A GUIDE TO COMMON MINERAL FAKEs
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Okenite dyed with food coloring

Quarterly Magazine
the-vug.com
vol. 1 no. 4
Classic Minerals & Gold

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GOBIN

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It is hard to believe that you are holding a copy of this magazine in your hands right now. Brandy and I certainly didn’t expect to publish 4 issues of any magazine this year, but we really had a blast bringing these issues to you! The next year’s worth of magazines are already planned out, so keep watching for more great issues coming your way in 2009!

While Brandy and I work as a team to put these issues in your hands, we certainly did get some help this year and I wanted to take a moment to thank all of our behind the scenes people that, with their help, made my job that much easier!

First off, Brandy and I would like to thank all of the people who helped with articles, photos and with content in the magazine this year. John Cornish, Gail Spann, Kevin Dixon all helped me in several ways this year, from photos to ghostwriting articles, my deepest respects to them. All of our advertisers, because printing this isn’t cheap! My quite editors, Alfredo Petrov, Jasun and Mandy MacAvoy, and Christy Hirt. To all of our subscribers and everyone with faith in us and to all the positive voices - THANKS!
Elbaite on Lepidolite, 9.5 cm, from Barra do Salinas, Minas Gerais, Brazil. Jeff Scovil photo.

Daniel Trinchillo

Mineral masterpieces from around the world
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Nothing is more exciting about the mineral kingdom to the general public as Diamonds. Obviously, fraud involving diamonds is a popular enough topic that it fuels the basis of thousands of movies and stories. Fraud and Diamonds seem to run hand in hand.

The most common diamond scam is to sell simulated diamonds as the real thing. Of course, there are simple tests for this and in the market of natural uncut crystals, this doesn’t happen. Usually a diamond scam will not just be limited to a one time sale of a single crystal, it will be a slick talking swindler convincing multiple investors that diamonds are being found in an area by salting the area with diamonds and other associated minerals. Then he runs off with the investors money, never to be seen again!

There is even cases of Topaz being sold as Diamond rough, fooling diamond testers when the material is cold!

Panna Mine District India

Consists of several mines a few of which are huge commercially mined open pit operations producing thousands of carats per year!
Even when you see fakes on a mineral specimen level, typically it is a faked diamond on matrix. Diamonds are typically found in alluvial deposits, completely free of any matrix. So, having a diamond on a bit of matrix is a rare commodity and brings a higher price. The constant debate over Brazilian matrix diamond specimens is enough to drive one to madness! For each person who tell me that they know for a fact they are man made, another person tells me of a geologist friend of theirs who can verify the authenticity 100% without fail.

But, it is a rare thing indeed for someone to try and run a diamond scam that revolved around not the matter of the diamond itself, but rather upon where it was from.

In the spring of 2008 the various voices of the internet got together and discovered that someone had been taking diamonds from the Panna Mine in India and pretending to find them in Arkansas!

Crater of Diamonds State Park in Murfreesboro Arkansas

One productive deposit with a few smaller claims that are generally unproductive. Largest deposit is the state park, the only public diamond mine in the world, all worked by hand
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Why would you take a diamond from India and pretend it was found in Arkansas?

Arkansas boasts one of the most unique state parks in the whole world. A public diamond mine where, for a minimal fee, you can go and search for your own diamond. Of course, the chances of finding a diamond at the Crater of Diamonds State Park in Arkansas are remarkably low. Sometimes people can search for months on end and not find a single diamond, while some people get lucky and find one right on the surface. If you don’t want the public in on your find you can keep your find to yourself. But if you want everyone to know that it is a genuine diamond from Arkansas, a visit to the front desk and the park ranger will weigh the diamond and give you a certificate proving that your diamond is the real thing.

However, the Panna Mine in India is not a public mine, it is owned by a company who uses machinery to find diamonds, resulting in many more diamonds being recovered there over the Crater of Diamonds, making the supply of Indian diamonds larger and produced mainly for an industrial and gem uses. The people looking to buy a CoD diamond are looking for a keepsake, a souvenir or as a mineral specimen. Since the supply of Arkansas diamonds is so limited and for a specialty market versus the ample supply of Indian diamonds with a larger gem market, the prices of the stones are vastly different.

Panna Mine Diamonds sell for $100.00 per carat

CoD State Park Diamonds sell for nearly $2,000.00 per carat
Everyone was fooled...the diamond suppliers, Crater of Diamonds state park, diamond buyers and media outlets!

In October of 2007, a large diamond was found in the dirt where a man had stopped to take a break carrying his heavy buckets to the washing tables.

Isn’t that a nice story? It was so heartwarming that the find made not only international news via the Associated Press, but he was the subject of many interviews and radio programs.

It isn’t the park rangers fault they didn’t and very well couldn’t do their job verifying that this was an Arkansas diamond. It looks very similar!

A photo is worth a thousand words. The diamond certified at the Crater of Diamonds was actually a diamond sent from Europe earlier that month.
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And it would have been a perfect scam if it hadn’t been for you meddling kids!

