



THE "NEBULA:" AQUAMARINE CRYSTAL WITH MORGANITE CORE &amp; INTERPENETRANT LEPIDOLITE

# Secrets of Fine Mineral Value: A Primer on Buying Successfully

(Or: How to get a grip on the Greatest Collectible on Earth)

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## Introduction

I attend a lot of club meetings and mineral shows.

Without a doubt the most asked question posed on these occasions is "what is this?" followed only shortly by "what is it worth?" I am writing this article with a goal to help the average collector understand the market, value, and the factors of value so that they can buy with confidence and love their pieces knowing that not only is their collection beautiful and rare, but that it is also a store of value rewarding the collector for all the knowledge, effort, and sacrifice that went in to building that collection.

The adage within the mineral community is that the subjective value for any particular specimen will vary dramatically between even assessments of experts, but that their opinions of value will converge across many pieces valued at once. This means that while expert appraisals of individual pieces will vary widely, the total of their appraisals will converge for the same set of pieces.

Many people know this hackneyed bit of wisdom, but no one ever asks why this is true. How is it true that appraisals can vary so widely for individual pieces?

The answer has two components:

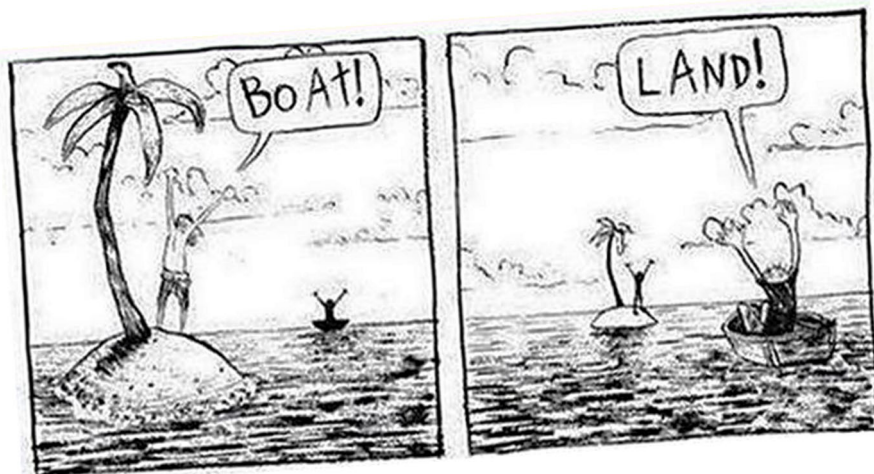
- 1) The fine mineral market is vast, opaque, and not efficient in its pricing of pieces; and
- 2) No one has ultimate mastery of the knowledge of fine minerals and it is in fact impossible to exhaust one's opportunity for advancement in mastery.

A humorous hubristic assertion of certain "upper echelon" fine mineral dealers is that they have "control" of a certain

production area of the earth or that they have a certain country "sewn-up." Saying one has China "sewn up" or even that I "see every mineral" is an absurdist's assertion. This is not to say that they don't have good placement in the supply chain but they are almost always far from the titans they suggest they are.

Think about the United States of America: how difficult would it be to know all the minerals discovered yesterday? How many contacts would you need to control production from the Yukon, to Arizona, to Maine? The point to remember is that the world is vast. There have been and are well over 100,000 fine mineral producing localities. This same fact gives rise to inefficient pricing because the forum is too large to control and even too big to know. Incomplete knowledge and pricing inefficiency is the result.

Two experts may disagree widely on their opinion of a piece's value because, although they both have 40 years' experience in fine minerals, their expertise has varying depths in varying topics.



**Example:** Say for instance that Expert A has a strong market knowledge of where fine mineral pyrites are selling in terms of size, condition, and aesthetics. Expert A may look at a pyrite in question and say, “well this is a middling piece, cabinet size, and with typical crystallography. I have recently seen pieces in this category offered and sold for between \$500 and \$1200 dollars.”

