

# AGA Update



ACCREDITED GEMOLOGISTS ASSOCIATION

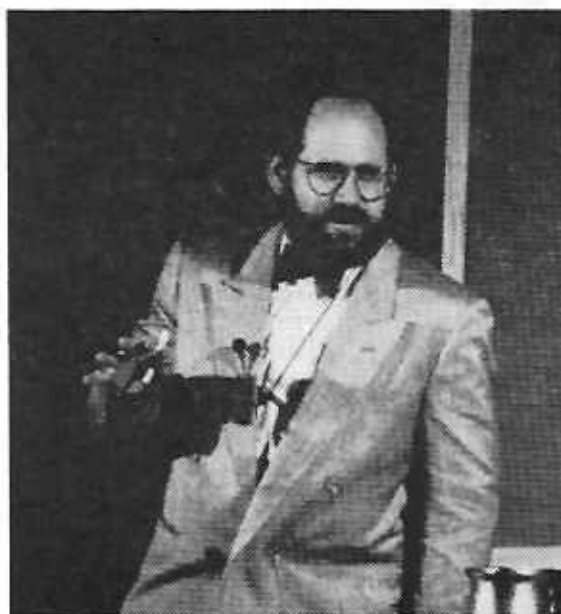
## *FALL '88 ISSUE*

### **AGA SAN DIEGO MINI CONFERENCE ON DIAMONDS BIG SUCCESS**

The Accredited Gemologists Association held a mini conference at the San Diego Marriot Hotel on August 27th and 28th, 1988. The focus of this conference was Diamonds: Keeping Pace in a Fast Changing Industry. Speakers for this meeting included the Director of the European Gemological Laboratory (EGL), Thomas Tashey, Jr., G.G., F.G.A., and the publisher of the Rapaport Diamond Report, Martin Rapaport.

Mr. Tashey led a hands on study and workshop on the laboratory grading of diamonds. His extensive knowledge of diamonds and the process used in assigning grades was evident in his concise explanations of the step by step process which they go through in his laboratory.

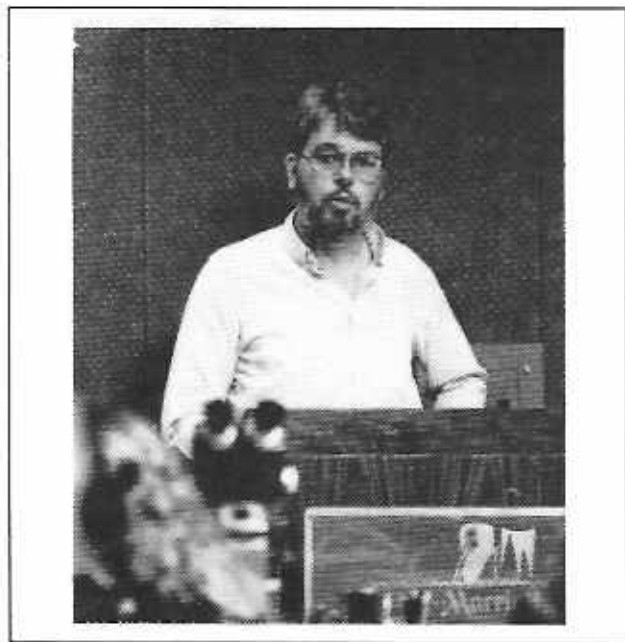
After an in-depth overview of the diamond grading process, Tom demonstrated the sequence of steps in the grading process. First the stone is cleaned with a cloth and then scoped. Check for ink or metal (constant handling with tweezers often leaves metal residue on the girdle of the stone which can alter the appearance of its color) on the girdle of the stone. Extremely dirty stones may be boiled in a solution of sulfuric acid-which would also remove any coatings from the diamond. Make sure you and your customer are aware of these coatings before you start. Next the stones is checked for long wave fluorescence. Almost all diamonds will fluoresce to some degree, so EGL uses the term NIL rather than NONE for stones showing no apparent fluorescence. Often this faint fluorescence is not obvious because the stone is not being held close enough to the light source, or may be confused with a reflection from the light itself. EGL uses the terms very slight,



Martin "Mike" Rapaport gives very latest news on diamond markets around the world.

slight, medium, strong and very strong to describe the degree of fluorescence observed, and then lists the color. As an interesting note Tom mentioned that previously there had been an extra premium for fluorescence until a few very strongly fluorescent stones were sold on the basis of their "papers" alone at some very high prices, only to have the buyers discover the almost greyish hazy look which made the stones unattractive for jewelry purposes. Now, according to most of the price guides there is a definite negative factor associated with fluorescence.

Colorimetry grading of master diamonds was discussed, and it was noted that EGL attempts to determine this when grading diamonds for certification. Mr. Tashey then demonstrated



Thomas Tashey, of European Gemological Laboratory, gives hands on workshop on finer points of diamond grading.

good positions for holding the diamond in relationship to the light source to enhance your grading accuracy. Elevating the diamond grading light to eye level, and using magnification (head loupes work well) can help.

Tom had a custom made opaque white pad in his diamond lite rather than the grooved tray they usually come with.

Worksheets along with the original plot of the stones are kept on file. The diamonds are weighed to three decimal points on a mechanical balance (the third decimal point is interpolated) and a numbering system is used which indicates which laboratory graded the stone (A would indicate Antwerp), the year, month and sequence in which the particular stone entered the lab for grading. All of this is written onto the parcel paper.

The differences in the "tightness" of grading between the EGL labs in Los Angeles vs. New York vs. Antwerp, etc. was brought up and Tom made the observation that the HRD in Antwerp is still about a half grade easier on stones than is GIA. "If things heat up again they may get closer together".

A few interesting items which were discussed follow here:

EGL makes estimations and recommendations for "potential" stones-estimating approximate

weight loss from recutting, change in grade, etc. They will also work with the cutter for you. Sort of a "one stop shopping" for upgrading a stone. EGL will make recommendations and mark the stone for the cutter. Approximate costs for this service are; \$15 for color and clarity grade, \$30 for consultation, \$40 for marking the stone and sending it to the cutter and \$50 for certification. Generally the actual recutting costs run \$125 per carat. The work takes only about 2-3 days with the cutter taking only 1-2 days.

The use of CZ's for master stones was brought up and it was noted that many of the older CZ masters faded (lightened) after a while.

The top compartment of the diamond lite is good for grading browns. It is not known what actually colors them but it seems that they all have lots of internal graining. When viewed through crossed polaroids there is usually a cross hatch appearance. This is caused by atomic level defects in the lattice structure. Pinks and violets are part of the brown family so you will see this graining.

When diamonds have been treated you will see a lot of strain. When checking for treatment using the spectroscope, freezing the stone will bring out the 5920 line.

When does a fancy colored diamond become fancy? Fancy light yellow close to Z, pinks and blues around KLM.

Graining is noted on the EGL certificate as slight, moderate or significant. Look for this with your loupe. Reflective graining would take a stone from flawless down to VVS1 (could this be caused by missing atoms?). With polish, finish and symmetry start at excellent and then detract. EGL uses a micrometer with a non-rotating spindle for measuring the stone, rotating the stone until it catches to obtain the maximum diameter. Additional comments would be made on the report for things like the facet arrangement on fancies and in some instances the diamond type. EGL also lists on its report crown height and pavillion depth, which GIA does not address.

