

# AGA Update

 ACCREDITED GEMOLOGISTS ASSOCIATION

**NEWSLETTER      OCTOBER 1, 1986**

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## **DETECTION OF SYNTHETIC AMETHYST**

BY ROBERT CROWNSHIELD  
AT AGA WASHINGTON CHAPTER MEETING  
TRANSCRIPT BY CHRIS LIETWILER

Synthetic amethyst is the subject and one I think is very important because it illustrates something that happens in the jewelry industry.

Synthetic amethyst has been available since 1970, commercially. And of course, the first part was Russian. Synthetic quartz and rock crystal has been available much longer. However, to understand a little bit of why we are going to be able to do this test and why it has taken so long for us to develop a test that we can use, I think we should go back to the reason for synthetic quartz in the first place.

It's as simple as this; when we needed a great deal of electronic grade quartz during the war, Brazil was the source. Several dealers were engaged in shipping by the ship load. I remember when I went to New York in 1948, one of the dealers said, "can you use a ton of quartz crystals?", and I said, "ton?" Well the dealer said, "I used to import this stuff during the war and we relied on the people down there to choose untwinned crystals. Someone got greedy and sent a shipment in which I found not one crystal that was untwinned and it's absolutely useless". So whenever you hear about quartz; digital quartz watch, quartz this, quartz that, it's got to be untwinned.

Now it's been known for decades that amethyst is almost always twinned. The

## **TABLE OF CONTENTS**

<b>DETECTION OF SYN AMETH</b> .....	<b>PG 1</b>
<b>AGA BULLETIN BOARD</b> .....	<b>PG 5</b>
<b>TUCSON '87</b> .....	<b>PG 6</b>
<b>DIRECTOR RESIGNS</b> .....	<b>PG 7</b>
<b>PEARL PRIMER, CONT</b> .....	<b>PG 8</b>
<b>HIGHLIGHTS FROM TRADE PUB</b> .....	<b>PG 8</b>

## **AGA PINS ENCLOSED**

Enclosed with this newsletter you will find your new AGA pin. Special thanks to David Atlas, who was in charge of member benefits, for having these pins made up for us. They turned out even better than expected!



war was over before they discovered they could make an untwinned synthetic quartz. But this illustrates what happened in Brazil. For every ten crystals they mine, fewer than three are useful for our purposes. So they needed a dependable source, but they didn't succeed until 1950. In 1950 synthetic quartz was on its way.

I recall going out to Bell Laboratories where they were growing it in what they call Bombs. And it was out in the back so that if one of them did blow up, it would be safe and it was very interesting because they were made from oriented seeds and it was something like what you see in a casting area where they make gold rings. They end up with what they call bars. So from 1950 on, they were selling a great deal of quartz that was made in many countries. At one point, 1960, Mr. Sawyer, of the Sawyer Crystal Growing Labs in Cleveland called, and said I'm very embarrassed. I have just shipped an order for about a thousand kilos of citrine crystals to Japan and you people haven't even seen them yet. And he sent us one of the bars and some cut stones to study. So that was our first experience with the colored quartz. But it was an outgrowth of the quartz industry so it was a single crystal too. So, the amethyst that we get are single crystal also and virtually all natural amethyst is twinned. So all we're going to do is show you how to tell the difference. And it really is simple. As I was giving a talk the other day, I said I'm glad the lights are out because my face should be red-but ten gemologists and mineralogists around the world should share that redness because we should have had this test a long time ago!

The thing that we are concerned with are the near flawless because if they have inclusions like these, they have to be natural stones. There are several inclusions that are proof, like these so called zebra stripes, but a lot of natural amethyst is in the near flawless state.

Again, if you're dealing with a near flawless stone you have problems. But if the stone has certain types of color zoning-purple and white, or purple and blue, or blue-purple or brown,

you have a natural stone! The synthetic by and large, if it has any zoning, will be parallel or it will be a broad wedge shape darker purple within a lighter purple background. In other words, once you have sat down with a thousand synthetic amethysts, it becomes very monotonous because they are monochromatic. They don't have much color variation. They have tones but you don't get that nice change, the red-purple in some of the nice naturals. The closest are the new Japanese synthetic amethyst. They are really quite good. This white and purple is just not a synthetic characteristic. And brown and purple hues are just not synthetic. There we're dealing with natural colors. So those we're not really concerned about.

But we do have this kind of problem. We have this bar visible in the seed crystal here. On this seed crystal are things that look like bread crumbs. You've all heard that term. In this particular stone there are a few loose ones with no particular orientation. They are pretty diagnostic. But as I announced in a paper the other day, we haven't been forced to study the inclusions in amethyst as we have the inclusions in rubies, emeralds and sapphires. So we shouldn't pay too much attention to these as proof. But I must say that if I see a fingerprint inclusion and a monochromatic amethyst that does not exhibit twinning, I'll sign for that. So it's helpful if you have the auxiliary tests to go with it.

This stone is in the scope in the rear and you'll have a chance to see it. Even though it has the two zones it is an untwinned synthetic crystal. They have succeeded really in only making the amethyst, the colorless, the citrine, and the blue green and a pure, almost aqua, blue. They haven't been able to make the red. Otherwise they have just about all the colors.

This (slide) is along a seed plate. Very difficult to photo-



graph. This is something that, before we had this test, helped confuse us. We have never seen a crystal, and it looks as if it must be a quartz crystal, because it's such low relief, but there's a little gas bubble, maybe even a liquid bubble outside it. That was new to us. At the other end of that same stone, it was an emerald cut stone of 10 to 20 carats, there were the bread crumbs. I would love to have that stone back again to see if it was untwinned. If it was untwinned, it's got to be a synthetic and there's no reason why you can't have a crystal in a synthetic. Today they are cutting more of the material near the skin of the bar to get some fingerprints and things that will be confusing. For instance, that (slide) is in a synthetic. But you notice, the irridescence there is very, very thin liquid inclusions and it's undoubtedly cut from out near the skin rather than in where the seed crystal is.

Okay, let's get down to what we are going to be doing. If we look down at an amethyst crystal and if you've studied them or if you've studied Herkimer quartz crystals, you've noticed that you'll find large, small, large, small rhombohedral faces and the twinning which occurs in amethyst as well as in rock crystal, is called polysynthetic and it's made up of the thin laminates of alternating right and left handed quartz. So that, in this particular case, the right handed is white area. I think you remember your gemology. Quartz is one of the few materials that exhibits circular polarization. So that the figure we get in an untwinned stone is a clear bulls-eye. You don't get the cross that you get in all the other hexagonal stones or I should say uniaxial stones.

