

**ACCREDITED GEMOLOGISTS ASSOCIATION**

Joel E. Arem, Ed.

P.O. Box 996  
Laytonsville, MD. 20760

(301) 977-0335

VOL. 3, No. 1 March, 1978



The need for an organization such as AGA has never been greater, nor more keenly felt. We are witnessing an explosive growth of the gemstone trade that is unrivalled in the annals of western society. Undoubtedly this is partly due to a decline in confidence in currencies, and with good reason. Currencies, being printed paper, are simply a medium of exchange originally intended to simplify transactions. It is easier to carry a few pieces of paper in your pocket than several pounds of gold, for example. People tend to forget that the paper was originally redeemable in the "real value" material it was created to represent. Once the original promise of redemption made by government is broken, the door lies open to inflation. By definition, inflation is an increase in the volume of money and credit in relation to available goods. The result of this process is a rise in prices. Since paper money does not have to be redeemed for gold or silver, the government can print it endlessly. It is, for example, easier to print money to pay the billions for oil to OPEC nations, than to tax citizens for the revenue, since the latter is politically unexpedient. The supply of goods may increase, but nowhere near as fast as the money supply, and prices spiral ever upwards. All of the above is basic economics.

However, this reasoning is acutely demonstrated in the gem market, where the "supply of goods" is extremely limited, mainly by natural restrictions on the size and yield of gemstone deposits. The huge distortion in the supply/demand seesaw creates enormous and rapid price rises. Expectably, people eventually figure out that their paper money is steadily becoming worthless, and start converting the paper into "real money", i.e., gold, silver, gemstones (also extra food, extra clothing, etc. - items of exchange or use value). As more and more people discover gems as a means of storing value and preserving wealth, more and more people enter the gem market, spending more freshly printed paper, competing for the limited supply of stones, driving prices up still further. The huge price increases are duly noted by the investors, who start to realize that here is a pretty good thing for keeping ahead of inflation, and still more money floods into the marketplace. The only people who lose are the ones who still have some paper left when the governments repudiate their own "printed matter", make it illegal to own gold and silver (and gems???) and try to start over again.

All of this has happened before. It could easily, perhaps will likely, happen again in the U.S. and other countries in the not-too-distant future.

What does this mean to the gemologist?

The GIA's residence courses are booked a year in advance. Their new facility in Santa Monica is, although not even fully completed, already too small. The New York office is so buried in diamond appraisal work they will not grade small stones or those below a minimum quality level. New gem testing laboratories are arising in response to the increasing demand for identification and appraisal services. The "color explosion" has hit the retail jewelry trade, and colored stones are being pressed into service as never before in the role of fashion accessories. Public awareness of gems has never been greater.

Add to these trends the entry of new and sophisticated synthetics and imitations. Gilson is currently producing opal (black and white), emerald, lapis, turquoise and now coral, all chemically and physically identical to their natural counterparts. There are at least five distinct processes for making ruby and sapphire, all producing characteristic internal features. Emerald is made by various manufacturers, each product bearing its own unique internal identification birthmarks. True synthetic alexandrite (chrysoberyl) is a fact of life, and furnaces burn late at night in laboratories where enterprising entrepreneurs seek to produce new and frustrating challenges to the gemologist's skills.



Cubic zirconium oxide (zirconia), the latest addition to the list of diamond simulants, is frighteningly realistic and defies ready visual identification. Set stones, especially small ones, are already posing a threat to the preservation of honor and integrity in segments of the retail trade. Irradiated blue topaz is essentially indistinguishable from natural blue topaz. Synthetic amethyst and citrine, if free of inclusions and residue of a seed plate, cannot be distinguished from their natural equivalents (happily the prices are also equivalent, so the problem is not acute from a commercial point of view).

All this points to an increasingly important role for the professional gemologist in the months and years ahead.

The top price I have heard for a ruby is that being asked for a 29 carat Burma stone by a private owner: \$125,000 per carat. Contrast this to the cost of a comparable synthetic Verneuil stone: less than \$15.00. Obviously, the stability of the ruby market depends on somebody being able to tell the difference between the two stones! This example is extreme but clearly illustrates the nature of the problem.