In the next AGA update we will go into Mr. Tashey's process of clarity grading.

Martin Rapaport entertained and enlightened his audience with a five hour discussion on the determination of diamond "price", using information from world economics and pricing models which brought back memories of college economics courses, his examples making total



sense and meaningfulness out of a subject which used to leave me totally bewildered! He blew away the myth that DeBeers has total control over the pricing of diamonds. Having just returned from a trip to the Orient, Mr. Rapaport gave a first hand report of what is going on in Japan and the affect it is having on the price and availability of diamonds in the U.S.

The information given out in Mr. Rapaport's presentation is extensive, and will be reviewed in depth in the next AGA Update. We would like to extend a very special thank you to Thom Underwood, our regional governor in San Diego, for making this conference possible. His hours of hard work and dedication to this conference are much appreciated!

Audio tapes of his lecture are available immediately. Please use the enclosed order form to receive your own copies. This conference contains information critical to the survival of your diamond business, especially this holiday buying season. Don't wait, order yours today!

## EDITORS NOTE

*Special thanks to our honorary special assignments editor, Jean Schroder, for her help in gathering information for this publication.*

## NEW FACE FOR TUCSON CONFERENCE IN '89

February 5th, 6th, and 7th, 1989 are the dates for our TUCSON '89 conference. This year we have taken a new direction! The conference will be entirely hands on workshops. We have had requests for this kind of format for years and we decided to give it a try.

Sunday night the 5th will be a dinner dance. Every year we try to honor someone of distinction in the industry at these dinners. This year we will honor the past board, regional governors and committee chairs, and welcome in the new officers.

Workshop sessions will be in a "round robin" format. Sessions will begin at 8:30 A.M. and run through 2:30 P.M. with a short forty-five

minute lunch break at 11:00 each day. You will begin with Session I from 8:30 to 10:45, have lunch from 11:00 to 11:45, and start Session II at 12:00 to 2:30. There will be two workshops each day and the one you don't see in the morning you will rotate and see in the afternoon. Space for each workshop will be strictly limited to twenty people. Ending sessions early will give everyone an opportunity to attend the show for a couple of hours each day. Equipment will be provided. Topics will be:

Monday February 6th

### Session I

- A. Country of Origin in Colored Gems
- B. Diamonds - grading A to Z with special emphasis on mounted goods

### Session II

- A. Diamonds - grading A to Z with special emphasis on mounted goods
- B. Country of Origin in Colored Gems

Tuesday February 7th

### Session III

- A. Detection of treatment in Colored Gems
- B. Pearls - grading and pricing

### Session IV

- A. Pearls - grading and pricing
- B. Detection of treatment in Colored Gems

Lunches will be a cold buffet where everyone can gather and talk in an informal setting. There will be no luncheon speakers.

We have moved from the Hotel Park Tucson to the Embassy Suites Hotel near the airport. It is a newer hotel, better rates, better facilities and actually closer to the show.

You will be receiving registration forms with all the details soon. We urge you to enroll soon as we **MUST** stick to a limited class size for the sessions to be effective.

The American Society of Appraisers will, in conjunction with our conference, hold their Master Gemologist Appraiser program at the same facility the Friday, Saturday and Sunday before our conference and a Valuation Science day the Wednesday after our conference. Additional details on this program will follow. Still bringing you the best there is to offer in quality gemological education, AGA hopes you will make every effort to attend this function.





## CORRECTION FROM A.M. MILLER AND ASSOCIATES

In the recent edition of the AGA Cornerstone, Anna Miller's new book, Gems and Jewelry Appraising: Techniques of Professional Practice, was mentioned. She would like us to note that she did not play a role in the development of the Master Gemologist Appraiser program. She was, however, the course developer and instructor for the ASA classes on gems and jewelry appraising. We are sorry for any misunderstanding that we may have caused.

## GREAT ITALIAN JEWELRY AN INTERNATIONAL JEWELRY SYMPOSIUM AT F.I.T.

ANNOUNCING AN INTERNATIONAL  
JEWELRY EVENT  
SATURDAY, NOVEMBER 19, 1988

The Jewelry Design Resource was created as part of the larger complex of F.I.T.'s research facilities, to serve as a creative bank and research adjunct to the college's undergraduate and graduate studies. The growing Resource houses a unique collection of photographic design records of jewelry from major collections, and contains advanced literature and corollary materials, which will make it an appropriate study center for the major jewelry city of the world, New York City.

Consonant with its commitment to advancing consideration of jewelry as an important decorative art form, the Jewelry Design Resource initiated the series of International Symposia, of which this is one, which has focused international attention on such studies at F.I.T.

"GREAT ITALIAN JEWELRY" continues the Jewelry Design Resource of the Fashion Institute of Technology's wide-ranging exploration of jewelry history through symposia led by internationally known authorities.

Please plan to join Dr. Gabriella Bordenache-Battaglia of the Villa Guilia in Rome; Melissa Gabardi, author, of Milan; Geoffrey Munn of Wartski Ltd. of London; Jack Ogden, author and antiquities expert, of London; and Dr. Cristina Piacenti, Director of the Museo degli Argenti of the Pitti Palace in Florence. Together, they will discuss the work of legendary Italian goldsmiths, from the ancient Etruscans to the contemporary jeweler whose product spans continents.

The schedule of events is listed below:

8:30 a.m. COFFEE AND TEA FOR EARLY BIRDS  
Haft Auditorium Lobby, Administration  
and Technology Center

9:30 a.m. WELCOME AND INTRODUCTION  
Haft Auditorium  
For the Fashion Institute of  
Technology:  
Marvin Feldman, President  
Richard Martin, Dean, Graduate  
Studies  
Jean Appleton, Director, Jewelry Design  
Resource

10:00 a.m. GOLDSMITH AND PATRON IN THE  
MODERN WORLD  
Jack Ogden  
Jack Ogden, Ltd., London

10:45 a.m. PAUSE

11:00 a.m. PALAZZO PITTI, THE MUSEO DELGI  
ARGENTI: HIGHLIGHTS OF THE  
MEDICI COLLECTION  
Dr. Cristina Piacenti  
Director, Palazzo Pitti, Museo delgi  
Argenti, Florence

11:45 a.m. PAUSE

12:00 p.m. ITALIAN JEWELRY OF THE 19TH  
CENTURY  
THE CASTELLANI  
Dr. Gabriella Bordenache-Battaglia  
Villa Guilia, Rome  
Presented by Jean Appleton

1:00 p.m. LUNCHEON

2:30 p.m. REVIVALIST JEWELRY IN VICTORIAN  
ENGLAND, EUROPE AND AMERICA  
Geoffrey C. Munn  
Wartski, Ltd., London

3:15 p.m. PAUSE

3:30 p.m. ITALIAN JEWELRY OF THE 20TH  
CENTURY



ACCREDITED GEMOLOGISTS ASSOCIATION

Melissa Gabardi  
Author

4:30 to  
6:00 p.m. RECEPTION  
Lobby, Shirley Goodman Resource  
Center

If you are interested in attending this symposium, please fill out the enclosed registration form.