What you are going to find, is the bulls-eye will be over any place that is untwinned. So we're looking at this piece and this is just a drawing of how it operates. This area is a zone which is untwinned and if we happened to have an amethyst which is out here and it had no color zoning or natural inclusions, you couldn't tell it from the synthetic. But it's rare in an amethyst not to find a little of the major color zoning direction. So if you had a stone here, like this, and I'll show you a picture

of one, they caught a circle and they caught just that little bit here. This will be twinned, this will be untwinned and as I will show you in just a minute, the little sphere that many of you have used to get an interference figure will show three different kinds of figures in a twinned stone.

Now we don't usually go to a lot of effort to identify amethyst, prior to now. So most of us haven't had that experience. What you've done when you've been doing an amethyst is saying, it's quartz and I should get a bull's-eye. So you start looking and you get an all messed up figure. Well the messing up is proof of a natural stone, so you work around until you do get a bull's-eye. All the while you were seeing just what we should have been doing 15 years ago.

This is what we diagrammed, actually what we're going to see is this, bull's-eye here, crossed (isogyres) here and what we call an Aries spiral right here. At the joining planes you are going to get a very funny figure that most of us don't pay attention to because we think we're not doing it right. Well it's very diagnostic. You'll never get an Aries spiral in a synthetic nor will you get crossed (isogyres), you get a bull's-eye always. Now in addition to affecting the optical identification, we have some pretty good evidence that this is a twinned material in a fracture.

This (slide) is a beautiful example of the twinning showing up in a healed fracture. The major rhombohedron here, the minor one here. Naturally when you see this, it is a very good example of the twinning you get in an amethyst. Now, this is something taken from a book that goes back to 1932, and it is a section of an amethyst crystal at right angles to the optic axis. Now this is in polarized light and the polarized light almost does what you were seeing in the drawing. Here is definite twinning, here the untwinned area. So if your stone was cut right here, you would have a problem of no proof. I'll tell you, getting ready for the presentation to the American Gem Society Conclave, really I should backtrack. This is not a discovery on the part of the Institute at all. It's really an adaptation of a method that we saw and was demonstrated by Dr. Carl Schmetzer in Idar last year. He works closely



with Idar although he's from Heidleberg at the University. He had developed a stone holder that could hold the stone, in immersion, and use their horizontal microscope. The articles had been written in German and recently had been reproduced in English. The title throws you off because it says "A New Sample Holder". Well then you say-that's what he's talking about, he's pushing someones product. Actually if he had just put "An Easy Method for detecting", but it wasn't easy. You had to spent 6000 bucks for a microscope according to him, plus a thousand for that stone holder.

When we hot back from Idar, 5 or 6 of us tried to duplicate it with our microscopes which are not horizontal and we don't use immersion for everything. We were getting frustrated. One day I happened to go to a polariscope, and suddenly, with no problem, I saw what we were demonstrated over there because the power was too high. You don't need to see the optic figure, you just need to see the colors. Then we began to experiment with and without immersion until we were down to the point where we were ready to see if it worked.

So I called a dealer known to have the finest amethyst in the city and he very kindly said he would come over. He sent over 30 stones. Now these were beautiful stones. They were from 20 to 50 carats, and they were expensive. They were about \$35 a carat, now that's pretty high. So we looked them over, not being sure if we had the test down yet. Finally I called him. I said there seem to be 3 synthetics in your lot. He said "Yeah", I know. I put them in". They are worth \$4 a carat when he buys them in big lots. There is an incentive for somebody to mix lots. As I said the gentleman we talked to just last week said their own factory was salting them. You understand how worldwide this problem is and every jeweler had better learn this test. This is not a question of a little oil on a stone. This is a matter of a \$4 stone versus a \$35 stone.

So this test was based on something that was known. Actually Dr. Schmetzer developed the instrument. We only refined it for use to be readily available and simple. And it's a lot of fun. It is beautiful, sometimes you see color

patterns.

This is what we're going to use instead of this high powered equipment you saw, using this little beaker. This little beaker has a flared lip and is very useful. The tweezers he is using are not the ones I would like to get but I haven't been able to get a source for it. But it's a type of reverse action tweezer that when you let go, it grasps the stone. It's not one we sell. And then you can maneuver it just the way his high powered stone holder does. Amethyst is not usually oriented. They don't try to get the optic axis coming out of the table the way they do with ruby and sapphire. That's the reason you sometimes have to go to immersion in order to be able to see the direction of the optic figure. Sometimes it comes off the girdle or off a point and it's difficult without immersion. But these beakers are candle holders. I laughed the other day when I went into SC Pats (restaurant) and here were hundereds of them lined up. But I also went into a restaurant and this was in the middle of my oysters. There is one under immersion. Do you recognize it? There's the major rhombohedron, there's a minor rhombohedron. Single crystals here, twinned there-just a beautiful example. You follow it right along.

There's another one, all messed up. But that is a natural stone. What about that? Nothing's messed up about that. It's back there on the table right now. No matter how you turn it, it's beautiful, undisturbed, untwinned and it is a synthetic.

Now these were lucky stones because they could be photographed lying on their tables. But, I had to go through hundreds of stones to find them.

Now if I were testing these stones, not knowing they were synthetic, I wouldn't be happy just to do that. I would look to see if I could find any disturbance out here because maybe this is under the minor rhombohedron and only a little bit of the twinned area was incorporated into the stone. I've got one over on the right hand table that's beautiful. You say, "Oh that's synthetic" until you turn it slightly and then Oh boy! There it is. It's twinned, that is a natural stone.

Okay, this one I'm putting in be-





cause it's fascinating. It's the Ametrine. There's still a mystery about it. All of a sudden in 1980 it came on the market - amethyst and citrine together. It was studied and we're pretty well sure that they are natural stones but we're not sure that that's the way they were found. Matter of fact, here is another one. The interesting part, under examination the amethyst part is twinned, the citrine part is not. It's a single crystal. We know that this is natural material. When it first came out we weren't sure of that but Dr. Nassau did some experiments with synthetic quartz and was able to make this synthetically. But the process was so laborious, he doubted that it was commercial. But whether or not the material arrives like this, this we are not told. Before the treatment we don't know if it's just heat, we think it is. But after the process, it becomes citrine. This becomes the amethyst. I might say we did 1090 stones preparing for the conclave in Boston and we have only two stones we are not sure of. We have them aside, we're going to study them some more. Each time we work with them we learn more but these two stones I just don't feel sure about. I think that's pretty good. I haven't sat down and done 1090 rubies but I'll bet you there would be a couple of rubies in a group that you would worry about.