If someone took a clean looking Panna mine diamond and registered it at the park, it would be hard to prove otherwise. But if you registered a couple dozen of them in a 4 day stretch, people really start to get suspicious. Naturally people wondered how someone could have such fantastic luck in one area, a known backfilled, barren area. This alone doesn’t make one a guilty party. However, if you were going to run a scam in which you would make international news, make sure you pay your bills. You see, the person who found that 3.93 carat stone on the previous page, well, he got several lots of diamonds on consignment from two dealers, one in India and one in Belgium. Both of them were all too happy to give us before and after pictures and invoices that indicated that the Crater of Diamonds was manipulated into certifying diamonds from the Panna Mine in India. Now that the gig is up, the scammer has closed up his website and stopped selling online!

Check for updates on FakeMinerals.com!

Get the REAL scoop on Arkansas Diamonds by expert Glenn Worthington!

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at the website WWW. DiamondsinAR.com
# Guide to Fakes and Forgeries in the Mineral World

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Elbait: the crystal is 7 cm long.
Paprok, Afghanistan.

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specimen preparation service now available
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Very little has been mentioned in the mineralogical literature regarding fakes, but the earliest reference is very old: Pliny’s Natural History, written around 70 A.D. According to Pliny, certain stones could be improved by the use of oil. About the carbuncle (red garnet) he wrote: “it is possible, they say, to heighten the brilliancy of dull stones, by steeping them for fourteen days in vinegar, this adventitious luster being retained by them as many months.” Furthermore, he added, “all precious stones in general are improved in brilliancy by being boiled in honey.”

The oldest fake we have been able to find is a specimen which is part of an artwork entitled “Moor with tray of emeralds” which was constructed about 1724 by Dinglinger and Permoser. The emerald matrix specimen in the statue is much older than the artwork itself. In 1581, when Elector Augustus of Saxony paid a visit to the Holy Roman Emperor Rudolf II in Prague, he was presented with a specimen of emerald crystals in matrix. The specimen had been found in Colombia, and presumably it had been presented to Emperor Charles V (who reigned from 1519 to 1556) as an indication of the riches of the New World (Heres and Kiontke, 1978). The sixteen emerald crystals and the matrix all appear to be Colombian; nearly all of the crystals have been manually implanted into crude holes carved in the matrix. The original piece of matrix had very few crystals in situ, and the donors apparently wanted to be certain the Emperor was duly impressed. It is quite probable, therefore, that this early fake was fabricated for political and/or economic reasons.

Another very old mineral specimen fake found during the course of this study is a pre-1812 specimen of Ilvaite which was part of the Seybert collection at the Academy of Natural Science of Philadelphia.

In 1894, Arthur Chamberlain and some friends began publication of The Mineral Collector, a monthly periodical for the mineral enthusiast. It was not until the February 1895 issue of The Mineral Collector that the first mention of fakes was made there, and then only as a small editorial comment. “mending specimens is legitimate, of course, but not with intention to deceive. It is, therefore, advisable to write on the label that the specimen is a mended one, even though one means to keep it for himself, because it will sometime come under the notice of careful observers” - The Mineral Collector, 1, 192 (1895)

In March, 1897, two articles were published; the first was scientific in nature, the second had definite overtones with regard to fakes.

Artificial Hematite Crystals
“A method of preparing hematite artificially is the work of Mr. H. Arctowski ... The crystals are of the same form as the hematite crystals from Elba.” - The Mineral Collector, 4, 10. (1897)

Artificial Auriferous Quartz
“The Imperial Institute, Edinburgh, has had brought to its attention some interesting phenomena relating to the method by which gold was originally deposited in auriferous quartz. On this occasion Mr. J. C. Johnson of Adelaide, Australia, who has given great
attention to the subject, exhibited specimens of non-gold-bearing stones in which he had artificially introduced gold in interstices and on the face in such a manner as to defy detection, even by skilled experts. Some of these specimens were shown privately to several distinguished geologists, who expressed great surprise at the remarkable character of the same. It seems that the discovery, some years ago, that gold could be induced to deposit from its mineral salt to the metallic state on any suitable base, such as iron sulphide, led Mr. Johnson to experiment with various salts of gold, and by which he found himself able to produce the most natural-looking specimens of auriferous quartz from stone which, from previous assay, contained no trace of gold: moreover, the gold, which penetrates the stone so thoroughly, assumes some of the more natural forms.” - *The Mineral Collector*, 4, 13. (1897)

The first really public admittance of the problem of fakes had to wait until January of 1900 for an article by W. S. Valiant, then Curator of the Rutgers College collection. We excerpt the following from his paper entitled “A Stony Sermon.”

“All collections contain more or less fake specimens- crystals from one locality stuck on to a matrix from another; a fine quartz geode with one amethyst crystal cemented in just right; artificial crystals put into natural rock cavities; massive minerals cut and polished in the shape of crystals; meteorites made in a blacksmith show; crystals cast in a mold and finished to imitate the real; glass models tumbled in a sand box to imitate water-worn gem pebbles; fossils carved from slate or limestone; rocks made with cement and stones; and fancy marble made by painting a slate surface.

“Such specimens are not rare, and many know that they have them, but the counterfeit is usually of a rare species, and they can not spare it. But we do not do it all; the Japanese, Chinese, Turks, German, French, and many others are not slow at it, and some call it art. Art is an imitation of nature, and often artists produce work of great value, but art is never nature, and had no place in a collection of natural objects- except, occasionally, to show the use of certain natural substances, as precious and semi-precious stones cut and polished.” - *The Mineral Collector*, 6, 173-177. (1900)

*The Mineral Collector* ceased publication in 1909. It was not until Peter Zodiac started *Rocks and Minerals* in 1926, that another mineral magazine became available to the mineral public. In 1927, Charles Hoadley offered what, for the time, must have been a blistering expose of fakes.