## MINERAL NOTES AZURITE

Composition:  $\text{Cu}_3(\text{CO}_3)_2(\text{OH})_2$   
Crystal system: monoclinic  
Hardness: 3.5-4  
Specific Gravity: 3.77  
Refractive Index: 1.73-1.83  
Color: blue, often very dark  
Cleavage: one good  
Fracture: conchoidal  
Luster: glassy to pulverulent  
Streak: bright blue  
Clarity: transparent (generally so dark and nearly black as to seem opaque except on thin crystals and splinters) to opaque earthy (when it becomes bright blue)  
Fluorescence: none

In his 80s, our friend the internationally known collector Joaquin Folch of Barcelona used to speak of the two dozen minerals so redundantly and predictably featured in every trophy-seekers case at any major show as "vedettes." In the Moulin Rouge context of Folch's salad days, this translates to "stars." Competitively speaking, azurite is a perennial vedette, qualifying by developing star-class examples at so many localities that even the modestly wealthy aren't priced out of the contests.

Despite azurite's abundance, as mineralogically speaking is often the case, specimens from different deposits are sufficiently individual to permit a well-informed collector to assign a probable source to any unlabeled specimen: no Arizonian would ever confuse a Bisbee azurite with a Tsumeb one. However, when a mineral is as common as azurite, pinpointed sources are not world-shaking issues. It is obvious that the combination of conditions encouraging azurite's crystallization are not uncommon, and that in one place and another, in times past, the appropriate amniotic solutions were frequent!

A possible misconception that should perhaps be accorded some critical attention is that where goes azurite, there, too, goes malachite, that the two are practically twins. However, this seems not always to be true, we commonly get malachite pseudomorphs after azurite; we never get azurite pseudomorphs after malachite. (In Moontabi, South Australia, and in Tsumeb, there have been some perfectly oriented later overgrowths of azurite on what seem completed pseudomorphs, seemingly without a vestige of the original azurite. However, the malachite needle alteration must contain some seeds of azurite, so further azurite growth is aligned as if the crystal were still an unaltered single azurite unit. The Moontabi overgrowths make shiny chatoyant blue surfaces from the malachite needle reflections below.)

Near the earth's surface, malachite seems to be the more stable configuration, accommodating a bit more oxygen and hydrogen. So on a well-watered hillside, copper's bloom is always green; always malachite. When buried, however, with just a little depth, much azurite seems pretty stable and there seem to be places where, unlike Bisbee and Tsumeb, there is no alteration to malachite and no pseudomorphism.

Tsumeb, Namibia, is our most significant source of the malachite-after-azurite pseudomorphs, as well as the source of our largest and most spectacular unaltered azurite specimens, which can be two decimeters long. However, average and lesser crystals are not uncommon in many secondary copper deposits. From our specimen observations, the altered ones, the green fiber-filled pseudomorphs, commonly seem to grow more often in the caprock just above the primary veins, closer to a fresher and perhaps chemically richer mineralizing source. In a readily penetrated channel, surface water sinks more freely, to loose sulfur more rapidly in an environment more richly reactive. However, there is also a wholly different, exclusive azurite club, an elitist brotherhood admitted no green members, an occurrence we shall discuss below.

Since azurite and malachite are carbonates, end products in the progressive alteration of primary sulfides, a carbon dioxide source is needed. This is frequently provided by strata of carbonate rocks, limestone (calcite), and dolostone (the part-magnesia-bedded formation like limestone that we used to call dolomite, but that some stratigraphers and their like use to separate rock from mineral with this dolorous substitute). Alternatively, we must infer a vein



with a calcite-rich gangue as a source of carbon dioxide interceding to capture quickly the copper released in the weathering of the primary source.

When veins intruding igneous and plutonic formations, with a gangue of quartz, fluorite, barite, gypsum, you name it, but not calcite (gangue being the term for the non-ore minerals that accompany ore sulfides), azurite's blue equivalent is likely to be linarite, a stable, lead-bearing copper sulfate which closely resembles the commoner carbonate. (Azurite's green look-alike sulfate companion is likely to be antlerite or brochantite, as in Bingham, New Mexico, for malachite too has its counterparts.) Clinging closer to pocket walls, linarite is a brighter and bluer mineral, even more beautiful than azurite. Unfortunately, even millions of years ago, there was generally a surfeit of carbon dioxide around in the air, water, and rocks to make linarite pretty rare. In today's "greenhouse," linarite hasn't a prayer!

The major malachite-azurite occurrences are large-scale alterations of primary copper and lead-zinc copper sulfides and sulfosalts in carbonate rock strata laced with copper-rich infusions and many veins, as at Bisbee, Arizona, one of the world's most famous secondary copper mineral occurrences. Hopefully, in remoter lands, there are still some unworked lodes; we anticipate several will be found in Australia's Northern Territory.

The deep weathering frequently provided by desert and/or tropical climates in several copper provinces, as there, or in Chile, Namibia, Zaire, Zimbabwe, and Arizona, creates many secondary copper minerals. When, exceptionally, carbon dioxide is pre-empted or insignificant, we find minerals like cuprite, native copper, and chrysocolla, and when lucky, collectors' real goodies like diopside, clinoclase, atacamite, caledonite, and many, many more. Since all treasures lie near the surface, they are soon stripped, their beautiful crystals smelted into rectangular copper ingots; all God's 32 different crystal class effort wasted! (This is why it is so important to people with a conscience that specimens be preserved by any successful means, preferably, respectable, and get to museums and collectors, no matter how difficult some uncooperative mines make it.)

In the usual cycle of near surface alteration of a primary ore mix, the iron fraction of the mineralization, initially joined to copper in chalcopyrite or bornite, often becomes finally fixed in a scoriaceous limonitic mass (the gossan

or "iron hat"). Lining the gossan's little voids are micro amnions creating crusts of less predictable, often astounding, minerals, on occasion even a carbonate or two. In the unrivalled caprock development at Mapimi, Durango, Mexico, numbers of secondary minerals: arsenical, phosphatic, haloidal, siliceous, and so on, line the limonite pockets, fixing in gorgeous profusion the laggard and more reluctantly released remaining atoms of the primary one.

Under lime-rich conditions (beautifully developed at Bisbee), we get the typical malachite-azurite intergrowths and pseudomorphs along with the occasional isolated pocket goodies, like native copper, conchellite, paramelaconite, spangolite, cuprite, and chalcotrichite, freaks created by micro-environmental blips in the weathering history.

In Tsumeb, in a breccia pipe copper ore body (a slanting, fractured, somewhat cylindrical, intrusive ore mass) calcite was an abundant gangue mineral, and the likely carbon dioxide source. Deep alteration created a suite of secondary ores. Because of the permeable nature of the ore body, and the deep Namibian water table, oxidizing solutions from infrequent rains were able to sink far deeper than is usual. For a period, mining was interrupted as a less rich portion of the vein was encountered, but further exploration proved a much deeper ore mass, with a deep oxidized zone, as mining resumed, and specimens returned to the market. The result was that both oxidized minerals and primary minerals could be found at the same level, the oxidized minerals like malachite and azurite ringing unaltered ore at the pipe's center. Although the Tsumeb management is not famed among collectors for its cooperative attitude, many specimens do get out.