So we do have a test. It does take some practice and I believe that this whole matter of salting parcels with synthetics is going to have to come to a close.

We hope to have an article that will refresh your minds on this, possibly in the summer so that you'll be able to view it at your leisure.

NOTE: Liquid used is water.

SPECIAL THANKS TO CHRIS LIETWILER FOR MAKING THIS TRANSCRIPT AND SHARING IT WITH US. I'm sure all of us who were not at that meeting wish we could have been there!

## MEMBERSHIP DRIVE CHANGES HANDS

Jack Kelsey has handed over the membership drive to Marilyn Thomas and Alison Birch. After many hours of dedication to this project, the paperwork has been reorganized and the process is now in an easy-to-follow format with updated letters and uniform information. The turnaround for information and new certificates is within three days now.

Many thanks to these two for their great effort to help things run more smoothly.

## AGA MEMBER LEAVES INDUSTRY

AGA member George Patrick Klein is leaving the organization and the jewelry business to enter a new career in the field of psychology which has been a longtime desire of his.

AGA will miss George and wishes him the greatest of luck and happiness in his chosen field.

## AGA BULLETIN BOARD

FOR SALE: A MAXILAB by Gem Instruments. Bausch & Lomb optics (Deluxe "B") with a magnification range of 10x to 45x. Excellent condition. \$2,900.00  
Contact Bob Nichols, (303) 494-4435.

THE FOLLOWING STONES FOR SALE:

1. Rough Ekanite-greenish yellow, one of the largest, museum quality 91.35cts
2. One emerald cut light blue Fibrolite, flawless 15.15cts
3. One Phenakite cat's eye, white strong ray, perhaps largest in world 45.15cts
4. One oval cut Sinhalite, flawless 41.25cts

D.F. Jayakody would like to contact members interested in these stones, as well as large and extra large natural untreated blue sapphires, star sapphires etc.

Contact: D.F. Jayakody  
8. Batagama North,  
JA-ELA  
SRI LANKA  
Telephone: 536423

Other members with items to sell, wants to buy, etc.-contact Dana, Publications



## TUCSON '87

TUCSON COMMITTEE

BRENDA JOYCE CALDWELL, ASA, MGA

ROBERT L. ROSENBLATT, MGA

Plans are well under way for our next Tucson conference. This year we have a very exciting format! Our theme of the conference will focus on how we can use our investment in gemology to make a profit. We have all spent hundreds of thousands of hours and dollars in education and equipment and yet many of us end up asking ourselves "how can I turn this around and add to my profit margin?". This year we are asking all our speakers to direct their presentation toward the practical aspect of gemology. We will also use a slightly different format in that we will combine lecture with hands on workshops. Our last questionnaire indicated that the majority of you who attend Tucson really want a chance to work elbow to elbow with our speakers and learn some hands on technique.

We also learned that the majority of you would prefer to start just a little later in the morning, end earlier in the day (so you could catch a couple of hours of the show), and cut down the length you have to sit. We are considering a slightly different approach to scheduling, but would like to hear from all of you before we commit to it. We would like to do the following:

START: 9:00 AM  
LUNCH: 12:00 TO 1:00  
RESUME: 1:00  
RECESS: 3:00 to 7:00  
RESUME: 7:00 PM  
END: 10:00 PM

This would give people a chance to attend the show for a couple of hours, have some dinner and come back for some more conference. This would give you a chance to absorb some of what you heard in the day sessions too. We would try to make the evening speakers and workshops our mainline attractions, and keep them exciting. This might also allow those who go to the show to make a living, a chance to see our more spectacular presentations. We would price admission to the evening speakers separately for those who did not wish to sign up for the entire conference. The

registration fee will be \$50 for one night, and \$80 for both evenings. Please let us know how you feel about this type of arrangement as soon as possible...pro or con!

While we are on the subject of price, we want you to know we are making every effort to keep the tuition at last years price. The hotel has raised the rate we will pay slightly, however if we can encourage enough of you to attend, we will be able to keep the costs the same.

Following is a list of speakers who have tentatively committed to speak. Please remember this is tentative and is subject to change until we get positive confirmation from our speakers. We have also included a rough outline of topic by each speaker:

DAVID ATLAS.....How to prepare for court cases (appraiser liability)  
C.R. "CAP" BEASLEY.....How to buy in foreign markets  
THOMAS CHATHAM....How to sell synthetics "what is real today"  
RICHARD DRUCKER.....Buying, selling, appraising using "GEMWORLD" price guide  
MARK EBERT.....Period jewelry, what to look for in buying  
RUTH ANN HOWARD....How to design jewelry  
JACK KELSEY....Fiscal fitness for the appraising gemologist  
JEAN FRANCOIS MOYERSOEN....Using "GPR" to buy, sell and appraise, & the International Diamond market  
JOHN NG AND BETTY SIMPSON....Jade from a gemological point of view and Jade from a fashion point of view  
JUDITH OSMER.....How to treat for profit  
DONALD PALMIERI.....Using the "MARKET MONITOR" to buy, sell and appraise  
MARTIN RAPPAPORT.....How to use "RAPPAPORT" price guide and a special role play session on "HOW TO BUY DIAMONDS ON 47TH STREET"  
THEODORE THEMELIS.....AGA lab reports  
RODNEY WAGNER.....Using "AGANET", Using computers in your business

\*speakers and topics are tentative

If any of you have comment or additional suggestions on the above schedule please let us hear from you. We are hoping for some really big surprises which we will add to the slate of events and will keep you posted as we get closer. Although Tucson is five months away,





please plan now. If you have not been to our Tucson conference, you are missing the most important event AGA sponsors! Although we will again make most of the lectures available on video tape this year, and will try to do some mid year "mini" conferences in '87, there is no substitute for TUCSON!

