

# Gemstone Forecaster

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## 2016 Tucson Gem Show

by Robert Genis

Chinese buyers were nowhere to be found at the most recent Tucson Gem Show. In 2015, Chinese attendance was down by 50%, and in 2016, they had all but disappeared. They had been the dominant players in the gem market in recent years, but this has now changed. Given the recent economic troubles in the Far East, this is to be expected.

With the reeling stock markets throughout the world, including in America, many dealers faced the show with trepidation. However, traffic was consistent, if not overwhelming. There were many dealers buying because this is the one show where every gem in the world can be found for sale. Many dealers wait all year for one stop shopping in Tucson.

In a back to the future moment, Americans are once again the leading buyers of top collector/investment colored gems. Most buyers were either American jewelers or dealers buying for US collectors. The US collector market continues relentlessly to search for top gems.

### Gem Prices

What we found most interesting was the two-tiered pricing of the dealers. Many of the major dealers had extremely high prices, far above last year's

values. One would think they'd be negotiable. They were not. Almost as though trying to be market makers, they were firm on their prices and refused to budge. This same phenomenon is often reported overseas, especially in Burma. Seems counter-productive because prices should reflect current market values, not some fantasyland. Other smaller dealers felt pressure to sell and lowered their prices accordingly. These dealers are more realistic and responding to true market conditions.

### Hot New Stones

There were not any really hot, new stones. However, some dealers and the press are finally discovering the previously relatively unknown pink tanzanite. Of course, these gems are not heated and rival pink spinel in color.

### Summary

Dealers and jewelers come to Tucson with money to spend, even if they had a bad Christmas season. It doesn't seem to matter that we might be entering a global Depression. The passion for fine stones is universal. Many feel obsessed with owning the best the earth has to offer. Nothing wrong with that!

**Latest Gem News**  
**The Color of Money**  
**Rapaport, February 2016**  
**By Ettagale Blauer**

*Superbly researched and well written article. Lots of good data here. It remains our long held position, if you have an AGL grading report first, you don't need any other lab reports. Can't be said for the others. ED*

In the world of gemology, two key factors influence the price of rubies, sapphires and emeralds — whether the stone is treated and its country of origin. While treatments such as heat or clarity enhancement play a role in determining the market value of a stone, it is the country of origin that has the most significant impact on price. According to Rahul Kadakia, international head of jewelry for Christie's, a very fine, unheated Burma ruby can fetch \$1 million a carat, while a comparable Thai ruby might bring only \$100,000 per carat. Given the importance of country of origin, there is growing pressure on laboratories to make this vital determination.

Ascertaining country of origin poses many challenges. Christopher P. Smith, president of American Gemological Laboratories (AGL), says the process is “part science and part art,” with “lots of experience” added in. The scientific methods are used to examine the “different properties and characteristics” while looking at the stone in its entirety. “Methods include microscopy, visible and infrared spectroscopy, as well as chemical composition,” Smith explains. All the data has to be examined and interpreted. Pierre Hardy, spokesman for Gübelin Gem Lab, a Swiss gem laboratory that examines colored gemstones, likens the process to detective work, “gathering all possible clues and evidence, in order to put the puzzle together and see the big picture, that is, the origin.” Moreover, he points out, “The gemological properties are primarily the result of the geological environment in which the gemstone grew within the earth.” As a result, Hardy notes that many gem laboratories are hiring scientists trained in geology rather than regular gemologists.

Place of origin remains the most difficult part of the Gemological Institute of America's (GIA) work explains Shane McClure, GIA's global

director of colored stone services. AGL, Gübelin and GIA send field gemologists deep into the mines to see the gems where they are found, which is the best means to obtain verifiable source material to determine origin. This research in the field provides samples as a basis for the laboratories' reference data.

### **Treatments**

Although whether or not a gemstone has been treated or enhanced factors into price, the reality is that very, very few rubies, sapphires and emeralds reach the market without some kind of treatment or enhancement. To maintain the integrity of the colored gemstone business, Douglas Hucker, chief executive officer (CEO) of the American Gem Trade Association (AGTA), says, “Any treatment should be properly declared. Customers accept information as long as it is disclosed.”