It is particularly notable, however, that variety, malachite and other copper species, is absent in a, to me enigmatic, azurite occurrence. This is one where concretionary crystal clusters, often sharp, shiny, and solid, free of any invasion from malachite spears, seemingly lie in a soft, clay matrix. Such blue crystal nodules are widespread in the world of copper deposits, having been found at a number of localities, several of which also produce the common azurite-malachite crystal growths in closer vein proximity. At these places there seem to have been widespread, copper-rich solutions that seeped into clay-filled seams. With carbon dioxide, provided perhaps by descending surface water, there they nourished azurite concretions,





attractive crystal "roses" which grew with little resistance in a soft, white, earthy matrix. Perhaps the clay seized any excess water, so only azurite could form, no malchite.

(The writer has never been fortunate enough to have collected at one of these localities and would welcome correction and a detailed account of the nodular azurite observations from any reader who has been so fortunate as to have done so. The above discussion is pure speculation based on observed specimens and the writer would welcome factual information from anyone familiar with these concretionary azurite sans malachite occurrences.)

One of the earliest of the world's exploited copper deposits, near Lyon, Chessy, France (the source responsible for the common European name, chessylite), appears to be of this type. There, copper-rich concretions grew both outward and inward. In some places, Chessy being one, its rough-on-the-outside azurite nodules have hollow cores, central voids lined with crystals of considerable size and often of great brilliance. They are commonly tagged as from Chessy, for usually associated with them are well-formed, malachite-coated octahedral cuprite crystals, ever a telltale for French specimens. Additionally noteworthy and hard to explain is that in the clearly later alteration of the cuprite, only the oxide was attacked and that but superficially! Most have just a skin of malachite coating cuprite, malachite that never targeted any azurite for attack, leaving it fresh, blue and shiny, penetrated by no malachite moles boring its deep blue core, as so frustratingly common in Tsumeb.

A few years ago, similar clay-embedded nodules were found at La Sal, Utah. More recently, the Yang Chweng mine, in Guangdong Province, People's Republic of China, has proved an abundant source of nearly identical, sometimes decimeter-broad aggregates of shiny blue, often five centimeter crystal spheres. From Alice Springs, Australia, come slightly different concretions; there were formed round flat discs. Thought by some to represent some sort of fossil algae replacement, they more probably are concretionary sports, more two dimensional forms permitted by the thinner strata at that locality. Perhaps the matrix in which they are embedded is a thin clay bed, like the slots paying off in pyrite "dollars" in Illinois (mining is as much of a gamble as almost anything we can think of!) In Zacatecas, Mexico, tiny rough surfaced nodules are abundant. On being broken, they reveal little sparkling blue crystal-lined geodes; split pairs

are sometimes mounted for earrings.

Lapidary virtuousi who facet everything that will hold together sometimes cut stones of azurite, though most is so dark that unless one fashions a thin splinter into a skinny gemstone, they appear black. Faceted, azurite has little going for it; it is soft and dark, and very brittle.

On the other hand, azurite can be a double threat, for it does have cabochon use. Compact, but finely divided, well cemented, powdery mixtures make, with malachite, most attractive blue and green azure-malachite combinations. They take a good polish, and selected pieces, primarily now from Chile, have been used in some fairly costly jewelry. Kunz illustrates a splendid Bisbee stalactite section with alternating blue-green color bands in his *Gemstones of North America*. Israelis promote for tourist some polished malachite and chrysocolla-malachite-azurite impregnated rock specimens under the name Eilatstone, though at best Eilatstone seems barely rich enough to be a copper ore and has to be something only a mother could love, not comparable to any good Arizona, (Chilean, Nevada, or Utah) azurmalachite cabochons. (Purchases should be tax deductible as charities.)

By: Frederick H. Pough, Ph.D.  
Contributing Editor  
Lapidary Journal, Sept. 88

## THE CARAT AND THE SHTICK

The voice at the other end of the line is cool, informed, insistent: "With the markets in turmoil and inflation headed into the double digits, now is the time to buy hard assets. Have you considered rubies? We can sell you stones for \$2,500 to \$5,000 that will double in value over the next six to nine months."

Should you be tempted by a telephone pitch for purported investment-grade gems, you would do well to heed Kent Neal, an attorney and chief of the economic-crime unit in Florida's Broward County state attorney's office: "These stones are little more than gravel." Though genuine, gems sold by telephone pitchmen generally have no investment value, he says, because they have no special attributes and sell at vastly inflated prices. Typically, they cost \$5 to \$10 per carat at mines in South America or Southeast Asia. By the time they reach



American investors, the per-carat price has been jacked up to \$850 to \$1,500 - a multiple worthy of the drug market.

Gem-scam operators, last heard from in the late 1970's and early 1980's when inflation topped 10 percent, are back in business. Their customers are people worried about the up-and-down stock and bond markets, the prospect of renewed inflation and the weakened dollar. "The problem is heating up to alarming proportions," says Patti Geolat, a Dallas appraiser who is fielding an increasing number of calls from consumers contacted by telephone gem salesmen. Says Cap Beesley, president of the American Gemological Laboratories in New York City, which grades gems for dealers: "These guys have crawled out from under their rocks all over again."

They have plenty of incentive. According to regulators, gem-selling operations have bilked consumers of hundreds of millions of dollars since the late 1970's, and the perpetrators have proved difficult to nab. "We don't tend to find out about these things until six to 10 months after people invest, when they try to sell," says Al Sheldon, a deputy attorney general in Southern California. By that time, an operator may well have closed up shop and moved on.

**UNRECOVERABLE FUNDS.** Even when scam artists are caught, the chances that victims will recover their money are slim. In one case that the Federal Trade Commission brought against International Diamond Corporation several years ago, only about \$6.7 million was returned to investors, say FTC attorney Mike McCarey - compared with more than \$100 million that IDC had taken in. A typical scam operator keeps customers hooked by phoning with news of hefty increases in the value of their gems. And many clients bite on a second scam: Another firm obtains investors' names from the first firm and calls, claiming to know the value of the stones and offering to sell them for an upfront fee.

Anyone whose name appears on a list of investors of potential investors is a target - subscribers to financial periodicals and brokerage customers, for example. David Marcum, a Chicago gemologist considered an expert on gem scams, says he has appraised stones for a Montana insurance salesman whose \$100,000 investment is worth at most \$9,000 and a Texan who paid \$100,000 for stones worth just \$7,500. Douglas Adams, a West Chicago maintenance mechanic for General Mills, bought \$23,000 of topaz and aquamarine gems

from the Pan Pacific Investment Group, in Los Angeles. When he began having trouble reaching the firm, Adams asked Marcum to appraise the gems. Marcum fixed their value at \$3,400 - perhaps. Adams flew to California and confronted Pan Pacific's managers. "They had answers for everything," he says. "They said my appraisal was no good. They said I could leave the stones with them and they would try to resell them. I didn't know how to get them into court. I didn't want to spend another \$10,000 on that." Adams says he has notified several state and federal agencies with no results. And Pan Pacific has apparently vanished.