In addition to the conference, our intent is to hold another certification class for the MGA program. Those interested should contact Donald Palmieri, Chairman of the International Board of Examiners, at (412) 344-5500, or Neil Cohen, President, at (203) 278-1800. Those who need to recertify should also contact Mr. Palmieri as soon as possible. It looks like we will have some really exciting news about the MGA program to present in Tucson.

We will hold our conference this year, again, at the HOTEL PARK TUCSON, 5045 East Grant Road, phone (602) 323-6262. We will be given special consideration on rates and they should be close to last years, if not the same. We urge you to make your reservations early. If you have any questions or problems with reservations, please contact Brenda Joyce Caldwell, (602) 742-3687.

This should be the best TUCSON yet! Please plan to attend. We need your support and input! Let us hear from you soon.

## **DIRECTOR RESIGNS**

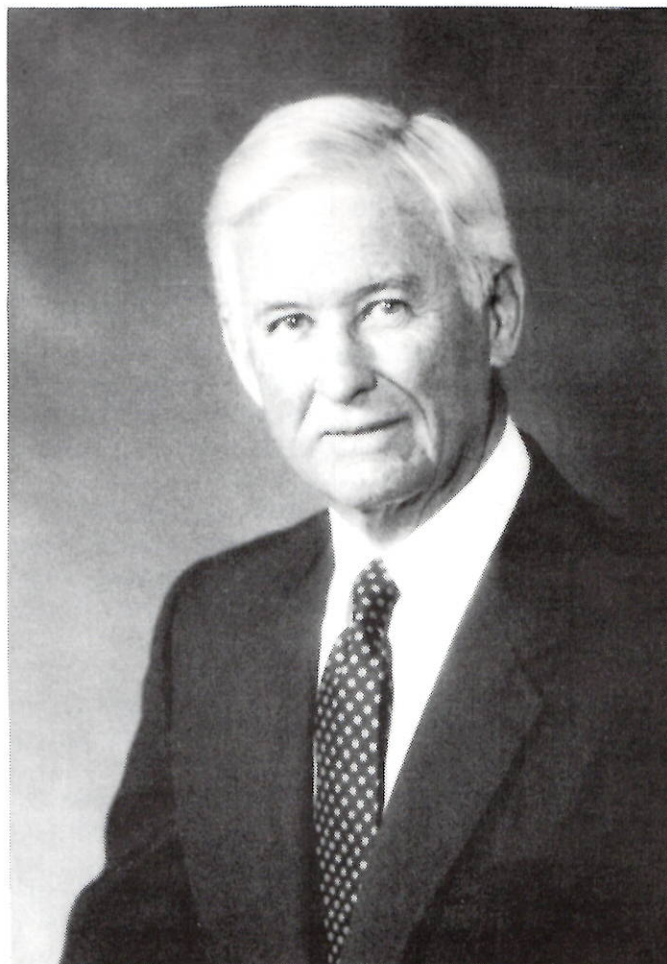
**BY ROBERT L. ROSENBLATT, MGA  
1ST VICE PRESIDENT**

Our executive director, and long time friend, S.D. (Jack) Kelsey is soon leaving the jewelry business. As such he has tendered his resignation as executive director fo AGA, to be effective at the beginning of the new year. We hate to loose Jack and wish him all the best and continued success. Apparently, Jack is taking to raising blueberrys in North Carolina. This is a far cry from gemology, but maybe a needed break after we worked Jack so hard.

Jack studied Engineering and taught at the US Military Academy of Technology. He was in the Air Force and retired as a Colonel. He started in the jewelry

business in 1966 with S.D. Kelsey Jewelist, Inc. in Florida. He opperated Florida Gemological Laboratories and has been awarded many distinctive titles in the course of his professional career. Among his accomplishments, Jack made the senior designation in the ASA and serves as his chapter president. He was awarded Accredited Gem Laboratory by AGS, Master Gemologist by the AGA, Regional Governor of AGA, and Vice President of the GIA Alumni Association in Florida. Jack has traveled the world in the name of gemology and has expertise in a wide variety of gemological areas.

We will miss Jack. He will be honored with a retired member status, and we hope he won't be a stranger to us. On behalf of the officers and membership of AGA, thank you Jack, we are indebted and appreciate all you have done to make AGA a better organization!



**S.D. (JACK) KELSEY**



## PEARL PRIMER, CONTINUED

### PROPER TERMINOLOGY

BILL BENEDICT

- CHOKER- 14" to 15" in length. Should nestle around the base of the neck.
- PRINCESS-18" in length. Halfway between choker and matinee length.
- MATINEE -22" to 23" in length. Should fall to the top of the cleavage.
- OPERA -30" to 36" in length. Should fall to the breastbone.
- SOUTOIR  
OR ROPE-Any pearl necklace longer than opera length.
- DOG  
COLLAR -Multiple strands of pearls fitting closely around the neck.
- BIB -Multiple strands of pearls, each shorter than the one below, nested together in one necklace.

FROM: February 1986 Lapidary Reporter

### COLORED PEARL CULTURE

India has succeeded in culturing pearls in several colors according to the Indian trade magazine, Journal of Gem Industry. The research to grow colored pearls has been going on at the Gujarat Fisheries Aquatic Science Station at Sikka for five years. Some 4000 pearls were cultured during that period. Only recently, however, has the Sikka station announced success in culturing some 200 pearls in several sizes.

## ARKANSAS DIAMONDS

While on a vacation from my home in Utah driving to Georgia, my husband and I drove through Arkansas. I kept my eyes glued to road signs hoping to find a rock shop specializing in local minerals, particularly fine quartz specimens and diamonds.

The first stop yielded nothing, but a little further down the road I spotted

a sign claiming "Largest selection of Arkansas diamonds". We stopped and I got out for a look. My first clue should have been the fact that this shop also specialized in lawn statues. Inside I asked the man to show me the Arkansas diamonds, and he pulled out a tray, which upon inspection turned out to include foilback cluster rings and what appeared to be faceted colorless quartz solitaires.

I said to the man "These are not diamonds!", but he insisted that they were in fact diamonds. I told him that I was a gemologist and I could tell that they weren't diamonds. He showed me a rough quartz crystal and said that yes, they were diamonds, they just weren't as hard as African diamonds. There was no further discussion. I left and discontinued my road sign scan for Arkansas diamonds.