Now, Expert B might look at the same piece and say, “this piece was discovered by John Medici in 1990 and was kept in his collection until 1995; then it went to the Smithsonian. In 2001 it was traded into the collection of John Barlow. It is from the Washington State Spruce Claim and rates as one of the finest pieces ever found from there. I’ve seen Spruce Claim pieces recently sold below this quality for \$10000 - \$12000. Thus, it is worth \$12000 to \$25000.”

Consider how different the result is while both opinions are honest assessments. Knowledge makes the difference. To borrow a saying from both gamer parlance and my wife, “knowledge is O-P<sup>1</sup>.”

Whatever you take away from this article be encouraged to study fine mineral books, crystallography, geochemistry, mineralogy, and the history of collections and mineral producing localities. As you learn more you’ll see more and your ability to assess the quality of pieces and whether they are a “steal” or not will grow proportionately. Knowledge is the most important aspect of mineral collecting but it has so many facets that you can tailor your approach to your likes, patience, and personality. That is the wonderful thing about a collectible with such a huge amount of angles of appreciation.

Despite this the knowledge of the beholder is not the only factor influencing value determinations. Another major component is what portion of the addressable market a piece is being offered in.

## Market Matters

For simplicity and brevity, I am going to only address the US market here.

The Tucson Gem and Mineral Show is the most important show for fine minerals on earth. I typically think of the annual Tucson Gem & Fine Mineral Show<sup>2</sup> as the All-Star game for fine minerals and gemstones. Now the Tucson Show has wholesale lots and dirty new finds in carparks too, but I’m only addressing single specimens for sale at the major venues. Particularly, the “Main Show” and Westward Look Shows are the



**Figure 1: Between 2013 and 2017 Milpillas Mexico produced the finest azurite specimens ever found on earth but value consistently fell through its bottoming in 2018 because the volume found was greater than what the market at the time could possibly absorb. It took until 2023 to clear this excess from the market and now Milpillas azurite value is escalating rapidly. Private Museum Collection.**

pinnacle for fine minerals in terms of both quality and price. It is here, after traversing many miles, hands, and wallets, that the finest available make it to shelves of prominent dealers to compete against one another for sale. But at what cost? The very highest.

The next market is a step down from the Tucson show and would be the regional type shows like the East Coast Show, Houston Show, or Los Angeles Show. Think of these as the playoffs for fine minerals. There are 7 – 12 such shows annually in the us.

Beneath this we have regular league competition (the local shows), which is every other club show numbering about 1000<sup>3</sup> each year just in the USA. Here piece quality is lowest on average versus Tucson or the regional shows but then so is price. It is very possible to find a wonderful, beautiful and desirable mineral at an exceedingly low price at these little shows. Take a look at figure 1.1 to see how price moves from show to show. What is really happening here is that hours and hours of skill are being spent reviewing pieces for quality and as the shows get bigger the quality escalates rapidly and with it the prices.

The final market we will talk about here is the sub-local market which is all the rummage sales, estate sales and rock shops occurring everywhere all year long. Finding great hidden rocks this way is a slog with hit or miss type action as far as one can stand it. You could find a million-dollar fine mineral being offered for \$10 at such an event but the chance of it is small, and you have to know quite a lot about what you’re looking at, and you very well might spend a million dollars in gas finding that special rummage with the hidden Holy Grail mineral.

Consider that this, all of this – the grand exhibitions, the regional shows, the local shows, and sub-local bazaars – are happening simultaneously in many other countries too: like Germany, the UK, Poland, China, India, etc. You can begin to get a real feel for the scope of it. No human could ever go to all these shows and look at every mineral.

The takeaway is that the more you know and the harder you work, the less you will pay for comparable specimen quality.

## Fundamentals of Value: External Forces

There are two factors that determine the value of fine minerals that have

<sup>1</sup> “OP” stands for “over-powered.” Typically, it describes a skill, profession, or ability that ruins an electronic game for everybody else. In this usage it means “knowledge makes one dominant and disproportionately advantaged.”