However, counter to regulations, some stones sold in the market are treated and not disclosed as such. This can cause problems for the laboratories, wholesalers and retailers alike. For laboratories, all stones are initially suspect and the process of investigation begins.

The complex world of treatments in terms of rubies, sapphires and emeralds comes down to two words: heat or fillers. Today, the heat treatment of corundum and clarity enhancement of emeralds is routinely employed to improve the color and/or clarity of these gems. Other forms of treatment may also be applied to these gems, however they are not as common. Additionally, certain treatments, such as heating, may inhibit the ability to perform a country of origin determination, whereas others, such as clarity enhancement, do not materially impact a lab's ability to determine a gem's provenance.

Adding another layer of complexity is the lack of agreed-upon definitions among the laboratories on how to describe the amount of treatment or the color of a stone and the difficulties in interpreting the nomenclature appearing on colored stone reports today. What is “minor” as compared to “insignificant” or “moderate,” for example?

### **Emerald Origins**

According to Smith of AGL, most gem varieties form around a limited range of geological

variables. As a result, there are similar types of material that can occur in different geographical areas. “For emeralds, we are looking at specific inclusion features, chemical composition and spectral features as clues to origin. When one considers Colombian emeralds, they stand out as originating from a unique geologic occurrence consisting of an evaporative brine from black shales in veins and breccia, which imparts properties unique to that location. Whereas, emeralds from Brazil and Zambia have mostly formed in a classical schist type deposit and therefore may be very similar in properties and characteristics to one another.”

Another point of distinction, says GIA’s McClure, is that “Colombian emeralds typically have three-phase inclusions in jagged voids, calcite and pyrite crystals and an unusual kind of graining referred to as ‘gota de aceite’ — literally ‘drop of oil.’”

### **Emerald Treatments**

Wendi Mayerson, senior staff gemologist at AGL, notes that the treatment of emeralds is nothing new. “Pliny describes dyeing emeralds in 77 AD.” Moreover, she says, “You can use almost anything to fill fissures in emerald,” which can make identifying the nature of the filler challenging. Few labs, such as AGL, identify the nature of the fillers used to clarify enhance emeralds in addition to quantifying the degree of the treatment. Most labs, such as Gübelin and GIA, only quantify the extent.

Adding oil to emeralds is considered the “traditional” treatment. According to Kadakia, an emerald “that only has minor oil is an accepted form of enhancement.” Polymer-type resins are the tool of choice of many for filling the fissures that are common in emeralds. Unlike oil, which can dry up or leak out over time, resins are said to be more permanent, but Mayerson says that’s not always the only point to consider. “Modern, polymer-type fillers,” Mayerson says, “can also be better at reducing the appearance of fissures.”

While there is a variety of polymer-type fillers used on emeralds, the ExCel® process is often mentioned by dealers and other laboratories as the best method. Clarity Enhancement Lab (CEL), located in New York City, is credited with

developing the ExCel® process and remains the only location performing the treatment process. Although it is considered to be permanent, Eternity Natural Emeralds (ENE) President Shawn O’Sullivan says, “It is a stable filler and so will not alter in color or transparency over time. However, it can also be taken out.”

### **Pricing Emeralds**

According to Gary Schuler, director of the jewelry department at Sotheby’s, if an emerald is untreated, other than with minor oil or traditional type filler, it’s worth 20 percent to 30 percent more than a stone treated with a modern filler. If there has been significant treatment resulting in more fissures filled with a product such as resin, he says, “the value decreases by another 50 percent to 60 percent.”

Stuart Robertson, research director for GemWorld, a Glenview, Illinois, company that offers appraisals, a colored gem and diamond price guide and other gemology-related services, puts the price difference for finer quality 5-carat to 8-carat untreated emeralds at 70 percent to 100 percent more than treated stones.

Rayaz Takat, of Takat Gems, USA, a dealer in fine colored gemstones in New York, points out that the branding of colored stones based on country of origin has added an even wider disparity in pricing. He says an unenhanced Colombian emerald is priced five times as high as an unenhanced Zambian emerald — \$200,000 per carat for the Colombian, \$40,000 to \$50,000 for the Zambian.

