting from the minerals it contains--pine quartz for white and gray, iron for the reds and yellows, browns, blues, and greens, and carbon and manganese for the black.

The petrified wood, not unexpectedly, is much heavier than the original log, weighing as much as 150-200 pounds per cubic foot.

Most of the petrified logs in the park were from trees of the variety *Araucarioxylon*, large trees which reached 100 feet in height and 6-8 feet in diameter

An event more interesting example, Agate Bridge. This petrified tree originally lay flat on the ground until the arroyo which now runs beneath it was formed by erosion. The log bridge was shored up with the concrete support in 1917, perhaps preserving the bridge but adding nothing to the genuine nature of the feature.

How Does Wood Become Petrified?

In order for the petrified wood you see here to become petrified, the wood must first be covered with such agents as volcanic ash, volcanic mud flows, sediments in lakes and swamps or material washed in by violent floods - by any means which would exclude oxygen and thus prevent decay. A number of mineral substances (such as calcite, pyrite, marcasite) can cause wood to petrify, but by far the most common is silica. Solutions of silica dissolved in ground water infiltrate the buried wood and through a complex chemical process are precipitated and left in the individual plant cells. Here the silica may take a variety of forms; it may be agate, jasper, chalcedony or opal. The beautiful and varied colors of fossil wood are caused by the presence of other minerals

that enter the wood in solution with the silica. Iron oxides stain the wood orange, rust, red or yellow. Manganese oxides produce blues, blacks or purple.

Q. How was Petrified Wood formed?

A. Petrified Wood was once part of a tree. Millions of years ago the forests covering Northern Arizona were buried under a sea of mud, sand, and volcanic ash. Silicate replaced the wood fibers and pressure formed the rock.

Q. What causes the bright colors in Arizona Rainbow Petrified Wood?

A. The colors found in Arizona Petrified Wood are the result of various elements present in either the original wood or the silicate.

Red and Orange are caused by iron. Yellow and Brown are caused by iron and uranium. Green is caused by iron, copper, cobalt, chromium, uranium, and nickel. Blue is caused by copper, manganese, cobalt, and chromium. Violet and Purple are caused by manganese and iron. Black is caused by manganese, carbon, and iron. White and Gray are caused by silicon dioxide.

Q. How old is Arizona Rainbow Petrified Wood?

A. Scientists believe that Arizona Rainbow Petrified Wood is about fifty to two hundred million years old.

Q. Can Petrified Wood be removed from the Petrified Forest National Park?

A. No. It is illegal to remove Petrified Wood from the Petrified Forest! Park rangers are vigilant and a large fine is imposed for violators. Petrified Wood is available in gift shops such as Jim Gray's Petrified Wood Company (at the corner of Hwy. 180 & 77). The Petrified Wood sold in gift shops is legally obtained from land outside of the Petrified Forest.

Q. How is Rainbow Petrified Wood cut and polished?

A. First, the Petrified Wood to be cut and polished must be carefully selected. Only 20% of all Rainbow Petrified Wood is solid enough to survive the cutting and polishing process. Once selected, the petrified wood is cut using special diamond-tip, oil-cooled saws. Since petrified wood is nearly as hard as diamonds, the cutting process takes several hours. Once cut, the petrified wood is placed in a plaster cast ring and placed on a grinding machine which grinds the wood to a super-smooth finish. It is then placed on a polishing machine which uses water and a very fine grit to achieve a permanent polish. The polishing process typically takes 8 to 10 hours.

Petrified Forest Park - Arizona

Imagine standing in a lush semi-tropical forest with a 200 foot canopy of conifers and tropical flora. Slow moving streams and swamps populated with fish, clams, fallen logs and reptiles moved like blue ribbons that drained into an inland sea. A range of volcanic mountains called the Mogollon Highland filled the southern skyline, the source of the streams and rivers.

It is a scene that is hard to imagine 225 million years later, when the land we see today is an arid desert scattered with wood that has since turned to stone. Petrified wood is real wood that has turned into rock composed of quartz crystals.

One of the greatest concentrations of petrified wood in the world is found in the Petrified Forest National Park in northeast Arizona. Logs as long as 200 feet; and 10 feet in diameter have been found in the park.

What turned the wood to stone?

Petrified wood has been preserved for millions of years by the process of petrification. This process turns the wood into quartz crystal, which is very brittle and shatters. Even though petrified wood is fragile, it is also harder than steel.

Petrified wood is known for its exquisite color and detail. Some pieces of petrified wood have

retained the original cellular structure of the wood; the grain can easily be seen. Petrified wood can be found throughout the desert regions. It is easy to find and identify. It is used often in jewelry making and for other types of decorative artwork.

What is petrification?

The process of petrification starts with three raw ingredients: wood, water and mud. Petrification of the wood found in the Petrified Forest began during the Triassic Period when the primitive conifers fell to the ground and into the waterways, entering into their journey through time. The logs were swept and tumbled downstream with sediment and other debris. The streams traveled through a plain of lakes and swamps where the wood, sediment and debris were deposited along the way.