“Occasionally the collector is offered small loose crystals by the dealer, these may be kept in small vials or mounted on stands, made for this purpose. But I have known of unscrupulous dealers mounting or cementing a crystal in a matrix which is foreign to the species offered.

“Recently I had occasion to examine a specimen labeled topaz, Thomas Mt. Utah, on the matrix were three crystals of topaz and two were from Japan, one from Thomas Mt., but all three were cemented in place. - *Rocks and Minerals*, 2, 28-29. (1927)
Most mineral collectors are at some point enraged to discover that one of their acquisitions is a fake. Mineral fakery spans a very wide gamut of “arts”, ranging from simple repair of broken crystals, polishing missing crystal faces, “restoration” of missing chunks of gem crystals with colored resins, gluing crystals onto a matrix they had not originally grown on, improving the color with dyes or radiation, and even trying to pass off entirely artificial material as natural minerals - like cast gold crystals and nuggets, lab-grown sulphur crystals and silver wires, crystals of alum, copper sulphate or potassium dichromate grown from aqueous solutions... The catalogue of human artistic ingenuity grows longer every year. So why do the fakers do it? “Greed” and “Dishonesty” are the simple answers, but they don’t tell the whole story.

My own first encounter with faked specimens came at the Kami tungsten mine in Bolivia, well known for its abundant Japan-law quartz twins, often coated with a thin crust of greenish scorodite. These are usually loose with no matrix because, being attached to the rock at their narrow pointy bases, they break off too easily. On my buying trips to Kami I would remind the miners to treat the specimens carefully and try to save me some on matrix. One day my wish was fulfilled and I was offered a flat of good matrix specimens, covered with the characteristic green scorodite films. Not until I got home and started to clean them did I notice that the twins had been crudely stuck onto the matrix with sandy bricklayer’s mortar, touched up with greenish paint! Of course I was furious, and embarrassed at my own gullibility, and I chastised the miners with a merciless verbal thrashing on my next trip – fakers, liars, cheats, untrustworthy criminals! The response I read in their faces surprised me: not shame or defensiveness, but rather hurt and confusion. Turns out they honestly thought they were doing me a favor, providing the buyer with a product that obviously gave him pleasure – crystals on matrix.

On later reflection, why should they have thought any differently? None of them are mineral collectors; most of them have never even met a collector, so what do they know about collectors and their requirements? What does anyone in the world know about our collecting philosophy, or why we want to fill our houses with rocks? Serious mineral collectors constitute only an insignificantly minute fraction of the world’s population, and the vast majority of that population, even miners, mine engineers, geologists and quarry operators, understand nothing about why we desire to possess rocks in their natural condition. It is ironic that most good mineral specimens these days come from countries where the hobby of mineral collecting is just about unknown. The average
U.S. mineral club has more collectors than, for example, the entire continent of South America! The minerals are purchased from miners or local specimen wholesalers by retail or wholesale dealers from the USA and Europe. There is rarely any direct contact between “producer” and final “consumer”, the collector. Those Third World dealers who travel to Tucson or Denver themselves are rarely invited to visit a private collector and see a real collection. Most are quite ignorant about what a collection looks like and what collectors do with their purchases. They imagine that we use them as mere decorations, on the same functional level as flower vases and paintings of saints. In their view we should be grateful for the skill they used to make the specimen prettier than it was before, and indeed a great deal of practice and skill goes into many of these creations.

One comes across the same phenomenon on other continents too: Moroccans who fabricate a complete trilobite from a mere fragment, or the Chinese who with utmost skill and delicate workmanship glue cinnabar crystals into matrix, Rumanians who grow colorful water-soluble salts on limonite matrix... all continuing the 19th century tradition of Swiss strahlers, who hid their glue under tufts of asbestiform tremolite. In their minds they are not practicing deception, they are improving a product, creating customer satisfaction – free market capitalism at its best. Do I, personally, want this “improved” product? No, absolutely not, but you and I are part of a miniscule minority of the population: serious scientific collectors who want only completely natural specimens. The market does not revolve around us, nor should it be expected to. Since ours is the minority market, it is up to us (or our knowledgeable American retail suppliers) to check carefully what we are buying, and educate our foreign suppliers about exactly what we expect before we make a purchase.

Allow me to draw an analogy from a completely different field – Bakery products. I like my baked goods to have only natural ingredients, and I get highly annoyed when I discover that the flour is bleached and bromated, that the list of ingredients contains six synthetic chemicals, and the “currants” in my doughnuts are bits of apple soaked in blue dye! But the majority of the population doesn’t care. They are perfectly happy with their fake muffins. Do I have the right to get angry with the café owner because his menu didn’t warn me that the doughnuts are fakes? No – unfortunately the baked goods market doesn’t revolve around me and my desires. The law doesn’t obligate the café owner to warn me about the artificial chemicals in his doughnuts. It’s my job to check before I buy.