### **Corundum Treatments**

For corundum — sapphires and rubies — heat is the enhancement of choice for its ability to add or soften color or even melt away inclusions. Smith explains there are broadly speaking three categories of heating: relatively lower temperature heating, relatively higher temperature heating and more extreme heating conditions.

Relatively lower temperature heating is generally considered as being below the threshold when rutile silk — an inclusion within the stone — dissolves, where primarily only the appearance of the stone is changed by removing less desirable colors or color modifiers. “Although the

practice of heating corundum dates back more than a thousand years, since about the mid-1970s relatively higher temperatures and controlled heating conditions have become the most common type of heating,” Smith explains. “Using higher temperatures and controlling factors such as the atmospheric conditions, holding the stones at temperature, as well as ramping up and down of the temperatures allows for much more to be accomplished in addition to just modifying the color to a greater degree,” Smith says.

The transparency of a stone may be improved by dissolving rutile silk, as well as healing fissures. In addition, under more extreme heating conditions additional elements such as titanium, chromium and/or beryllium can be diffused into the stone. Smith adds, “Essential characteristics and properties of rubies and sapphires are altered at the relatively higher temperatures and under more extreme heating conditions. This can impact a lab’s ability to determine origin.” Origin determinations are still possible in heated rubies and sapphires, however Smith points out one example of why this can become more challenging. “Rutile silk is a very common inclusion in rubies and sapphires from many origins. However, some sources may exhibit patterns of rutile that help us to determine where the stone has originated from. Since relatively higher temperature heating will dissolve the rutile, making it disappear, we no longer have this inclusion feature to help us in our determinations.”

### **Ruby**

While most ruby undergoes heat treatment, there is a small production of stones that remain unheated. In the past, a majority of the unheated rubies came from Burma, presently Myanmar. However more recently, the Montepuez region of Northeast Mozambique has become an important source of unheated gems. Originally discovered in 2003, London-based mining company Gemfields obtained the mining rights in 2011. Gemfields subsequently started to offer their ruby production through public auctions in June 2014.

Niveet Nagpal of Omi Privé in Pasadena, California, says, “There is always a challenge sourcing finer-quality material. Rubies are

probably the most difficult because of the way ruby is formed in nature; larger sizes are very rare.” Of the new source, he says, “The Montepuez stones are some of the most beautiful in the world.” Many of these stones tend to be darker with brownish or purplish undertones, however in the best-quality stones, the color can be bright and vibrant, even rivaling Burmese gems. On the plus side, he says, “There is a small, yet consistent supply of unheated stones so sellers are able to offer the rarity of an unheated ruby without the price tag associated with fine Burmese gems.”

“There are a few classic inclusions in each of the big three colored gems but also exceptions to all of them,” says McClure. “Burma ruby from Mogok typically has clouds of very fine rutile needles, rounded transparent crystals of calcite and irregular swirling graining and color zoning.” Still, nothing surpasses fine Burma rubies. “Burma stones have a kind of inner glow that no other source seems to have,” elaborates Nagpal. “Thai and African stones typically can’t compare. They tend to have a different chemistry, usually meaning more iron that impacts their color.”

### **Pricing Rubies**

In the market today, Burma and Mozambique dominate the ruby landscape. In terms of pricing rubies, Nagpal goes on to say that for an unheated gem of similar quality, Burma ruby carries an enormous premium over beautiful Mozambique rubies, with the Burma ruby costing 200 percent to 300 percent more. “Pricing for these rubies however,” Nagpal continues, “is not an exact science.”

The difference is not as extreme for heated stones. The difference between a price for a Burma or an African ruby from Mozambique or Madagascar is 20 percent to 30 percent for smaller sizes and average qualities. As the size and quality increase, so does the difference in price.