**FEW OBJECTIVE STANDARDS.** The glittering promise that investors associate with gems has some basis in fact, but gems - even when no fraudulent dealer is involved - are not considered proper investments for amateurs. Between 1977 and 1980, the price of a 1-carat diamond soared, from \$11,000 to more than \$60,000. By 1982, it had sunk below \$15,000. And diamonds are comparatively safe, since industry standards of color and clarity - factors which determine value - have been well established. Telephone con artists, however, traffic in emeralds, rubies, sapphires and topazes, for which no such standards exist. Prices are based purely on subjective assessments. And while buying is easy, selling even genuinely valuable stones is not. "Jewelers have regular suppliers, so they won't buy from you, and locating a private buyer can take months," says Joel Windman, general counsel to the Jewelers Vigilance Committee, a trade group that works with federal regulators. "While you pay retail when you buy stones you'll probably have to sell them at wholesale, or lower."

Still, many people can't resist the siren's call. Internal strife in gem-producing countries such as Burma or Colombia often is cited as evidence that gems will get scarcer and thus more valuable. Predictions of a recession in the U.S. aren't hard to believe. Another attraction: The high prices paid at jewelry auctions, such as the \$50 million Sotheby's sale last year of the Duchess of Windsor's jewelry.

Those who haven't been called can avoid being taken, says Geolat, by recognizing that you shouldn't buy a gem from someone you don't know. "I've never seen a gemstone sold by phone turn out to be as good as it was purported to be," she says. If you weaken, at least insist that the firm ship you stones for inspection and have them appraised. It shouldn't cost more than \$50 to \$100 per stone. Even if a stone





seems to be a sound investment, checks, cashier's checks and money orders are out; it's smarter to pay by credit card. The Fair Credit Billing Act of 1974 protects you against having to pay if merchandise charged to a card turns out to be faulty. In the event of a dispute with a gem seller over an amount you've charged, you pay nothing until the dispute has been resolved.

**AN APPRAISAL'S VALUE.** Jewelry-industry watchdogs estimate that thousands of consumers have purchased overpriced gems and don't realize it. If you're in doubt, an appraisal now can at least spare you from embarrassment later when you try to sell. Because valuing colored stones is so subjective, you should show the stones to two or three appraisers. You'll need to know whether the appraised value is the retail price. If so, you'll undoubtedly get less, since you'll probably sell to a dealer at wholesale. Investors who have bought colored gems and have questions about them can call David Marcum at the Marcum Group (312) 232-1583 or Cap Beesley at the American Gemological Laboratories (212) 704-0727 for assistance.

Investors who have been stung may be able to win their money back if they make enough noise. "Threaten to go to the authorities," advises Florida's Kent Neal. It can't hurt to notify the police chief of the city where the gem firm is located. Since con men like to move around, speed counts, and local police forces often act while other government agencies are still shuffling your complaint from one office to the next.

To invest in worthy gems, you'll have to part with at least \$25,000, because the stones that appreciate in price are the larger, rarer ones. One way to reduce risks is to take on a gem dealer as your partner. The best dealers buy gems directly from the mines and have a vast network of wholesale and retail contacts. Some dealers buy and sell for you, taking commissions. Others are equal partners in the investment. The Davenport Organization in Hampton, N.H. (800) 258-0853 and the Marcum Group both have good reputations in the industry. Investors with at least \$100,000 can contact Rick Harig, president of Ashcroft & Company in Chicago (312) 641-6540. The more risk adverse might take Marcum's advice: "Just buy some jewelry, wear it and enjoy it."

By: Daniel P. Wiener  
U.S. News and World Report  
July 25, 1988

## J.O. CRYSTAL COMPANY REQUEST ON RAMAURA CULTURED RUBY

The J.O. Crystal Company would like to ask the AGA members if they would recognize and/or endorse their use of the term "cultured" to describe their Ramaura Cultured Ruby. Their case put briefly is as follows:

1. Their flux-grown rubies are grown in a laboratory using a culturing medium.
2. The term "cultured" clearly says that people were involved in the production process.
3. The term "cultured" is widely understood by the general public to mean that the product is a reproduction of the natural material, but was grown under controlled conditions. They have come to this understanding over the years as the work "cultured" has been used in connection with cultured pearls.
4. The term "cultured" distinguishes their flux-grown ruby from the inexpensive ruby material which is produced in bulk by the flame fusion process.
5. Members of the AGA and other well trained gemologists understand the technical meaning of the term synthetic, that is, an exact recreation of a natural material. Its utility among technically trained people is unquestioned. However, the public understands "synthetic" to mean "fake", "a look alike", or "a simulant". Describing their Ramaura Cultured Ruby as a cultured ruby rather than a synthetic ruby is a more accurate way to convey to the public exactly what it is.
6. In choosing the term "cultured" they have tried to find a positive word which carries with it as much accurate information as possible, while avoiding the confusion and misunderstanding associated with the use of the term synthetic.

The AGA's support and understanding of this position on this matter would be greatly appreciated by Judith Osmer and Virginia L. Carter of the J.O. Crystal Company.



ACCREDITED GEMOLOGISTS ASSOCIATION

# GEMSTONES

This is a book for both the expert and the informed enthusiast, covering every facet of natural and artificial gemstones.

GEMSTONES will stand for years to come as the authority to which gemologists and others turn to first. This comprehensive survey covers in a single work the whole subject of precious stones, incorporating all of the most important recent developments and discoveries that have taken place in the past twenty years in analysis, coloring, and methods to improve the quality of major stones.

GEMSTONES describes what gemstones are, what they look like, how and where they are found. The latest information given here on new minerals and new varieties, including their geological mode of occurrence, will not be found anywhere else. Details of artificial materials and testing methods have been finally drawn together into one complete and accessible volume for the first time.

There is information on revisions of mineral names (such as red beryl, formerly called bixbite); recently discovered mineral varieties (such as clinohumite, a variety of chondroite), and new deposits, (such as Sugilite found in South Africa in 1986).

You'll find chapters on the commercial aspects of gemstones, such as popularity, fashioning, how stones are handled and graded by dealers, and what to look for when buying stones. The causes of gem coloring, its implications for testing and methods of alteration are also examined.

GEMSTONES provides extensive chapters which set out the main properties and modes of occurrence of individual stones. In the descriptive sections, 177 entries cover 230 minerals and precious materials (such as ivory, pearl and coral). Each entry in the descriptive sections supplies all chemical, physical and optical constants for inorganic and gem materials such as: chemical composition, crystal system, physical properties, hardness, specific gravity, double refraction, inclusions, all mineral varieties and more.

A complete guide to the literature, organizations, and journals on gems around the

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This is a well-illustrated book, with color plates and line diagrams. It can be used as either a text or reference in gemology classes, and is a guide that anyone involved with gems will want near at hand. GEMSTONES brings you current information not found in other gem surveys such as:

- a. The geology of gemstones and how it affects their properties and their testing.
- b. A chapter on the causes of color, the methods of color alteration and their detection.
- c. A standard method of description for all species, for ease of reference and comparison.
- d. A special chapter devoted to artificial and imitation products.
- e. A large chapter on new testing methods.
- f. Current information on all classic stones.
- g. Commercial factors, such as color preference and diamond grading.

This book will be essential for libraries and mineralogists, and desirable for geology departments, museum staff, jewelry makers, wholesalers and traders, appraisers and collectors of jewelry, and the general enthusiast.