So, in summary, if a seller tells us specifically that a specimen is completely natural, but it later turns out to be “enhanced”, that would be unethical. But if no such claim was expressed, then... caveat emptor! And if you ever accidentally do buy a faked specimen, just admire it for what it is: a work of art.
Thorium-Free Monazite from Llallagua, Bolivia
In the past, fake minerals were typically the result of creative rock sellers producing a single style of fake for whatever regional mines had in the way of desirable minerals. They could sit in their poorly insulated huts and craft something out of mining by products that they could sell to some unknowing buyer; mostly tourists, but sometimes even the most alert of all mineral dealers! Of course, often the fakes are so blatant that they are bought solely as objects of art. The distribution and sales of fakes in the past was quite limited. You could see examples from the international dealers setting up at large shows across the world, sometimes unknowingly selling fakes to the buyers. Most dealers know but do not tell the buyers, leaving them to believe that these different craft items were in fact real specimens. There were infrequent fakes done in the United States, however they were quickly spotted and the results were quite well known. Slowly, as internet use spread across the world, international marketplaces spring up, and with them comes the new age of fake minerals.

The global marketplace lead to the eBay problem: with grainy photos and obscure descriptions, all sorts of fantastic new fakes were introduced online. Fake Zircons in every color of the rainbow on matrix, dyed Okenite specimens from India in every shade of the rainbow. Lab grown Chalcanthite, huge crystals sold without any mention to the buyer that these beautiful blue crystals are a product of man. It is the subtle lie, the unmentioned truth behind items that are too good to be true. Sellers from all over the world have found that online sales auction sites are great ways to sell obvious fakes at outlandish prices to an uninformed buying public. The rewards for the sellers who introduced new fakes to the market were remarkable. For the first few months the prices on the “Chromium Green Quartz” were astounding, simple lab manipulated Quartz selling for thousands of dollars. After a few years on the market, the buying public had grown to understand these were lab grown, the sale price for the same sized specimens was had for a small fraction of the price. Other examples mirrored that, such as the dyed Okenite scam. On the largest online marketplace, eBay, the flood of fakes from China was overwhelming. These sellers were bold enough to list blatant fakes as “featured items”, giving them maximum exposure over the huge novice audience.

What can be done? How many examples of fakes can actually be attributed to a misinformed seller? It seems like nothing can stop this traffic of fakes. In fact, it is a common experience for beginning collectors to buy one of these fake minerals, only to find out later that it is a case of “too good to be true”. Is it a good thing that we all share that experience? We can all work to educate the public about these scams and decrease the demand. But nothing is going to stop the next bright crazy colorful fake
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Robert Rosenblatt    rocko@catskill.net
You see citrine, the yellow variety of quartz, on sale in rock shops, museums, mineral shows, ebay, etc. It’s not expensive, and you might think it’s a pretty common mineral to be so readily available. After all, it’s quartz, quartz is a common mineral so it’s just yellow quartz, nothing to be concerned about, right? Wrong.

Citrine has been known for hundreds, if not thousands, of years, but real citrine is surprisingly uncommon. Most of the time when you find golden yellow quartz, the golden yellow is just a thin coating of iron oxides and hydroxides (ie rust!) that is easily scraped off or removed chemically, leaving ordinary colorless quartz underneath.

This brings us back to the question at the start: Where are all these nice citrine geodes that we see in the shops and on ebay coming from?

When you start asking you will find that the location is often given as Rio Grande do Sul in southern Brazil. That’s where all the nice amethyst ‘cathedrals’ come from. Amethyst, as you no doubt know, is a purple variety of quartz. Compared to citrine it’s relatively common - thousands of tons of it come out of Brazil alone each year. It’s found in volcanic rocks, filling the spaces that gas bubbles leave when lava cools. The crystals grow on the inside of the bubble cavities, eventually taking their shape. These are mined, cut open and sold to show the hollow cavity filled with crystals.

When you see the citrine geodes and compare them to the amethyst geodes, you might even think that they look identical, apart from the colour. They are the same shape, same crystal form, similar in almost any way. They are not painted - That would look silly. But they are fakes.

When I was a child, I bought a piece of citrine from a museum shop. It had nice golden orange crystals up to about 1/2cm and I was very proud of it. But something worried me. The matrix was white, and quite fragile.
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Small crystals kept breaking off the edges, if I dropped it it would shatter into a million pieces. The other quartz samples I had all looked tough. I even had the idea (silly as it seemed at the time), that the matrix the crystals were sitting on looked *baked*. Could they have done that? Well, Yes.

It turns out that the majority of citrine that you see for sale is amethyst that has been heat-treated. According to an article in the journal “Radiation Effects and Defects in Solids” (which I assume you all read regularly), amethyst from Rio Grand do Sul treated at 400 degrees C turns a yellow-brown colour. They suggest this is probably due to the formation of Fe2O3 (hematite) submicroscopic segregate crystals due to the diffusion of Fe ions and oxygen vacancies [Ref: Radiation Effects and Defects in Solids, Volume 117 pages 355-361].

So, here is what happens: Amethyst is mined on a huge commercial scale in Brazil. It’s quarried by hand from the basalt to bring out the geodes containing amethyst crystals which are then cut or broken open. Anything that is good quality gets sold as it is (after a lengthy clean), but anything with poor colour, where the amethyst is very pale for example, has less value, so they take that, stick it in giant ovens, and bake it into ‘Citrine’. Nowadays they’ve solved the stability of the matrix and they’re stronger and more stable than the fragile fake I had as a child, but it’s all created in the same way, by heating Amethyst and turning it yellow.