It is no longer enough to be able to use a refractometer and distinguish between an emerald and a piece of glass. The refractive indices of natural and synthetic emeralds overlap - microscopic examination is mandatory. Some Burma rubies do not fluoresce, and some Thai stones glow nicely in ultraviolet light. The day of the "quick and dirty" routine few tests is over. Enter the gemologist as a para-mineralogist, with an expanding array of laboratory machines and techniques at his disposal.

The grease in which the hub of the world spins is money. Economic incentives are the most powerful ones governing society and its leaders in all fields of endeavor. The day is not far off when the gemstone market becomes fully aware of the dangers of flippant evaluations and appraisals in the hands of self-professed experts. You would not particularly care to have your appendix removed by a "doctor" without a diploma from a decent medical school. How can a serious gem buyer even contemplate spending \$50,000 for a fine gemstone without consulting the advice of a competent, professional gemologist?

This is the background and setting for the growth of the Accredited Gemologists Association. The founders of AGA were, and are, primarily concerned with the propagation of high professional and ethical standards in the practice of gemology. The organization has had its share of growing pains. It has grown, nonetheless, and is flourishing even if on a limited scale. The existing membership is active, interested and concerned with common objectives in expanding our knowledge of gemstones and their identification. We will be much more visible in the next few months, and membership will increase steadily. Every social phenomenon appears as an inevitable result of a logical background or setting of events. AGA has appeared at a critical time in the history of the gem trade, and is growing and will grow as a natural response to a need for responsible leadership in the field of gemology.

Some new organizational changes in AGA are forthcoming and are discussed in the following pages. The organization will become tighter and more efficient. It is hoped that everyone involved with the organization will have a visible role. Some excellent publicity is planned for mid-1978 that should greatly increase membership. The Newsletter will be enlarged and improved, appear with a greater frequency and regularity (!) and will have expanded coverage of world market and gemological events.

But remember that, basically, AGA IS its membership and can only do or be what its members dictate. J. Digby Matheson is getting a chapter started in southern California so gemologists out there can have their own meetings and workshop sessions. Why not chapters in Chicago, Philadelphia, Boston, Miami and other cities? Guidelines can be provided and the activities in certain areas written up and made accessible to all AGA members. It has to start somewhere. With the market changes discussed above rapidly taking place, we should all be increasingly aware of the role of AGA and the benefits it can provide for our profession, the public, and our own knowledge and awareness.

J.E.A.

NOTE: The above is essentially an editorial and reflects the opinions of the writer.

Comments pro and con are invited for publication in the next Newsletter issue.



NOTES AND NEWS - Joel E. Arem, Ph.D., FGA

Gemological research is on the upswing worldwide, as interest in colored stones brings new gem materials onto the market. The GIA has developed a "mini-lab" for field analysis of questionable stones. Not yet known to the trade is work being done by Eickhorst in Germany, who already has a sophisticated, high quality line of gemological instruments. Eickhorst sells a photometer for grading diamonds that is far superior to visual grading. Even a single color, such as J, can be split by the device into 6-10 or more subdivisions. The measurement is done at the push of a button, but the cost of the device is high (about \$4300.00). Eickhorst is working on an improved, smaller and much less expensive model. The volume of diamond sales has increased so greatly, and values of even small stones have risen so sharply, that there is a real need for more rapid grading methods. Photometers are the answer, and probably various manufacturers will enter the field. Calculators have totally obsoleted slide rules. It may be that Master Sets are similarly doomed.

A nice little article was published recently by the Diamant- und Edelsteinbörse of Idar-Oberstein. Written by Dr. Hermann Bank, it addresses the problem of detecting irradiated blue topaz. Absorption spectra do not distinguish between natural blue and treated stones. However, it is known that the blue color is produced by irradiation plus heating. Bank reports that thermoluminescence analysis, which reveals the heating history of a sample, gives different curves for natural and treated topaz. The same method will work for any color of topaz that can be treated to produce a natural-like color. The test involves only as much material as would be required for X-ray analysis (i.e., some powder shaved from the girdle of a cut stone), so the test is essentially nondestructive. The color of irradiated/heated blue topaz is acknowledged to be stable, and Bank indicates that most of the blue topaz currently on the market has been irradiated.