Dana

## HIGHLIGHTS FROM TRADE PUBLICATIONS

MODERN JEWELER APRIL '86

BY PAM ABRAMSON

HERITAGE SERIES

Modern Jeweler announced a series of articles to be published on an irregular basis concerning the "historical and cultural aspects of jewelry and the jewelry business." The Lalique article inaugurates the series.

RENE LALIQUE: RAISING JEWELRY TO AN ART  
by Jennifer Shaefer Philby  
Pages 37-44

This delightful article on Rene Lalique, the master of Art Nouveau jewelry, is profusely illustrated with examples of his pieces and sketches. This short but intense artistic style (1885-1910) is garnering interest from sophisticated consumers and should be understood by the jewelry trade. This article offers an excellent starting point to the study.



## RE CUTTING: NEW LIFE FOR OLD GEMS

by David Federman  
Pages 46-49

A look at recutting abraded, damaged or ill-proportioned gemstones. Hints on when to do it, who should do it, liability and the possible positive impact on your business.

## MODERN JEWELER MAY '86

BY PAM ABRAMSON

## MODERN MINI-GUIDE: JEWELRY SCHOOLS

by Jennifer Schaefer Philby  
Pages 65-71

A listing and description of educational institutions of interest to the jewelry industry. Runs the gamut from schools for watchmaking to design and manufacturing.

## CANADIAN GEMMOLOGIST SUMMER '86

BY EDSON RYDER

The Official Journal of the Canadian Gemmological Association  
P.O. Box 1106, Station Q  
Toronto, Ontario M4T 2P2  
CANADA

## CANADIAN GEMS IN THE NATIONAL MUSEUMS OF CANADA

by Willow Wight, BA, FGA, FCGmA

A brief description and history of Canada's National Gem Collection is given. Originally the gems were collected and shown as a part of the National Mineral Collection. In 1976 the gems were catalogued separately and now comprise about 1600 specimens.

Stones from many countries are included, but the emphasis is on Canadian gems. Eighty-two species of minerals or rocks from Canadian localities are represented by polished stones. A 16 page table of important stones is included.

## BRAZILIANITE

by Willow Wight, BA, FGA, FCGmA

This is one of a series of articles on unusual gemstones. When first discovered in Brazil in 1944, it was thought to be chrysoberyl. When separated by a lower hardness and refractive index, the mineral was named after the country where

it was found.

Most faceted stones would be from one to ten carats, but much larger specimens can be seen in the American Museum of Natural History and the Smithsonian Institute.

A complete list of all properties is given. Its color is colorless, light yellow or light green. Brazilianite could be confused with chrysoberyl, topaz, tourmaline or apatite, but a positive identification is possible by R.I. birefringence and optic character.

## A FEW HINTS ON IDENTIFYING SYNTHETIC RUBIES

by W.D. Goodger

An itemized list of identification factors is given for Verneuil, Kashan, Chatham, Ramaura, I.T.C. Czochralski pulled and Czochralski pulled laser rod rubies.

The principal technique to separate synthetics and natural are given as; observation, ultra-violet light, the dichroscope and the microscope.

This tabulated format would be handy to have in the laboratory as a quick reference.

## GEMMOLOGICAL TRIVIA CAROB SEEDS AND MOONSTONES

by Dean S.M. Field

Comments are made on the weighing of carob seeds that were gathered in Toronto. This test was conducted by Dr. Victor Ben Meen and Dr. Walter Tovell of the Royal Ontario Museum.

The weights of the individual seeds were found to be almost identical and varied only slightly from the metric carat.

A comparison of moonstone from Sri Lanka and recently mined stones from India and Burma. The author states that moonstone from Sri Lanka had by far the finest bluish white to deep blue sheen. Unfortunately, these stones are becoming very rare and costly.

## JEWELERS CIRCULAR KEYSTONE AUGUST 1986

BY JANET F. POST

P.H. UPFRONT

Pennsylvania Senate unanimously passed a bill regulating jeweler's



appraisals. Under the bill, jewelers would have to charge a flat fee for appraisals.

HOW ROLEX FIGHTS THE FAKES  
Page 168

"10 million counterfeits are sold each year". The article states that "a volume product exceeds sales of legitimate Rolex watches on the U.S. market." (This writer just saw the police confiscate Cartier, Gucci and Rolex fakes on Lexington Avenue in New York.)

IF YOU CAN'T USE A LIE DETECTOR  
Page 263

The FBI says that 10% of all employees will now steal. But, say the feds, 60% will steal given certain conditions and the other 30% will "actively pursue the opportunity to steal."

LAWSUIT FILED OVER ASSOCIATION'S NAME  
Page 274

The AGA filed a lawsuit against the Master Gemology Association and its founders, Cary and Bruce Keno. AGA's suit claims that the Kenos started this group after Bruce was suspended from the AGA's MGA program in 1985.

THE COST OF OLD  
Page 308

The Official Price Guide to Antique Jewelry - 5th Edition by Arthur Guy Kaplan - "The price guide is called 'official' but no group certifies that it is indeed official."

DIAMOND MISGRADING - THE PROBLEM  
Page 414

The problem of overgrading diamonds goes far beyond one jeweler in one city. At least a fifth and maybe as many as a third of all diamonds offered to jewelers by JCK were overgraded to some degree by the supplier or his salesman. (NOTE: All appraisers should read article.)

NOTE: AGA member David Atlas is featured in this article for his help with one specific notable case, and his opinion on what is going on and what we can do. Congratulations to David for giving his time and effort to this cause.

NATIONAL JEWELER—APRIL 16th  
BY YOUNG McQUEEN

Note: This issue contains the "1986 Spring Fashion Focus", a collection of new styles that are supposed to be in for the coming season. You be the judge.

JEWELERS IN PHILLY AFFECTED BY FALLOUT OF PERLSTEIN PUBLICITY  
Page 1

Bad news doesn't help anyone.

JEWELERS FIGHT ON IN SENATE AFTER HOUSE NAYS POLYGRAPH

The Congress is considering a bill to ban polygraph use in the private sector.

TRADE GROUPS STILL DISAGREE AS "GUIDES" FACE FTC SCRUTINY

They can't get together on the total weight issue.

AGA CHARGES MGA FOUNDERS WITH INFRINGING ON TRADEMARK  
Page 8

Continuing notes on the AGA's dispute with Bruce and Cary Keno and their "MGA" buy yourself a certificate program.

CONSIDER 8 STRATEGIES TO MANAGE CONFLICTS  
Page 15

How to advise.