I can happily provide you proof courtesy of the Royal Ontario Museum in Toronto. In their basement they have a large piece of amethyst, except they’ve broken it into two pieces, stuck one in the oven for the appropriate amount of time (and no, I’m not going to give you cooking instructions; if you want to make your own fake citrine, figure it out yourself!), and then stuck it back together. Citrine on one side, Amethyst on the other. And they were kind enough to let me take this photo.

Many people don’t mind this origin, but you can now make an informed decision about what you want to purchase.

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The 2007 Sainte Maire-aux-Mines show was a great one for fakes. It seems the biggest perpetrators that year (and since) were the Romanian dealers. The first I saw were individual prehnite spheres glued to drusy quartz from Romania. In the same tent, an enterprising dealer with way too much time on his hands had made green spheres with white speckles on them from Fimo clay and glued them onto drusy white quartz. Fimo is a clay that once heated turns rock hard and is used by jewelry hobbyists. Even more boggling fakes were the blue glass and plastic rods, broken and glued to pegmatite matrix and sold as aquamarines!

The dealers had not even bothered to cut or polish the broken ends! The prize for effort expended goes to the fake quartz scepters. Someone had taken normal quartz crystals and ground/cut down the lower end of the prism to create a scepter effect. All of the newly created faces of the shaft section were then polished. The resulting scepters were then sold loose or glued onto matrix. Of course there were also many synthetic crystals, mostly colored alum for sale. Not all were marked as man made. All of these fakes are at once amusing and horrifying.
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FAKE MINERALS!
Howlite, while only found in a handful of locations, rose to become one of the ULTIMATE lapidary items of the 50’s-70’s Western United States. You can visit any old time ‘rockhound’ around California, Nevada, and Arizona and you’ll find an abundance of this soft, white and gray lapidary material. Surprisingly, it all came from one spot, Tick Canyon, less than an hour north of downtown Los Angeles. Even today, with an hour of picking off the roadside dumps you can fill a bucket of Howlite. Sometimes referred to as “White Turquoise”, this massive white mineral forms with layers of gray impurities, giving it a look similar to the ever popular traditional blue Turquoise.

So, with such abundance, someone figured that this material would take a pretty nice dye job! A brick of blue toilet cleaner in a bucket of Howlite and water would give you a rather convincing Turquoise replacement. A terror I have witnessed with my own eyes, Howlite has been dyed a myriad of colors, far too many of them have been neon green and hot pink. I believe it was due in part to the desperation that many Southern Californian rockhounds have, getting rid of all the Howlite they collected.

Something happened in the 90’s that stopped the free for all giant nodule collecting going on in Tick Canyon. Fences went up and the rich mine tailings in the canyon were closed off to collecting. Slowly the spheres and eggs of Howlite, the millions of slabs were sold or put into a dusty shed in the small fenced in backyard of a suburban Southern California rockhound. Howlite was virtually non-existent by the early 21st century and up sprung the next challenge to Howlite’s credibility, as if it hadn’t been shattered by dyeing it bright pink!

Howlite had a following. It had been described and prescribed by the metaphysical crowd and as if there could be a better cheap lapidary item, there was a need for Howlite. Since it only comes from Tick Canyon, a look alike was found in African Magnesite. Soft massive white with light gray streaks, this was a similar looking material, soon replacing all the needs for “Howlite” spheres, eggs, tumbled stones, and most importantly, skull carvings!

Natural Howlite has deep, dramatic gray webbing, along with inclusions of yellow Colemanite, which fluoresce brightly even when invisible to the naked eye. Clear lines and inclusions and a soft smoky gray color usually indicates that it is Magnesite.
Smoky quartz, both naturally and artificial, are products of irradiation. In 1963, I visited the Lewis Brother’s Grocery and Mineral shop. The most aesthetic light smoky quartz that I have ever seen was for sale. I was told that the piece was found on the north side of Lake Quachita in a rattlesnake den. Several trips and eleven rattlers later, I finished collecting the pocket.

In 1974, a Mt. Ida dealer reported that he had found a new deposit of intensely dark smoky quartz. I purchased the three best pieces, and, later, sold the pieces from “new find” to museums. The Mt. Ida dealer swore that the pieces were from his new mine in Montgomery County.

Oddly, a Florida dealer had a large lot of the same type of smoky quartz at the Corpus Christi Show. Ironically, I had sold him the quartz. He had irradiated the pieces and was selling them as natural smoky quartz from Arkansas at four times the normal price.

The intensely dark smoky quartz with good luster and a white base next to the crystals are almost guaranteed to be irradiated. The dark smoky quartz can be left in the sun for one to two years and can achieve a sunset yellow coloration.

There has been at least two finds of natural smoky quartz in Garland County. Both had extremely attractive transparent smoky quartz with longer crystals. The smoky color of the quartz extended to the base of the crystal and often has phantoms.

Magnet Cove has produced natural smoky quartz for many years. The quartz is dull due to etching and can be from grey to jet black. The odd coloration has been often called “coontail” quartz. The crystals are almost opaque and can be associated with brookite. Smoky quartz crystals up to two plus feet have been found.

Irradiated smoky is usually opaque, with good luster, dark black, and the crystals are white near the base. Natural smoky quartz from Garland County can have good luster, transparent, and are smoky near the base.

Magnet Cove smoky quartz are usually opaque, dull, and light grey to black. Natural smoky quartz often have phantoms and can have brookite associated with the pieces.