<sup>2</sup> The “Annual Tucson Show” is really a misnomer because it is 50 some odd shows occurring at once over a 2-month period in January and February. Fine minerals represent only about 10%-15% of the total Tucson offerings which include such treasures as pearls, beads, boxes, facet rough, loose gemstones, commercial

jewelry, scarves, birdhouses, high end jewelry, photo and lab services, lapidary stone, agates, slabs, glass, ceramics, quartz bathtubs, petrified trees, fossils, décor-de-nature, and the perennial geodes approaching 20 feet tall. About 50% of total business in Tucson is wholesale commercial trade with several shows requiring business licenses to enter.

<sup>3</sup> I asked Chat-GPT how many shows there were in the US each year: it said “500-1000.” I went with the high estimate.

little to do with any particular mineral specimen. These I call “external forces” because they are generalized forces in the marketplace.

### 1) Supply

- A.) Mine Status: if you are able to identify the mine that a specimen came from then you can know the status of that mine<sup>4</sup> and it is enormously helpful in helping to determine how “deep” you should go and when. Mines that are “extinct” or “mined out” are not going to produce more specimens in the future so naturally these should command a higher price.<sup>5</sup> If production is currently occurring then prices will typically be suppressed, and selection will be at a maximum.

Notice: Be wary. Sometimes closed mines will be being prepared to reopen and in the leadup to new mining you’ll see the old great things from that mine come onto the market trying to get their price before new production hits.

- B.) Production Cycle: The production cycle for a specimen producing mine is such that early enthusiasm can quickly be drowned in a seemingly never-ending supply. These are among the best times to buy as the over-abundance of specimens means maximum selection opportunity and the lowest price. While the market can absorb a huge amount of material the appetite of collectors can be completely swamped by supply. Good examples recently are Elmwood and Sweetwater calcites, Gordonsville and Elmwood fluorites and sphalerites, Moroccan cerussites with barite roses, and Milpillas, Mexican azurites and malachites. Just a short time ago it was hard to give away an Elmwood calcite and a large, very fine specimen on matrix could be acquired for \$100. Today, just three years later, that same specimen might sell for \$1000 - \$5000. Buy when everyone else is sick of something, buy the best available, and wait. Time will pay dividends.

Once price bottoms and supply is at maximum, there is often no longer an incentive for miners to keep mining. Mining efforts are abandoned, and the mine is allowed to fill with millions of gallons of water. Once flooded supply is ceased, even if still technically present, and the market supply will wane.

As prices rise the incentive to reopen the mine increases along with price and eventually, the mine will be pumped dry, and mining will resume. Try to sell locality pieces upon news of efforts to reopen such a mine.

Particular localities are mined exclusively by dealers or dealer-sponsored entities. In these cases, those dealers will control price and availability and your goal should be

either arbitrating price differences between old pieces<sup>6</sup> and their new production or buying from them directly.

It’s worth noting that if the mineral in question is one produced in an oxidation zone from infiltration of meteoric water (such as cuprite, azurite and malachite) that the production zone is usually not very thick, and the best production tends to occur at the beginning of mining.

### 2) Demand: Tastes

The tastes of the market are a bit fickle but over a longer period than most things. Just 10 years ago the phosphophyllite was emulated like a star among fine minerals and yet today the number of collectors who know what phosphophyllite is has dwindled to the point where people don’t even remember what a phenomenon it is anymore. In a sense phosphophyllite has become a victim of its own success which has priced it into orbit and out of view.



**Figure 2: Phosphophyllite is an ultra-rare phosphate mineral with the best having been found in Bolivia at the Unificada Mine in 1967 – 68. Pictured here is a gem quality phosphophyllite crystal purchased for \$285,000 in 2015 and appraised at \$750,000 in 2018. And yet, qualified buyers for such a specialized item are few and far between despite the quality, rarity and beauty. Sometimes, a lack of market knowledge creates a hurdle with exceedingly rare and exceptional things. Things can fall out of favor as tastes change. GPRE Collection.**

<sup>4</sup> Typically, dealers will know this information and if not, many leads can be found on Instagram and Facebook these days as nearly everyone shares everything in their lives. The secret to success will be networking and using proper keyword searches we bring you to the miners themselves.