Four hundred feet of sediment was deposited in the plain by the rivers that originated from the Mogollon Highland volcanic mountain range. That layer of sediment is known today as the Chinle Formation. As the logs were deposited in the plain they were buried with mud and debris, beginning the petrification process.

The mud that covered the logs contained volcanic ash, a key ingredient in the petrification process. When the volcanic ash began to decompose it released chemicals into the water and mud. As the water seeped into the wood the chemicals from the volcanic ash reacted to the wood and formed into quartz crystals. As the crystals grew over time, the wood became encased in the crystals which, over millions of years, turned the wood into stone.

How did the tropical forest become a desert?

The petrified logs were buried in the sediment for millions of years, protected from the elements of decay. During this time the plain was covered by an ocean and another layer of sediment on top of the wood-rich Chinle Formation.

It wasn't until 60 million years ago that the ocean moved away and the erosion process began. More than 2,600 feet of sediment have eroded to expose the top 100 feet of the Chinle Formation.

What makes petrified wood colorful?

It is not wood that makes petrified wood colorful, but the chemistry of the petrifying groundwater. Minerals such as manganese, iron, and copper were in the water/mud during the petrification process. These minerals give petrified wood a variety of color ranges. Quartz crystals are colorless, but when iron is added to the process the crystals become stained with a yellow or red tint.

Following is a list of minerals and related color hues:

Copper - green/blue
Cobalt - green/blue
Chromium - green/blue
Manganese - pink
Carbon - black
Iron Oxides - red, brown, yellow
Manganese Oxides - black
Silica - white, grey

Petrified Wood is a type of fossil in which all organic materials have been replaced by minerals. It is no longer actually wood, but is then considered to be a mineral and inorganic. "Petrified wood is the result of a process called petrification (or petrification), meaning 'to change into stone'." Petrified wood occurs with three major ingredients: wood, water, and mud consisting mainly of volcanic ash.

The petrification process occurs under packed mud when wood is buried under silicate sediment low in oxygen. This environment keeps the fallen logs from rapid decomposition. Mineral-rich water flowing over volcanic ash deposits minerals into the plant's cells and replaces the cellulose with quartz (SiO₂), turning the wood to stone. The original structure of the wood is preserved down to a microscopic level. Because of this intensity in detail, one can observe and conclude what conditions, landscape, and climate might have been like hundreds of years ago.

How long the petrification process takes is based more on conditions such as pH levels and temperature rather than time.

Petrified wood comes in a variety of different shades. Depending on minerals present.

Some ancient wood escaped the natural process of decay by being buried in sediments or volcanic

ash. In some cases, dissolved minerals seeped into the cellular voids and crystallized. The most common minerals were calcite or silica (SiO₂ silicon dioxide). When the cells of the wood have been replaced by the latter, they are said to be silicified or converted into silica. The result is commonly called "petrified" or "agatized" wood. The most important deposits are in the western part of the United States in Arizona, California, Oregon, Utah, Washington and Wyoming.

A variety known as **Texas Palm Wood** is found near **San Antonio** and **Houston**.

EDEN VALLEY WOOD AGATE Brown, Black, Mohs Hardness is 7 - SiO₂ silicon dioxide

The mountains south of the Lamar River in Yellowstone National Park reveal more than fifteen different forests of sequoia, pine, chestnut and plant trees, superimposed on each other in successive layers. The agatized wood from the Eden Valley between Farson and Lander, Sweetwater County, Wyoming was such a forest. Agatized portions are black but limb portions are perfect casts of the original twigs and limbs. Specimens of silicified wood from the Eden Valley, Wyoming are perfect casts of the original twigs and limbs.

DUBOIS PETRIFIED WOOD AGATE Blue-grey To Colorless Mohs Hardness = 7 - SiO₂ silicon dioxide

, A translucent blue grey calcedonic cast of logs, limbs and stumps from an area near Dubois, north of Eden Valley, Wyoming. Some exhibit iris when cut in thin slabs. Others contain dendritic inclusions of manganese oxides.

ARAUCARIOXYLON ARIZONICUM - Early Jurassic, Chinle Formation, Arizona, Most all (90%) of the medium and larger logs of petrified wood from Arizona are this species.

OAK - QUERCUS SP., Miocene, Columbia River Basalt, Deschutes River Canyon, Oregon

PETRIFIED WOOD

Petrified wood (from the Greek root petro meaning "rock" or "stone"; literally "wood turned into stone") is the name given to a special type of fossilized remains of terrestrial vegetation. It is the result of a tree having turned completely into stone by the process of permineralization. All the organic materials have been replaced with minerals (most often a silicate, such as quartz), while retaining the

original structure of the wood. Unlike other types of fossils which are typically impressions or compressions, petrified wood is a three dimensional representation of the original organic material. The petrification process occurs underground, when wood becomes buried under sediment and is initially preserved due to a lack of oxygen which inhibits aerobic decomposition. Mineral-laden water flowing through the sediment deposits minerals in the plant's cells and as the plant's lignin and cellulose decay, a stone mould forms in its place.