In the last 15 years, lower quality quartz have been irradiated. Because the pieces become opaque, aesthetic decorator pieces are created from the lower quality “junk” quartz.
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Carpe Diem! Seize the Day! Caveat Emptor! Yes, Buyer Beware! The annual Tucson show is a testament to the will of mankind. The positive efforts that so many honest, Tucson-bound miners, field collectors and dealers take to collect, clean, transport and sell mineral specimens from far-away places makes Tucson legendary! This epic gathering also attracts an insidious component of man. The dark side of Tucson is the occurrence of audacious scams that can and do occur. A memorable incident that directly affected my business took place back in Tucson, 2006, when John Cornish asked me to take a look at some big Gold specimens from Alaska that he was thinking about buying, but held reservations about. The specimens consisted of several large, river-rounded, white quartz boulders up to 15cm (6 inches) across with gray-black veins of schistose rock, and liberal amounts of Gold showing. From a distance they looked really nice. The host rock looked real enough, just as I would have expected to see from a large placer Gold specimen from Alaska. The $80,000 price tag for the lot was real too. John was told that there were many more “pounds” of Gold locked inside the Quartz rocks. When handed one of the specimens, the first thing that I noticed was the weight, or lack of, in the quartz. Yes, the surfaces were richly covered, but the promised extra density wasn’t there. They felt devoid of the heft of precious Gold. Skeptical, I pulled out a handlense and began a more thorough investigation. The sparkling metal on the surface was truly Gold, but there was no penetration into the massive Quartz matrix.

One final test was to take a dental pick and John was able to scrape the Gold right off. It then became clear that all of the Gold on the surfaces had been added on by an artistic fraud! The Gold had either been rubbed on, or meticulously pressed/hammered onto the barren Quartz one flake at a time. Vindicating John’s inner suspicions, the next day he told the man that he felt that the specimens were obvious fakes and advised him not to offer them to anyone else. The man got all upset, saying his specimens were real, and then left John’s room in a tantrum.

The next evening a strange man entered my Tucson showroom. Though I had never seen him before, he talked like he knew everyone and tried to convey that he had a good reputation. After an obviously rehearsed song and dance routine, he offered me the same fake Gold specimens! So, I played along, acting interested in the specimens asked him to come by in the morning, so I “could see them in better light”. The plan was to have a Tucson PD officer listening to the sales pitch from inside the bathroom and then have him arrested at the perfect moment. But, alas, the man did not come back, nor did anyone else see him afterwards. At least nobody got hurt, except for the feelings of the guy who thought we would fall for his obviously fake Gold specimens.
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For many years we were fortunate to have a good working relationship with a wonderful source of Brazilian cut stones. “Bob” was an engineer who, after a midlife divorce, did what many in his position do, or at least want to do. He dropped out—all the way to Brazil, after studying Portuguese and joining the Peace Corps. He fell in love with Brazil, and later on, with a wonderful Brazilian woman.

After his Peace Corps stint he knew he wanted to stay in Brazil, but he also wanted to be able to travel back to the states regularly to visit relatives and friends. The gem business seemed a possibly that would allow him to have his cake and to also eat it all.

Realizing that to be successful in such a specialized business he needed to know what he was doing, he enrolled at the GIA and became a quite competent gemologist. He also had come to know the ways of Brazil and Brazilians, so he also learned to be a very competent bargainer.

His favorite way of doing business in Teofilo Otoni was to go sit on a bench in the park with his briefcase on his lap. The briefcase contained his gemological instruments and lots of cash. He became a familiar figure, and after a short time runners would show up with stones, but “Bob” was well known as a shrewd and careful buyer who always held out for the best reasonable price.

One day a local cutter with whom he had done much business showed him this large, kite-shaped “dendritic” quartz. An initial price was quoted. To the Brazilian’s utter astonishment, “Bob” immediately purchased it without any semblance of bargaining. The Brazilian was dumbfounded, but quickly pocketed the cash and walked away in complete bewilderment. He could not understand what kind of arcane gemological point he had overlooked—after all he had chosen that piece of clear quartz, faceted it, sawed it in half along the girdle, painted on the “dendrites” with a pentel, and glued it back together. What could he possibly have missed? Unknown to him, “Bob” had a willing “pigeon” back in Berkeley who collected innovative fakes, especially if they involved quartz. To this day that “dendritic” quartz shares an honored place among a bevy of far handsomer and more valuable specimens of dendrites in quartz. It is kind of fun to watch a disreputable fake smirk.
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This is not Charoite. This is Fluorite.

When I used to work for a large wholesale mineral warehouse, the orders of tumbled and polished goods from China would include lots of items that were not actually the real item, but whatever their idea of that material looked like. Case in point, this new pile of D grade Fluorite from China, hand polished and sold as the popular, pricy Russian stone Charoite. The claim is that this material is from a new find in China, but clearly it is Fluorite. Not only does it match every possible physical attribute to polished Fluorite, it also shares the same hardness as Fluorite. Note the banding and the translucency. Charoite from Russia is certainly not banded. Every single person who knows the basics about minerals should be able to GLANCE at this stuff and call it out for what it is, Fluorite.