<sup>5</sup> Some mines while they may not be extinct are practically extinct in that they have been included within national park boundaries or covered over by real estate

developments. Keep in mind that, although a mine may be mined-out, there may still be a tailings pile of some size that people might occasionally work and by this path even long extinct mines might produce specimens from time to time.

<sup>6</sup> “Old pieces” meaning those specimens produced in years before that dealer took over production and supply.

At times, major dealers will intentionally work the hype-machine to build enthusiasm for a particular mineral from a particular place.<sup>7</sup> It is natural that as collectors read about certain minerals or localities it stirs something in them to want such a piece and raises demand. Industry periodicals like the *Mineralogical Record*, *Rock N Gem*, and others perform this function. Sometimes dealers will buy up all available specimens from a locality when they get advance word of what a feature article is going to be about. Other times they themselves are the authors of such articles. Demand generated in this way peaks early and persists for decades depending on the amount of supply.

Certain species with long historical productions are always in great demand: namely, emerald, aquamarine, rhodochrosite, diopside, tourmaline, morganite, heliodor and pyromorphite. The market has always seemed to eat as much of this material as one can throw at it. Presumably, this is in part due to the beautiful color of these minerals.

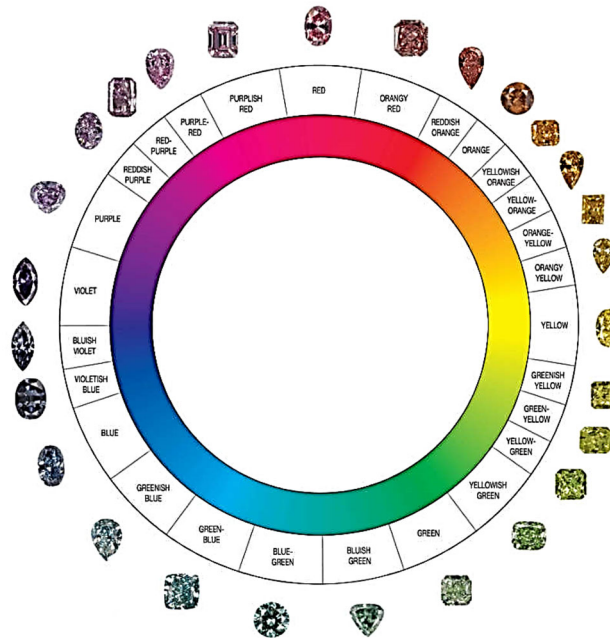
Until recently the mineral collecting community kind of looked at thumbnail collectors as a sub-population of fetishists.<sup>8</sup> Beginning around 2020 however, with the rise of very prominent thumbnail collectors and the highly marketed sale of quality thumbnail collections built over decades, the mainstreaming of thumbnails became complete. Today, thumbnails are highly popular and can cost up to \$100,000 even for pieces less than 4cm. This is ironic because the thumbnail community itself was burgeoning because of the financial accessibility of the pieces which now, because of their own success, are priced where cabinet sized specimens were just ten years ago. I expect this trend to continue.

Let's talk about repairs and laboratory work. Prior to 1995 fine mineral repairs and laboratory preparation were viewed as some kind of "evil black magic akin to thievery." To say it was frowned upon would be an understatement. However, as time went on and the buying community slowly embraced repairs and preparation (especially for Colorado amazonites with smoky quartz and for Pederneira tourmalines)

## Fundamentals of Value 1: Assessing a Piece – Five Basic Objective Characteristics

The objective characteristics that determine value are the following:

- 1) Color
- 2) Luster
- 3) Size
- 4) Sharpness
- 5) Condition
  - A.) Damage
  - B.) Restoration or Enhancement



**1. Color:** Unless you have a color vision deficiency, color identification is one of the most natural mineral characteristics to identify. Regardless of species, bright full colors characterize high value gems and minerals alike. The highest value minerals tend to be red, teal, royal blue, kelly-green, orange, and yellow.<sup>9</sup> When you think of color you will think "hue" which is a certain wavelength or series of closely related wavelengths on the optical electromagnetic spectrum. The goal in finding the best color is to match perceived color to the color wheel as closely as possible or be a bright, full, vivid other color.