Cubic zirconium oxide continues to gain acceptance and recognition. It is now available from a wide variety of sources. A Canadian firm now offers "phyanite" (zirconia from the U.S.S.R.) in colorless, as well as: ruby, violet, lime, smoky lilac, pink, sherry, smoky wine, lilac, lemon, citrine, smoky rose and amethyst colors! The same company offers a wide variety of other Russian gem materials, including some new ones (I will investigate and report on these): charaite, belomorite, listvenite and rogovic. Anyone ever hear of these? Synthetic quartz grown in the U.S.S.R. includes amethyst, citrine, blue, green and smoky.

The investment market has been playing with gems for several years and indications are that some serious money will start flowing shortly. In response to this trend, coupled with a tremendous need for basic information oriented towards the serious investor, a new publication is being launched. It comes out of Thousand Oaks, California, and is called the PreciouStones Newsletter. The first issue (it is a monthly publication) will be printed by the end of March, 1978 and actively marketed. The PSN is partly an abstract service, summarizing important items relating to the gem market published in trade magazines and professional journals throughout the world, and partly a vehicle for original articles. For detailed information write to PSN, PO Box 4649, Thousand Oaks, Calif. 91359.

The Jeweler's Circular-Keystone is fortunate to have David Federman on staff. Dave writes their material on gemstones, and is pushing very hard to steer JC-K more heavily into the colored stone field. The April issue is planned along these lines with some of the most expensive color work the Keystone has put forth. Dave attended the Tucson Gem and Mineral Show and realized that here was an immense resource of gems the jeweler knows virtually nothing about. We can look for increasing coverage of colored stones in the JC-K and probably many of the other trade journals as well.

-----  
PLEASE NOTE THAT DUES ARE DUE FOR 1978. If you have joined and sent a check during 1978 you are covered for this year. If you joined AGA between 1/1 and 12/31, 1977, please send your \$15.00 for this year.

-----  
 I would like to start a regular feature in the Newsletter. If you have handled an especially fine or unusual gemstone in the last few months, send in a description and share the fun with other AGA members. Gems and Gemology does this with stones passing through the GIA labs. It's a great way to keep current.



EMERALD MINING IN COLOMBIA - Joseph Tenhagen, GG, FGA

(Notes by J. Arem based on superb lecture to AGA members by Joseph Tenhagen, GG, FGA)

The emerald mines of Colombia occupy an area approximately 150 miles wide, in the Eastern part of the Andes Mountains. As far as is known, this is the only area in which emeralds are found in this part of the world. Bogota is 150 miles away.

The mining areas can be generally divided as follows:

MUZO AREA: Muzo; Cosquez; Pina Blancas

CHIVOR AREA: Chivor; Mondo Nuevo; Buena Vista

GACHALA AREA: Las Cruces; El Toro; Diamante

NOTE: There really is no specific mine called "Gachala".

The government of Colombia owns and operates Muzo and Cosquez. All the others are leased from the government and privately operated.

Muzo is currently under military jurisdiction. It is 6 hours of hard driving to reach this mine from Bogota, and a letter of authorization is needed for entry. The facilities at Muzo, which is perhaps the world's best known mine, are more modern than at the other mines. Emeralds have been recovered here for more than 400 years.

The Muzo area has been metamorphosed, and there are black carbonaceous shales interbedded with the metamorphosed rocks. Calcite veins occur in these shales, parallel to the bedding planes of the rock. Emeralds occur associated with these calcite veins. At Cosquez, for example, emeralds occur ONLY in the calcite, associated with pyrite, quartz, parisite, iron oxides and carbonate and some malachite.

Parisite is diagnostic of Muzo emeralds, occurring as tiny pyramidal shaped brownish crystals, often as inclusions in the emeralds.