The contents include:

1. The occurrence of gemstones
2. The nature of gemstones
3. Gem testing
4. Recent developments in gem testing
5. Colour
6. Fashioning
7. Gemstones in commerce
8. Descriptive section
9. Synthetic and imitation stones

Michael O'Donoghue is the author of many books on gems and minerals, including - QUARTZ, the DICTIONARY OF GEMSTONES AND MINERALS, IDENTIFYING MAN-MADE GEMS and THE ENCYCLOPEDIA OF MINERALS AND GEMSTONES.

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March 1988



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## IS THERE A "NEW MANAGEMENT"?

During the Davos Symposium, the annual summit meeting held in Switzerland of leaders from the economic world, discussions were based on the slogan "The business of business is not only business" and this gave rise to a great deal of talk about "new management".

What is "new management"? The answer depends on what is meant by "new".

The methods employed in the management of human resources, and the general management styles of the most dynamic businesses, look new to people who have not kept abreast of the evolution that began many years ago. The changes that have occurred are based on a "philosophy" that can be summarised, by saying: replace the system of hierarchical authority that comes down from above by a recognition of both people value and the business advantages of management that develops from ground roots upwards. In leadership behaviour terms, this means giving employees greater responsibility and ensuring that they are fully informed,

encouraging them to act on their own initiative and motivating them through individual recognition of their efforts.

This is the realisation that it is people, not products or skills, that make profits.

## MANAGERS' INFLUENCE

Since management is about getting others to do what they are supposed to do, its effectiveness depends on managers' attitudes towards their staff and their ability to establish a good working relationship with each employee. Leaders must honestly believe in their colleague's potential, genuinely want to develop their skills and help them to make progress. When a leader is self-assured, dynamic, optimistic, and convinced that the business is doing well, his attitude will inspire and motivate his subordinates. His charisma, however, will depend on the sincerity and depth of his beliefs and sentiments.

Managers for whom this positive approach is a novel idea should consider revising their personal attitudes, thinking habits and management methods. While it is admitted that such fundamental changes cannot be brought about at the wave of a wand, they are nevertheless an essential prerequisite to the adoption of this "new" form of management. They acquire a willingness to take a critical look at oneself, to analyse one's in-built resistance to change and to review existing situations and established practices. Anyone wishing to change must also examine themselves to see how they can eliminate negative and pessimistic tendencies, reject procrastination and excuses, and concentrate on seeking solutions to the problems that arise instead of complaining about them. Commitment, drive and confidence in their own ability are the distinctive characteristics of top managers.

Writing in a recent issue of "Canadian Jeweller", Gerald Hennessey, a specialist in jewellery store management, put the question: "Can the traditional ways of operating within our industry accept change, and benefit as a consequence?" He believes it can, and that "the future of our industry is tremendously bright if we believe this to be so and look to the future with positive anticipation rather than pessimistic apprehension . . . Industry leaders will become people builders along the way and ultimately enjoy a quality of business success not previously experienced.

## MOTIVATED STAFF





The first condition for success, a motivated manager having been assured, the next step is to find ways in how a staff can be motivated. Looking at those who operate the most go-ahead businesses, one sees that the majority have certain characteristics in common. They get on well with other people, can communicate, show confidence in the ability of their colleagues and acknowledge the importance of human factors in the achievement of success. They encourage the development of each person's skills.

A good manager knows how to create and maintain a positive atmosphere, identifies good performance, endorses it and compliments the person responsible. He knows that employees need not only to be justly rewarded for their efforts but also to be recognized as individuals, to feel part of a team, to know that they are accepted and respected, to be listened to, and to have their comments and suggestions taken into consideration. A motivating leader explains his objective, keeps his staff informed and assigns precise tasks for which measurable objectives are defined. Success is rewarded with compliments and failure is analysed so that corrective measures can be taken, such as additional training, setting different objectives, a change of job or, eventually, dismissal.

To some, these ideas may seem abstract or utopic, but they should remember that employees are most strongly motivated when they like their jobs and get satisfaction from doing them well, when it is a pleasure and not a drag to come to work each morning, an when they can feel they have made a customer happy and not just added more money to this till. Staff will fulfil their potential when they are allowed to speak their minds, when compliments are more frequent than criticisms - and when the boss shows his satisfaction by occasionally offering personal rewards.

#### NOTHING NEW . . .

The foregoing, in varying degrees and with occasional modifications, has already been the established practice in certain businesses for some time. Cited in the financial press recently is the example of an American company with a profit-sharing policy whose employees, when they received their share of the 1987 profits at the beginning of this year, found that this represented 84% of each one's annual salary.

May we remind any readers who consider such a case as impossible or sheer madness, of what Michael Jones, a well known personality in the British jewellery trade, told a CFH symposium

held here in Lausanne back in 1973 about his personal experience in this line. The shop he owned had been converted into a self-governing body, the business was put largely under the joint management of the staff, he himself was made a salaried director subject to annual re-election by his employees - and the result was all around satisfaction and prosperity!

There is in all this, therefore, real food for thought but, particularly in this field, thinking that does not lead to action is pointless. So, if anyone is considering changing anything, they should make the decision now, and set about it at once. That would indeed be something new!

Excerpt from: Pierre Bellmann  
CFH  
Bulletin 74  
June 88

## HOW TO IMPROVE DUPLEX II REFRACTOMETER RESULTS

The key to good refractometer readings is a clean and polished hemisphere. Quoting from Liddicoat's "Handbook of Gem Identification" (12th Edition):

"When the refractive index reading has been taken, the hemisphere surface should be cleaned with a cleaning fluid such as xylene and lens tissue, to prevent corrosion of the glass. If the refractometer will not be used again for a day or two, the surface of the hemisphere should be coated with a thin layer of petroleum jelly, such as Vaseline, as a further protection.

The hemisphere surface will tarnish in time, but it can be cleaned with a paste made of cerium oxide powder and water. This is used as a polish and applied to the hemisphere surface with the fingertip. This should not be done, however, until the readings have become faint."

To avoid rounding the edges of the hemisphere, which, as you are aware, is designed to be slightly above the working surface, I have found it helpful to place one, two or more thicknesses of electricians tape on each side of the hemisphere to provide a wider flat surface. Then, after removing the cover and the eyepiece, instead of using the finger tip, use a small flat block of wood to which a piece of felt has been cemented, approximately 1 1/2" square, as a polishing tool. Properly done, you will be



amazed at the improvement in legibility of the readings obtained.

If the hemisphere is badly scratched, pitted or chipped, the same procedure can be used to grind it before polishing as above. Use 600 grit (or finer) wet "sandpaper" applied to a different block. Grind as little as possible to eliminate most of the pits and scratches. A few small pits and/or scratches will not affect obtaining accurate readings provided the remainder of the surface is flat and well polished.

This procedure can be repeated many times, but when the hemisphere surface reaches the stainless steel working surface, you should consider returning the refractometer to GIA for hemisphere replacement, a relatively inexpensive procedure considering the importance of this instrument.

By: T. William Benedict  
Master Gemologist Appraiser, A.S.A.  
NC Gem Laboratory  
107 Hunter's Ridge Road  
Chapel Hill, NC 27514

## LIGHTING TECHNIQUES

(An integration of two articles from  
SCOPE)

1. Dark-field Illumination - Most often used in gemology. The stone is illuminated from the side against a black, non reflective background, causing inclusions to stand out as bright objects.