However, color is also saturation and value and here's how they affect color desirability.

**Color Saturation:** Saturation is a three bear's story. Saturation is the degree to which a color is "full." It may be light, medium, or high (and slightly higher than medium is "just right" sweet spot. A light hue is something akin to Pakistani aquamarine, where the color is blue but so light as to make winter sky look darker. It



<sup>7</sup> ... which, invariably, they just happen to have stockpiled in their storeroom.

<sup>8</sup> The mineral collecting community in Japan has long been collectors and appreciators of small things overlooked by the west. In Japan, thumbnails have long been the dominant type of collector.

<sup>9</sup> Typically, also in that order where red minerals are generally the most expensive, followed by teal, and so on.

is color with wispieness. Conversely, a heavily saturated mineral, while of a pure hue then backlit, will appear black with front lighting at arm's length. This is too dark. The perfect saturation is one that holds its vibrant color even in a room's ambient light. The sweet spot tends to be between 60% - 70% saturation. The effect on color can be dramatic with a medium saturation fluorite selling for 10 to 20 times the price of a heavily saturated one. Keep this in mind.

**Color Value.** The final aspect of color for consideration is "value." Value is the degree to which grey undertones are mixed in with hue. Colloquial words describing color value problems might be the adjective "steal" or "stealy" as in "a stealy blue." Gray undertones have an inverse relationship with hue vividness. Ideally there will be no gray undertone at all. Select to minimize gray undertones in color wherever possible. Note: gray undertones can also make colors appear brownish when really it is gray undertones causing the brown appearance.

To summarize, minerals of the highest value will be pure colors of medium 65-70% saturation (vividly colored in ambient room light) and lacking grey or brownish undertones to that color.

Note: different minerals have different degrees of difficulty in achieving perfect color. Wulfenite for instance tends to be more vivid by its nature (although surely pale wulfenite exists) and typically wulfenite also resides in the sweet spot of saturation with its color vivid in regular ambient light. Where wulfenite is usually easy and forgiving, fluorite occurs across the spectrum and is quite difficult to find in optimal color, saturation, and value.

**2. Luster:** There are debates among established dealers over whether color or luster is the most important quality in fine minerals. So far the matter is undecided. What is agreed, however, is that luster tops the charts of things that determine value of a particular specimen.

By the book, luster<sup>10</sup> is best represented by its Merriam-Webster verb definition: "to have luster: gleam." There is a historical list of words used to describe luster in mineralogy and it has never struck me as very helpful. The historical categories are: metallic, submetallic, adamantine, glassy, resinous, waxy, pearly, and dull. It is much easier to think of luster as having three major categories: wet-luster,<sup>11</sup> candy-luster, and no luster.

Lapidary artists can polish, at a maximum, to about 200,000 grit. That's 200,000 diamond grains per square cm. Nature, however, is unlimited in its ability to "polish" and can make a smooth surface down to the molecular or atomic level. This is orders of magnitude better than what humans can achieve. The rare specimen will be so lustrous as to appear wet and they may even feel slippery and hard to hold. I can count on one hand the number of crystals I've ever seen with this extreme level of luster. For most purposes if the crystals appear to be wet then you have extremely high luster. Be careful because an unscrupulous practice in Brazil, Pakistan and China is to sell minerals online after applying oil to their surfaces so that they appear to have wet-luster.<sup>12</sup> But it's just the oil. Don't be fooled. Wet-luster is rare and you should buy whatever you find with wet-luster that is an undamaged piece.