### **Sapphires**

In the world of sapphires, there is considerably more unheated material than one can find in ruby. For blue sapphires there are also more sources that supply global demand: These sources consist of Burma (Myanmar), Ceylon (Sri Lanka), Kashmir (Northern India) and

Madagascar. When it comes to origin determinations, this greater number of sources can also make origin determinations trickier. “You would never confuse Burma and Kashmir blue sapphires,” Smith says, “however both Sri Lanka and Madagascar can produce Kashmir-like stones.” Smith further explains, “On the other hand, true Burma stones may be confused with some Sri Lankan and Madagascar material as well.”

Kashmir sapphire typically has extremely fine-grained clouds in parallel planes, tourmaline inclusions and elongated corroded zircon crystals, says McClure.

### **Sapphire Pricing**

With blue sapphires, Takat says, a stone from Kashmir would be worth \$100,000 per carat, while a similar sapphire from Madagascar would go for \$20,000 per carat.

Time has played a role in pricing, of course, as the market for the increasingly rare stones grows. According to Kadakia, a 10-carat Kashmir sapphire that sold for a total of \$10,000 in 1965 is now priced at \$150,000 to \$200,000 a carat.

### **Grading Systems**

Unlike the world of diamond grading where the GIA’s D-to-Z system is in use globally, several color grading systems compete for buyer’s and seller’s attention. Explaining GIA’s procedure, McClure says, “The colors listed on our reports are simple visual colors. We use Munsell color references for consistency.”

GemDialogue, a color communication system devised by the late gemologist Howard Rubin in 1983 and still in use today, includes 21 transparent color charts showing ten saturation levels for each color. A stone is positioned against the various charts until a match is found.

The system is presented in a loose-leaf binder and is meant to be used in the field when the gem buyer is without access to other tools.

In the past two years, GemWorld introduced a very similar system, based on Munsell chips, but also providing pages with overlay charts. Each of the 1,400 colors is given a specific name. The system is intended for use with the firm’s GemGuide pricing scale.

The system in use at AGL takes a more holistic approach to grading colored stones. It evaluates the color based on a 1-to-10 scale, while also looking at other important factors, such as the clarity and cutting. AGL’s system is not as easy to grasp at a glance as there is a lot of information to absorb, but it is intended to give the most precise, and repeatable, measurement of a stone’s quality in a way that is comparable to the GIA grading system for diamonds.

The traditional description of the finest rubies as “pigeon’s blood” color is coming back into use. GemWorld’s Robertson says one lab mainly servicing the Chinese market is grading up to 90 percent of the rubies it sees as being “pigeon’s blood” red. Schuler notes, “We are going back centuries when the ultimate customer was a king, a conqueror. They lived and breathed battles and hunting.”

### **Paper Trail**

Given the increased value of colored stones, today’s buyers want more than a single report. As a result, it is not uncommon for important colored stones to have two or three reports for any given stone. With the demand from the market and consumers, several labs have also developed special letters and even custom made small books to better highlight the qualities of a particular gem, as well as the region from which it originated.

With demand for the finest rubies, sapphires and emeralds on the rise, the pressure will only grow on labs that certify these gems to maintain their standards and to continually pursue more and better ways to ensure their results in terms of origin determinations and the detection of treatments. It is an ongoing struggle but one that must be waged with vigor.

### **Conclusion**

As the most prized emeralds, rubies and sapphires become increasingly rare and a more sophisticated global customer emerges, country of origin and treatments, or lack thereof, are increasingly important elements in a gemstone’s pedigree, all of which determines just how much the stone is worth. Gemological laboratories play an important role in ascertaining that gemstones and the factors influencing their value are

properly identified. This is essential for safeguarding consumer trust.

"The laboratories take very seriously the trust that the trade and consumers have placed in us to accurately identify the stones they submit to properly disclose treatments and establish their provenance," Smith concludes "Although gemology is not an exact science, we are constantly investigating ways to refine our due diligence, to improve upon our standards and increase confidence in our results."