The disturbing thing about this material is that it is fooling so many amateur mineral and rock dealers. In the summer of 2008 I contacted every eBay seller and website owner who was selling this material and alerted them to the truth, every single one of them who replied told me that they were completely unconvinced that what I was telling them was true. This only speaks to the fact that they are uneducated in the basics of minerals. Tell everyone you know, there is no such thing as Chinese Charoite.
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In our opinion the quartz geodes from the High Atlas Mountains have provided some of the best “sleepers” to be found on the international mineral market over the last two or three decades. We have assiduously collected them because of the fantastic variety of quartz formations, including sometimes quite spectacular, if enigmatic pseudomorphs. For us the most intriguing are the sometimes quite large and often very sharp and attractive cubes which have traditionally been identified as after fluorite. We gradually developed the suspicion that this supposition was wrong and began to strongly suspect that the most probable precursors were calcite rhombs with angles closely approaching 90°. We carried on a friendly argument on this point with an “eastern” (eastern U.S. that is) collector who is very knowledgeable about both calcite and Morocco. It was a bit frustrating, but still fun, not being able to convince him of the correctness of our views.

One day, at the Tucson show, we ran into my old boss and mentor, the late Scott Williams. Scott had the most encyclopedic knowledge of mineralogy of anyone I ever knew, and I mentioned my “cubic” problem. Scott quickly said, “Of course, you remember that in the Atlas Mountains there are evaporite beds stratigraphically higher than the volcanics which host the famous geodes.” Of course, I did not even know that there were any evaporite beds in the Atlas Mountains, but I did not admit that to Scott. I had already lost enough points.

However, when we got back to Berkeley I checked our collection and sure enough in a number of our specimens there was clear evidence of cubic cleavage (a characteristic of halite, or common salt, the most important component of most evaporite deposits). We have relabeled our cubic pseudomorphs from the Atlas Mountains as probably after halite. That might not be right, but it appears to be a better guess than after fluorite or calcite.

The other “cubic” mineral sometimes found in geodes from the Atlas Mountains has a shiny metallic luster, is quite heavy, and very anomalous (but not impossible) as a densely packed lining of a quartz geode. This scam did not hold water for very long. The real market had been to tourists, especially Europeans, touring Morocco. Knowledgeable mineral dealers fairly quickly recognized that the cubes were galena cleavages glued in the geodes.

We have one specimen which was apparently an early effort, with rather coarse cleavages, sold to a tourist from Marin county at a roadside stand at a wide place in the road over the Atlas Mountains in the late 1970s. The cleavages are coarse and tend to fall out. We really prize a later example that has much smaller cleavages not only glued to the interior of the geode, but has the added refinement of galena cleavage covered “stalactites” of thin sticks glued in the cavity. It is a real work of “Art” and certainly attests to there being no lack of long cold nights in the wilds of North Africa, and some very innovative people.
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In the world of rock collecting, fossils have a long history of forgery and fakeries. Fossil forgery dates back to the 1700’s and earlier, but with the rise of the internet came the mass production of fossils in 2 major regions: China and Morocco. This guide will help you with identifying fake fossils from these areas.

**China:**
Fossil forgeries in China began in the late 1990’s and continue unchecked today. Some major discoveries, such as the Archeoraptor, eventually turned out to be fake. The following are common fakes you’ll see:

Painted Fossils: a lot of common fish and insects will either be covered by a layer of paint to look better, or be completely painted on matrix. If it looks painted, it is.

Kiechousaurus: these appear as swimming reptiles on dark matrix. Some are real, but most on the market are made from molds or assembled from bone bits. If you see these on mass, avoid.

Plaster fossils: fossils including mammal skulls, fossil turtles, reptiles, and dinosaur bones, are partially or completely made of plaster. If it feels like plaster, it is.

Dinosaur Eggs: if you see any for sale in China, they’re fake. They’re rounded rocks or plaster. If you see one somewhere else, pick it up to check the mass; dinosaur eggs are always heavy.

Birds: essentially all bird fossils that have come out of China are clever fakes. They’re made of fossil bones from other creatures, or even modern birds, and made to look fossilized. Then feathers are carved or acid etched into the matrix. Avoid all bird fossils from China.
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When a fossil in Morocco is found to be popular, the workshops there will begin mass production of it within weeks. Morocco is great for fossils; just make sure they’re real. Fake trilobites: there are many fake trilobite types; ones made of resin on matrix, ones partially real and partially carved from rock, ones entirely carved from rock, etc. If you see several that look the same or if the surface of the trilobite looks porous; it’s resin. If there are a dozen trilobites on one plate; it’s a composite. If it’s too good to be true; it’s not. Mosasaur jaws: almost all jaws with big teeth in matrix are fake. Check closely and you’ll see that the teeth are glued in, or the jaw is fake, or both. Real jaws are extremely rare and not available for less than 4 figure. Same for spinosaur jaws. Fossil scorpions and oddities: all fossil scorpions from Morocco are fake, along with bright red trilobites, octopi, frogs, and random things in stone. They’re made of plaster, resin, or plastic, and then set in limestone.

In conclusion: Remember to always examine fossils carefully and buy from a trustworthy dealer. Make sure your dealer will stand by his fossils and offer returns if the fossils turn out to be fake.