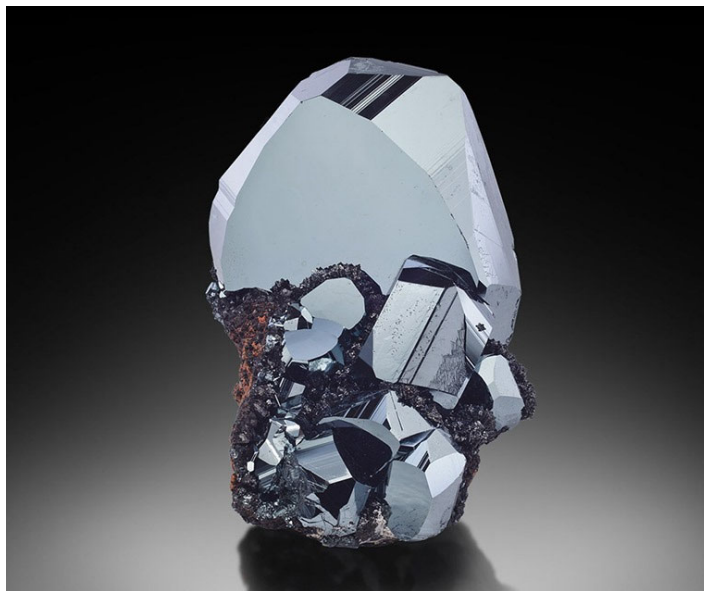


Figure 3: On this hematite from south Africa one can actually see themselves in the reflection from the crystal surface. Note how the photographer has had to tilt the crystal away from the camera to avoid capturing his own image. For metallic specimens, mirror luster is the best and equivalent to wet-luster for non-metallic specimens. Notice that the crystal edges are very sharp, that the largest crystal is prominently placed (a "focal crystal"), and that the orientation of the piece provides an aesthetic form. Private Collection. Tom Spann photo.

Slightly below wet-luster is candy-luster. Candy luster<sup>13</sup> is best thought of as the sheen on a peppermint candy cane. The surface may be shiny



Figure 4: This naturally dissolved heliodor from Ukraine is a good example of inconsistent luster on the same piece. While many surfaces are wet-luster some such as the dissolved pinacoid(?) termination is candy-luster. Private Museum Collection. Tom Spann photo.

<sup>10</sup> Weird people might spell luster "lustre" just to show off something about themselves.

<sup>11</sup> Dealers in China will occasionally use the formal "vitreous luster" when selling "wet-luster" specimens.

<sup>12</sup> For metallic specimens, substitute "mirror-luster" for wet luster.

<sup>13</sup> I originally learned this term from fine mineral dealer Jordan Root who specializes in fluorite.

and glassy but only from certain angles whereas the wet luster is from any viewing angle whatsoever. Candy-luster is much more common than wet-luster but it is superior to no luster. Keep in mind that candy-luster, just like wet-luster, is actually a range of lusters and some candy-lusters are better than others.

Unfortunate crystals may lack luster altogether. Their surfaces do not shine in any orientation and the appearance is often dull, rough looking, and obscuring to any interior space of the crystals.



**Figure 5:** This fluorite from Berbes, Asturias, Spain, shows a low candy-luster to a dull luster. Notice that the specimen suffers from a lack of definitive orientation, discoloration, faint rather than distinct phantoms and many non-sharp edges. A video of this piece and its luster can be observed at:

[https://www.spiriferminerals.com/product\\_15455\\_Fluorite.html](https://www.spiriferminerals.com/product_15455_Fluorite.html)

Sometimes, lusters do not match on the sides of a crystal (see Figure 4). One side could be wet-luster while another is no-luster. It is inferior to have one wet-luster face as opposed to all wet-luster faces. But if the best and most aesthetic viewing angle of a specimen is wet-luster then that is the descriptive luster and value to use.

We'll talk more about viewing angle further on.