## Gem Heists

### Case of the missing jewels: Four famous gem heists

ET Bureau

February 1, 2016

*Here is a small yet interesting history of some of the more fascinating gem heists. ED*

With a stolen Kashmir sapphire of 65-carats making international headlines recently, here's looking at other talked about gem heists

### Honey I snuck the gems

Honeymoons are usually exciting, but one couple certainly knew how to spice up theirs. In 1946, an American colonel J W Durant (36) and his bride, Captain Kathleen Durant (34), were caught with the crown jewels of Germany's royal House of Hesse, solving one of the most sensational gem robberies in history. The jewels — handfuls of diamonds, rubies, sapphires, pearls and jade — were stolen from the famous Kronberg Castle, but were found in a writing paper box concealed in a Chicago rail station baggage locker by the two, during their honeymoon.

### Diamonds & a sandwich

The Antwerp diamond heist in 2003, dubbed the "heist of the century", was solved with the DNA from a salami sandwich on the scene of the crime. Leonardo Notarbartolo, the leader of an Italian band of thieves called La Scuola di Torino (School of Turin), rented an office for months at the diamond centre in Antwerp. The thieves stole diamonds, gold and other jewelry valued over \$100 million, but Notarbartolo was caught and

sentenced to ten years in prison because of a half-eaten sandwich. Hollywood alert: Star Wars director JJ Abrams plans a movie based on the incident.

### Bring back Kohinoor

Was it a gift to a queen or stolen from its home because of colonization? A campaign to bring back the £100 million diamond Kohinoor threatened to embarrass Prime Minister Narendra Modi's Buckingham Palace lunch with the Queen last year. The 105-carat diamond was given to Queen Victoria, and was later worn by Queen Elizabeth at her husband King George VI's coronation in 1937. In 2015, a group of Indian businessmen and actors started legal proceedings in a London court for the diamond, that was taken under "dubious circumstance". For now though, the Kohinoor stays in the British crown.

### Surfing and stealing

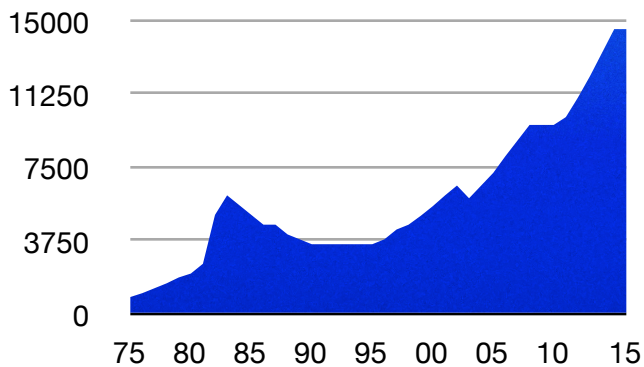
Duct tape, a glass cutter and a squeegee to gather the world's biggest sapphire, the most perfect ruby and the largest black sapphire. In 1964, two Miami beach bums, Allan Dale Kuhn and Jack Roland Murphy (dubbed Murf the Surf), snuck into New York's American Museum of Natural History and snuck out with the jewels worth \$3 million. The amateur thieves were caught because of a party they threw at a fancy hotel suite not far from the museum, where they spent "money like wild". The gems made it back to their museum home. Interesting aside — the museum director James A Oliver was having a tooth pul led when he heard news of the heist. Later, he had to answering embarrassing press questions about his institution's much more expensive extractions.

*This last robbery was made into one of the greatest gem movies ever. If you can find it, rent or buy the 1975 classic **Murph the Surf**. It stars Robert Conrad and Donna Mills. As a second option, **Live a Little, Steal A Lot** is another title under which the movie was re-released. It's presently unavailable at Amazon, but you can put your name of their watch list. ED*

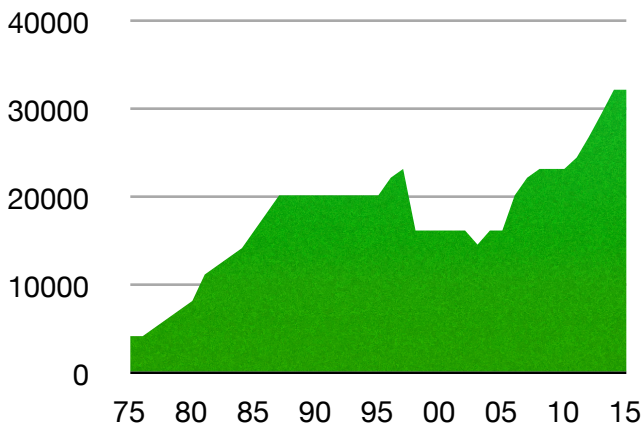
### Retail Gemstone Prices (1975-2015)