Trapiche emeralds, which are intergrowths of emerald and albite, occur principally at Pina Blancas, although some also are found at Muzo. Trapiche emeralds are generally cloudy and unsuited for cutting as gems, but are curiosities of the gem world.

A new area near Muzo, known as Masato, also is characterized by emeralds in calcite veins. Mining in the Muzo area is done with bulldozers and dynamite. The slopes of the mountains in which lie the emerald deposits are very steep, making the work somewhat hazardous.

The Chivor group lies on mountaintops, in an extremely lovely setting. The geology here consists of lighter colored rocks, often brownish and sandy. Emeralds in the Chivor area are attached to quartz rather than calcite.

The mines of the Gachala group are characterized by soft, iron-rich clays with abundant mica. Emeralds occur usually as small crystal clusters embedded in the clay. Some very fine and large crystals have been found here, most notably the "Amelia" crystal which was discovered in the Las Cruces mine.

The ground at El Toro, on the other hand, is compact and hard. Dynamite is generally used to break up the ground and allow sifting for emeralds. The best emeralds come from darker colored ground.

There is a huge reserve of emerald in the ground in Colombia. The terrain is very difficult, the political environment unstable, the jungles treacherous (there are abundant "bandidos"; everyone carries a pistol), and the emeralds disseminated in such a way that mechanized mining is impossible. This insures a steady but not overwhelming trickle of fine emeralds entering the marketplace, and helps maintain a degree of stability and the promise of a continued future supply.

-----

The writer takes responsibility for any errors in the above summary. It is hoped that Joe Tenhagen will be able to provide a much more length discussion of this fascinating subject in future issues of the AGA Newsletter.

J.E.A.



MINUTES OF MEETINGS:

A regular meeting of the AGA was held in the residence of President Joel E. Arem on Nov. 9, 1977, between 8:30 and 10:00 P.M.

Much time was spent discussing the investment aspects of gemstones. One topic discussed was a mutual fund involving gemstones that may become available to the investment community in the near future. Many jewelers and jewelry salesmen are unfamiliar with the identification and evaluation of a wide variety of gems and synthetics are entering the market in increasing numbers. For these reasons the professional gemologist will be called upon more and more to make objective appraisals and lend advice to prospective buyers.

With our membership (now approaching 100) scattered over the world, the problem is how to get persons involved, even though they live in India, Thailand, Tanzania, the U.K. or Washington, D.C. One suggestion was the encouragement of members to act as correspondents and send in articles for publication in the AGA Newsletter. Noteworthy topics could include the changes in the supply of gemstones (such as aquamarines in Brazil, pearls in Japan, opals in Australia) and the appearance of new sources (such as peridot in Mexico). Another suggestion was that AGA sponsor refresher courses in gemology for members who are "rusty" in identification and are not acquainted with the newer synthetics. Also, members should be encouraged to correspond with each other on gemstone topics of mutual interest. A new and updated membership list will be mailed in the near future.

AGA has much to offer its members, but its primary usefulness is as a medium for communication between professional gemologists throughout the world. Looking 5 years down the road we envision AGA membership of 1,000 or more, and a permanent headquarters office and staff for handling inquiries and assisting members.

.....Dale E. Farringer, GG

PANDORA'S BOX = CAN OF WORMS = JEWELRY APPRAISALS

The following discussion is based on a request in a previous newsletter, asking members to send in samples of their appraisal forms and comments on what a good jewelry appraisal should contain. About 8 replies were received, and the synthesis of the comments therein is offered for further consideration. Ed.

The RJA (Retail Jewelers of America) puts out a little booklet entitled "What You Should Know About Jewelry Appraisals", designed for the public and distribution via the retail store. It starts out: "An appraisal is an opinion as to the authenticity, quality, design and value of a piece of property .... the most important aspect of an appraisal... is an explicit description of the jewelry item, accurately depicting the design, the metal, and the stones."