**3. Size:** Generally speaking, the larger a crystal is the more it is worth, to a point. A crystal can be so big as to be unwieldy and require a forklift. If you can't move it around by carrying it around then the number of buyers will be small. These pieces tend to be unmarketable except for commercial and institutional purposes.

**There is a difference between piece size and crystal size.** Descriptive size categories in fine minerals are broken down according to specimen size: not crystal size per se. SO, let's talk about specimen size first.

Specimen size can be broken down into the following classes: monument (the forklift ones), museum, large cabinet, small cabinet, miniature, toenail, thumbnail, and micromount. "Museum" is 24cm to 120cm. Large cabinet are 12cm – 24cm. Small cabinet is 5cm – 12 cm. Miniatures usually will fit in a 2.5inch cube or measure at their greatest dimension no more than 5cm or so. A "toenail" specimen is an informal designation meaning that the piece is slightly too large to be considered a thumbnail

specimen and slightly too small to be a miniature. Toenails are "in-betweeners." Thumbnails are 1 inch or 2.54cm in their greatest dimension. Thumbnails fit inside 1.25 inch plastic "Perky Boxes." And finally, regardless of the size of the matrix of the piece, any crystal that requires magnification to be seen is a micromount. Another name for micromount specimens is "arrow-rocks" because they might typically have an arrow sticker pointing to the invisible area of a specimen where the micromount crystals reside.

Ok. Crystal size. The bigger a crystal the more it is worth. But if it is big and lacks all the other qualities that signify value then the size alone does not make it worth much unless it's the biggest known crystal of that species on earth. Big crystals are rarer than small crystals. So, if a large crystal has the same properties of quality as a small specimen, then the large crystal will be worth exponentially more (not linearly more) because large crystals are exceedingly rare in ultra-fine quality.

Also, crystal size means different things for different species. It is not at all uniform. For instance, a lironite crystal from Cornwall would be shocking, desirable, and massive at 5cm. No such crystal is known to exist. Typically, they are 0.8 to 2.5cm at most. But an aquamarine crystal of 12 inches (30cm) would not at all be shocking because beryl crystals up to a 100 meters have been found historically! The best way to understand how crystal size effects value is to give yourself a primer by looking at as many specimens of a certain species as you can in a short amount of time. The regional mineral show, Tucson, and the internet make this easier than ever.

**4. Sharpness:** All crystals crystallize in one of the seven crystal systems. A great place to peruse them is at [www.smorf.nl](http://www.smorf.nl). Crystallization can produce razor sharp or rounded indistinct edges. The sharper the crystallization the more valuable it is. This is not talking about spiky minerals like natrolite and mesolite. Those are needles. What sharpness is referring to is a text-book-like crystal volume with a precise, defined geometry.

The sharper the crystallization the more a specimen is worth.



**Figure 6:** See this calcite on matrix from Daye, China. The major calcite crystal's shape is called a scalenohedron. It not only has wet-luster but also has razor sharp crystal edges. Sharp crystals make for very fine geometries. Private Museum Collection.

**5. Condition:** Condition is one of the critical determinates of any collectible's value. Think of comic books, stamps, or numismatic ('coins') items. The better the condition the more the item is worth. Mineral specimens are no different.

**There is nothing that kills value so much as damage.** Even when all the other qualities of a specimen are tip-top, damage will undermine the piece's value. Damage has three possible origins: in situ damage, extraction damage, or improper handling damage. Even a scuff on an otherwise sharp crystal edge will dramatically effect value.

Store and transport your specimens where they are not in contact with one another so they cannot rub and damage one another and in general, treat every specimen, like it was an egg and you'll do just fine.

Recognizing damage takes experience and skill. The best way to learn to see damage is to discuss particular specimens with someone who knows.

If damage to a specimen was caused "in situ" by earth tremors (earthquakes), by corrosive liquids, or collapsing pockets and vein walls or by other crystals falling off matrix from higher locations, then it is important to be able to identify if the crystal is "re-healed." Crystals when broken during their formations will resume crystallizing where the breaks occur and can in this way "heal." A re-healed fracture is not technically damage. Thus, rehealed crystals display a natural process and their value is thus not impacted as harshly as if the damage is human caused or enabled after formation.