### 2. Fiber-Optic light Source:

A. Vertical illumination - Stone is lighted from directly overhead. Can be helpful for viewing surface characteristics in reflected light, including some surface treatments and coatings. This method has helped detect sintered facet surfaces on heat treated corundum, surface grain lines on diamonds, surface breaks on gems (important for damage reports, where relationship of polish lines to fracture can be used to determine whether the break existed before or after the stone was polished), and the characteristic "chicken wire" or "lizard skin" pattern that is present in synthetic opal.

B. Horizontal illumination - This can cause some pinpoint crystals and gas bubbles to stand out as bright objects where they might not have been detected using dark-field illumination.

This is useful in detecting assembled stones by highlighting the contact plane. It can also be used to determine whether an object is an inclusion just below the surface of a facet or foreign material on the facet surface: if it is on the surface, then it will reflect light when it is hit by a surface-parallel horizontal light; if it is within the stone, it will not reflect.

C. Oblique illumination - Any angle of incidence between vertical and horizontal. This permits good viewing of other types of surface features such as luster differences between the host and filling material in rubies with glass filled cavities as well as the luster difference between the two components of garnet and glass filled doublets. Oblique illumination is also useful in detecting characteristics of other assembled stones, e.g., separation planes in sapphire & synthetic sapphire doublets and in synthetic spinel triplets. This lighting method is also excellent for observing thin-film effects, for example partially healed fracture ("fingerprints"). It can also be used to resolve details on solid mineral inclusions and to observe, through scattering of light, the fine characteristics of tiny inclusions such as the rainlike flux in Kashan synthetic rubies, the partially dissolved silk in heat treated sapphires and the smokelike decorated dislocations in some Czochralski synthetic rubies.

3. Diffused Illumination - The stone is illuminated from behind with a light diffuser placed between the light source and the stone. The diffuser can be a piece of facial tissue or probably more effective would be a translucent piece of white plastic. The diffuser softens and scatters the light and is useful in observing color zoning and banding. It is also useful in detecting the diffusion treatment of corundum.

4. Pinpoint Illumination from a fiber-optic light source - The light source is reduced to a small diameter (0.3-0.8 mm) and directed at the stone from every angle. Such a fine, concentrated beam of light can help locate inclusions that would otherwise be obscured by prongs or mountings.

5. Polarized Illumination - The light from a fiber optic illuminator can be plane polarized simply by placing a small section cut from a sheet of plastic laminated Polaroid polarizer over the end of the light pipe and securing with tape. This can be used with an analyzer placed between the microscope's optics and the subject to give you the capabilities of a polarizing microscope, but with the added flexibility to



check difficult-to-illuminate mounted gems for pleochroism, help resolve optic figures, determine if inclusions are doubly refractive by checking birefringence and detect strains and optically active twinning.

**6. Bright-Field or Transmitted Illumination** - The stone is directly illuminated from behind. This causes inclusions to stand out as a dark object against a bright background. It can be useful in detecting curved color bands in flame fusion synthetic blue sapphire, and for locating inclusions in translucent to semi-translucent materials (e.g., gas bubbles in glass imitations of non-transparent gems) and for examining fluid inclusions.

References from: SCOPE - GIA Gem Inst. Corp  
News Bulletin Winter 85/86  
SCOPE - GIA Gem Inst. Corp  
News Bulletin Summer 88

## GEMSTONE WALL CHART

Manchester Minerals, Rooth Street, Heaton Norris, Stockport, Sheshire SK4 1DJ, England, now has available its 1988 color catalog which contains a separate gemstone section as an A1-size poster for this edition.

From: Lapidary Journal  
Sept. 1988

## UPDATE HINTS

Some jewelry cleaners should not be used in ultrasonic jewelry units. Others are designed specifically for ultrasonics. Check the labels.

Be careful of the new plastic circle backs for pierced earrings. The metal clutch in the center can come loose from the plastic. Inspect them with each use.

From: Lapidary Journal  
September 1988

## WHERE, OH WHERE HAS THE GOOD SERVICE GONE?

The old saying, "familiarity breeds contempt," has a lot going for it. When a new place opens

business everybody's gung ho! The service is great, but if it's a success, if the people come pouring in, day after day, there can be a marked lessening of service. The customer and his money, quite simply, are soon taken for granted. When one customer gets up and leaves, another takes his or her place. The faces and individualities become blurred, routine sets as it does - unless there's excellent management, forever mindful of the pricelessness of success in a world where so many fail - the quality of the service or product takes a gradual but very perceptible downward slide.

From Denny's Restaurant in Santa Cruz, California to the once-great Plaza Hotel in New York City, the quality of service in the United States has been on a downward glide for some time. I've reported recently on The Plaza... great rooms, and rotten service. The people no longer live up to the inherent quality of the place nor its reputation.

The other day I stopped for breakfast at Denny's Restaurant in Santa Cruz, California. It was ten o'clock in the morning and the rush was over, the place was only about a third full. But I stood at the sign reading Please Wait to Be Seated for a very long time. Once a waitress passed and gave me a cheery smile and a good morning, but my standing there didn't seem to make much difference to the young women doing the serving. Finally, just as I was about to leave and try my luck someplace else, an indifferent young woman took me to a table. As I sat down she asked if I'd like something to drink. "Yes, I'd like a cup of black coffee, please." And that was the end of that. She never came back.

A waitress finally appeared and I asked her if the hostess was taking a survey. I explained that the hostess had inquired as to my choice of beverage but had never come back with one so I assumed she was collecting information. The young lady shook her head in mock dismay and took my order. When it arrived, however, one of my eggs had been broken and cooked flat and hard. That meant, of course, that the egg had broken at the moment it had dropped into the pan or on the griddle and that the cook had paid no attention to it, assuming, I suppose, that the customer would accept whatever was served.

The waitress said, "One of your eggs is broken, I hope you don't mind." And in that statement and by her subsequent action she made clear what has happened in this country during the past couple of decades. Her statement and the fact that she began to turn away clearly





indicated that her comment had been routine, and that she fully expected my meek, perhaps rueful acquiescence of half an order properly prepared.

"No," I said. "It's not what I ordered. Ask the cook to cook another egg for me." Her eyebrows lifted and she walked away saying by her manner that I was certainly a querulous old troublemaker. But I remembered Denny's in Hollywood of twenty-five years ago and the great breakfasts they used to put out. When she returned I asked her if the cashier would accept less than full payment.

What's happening in many of our most successful businesses is clear indication that the weekly training sessions are no longer being held - if they ever were.

By: Earl Nightingale  
#6078 Our Changing World

## RAPAPORT DIAMOND REPORT

De Beers really knows how to celebrate a birthday. This year's 100th anniversary celebrations have become a sparkling testimony to the lasting market power of the De Beers organization. First, a 37.5% rough price hike before the London party. Happy 100th birthday De Beers.

The impact of the current price increase will outlast the De Beers birthday party. It is important to note that we are talking big numbers. This is the biggest increase since August 1978 and De Beers is currently selling diamonds at the rate of \$450 million a sight. That's about \$1,350 million for the last three sights alone. If sales continue at the current rate De Beers earnings and total world diamond sales should increase by 20-35% in 1988.