HONG KONG EXHIBITORS MAKE QUIET FRISCO DEBUT  
Page 22

Anyone who loves San Francisco, which includes just about everyone but the inhabitants of L.A. and environs, knows you don't call it "Frisco". Hong Kong is having an impact on the U.S. jewelry market and the fact that the big jewelry shows keep them out will in the long run not change things. They had their own show held at the same time and nearby the Pacific Jewelry Show.



JEWELER TO PAY \$9,000 IN 'AD FRAUD'  
COMPLAINT  
Page 99

The wheels of justice grind slowly on. This one was from Sacramento.

EMERALD 'MINE' FOUND OFF COAST OF KEY  
WEST  
Page 100

Discussion of the emeralds from the Atocha believed to have been mined 400 years ago in the Muzo area.

4 OF 5 THEFT ATTEMPTS FOILED AT PACIFIC  
SHOW  
Page 102

Good news! Bad news!

PERLSTEIN FILES FOR CHAPTER 11; HEARING  
SET FOR END OF APRIL  
Page 107

More on the continuing case of a jeweler allegedly defrauding the public.

**NATIONAL JEWELER—MAY 1ST**  
BY YOUNG McQUEEN

SIGHT PRICES RAISED 7%, MARKET IMPROVED:  
DE BEERS  
Page 1

More details on DeBeer's recent increase in rough prices.

JVC ASSAILED AT PA. HEARING AS INDUSTRY'S  
'PAPER TIGER'

Continuation of the Pennsylvania action toward more controls on the jewelry industry.

'APPRAISED' PRICE AD CLAIMS FRUSTRATE SAN  
DIEGO OFFICIAL

San Diego state attorney refuses to investigate a complaint about a store advertising "2 carat solitaire, appraised for \$4,000.00...now selling for \$295!"  
Must reading!

ZALE TO SELL TWO OF ITS US DIVISIONS;  
AGAIN REJECTS PEOPLES TAKEOVER BID  
Page 8

MITCH GILBERT DEAD AT 52; EDITOR, PUBLISHER OF "ACCENT"

DICHROSCOPE IDs TRANSPARENT GEMS  
by AGA's Tony Bonnano et. al.  
Page 16

Primer on the dichroscope...maybe even something we "used to know".

SMA FOLDS, REAPPEARS; AVOIDS \$1.6 MIL.  
IN DEBTS  
Page 30

Key names: New name of company: Diamond & Jewelry World, old and new owner: John Shackelford.

INDUSTRY CHANGES LOOMING AS COURTS IN-  
VALIDATE MEMOS  
Page 33

Must reading if you buy or sell via the standard memo method.

U.S. DIAMOND MINING STILL SEEN AS BIG  
"MAYBE"  
Page 42

Diamond mining in Colorado....  
Probably not.

SEARCHING OUT NEW WAYS TO MAKE INDUS-  
TRIAL GRADES  
Page 47

An interesting view of the other side of the diamond industry.

GEM TRUST'S LOSSES VERIFY EXPERTS'  
INVESTMENT WOES  
Page 56

Some interesting comments on the field of gemstone investing.

**NATIONAL JEWELER—MAY 16TH**  
BY YOUNG McQUEEN

JEWELERS EXPLOIT IGNORANCE, CLAIMS  
BUFFALO TV REPORTER  
Page 1

They use the word "jeweler" loosely--most of the offending merchants were "buy and sell" operations. One was an appliance store that "bought and sold diamonds". It seemed that many of the stores were giving verbal appraisals that were later questioned. Another good reason to avoid this practice.

Maybe if the law enforcement operations in this country are not going to enforce laws against misinforming the public and deceiving them, the media will.

SENATOR ASKS FOR NEW PROBE INTO JEWEL-  
RY-INDUSTRY ABUSES  
Page 13

(sic) Pennsylvania State Senator Greenleaf is calling for a statewide investigation into the jewelry



industry. He is including the possibility of new legislation that would include: Written warranties on gem sales, prohibition of false discount prices and advertising, and state licensing requirements for jewelry appraisers.

**CONTROLLING WORKER STRESS CAN INCREASE PRODUCTIVITY**

Page 30

Tips on management.

**TOWLE FILES CHAPTER 11, SEEKS TO SELL DIVISIONS**

Page 37

Gold Lance, the division making class rings will be sold to Town and Country, etc.

**WORLDS LARGEST CUT GEMSTONE DONATED TO NEW YORK MUSEUM**

Page 38

Another big blue topaz--21,005 cts.

**NATIONAL JEWELER—JUNE 1ST  
BY YOUNG McQUEEN**

**STONE-SWITCHING RAMPANT, PERLSTEIN EMPLOYEE TESTIFIES**

Page 1

More on the continuing case of Ron Perlstein, who is charged with over grading and other actions to defraud his customers.

**LAVULITE SUES MARKETER, CLAIMING TAKE-OVER PLOT**

Page 8

Lavulite, Inc. is suing William T. Brown II of Dallas over the apparent lack of success of lavulite (sugilite).

**RARE 'SLASHED TIRE' CASE RESULTS IN SIX ARRESTS**

Page 12

In Wyoming luck helped apprehend six apparent members of the Colombian gang who specialize in robbing jewelry salesmen without guns or violence.

**CONSUMER AUDIT '86**

Page 41

Results of marketing research study preformed by "National Jeweler". Must reading for all retailers.

**2ND PHILLY JEWELER ACCUSED OF DISHONEST DIAMOND DEALS**

Page 68

Robbins 8th and Walnut was charged in a TV expose of the same type of over grading that led to Ron Perlstein's demise. Gerald Robbins, a former president of the Diamond Council of America denied the charges.

**LAPIDARY JOURNAL—MAY '86**

BY YOUNG McQUEEN

This month's magazine is devoted to organic gems.

**FACETS**

Page 5

Short items of varying interest to the gemologist.

**TOUCHSTONE...REBUTTAL?**

Page 9

A continuation of the treatment issue.

**GEM TREATMENT, EMERALD**

by Dr. Pough

Page 11

Must reading.

**INCLUSION OF THE MONTH; LIQUID IN EMERALD**

by AGA's Ted Themelis

Page 19

Must reading.

**LITTLE KNOWN BUT LIVELY**

Page 20

Information on rarely seen and rarely discussed organic gems in jewelry.