To tell if a crystal is rehealed you need to practice holding a crystal at oblique angles to both light and your eye to produce a "glare" off the crystal surface. If the glare shows crystallization pattern as opposed to breakage then it is rehealed. Practice makes perfect.

Today, mineral laboratories can perform virtual miracles in terms of restoration and repair of specimen and crystal damage. Where the market used to shun these efforts and specimens it has become much more forgiving. I tend to think of specimen repair and preservation as necessary for conservation and appreciation much like the preparation of a dinosaur skeleton. The important thing is that whatever restoration and repairs have occurred are disclosed before a sale occurs. All good people agree on that.

Unrepaired and unrestored pieces in the same quality as restored and repaired specimens will always be worth more. However, certain specimens are almost always repaired and restored. Pederneira tourmaline matrix specimens are a fine example of this; so are the Colorado Smoky Hawk Claim amazonite with smoky quartz specimens. These both are prized, highly valued, and sought after the world over and yet, all of them are repaired and restored.

The market currently does not forgive repairs equally. Certain things, like quartz and calcite, are absolutely not acceptably restored or repaired. It's a sticky issue.

Fluorites, however, are often non-destructively cleaned of calcite, clay, and asphalt, and fluorites, like gem emeralds, can be and are often fracture-filled in vacuum chambers to enhance their clarities. This is generally accepted by the market but disclosure of such treatment is spotty at best.

**I want to stop here to allow time for a few examples with pricing to hopefully help members buy effectively at the upcoming club show. We'll do that in person.**



*Figure 7: Tourmaline specimens like this one from the Queen Mine in California, USA are especially in high demand and command a premium in the marketplace. This specimen is unrestored and unrepaired. Notice the completeness of the main tourmaline crystal, its vivid contrasting colors, the fully formed burst of smaller tourmalines at the main crystal's base that accentuate the dominance of the main crystal, the high luster and complementary light citrine quartz upon which the tourmalines grew. About 12cms tall. There are many ways in which the symbiotic growth of the tourmaline and quartz might not have worked in aesthetic arrangement or even may have interrupted one another's completeness. The fact that the tourmaline formed completely and up on top of the quartz but not preventing the quartz termination is a holy miracle of nature.*

*Private Museum Collection.*

**If the study group desires, we could do another 1 or 2 sessions and cover additional determinants of specimen value. The working list below this are other aspects of connoisseurship that come to mind and could be addressed.**

## Fundamentals of Value 2: Assessing a Piece – Fifteen Abstract & Advanced Valuation Concepts

- 1) Completeness
- 2) Transparency
- 3) Susceptibility to Damage<sup>14</sup>
- 4) Focal Crystal's & Highlight Crystals
- 5) Symmetry
- 6) Crystallography (textbook, twins and the ultra-rare)
- 7) Illumination Properties
- 8) Associations
- 9) Proportionality
- 10) Isolation
- 11) Inherent Value
- 12) Provenance
- 13) Patina, Epimorphs & Encrustations
- 14) Species Caste
- 15) Phantoms

### Specimens that Everybody Wants: Easiest to Sell

While ultra-fine specimens of all types are always in demand, certain species are in much more demand in the market than others. The most desirable specimens today are the following:

- 1.) Native Gold and Silver Specimens
- 2.) Rhodochrosite (all localities)
- 3.) Tourmaline (esp. Brazil and Congo)
- 4.) Beryl: aquamarine, emerald, morganite, heliodor, goshenite, bixbite, and pezzottaite
- 5.) Fluorite (USA, Okoruso-Namibia, Yindu-China are all hot! Especially pinks and reds and crystals with well-formed phantoms)
- 6.) Liroconite
- 7.) Amethyst
- 8.) All gem crystals



<sup>14</sup> <https://www.tandfonline.com/doi/full/10.1080/00393630.2021.2015947>