These charts are indicators only and should be used to decipher the general price trends of a particular market. They are price per carat indications for GIA graded diamonds and AGL colored gemstones only, for standard shapes with ideal parameters. Prices represent high ranges encountered in the US markets. The only true price is what a knowledgeable buyer and seller agree to as a transaction price. No guarantees are made and no liabilities are assumed as to the accuracy or validity of these prices. Copyright 2016 by NGC. Reproduction is strictly forbidden.

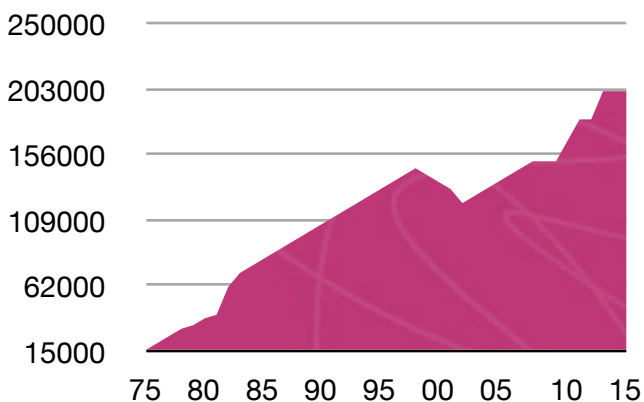
**Burma Blue Sapp, 1ct, 2.5.75, LI, no heat**



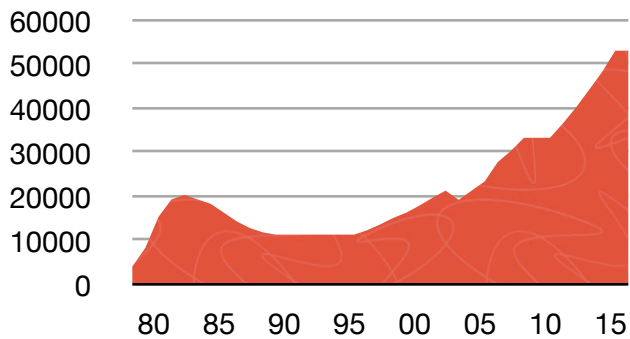
**Colombian Emer, 1ct, 3.5/75, LI, no treatme**



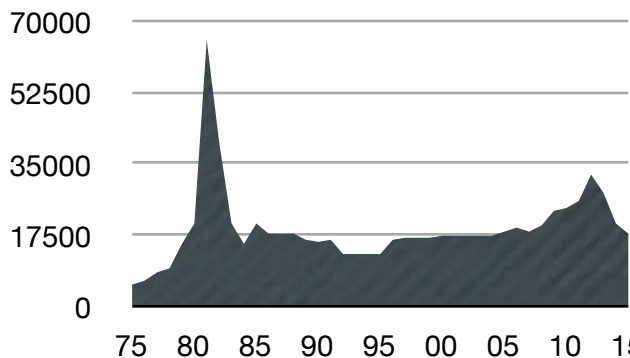
**Fancy Intense Pink. 1ct., SI, Round**



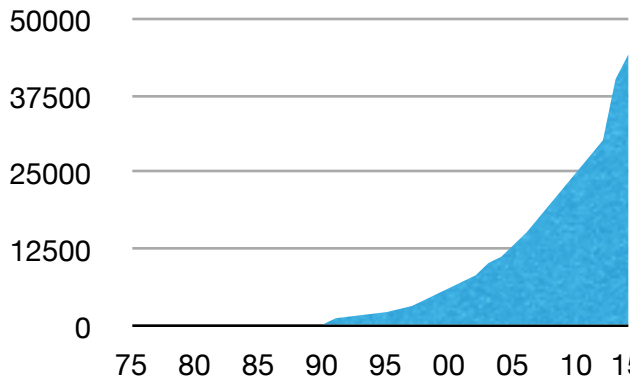
**Mogok Burma Ruby, 1ct., 2.5/75, LI, No Heat**