**BLACK PEARLS OF MANIHI**

Page 26

Polynesia's black pearls: worthwhile even if you only look at the pictures.

**FOSSIL IVORY: STABLE AND USABLE**

Page 35

Treatment of fossil ivory that is unstable is covered here.

**WHITBY JET**

Page 37

Good addition to the literature.





VALUE ADDED: SELECTING ORGANIC GEMSTONE MATERIAL

Page 42

Good reading. Covers coral, amber, ivory, pearls and shell.

IVORY: THE ELEGANT OVERBITE

Page 57

Good survey article on the subject.

FOOTNOTE: Lapidary Journal is one of the few magazines that finishes an article before it begins another. It is such a pleasure not to have to flip forward throughout a magazine tracking an article and then return to find your place.

**LAPIDARY JOURNAL—JUNE '86**

BY YOUNG McQUEEN

FACETS

Page 5

Notes on GIA's Gemfest scheduled for August 14-15. Weekend gem seminars are planned by the GIA for four cities: Cleveland, Denver, St. Paul and San Francisco.

Gem Tour of the Orient is scheduled for October 11-November 1, 1986 by the GIA.

SHOP HELPS: TESTING AMBER

Page 14

Succinct refresher if you have forgotten. Amber has an odor of pine when touched by a hot point, it floats in a saturated salt solution and it is not dissolved by ether.

GEM TREATMENT: PEARL

by Dr. Pough

Page 16

A continuing series that is must reading.

INCLUSION OF THE MONTH: ZIRCON HALOES

by our own Ted Themelis

Page 19

Must reading.

FIREWORKS AT MIDNIGHT

Page 20

This is an in depth report on Indonesian Opal. The item here of most interest is vivid colors on a jet black matrix-hence the title of the article.

LIGHTNING RIDGE: BLACK OPAL CAPITAL OF AUSTRALIA

Page 26

Very good article on an important subject. Must reading.

THE ANGEL OF YOWAH

Page 33

This material, from the Yowah area of Queensland, Australia, is essentially boulder opal with a little romance added

ULTRAVIOLET RECOVERY

Page 36

Details the use of ultraviolet light in the search for opal in Coober Pedy.

OPAL IN THE UNITED STATES

Page 42

Good survey article on the opal fields in the U.S. and the characteristics of the opal found here.

NOTE: In this article under the heading "Opal Vocabulary", the term Black Opal is defined as "Opal that has opalescent play of color against a grey or black background."

Frank Leechman in his book, "The Opal Book", defines black opal as "A form of opal in which the background color is grey or black".

Robert Shipley in his "Dictionary of Gems and Gemology", defines black opal as "Opal of black or other very dark color...etc.".

A client of mine recently purchased (and returned) a black opal from the Sharper Image catalogue. It was light grey. It would have fallen into the category of a black opal according to two of the definitions above--but it is surely not what a customer wants when they say "BLACK" opal. Comments?

OPAL FROM MAGDALENA

Page 49

Information on Mexican opal.

ELUSIVE IN LOUISIANA

Page 54

Opal in Louisiana? Yep!

TRIANGULAR RADIANCE: STEP CUT ROUND

Page 57

Cutting details for a very brilliant, scintillating round cut.



NEW RESEARCH TOOLS AT GIA **GOLDSMITH MAY 1986**  
Front News Section **BY LARRY PHILLIPS**

GIA has obtained a Nicolet spectrophotometer with computer analysis capability which is much faster to use for gem analysis.

**GIA VIDEOTAPES**  
Page 46

Eight videotapes are now available:  
Freshwater pearls  
How to separate natural from synthetic ruby  
Key steps to selling jewelry  
How to sell colored stones  
Appraisals, the latest considerations  
Detecting irradiated diamonds

GIA's one-day jewelry sales seminar has also been taped. The tapes all sell for 49.95 each, except the 6 hour sales seminar, which costs \$495.00

**GOLDSMITH JUNE 1986**  
**BY LARRY PHILLIPS**

**REPORT ON AGS CONCLAVE**  
Page 18

This report mentions a technique that some of us already know about for the separation of synthetic and natural amethyst, based on the fact that the natural generally grows in twinned crystals, while the synthetic grows as a single crystal. Credit for discovery of the technique is given to Dr. Karl Schmetzer of Heidelberg, who uses a polarized microscope and immersion to look for interference patterns down the optical axis of the stone.

**JEWELERS QUARTERLY**  
**SECOND QUARTER 86**  
**BY LARRY PHILLIPS**

**AMETHYST, CITRINE, AND WHAT'S IN BETWEEN**  
by Robert C. Kammerling, G.G.  
Page 13

This is a good basic article which discusses color and sources of amethyst, citrine and "ametrine". The author states that, at present, there is no known test to separate natural ametrine from natural material treated to produce bi-color "ametrine". There is also an amusing insert about the history and

legend of amethyst.

**POLYGON CREATES \$49.95 COLOR GRADING SYSTEM**  
Page 44

Seems that perhaps COLORMASTER and COLORSCAN's days are numbered. The Polygon Color-Wheel can (for 49.95) duplicate the color of any stone in question with reasonable accuracy - at least according to a Mr. Bill Warthing of New York. It is also purported to be in general use all across the country. If you want to check it out, send \$49.95 + \$0.90 postage to Polygon Network, Inc. P.O. Box 1885, Dillon, Colorado, 80435. My personal guess is that neither GEM Instruments nor Mr. Beesley have a great deal of competition here.

NOTE: I have also agreed to report on JEWELRY NEWS ASIA, but so far I have found very little news of the gemological sort to be reported there. It is, however a good magazine for anyone who has regular commerce directly in Asia, as many reports indicate buying and selling places, trends and developments peculiar to that area. If anything relating to new instrumentation, techniques, or general market trends that might be of interest turns up, I'll be sure to let you know. Also, if I'm missing something that anyone feels I should have reported...please let me know. ...The next issue was better as follows...

**JEWELRY NEWS ASIA JULY 86**  
**BY LARRY PHILLIPS**

**IMPROVED METHOD TO IDENTIFY TREATED STONES (DIAMONDS)**  
Page 18

Dr. Geoff Woods of DeBeers and Dr. Alan Collins of King's College London are credited with a new procedure to detect irradiation treatment of diamonds. Irradiation produces an absorption line at 595 nm when the diamond is heated to about 800 degrees Celsius, but this line can be eliminated by further heating to about 1,000 degrees Celsius. Dr. Wood and Dr. Collins report that as this line is destroyed, two new lines appear in



the "near infrared" part of the spectrum at 1,936 nm and 2,024 nm. The conclusion is that if any one of the three lines is present, then the diamond has almost certainly been treated.