The booklet further distinguishes between insurance and estate appraisals, emphasizing the great difference in approach and philosophy in estimating values in the two cases. According to RJA, the appraisal should contain the following:

1. List and number major stones, with identification, shape, dimensions, approx. weight and "quality" of each stone.
2. "Quality" should identify the grading system being used
3. List number and size of minor stones with their identification and total weight
4. Identify metal stamping and discuss workmanship of setting
5. Provide written description or photo of the entire piece that would assist in recovery if lost or stolen
6. Estimate value of the jewelry item
7. List the equipment used to develop the appraisal.

RJA recommends the appraisal be done by the jeweler who sold the piece, and that the buyer ask the appraiser to show copies of appraisals done in the past (to see if all the relevant information is routinely provided), certificates indicating gemological training (!), gem testing equipment, and similar jewelry to verify market familiarity.



APPRAISALS (continued)

The above sets the stage for discussion. Now let's add in comments from AGA members that add more meat to the RJA framework.

Other purposes for appraisal: Donation (want maximum value possible for this up to limit of what IRS will not challenge); resale or immediate cash liquidation value.

Description of major stones: maps of inclusions (esp. for diamonds, why not also colored stones??); complete GIA description for diamonds, with depth and table %, girdle thickness, culet size, proportions and finish evaluation; fluorescence; color grade for colored stones according to various new systems (Analytics, Kuehn, etc.).

Estimate of value: complete breakdown of value of components of jewelry piece; factor for antiquity value (provenance, period, manufacturer, inscription on setting); markup applied in figuring retail value; sentimental value.

The markup scale varies considerably between sellers of stones. In the case of diamonds, most dealers work around a certain wholesale cost which they exactly keystone. Items costing less than this are marked up more, and more expensive stones are marked up less. One AGA member submitted the following schedule: wholesale \$500 or less, markup 2-1/2 times; wholesale \$1000 or less, 2-1/4 times; \$2500 = keystone; over \$2500 marked up 1.8 times cost. The same AGA member comments that assigning a fair markup value is the most difficult part of the appraisal. Another AGA member uses appraisal guidelines that give replacement values as keystone PLUS an increment to reflect increases in value with time. If the appraiser recommends that the client reappraises the item in a year, the appraisal would be pegged at keystone plus a year's worth of estimated appreciation. This member's guidelines include a very salient point. An appraisal should state that in the case of diamonds, if the stones are mounted then an exact quality grading is impossible. This statement added to the appraisal form can be very helpful in saving the appraiser from potential future embarrassment!

There is yet another facet to appraisal work: methodology for accepting items for appraisal. How often do we all accept a piece without giving the client a receipt with a complete description, including chips, scratches and other blemishes? It is also critically important that the receipt give a brief description of major stones, and a disclaimer that acceptance of the piece for appraisal does NOT constitute acknowledgement of the authenticity of the item or the stones as claimed by the owner.

The final part of the appraisal dilemma is, of course, what to charge for all this work! Everyone seems to have his or her own formula for appraisal fees, and a full discussion of this aspect will be treated in a later issue of the Newsletter. For now a good starting point for thought is an article in Modern Jeweler, Nov., 1976, by Bill Williams, discussing 2-part appraisal charges.

Let's conclude this brief article with some comments from Harold Oates, GG, FGA who has pinpointed some relevant items. "First of all, unless an appraiser buys in quantity, suppliers tend to ignore his requests for catalogues and price lists. There are a few exceptions who will cooperate, very few. If one knows a lot of retail jewelers, one can get copies from them, trade information with other appraisers, cut ads from trade journals, newspapers, or ask someone. About catalogs and price lists, most ignore quality, or use their own private systems, some are net, some are memo prices, some are cash discount prices, some are triple keystone, some are keystone, etc..... Now, after considering all the sordid details, we must come up with a figure and sign our name. Signing my name sometimes makes me squirm. (Ed. note - I squirm a lot, too) Some things to do before signing: Always ask yourself what could I buy it for? What can I make it for? How much should I mark it up? These things should be considered in order to be fair to the client.

With all of the above trials and tribulations one has to exercise a high standard of ethics."

Amen.