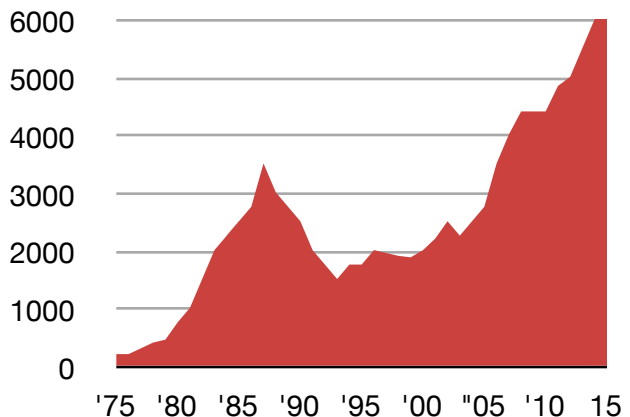
**Diamond, 1ct., D-FL, Round**



**Brazil Paraiba, 1ct., Blue, Low Heat**



**Burma Spinel, 1ct., Red 3.5/75, LI**



## Gemstone Trend Analysis

The 2015 precious gemstone and colored diamond market was unusual. All of our Gemstone Prices remained stable, except Brazilian Paraiba.

However, it was not a flat year. Rather the first half of 2015 was up dramatically. During last year's Tucson Gem Show, prices kept escalating like years' past. It wasn't until the second half that prices hit a brick wall. When the Chinese stock market and oil markets started crashing, the demand for fine gemstones was hammered. As many who follow these markets are aware, big hitters from China and the Middle East are major players. Coupled with the US stock and bond markets going sideways to down, this hit the gem markets hard. Prices in top colored gemstones started going south for the first time in years or even decades. If we were doing monthly charts, you would see an increase in the first 6 months and a decrease in the last 6 months. Since we only do yearly charts, the charts show a flat line. Not exactly what happened but yearly charts smooth out reality. Although we do not chart Kashmir sapphire, the stone also saw some price corrections. Simply add 100%-300% to Burma Blue Sapphire to arrive at Kashmir sapphire prices.

As readers of *The Forecaster* are aware, diamonds and gold track with an almost perfect correlation. The recent rise in gold may portend price increases for the battered down white diamond market. You can buy numerous D-FL diamonds on Blue Nile for around 15K per carat or even less. We are keeping our fancy pink diamond price chart the same as last year, despite some crazy large stones selling at US auctions for new records.

As mentioned earlier, Brazilian Paraiba might be the only exception to what happened this year. The demand for these stones is fervent. This is not to say clients haven't been making offers on these stones and buying them under the market, because we are aware of this happening. However, for some strange reason, a certain percentage of people will buy Windex blue or Caribbean green colors irrespective of the price. They don't care, they want one.

The bottom line? Collectible gemstones and colored diamonds remain a smart place to put a certain percentage of your assets. It doesn't really matter which the gems you choose. Of course, the key to successfully collecting is to demand an AGL grading report, especially on high end stones. Production remains dismal and the world's appetite for these gems is insatiable. Buy only what you can afford and have fun.

The information provided in this newsletter has been derived from research and sources believed to be reliable. However, no guarantee is expressed or implied as to their validity. Opinions included herein are subject to change without notice. The gem market is speculative and unregulated. Certification does not eliminate all risks associated with the grading of gems. Recommendations are meant for those who are financially suited for the risks involved. Past performance is not a guarantee of future performance. Neither NGC nor The Gemstone Forecaster guarantee a profit or that losses may not be incurred as a result of following its recommendations. They may also hold positions in areas they recommend. Subscribers should not view this publication as investment advice, nor is it intended as an offer or solicitation with respect to the purchase or sale of any security.

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