#### **GOLDSMITH JULY 86**

BY LARRY PHILLIPS

#### **HARD LUCK IN A HARD PLACE**

by Cheryl Kremkov

Page 36

An entertaining, informative article about opal mining in Australia and at the same time, there are signs that both major mining areas are being worked out...and very little prospecting for new sources is taking place. (Coober Pedy and Minabie account for 90% of the world's opal production). In the last few months, according to Kremkov, the price for a decent commercial quality opal has gone up 30%! She further states that "the price increase is most severe in the rough appropriate for the calibrated sizes used by U.S. manufacturers. It is also possible that part of the price increase is due to stockpiling by Hong Kong dealers. These theoretical stockpiles may be used to help stabilize the supply (eventually). Kremkov does predict that "prices for calibrated opal in popular sizes will continue to rise in the next few months".

#### **DIAMONDS DOWN UNDER**

by Jan Mayman

Page 54

This article discusses the output and business climate surrounding the Argyle mine in Australia (25 million cts./yr.), as well as the working conditions, equipment, etc.. Fascinating reading about our only major diamond deposit discovery in our decade.

#### **JEWELERS QUARTERLY**

**THIRD QUARTER 1986**

BY LARRY PHILLIPS

#### **RED GROW THE RUBIES**

by Robert C. Kammerling, G.G.

Page 6

An excellent article including  
SOURCES: Burma (better quality stones mostly smuggled out through Thailand, Sri Lanka (continues to produce an

occasional fine ruby, most production more properly called pink sapphire), Thailand (the major source for today's rubies), Kampuchea (Cambodia) (Political problems inhibit production).

POTENTIAL FUTURE SOURCES: Tanzania (rather opaque), Kenya (not much of this material has been seen on the market), Jagdalak (Afganistan) (political situation makes this source questionable), Pakistan (generally heavily included but the color is often quite good).

TRADE TERMS: Mr. Kammerling feels that these terms lead to more confusion than clarification, but describes the most accepted meanings so we can "know when they are not being applied correctly".

Burma Ruby: finest color, intense slightly purplish-red

Thai Ruby: dark in tone often brownish red to dark purplish red, may resemble pyrope or almandine

Ceylon Ruby: light to very light in tone and therefore more properly called pink sapphire

African Ruby: orangish-red stones reminiscent of red spinel

COLOR: Mr. Kammerling describes how ruby fits into our modern (GIA) color description terminology..."ranges in hue from orangish red through pure red and into purplish red, of medium to very dark tone and strong to vivid saturation! The greatest value is placed on those that are a "medium dark vivid red to slightly purplish red" with slightly more purple stones next in preference. Orangish rubies are less valuable than those with a purplish component. The fluorescent color component is briefly discussed as is heat treatment.

CLARITY: The ideal stone "would have no eye-visible inclusions, but would contain identifying characteristics that could be seen under magnification... would have a good polish and a minimum of surface pits and scratches.

CUT: Square cushion shapes are considered quite desirable, as are oval cushion shapes. Brilliancy is also discussed, with an extremely well cut stone showing 75% or more brilliance (light return).



CARAT WEIGHT: The per-carat price of rubies increases greatly with size. Star rubies are also discussed and an insert with the article informs us that rubies were "thought to bless the wearer with health, wealth and wisdom...and to give one the power to live in peace with his enemies as long as...worn on the left side".

TSAVORITE  
by Campbell R. Bridges  
Page 13

Mr. Bridges presents a good discussion of the attributes of the gemstone tsavorite (green grossularite garnet, a calcium aluminum silicate colored by vanadium and chromium). He contrasts it favorably with other green stones, pointing out that "of all the valuable green gemstones, it is the truest green, bright and sparkling unlike the sleepier emerald, and tougher and more durable (than emerald)". Capillary tube inclusions are mentioned as a common inclusion (sometimes containing gypsum). Tsavorite does not occur in cleaner pieces than emerald...the poorer pieces are not sold due to the lesser demand. Mr. Bridges also claims that tsavorite is not heat treated or irradiated. The rarity factor is discussed. "Individual, unflawed pieces...are generally much smaller than those in emerald nor does it occur in such large quantities. Mr. Bridges feels that tsavorite is undervalued due to the lack of exposure, but has excellent potential.

ESTATE JEWELRY APPRAISING  
BY Mr. Eric Freedman, CGA

An article on estate appraising one page in length, half of which is taken up with Mr. Freedman's credentials, and the rest of which consists of direct quotes from the Handbook of Jewelry and Gemstone Appraising by Cos Altobelli. The above book has a lot of good information in it, by the way, but I hate to see a supposed "expert" begin a regular column with flagrant plagiarism. Read the book... forget Mr. Freedman.

**GOLDSMITH AUGUST 86**  
BY LARRY PHILLIPS

No real gemological news in this issue, but some interesting data on being an entrepreneur.

**JEWELRY NEWS ASIA AUGUST 86**  
BY LARRY PHILLIPS

DIAMONDS  
Page 26

CSO rough sales up 45%  
The Antwerp Diamond Index shows 1 ct., top quality diamonds up 5.2% in May and another 5.4% in June and July. Demand for large high quality diamonds is on the increase.

IDMA STUDIES LASER PARADOX  
Page 27

Should a diamond with a laser inscription on the girdle be graded as flawless? This was evidently part of a lively discussion by the IDMA (International Diamond Manufacturers Association). (Sour grapes to Kaplan off the meeting?)

THANK YOU REPORTERS!

Again the reporters have done a great job getting this important information to the members. We are still looking for additional members who would be interested in reporting on the Colored Stone and Metals Markets, and to do Book Reviews. If you would be interested in doing any of these (for the book reviews, books would be sent to you, no need for you to buy anything), please contact Dana Richardson at 1615 South Foothill Drive, Salt Lake City, Utah 84108 (801) 581-9900. The input has been great so far and keeps getting better and better.

Also, we are looking for interesting articles and news about individual members to print. If you have anything of interest, please share it!

Look for the next newsletter around the end of November. Dana