If you have a photo of a fossil you are questioning send an e-mail to Yinan Wang at veomega@gmail.com
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Back in the middle of the 1980’s Victor Yount was the man to see for fine Moroccan minerals. Constantly on the ground, Victor had brought back some very fine red Anglesite specimens in the past, however when he first saw a new colorful example of this material with fellow dealer Abder Akhman they both thought these new ones were fake. Abder told Victor to take a piece and get it analyzed. He later visited Abdel Kaber and saw another batch of specimens that looked outrageous so he took one and stuck it in some water to see if it was a dye job, but it was not. As Victor traveled to the open air markets he picked up quite a few of these bright red Anglesite specimens and brought them back to the United States for the Tucson show. A phone call from Achem Karl confirmed to Victor that these were indeed faked minerals, enhanced by a simple chemical reaction! Turns out that Anglesite, Wulfenite, and Cerussite will turn bright red when they are dipped into bleach. One of the dealers confessed that he had taken some Galena included Anglesite crystals and put them into bleach to lighten them up. When that dealer saw the bright red color it produced he knew he had found a money maker!

The combination of bleach and Anglesite produces a coating of the mineral Minium, an orange alteration product of lead containing minerals. If the bleached specimen is placed into the sunlight, it will slowly fade back to nearly colorless and these bleached specimens all start to lose their color over time. This photo below shows an Anglesite that has lightened over the years.

A few mineral dealers got stuck with large losses after getting tricked into paying high prices for a very flashy mineral, one that was just too good to be true to nature!
There is nothing worse than getting home and finding out the specimen you just bought is faked, lab grown, repaired or enhanced in some way and not disclosed before purchase. Sometimes the dealers you buy the specimen from don’t even know it themselves. Sometimes they do, but that is a different article for another day.

This piece photographed on the right has a stunning 2.4cm Emerald on some fabulous Calcite matrix from Muzo, Columbia. Too bad it has been manufactured. It is a real Emerald and real Calcite matrix, both from Columbia, but that Emerald did not grow there as a result of taking orders from Mother Nature. It was glued in there by a money profiting entrepreneur.

So what can you do to protect yourself from acquiring such a piece of rock art? The first thing is to buy a black light as most glues fluoresce. If you want to take it to the shows you’ll need a battery operated one. As you can see in the lower picture there is a small light green ring around the Emerald. That is where someone crushed up a bunch of Calcite from the matrix and mixed it with the glue to help hide the artist’s work. You can also use a loop to look for the little glue globules that will show up around the base of the Emerald where they packed in the Calcite. If you find what you think are glue globules you can heat up a needle. If it’s glue they’ll melt a little and the needle should slide in pretty easily. If you are still unsure and want to give it the ultimate test. Drop the specimen in a small tub of Acetone. Warning! If you have glue on your specimen it will probably fall apart on you as this will dissolve the glue. Returns are unlikely after this step.

The most important way to protect yourself is to ask questions. You may not want to imply a dealer’s specimens are faked or glued. If you ask if the Emerald is real, they will say yes and not have lied to you as the Emerald is real. You didn’t ask the right question(s). But if you make sure the dealer has a good return policy and most any reputable dealer will. Then you can always return it if your investigations turn up a newly acquired piece of art. So make sure you ask the question, what is your return policy?

There’s one more thing you need to look out for or at least expect when buying Emerald specimens. For a long time the gemstones in Columbia have been dumped in to big pressure cookers or vacuum chambers and heated up in Cedar Oil. This oil has the same refractive index as Emerald and replaces the air inside the cracks. Air reflects light and you see white. The oil allows the green to come through. Well they are doing it to specimens too, and have been for a while. I don’t have a fool proof method for catching this but if you look into an Emerald with a loop and look inside some of the internal fractures you should see rainbows if it has been oiled. Other things cause rainbows as a rainbow is ultimately the result of dispersion of white light. But it is a good sign the specimen has been oiled. But again, it is not fool proof.

So remember, a black light, a loop and a good return policy and you should be ahead of the game in the world of “Enhanced Emerald Specimens.”
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Obsidian does not come in Red, Green, Blue or other colors and typically, it does not look like slag glass.

About this piece of red man made glass in the photo above. A woman showed this to me, she had been given this as a gift from an indian healer. It was said to be a piece of natural obsidian passed down from his ancestors. In reality, it was just a chunk of colored glass.

There is an unlimited amount of people who want to believe that Obsidian comes in every color of the rainbow. Sadly, a quick glance on eBay shows hundreds of fake Obsidian items, in bold blue, green and yellows, all just as translucent as any glass sphere. Not only can you buy dozens of spheres, there are carvings, cabachons, and all sorts of lapidary items. Because it is all just man-made, mass-produced glass! While there are some shades of grey and brown that look faintly green and red, there is nothing in nature that looks like that red glass chunk above!
Scepterguy

... mmm, candy!

cascadescepters.com
Okenite is a wonderful mineral that is found in the basalt deposits of India. Very popular in the late 70’s and 80’s as a “Pet Rock”, these furry tufts of crystals are flexible enough to stand up to being touched.

In 2002 the first brightly colored Okenite was spotted on eBay. While every single Okenite found was white, these were bright yellow, green and red. The first few months these large matrix specimens commanded large prices; while a standard cabinet sized Okenite should run around $200, the dyed specimens were selling for sometimes over $1000.00 US.

All they do is take some food coloring and water, mix it up and touch it on the Okenite. It will absorb the coloring into the crystal within seconds, leaving the rest of the matrix natural. A simple scam, added to the fact that nobody admitted it for years. You can still find it on eBay every month.
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Hofbräuhaus - Platzl 9 - famous beer hall, the royal brewery, built 1607 by Maximilian I

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