De Beers is now firmly in control of the diamond markets. Three important factors are working for De Beers. 1) Far East diamond demand is extremely strong and increasing. Furthermore, this demand is multiplied by the weakness of the U.S. Dollar. 2) Dealer inventories are at very low levels. 3) The Russians are coordinating their sales activity very closely with De Beers.

The markets are now highly responsive to stimulation by De Beers. The only way polished dealers can meet Far East demand is with new goods. Since De Beers and the Russians control

new goods, the market and consumer will have to pay manufacturer or Russian prices. As long as the above three conditions exist we can expect rough price increases to translate into polished price increases.

De Beers has several good reasons to raise prices now:

1) Strong Far East polished demand has supported consistent premiums over De Beers prices. Premiums on many of the sight boxes were over 10%. The CSO was probably under pressure from cartel members to eliminate dealer premiums by raising prices.

2) The stated goal of De Beers is to maintain consistent and increasing prices for diamonds in consumer markets. Since Japan is now the major diamond buying force it is only natural for De Beers to try and stabilize diamond prices in Yen. Due to the sharp drop in the dollar, Yen diamond prices have actually gone down. By raising diamond prices in dollars, De Beers is merely stabilizing diamond prices in Yen. It's not that diamonds are so strong - it's just that the dollar is weak.

3) The timing is right. Diamond inventories are at unusually low levels. De Beers has been restricting sales of better quality large stones for years. Recently, the stock market scare created a situation where De Beers sharply reduced supplies and excess demand built up. This pent up demand, combined with very small dealer inventories, provide extra momentum enabling the market to accept a price increase. It is not by accident that the current price increase is taking place before the sight. Generally price increases are leaked well in advance and take place after the sight. The suddenness of this price hike means that new higher priced goods do not have an extra cushion of lower priced rough to soften or delay the increase. Sellers have a limited supply of old goods so they will have to pass along the price increase sooner.

4) The Russians are cooperating. About five years ago the Russians sold large quantities of goods at low prices. A major softening of the polished diamond prices followed. Ever since, De Beers has worked closely with the Russians. Since October of last year the Russians have been preparing the ground for the current price increase. Russian goods have become much more scarce in the past six months and prices of Russian goods have gone up by 15-20% since Jan. of this year. By increasing prices for better qualities the Russians have made room



for significantly higher prices for medium and lower quality goods.

Given the current economic/political environment it is rational to assume that the De Beers price increase will stick and that polished diamond prices will go up by 10-25% in the months ahead. Prices could go up significantly higher if dealers keep supplies tight in anticipation of ever increasing polished prices. Once a price increase is set in motion, it becomes very hard to manage due to the narrow distribution channel in our industry. Perhaps the greatest danger facing De Beers is a speculative boom cycle which could be followed by a crash. External economic forces such as a dramatic fall in the Japanese stock market, or a sharp drop in the Yen could cause a collapse. The current price level could not be maintained without consistent Far East demand. On the positive side there are economic forces which could exaggerate a boom. Sharply increased inflation or a sharply lower dollar would create a climate of economic uncertainty in which diamond prices could easily boom out of control. Obviously, De Beers can raise diamond prices. But can they keep them high? Can they keep them under control?

Now that higher polished prices seem certain we should consider how the new pricing will effect the major consumer markets. Given the weak dollar Far Eastern and European buyers should have little problem with the new prices. Higher diamond prices may even encourage additional demand, as consumers learn that diamond prices are increasing. Also, the threat of higher diamond prices will encourage Japanese dealers to buy now before prices get even higher. This price increase will help dealers sell the polished goods generated by the last two large sights.

The only problem market is the U.S. Here in the U.S. we are stuck with the dollar. As the dollar gets weaker, so do we. The U.S. has lost significant purchasing power to the Japanese. We are now second class buyers in the diamond markets. In the old days, Japan only bought top qualities, leaving everything else for the U.S. buyers. But now Japan and the Far East buy everything. Japanese 1987 imports from Israel and India are up 70% and 65%. As the Far East buys a broader range of goods we are left with an ever decreasing supply of leftovers. Already major U.S. retailers are scrounging for KLM VS-SI goods only to find that Hong Kong buyers have already made off with the goods. The U.S. is reacting too slowly. By the time the average U.S. retailer wakes up s/he will be unable to buy suitable goods at the price points

customers desire. The U.S. retailer is going to have to sell lower quality goods at higher prices. S/he will have to redefine price points or sell smaller lower quality goods. The De Beers price increase is not hype. It is going to radically change the diamond business in the U.S. Wake up America.

Excerpt from: Rapaport Diamond Report  
Martin Rapaport  
April 29, 1988

## AMERICAN SOCIETY OF GEMCUTTERS

If you are a gemcutter - cabochons, faceting, carving - you should be a member of ASG (American Society of Gemcutters). For just US \$27 (CAN \$38) you get these services (plus a new member one-time free book bonus):

**AMERICAN GEMCUTTER** - 12 issues of the Society's publication, devoted to keeping you informed about gemcutting, how-to features, tips and tricks, cutters forum, and news.

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**PLUS** - You receive all extra special educational and supplemental services. Design Library supplements - and more.

For further information contact:  
American Society of Gemcutters  
P.O. Box 9852 Dept. H  
Washington, D.C. 20016

From: Rock and Gem  
August 1988

## HARDER SYN-DIAMOND

The Diamond Registry reports that a new form of synthetic diamond has been developed by an Australian physicist, David McKenzie of Sydney University. The substance is described



as transparent and resistant to chemical attack, and can be used to "write on" a natural diamond. The synthetic owes its greater-than-natural hardness to "a tangled network" that is compared to the "distorted atomic arrangement" of a synthetic diamond film that is also supposed to be harder than natural diamond.

From: Lapidary Journal  
July 1988

## ASA FALL SCHEDULE

The American Society of Appraisers announces its fall session of Personal Property courses. Levels I, II, III, and IV, in its Fundamentals of Valuation series.

Level I: Introduction of Valuation Theory & Appraisal Procedure: the Nature of Value, August 4-7, San Francisco, CA. Level II: Research & analysis in Appraising: the Process of Estimating Value, September 15-18, New Orleans, LA. Level III: Appraisal Applications: Case Studies, Special Methodology, & Report Writing, November 17-20, Los Angeles, CA. Level IV: Advanced Appraisal Applications & Professional Standards, October 13-16, Washington, DC.

For additional information, contact the Education Office, American Society of Appraisers, 535 Herndon Parkway, Suite 150, Herndon, VA 22070, phone (703) 478-2228.

From: Lapidary Journal  
July 1988

## CHARIOTE

A vivid purple cutting material, discovered in 1976. Known from only one location, Charo River, Yakutsk, U.S.S.R. Hardness 6. Hydrous silicate of sodium, calcium, and potassium with black Aegerine Augite, gray transparent Microcline and rare orange Tinaksite, a titanium mineral.

From: Lapidary Journal  
July 19

## MINERAL INVENTORY RECORD

Provides mineral collectors a convenient and accurate method of cataloging and recording data on specimens in their collection. There is a space to record mineral number, date, mineral name, locality, and a box to check to show how the specimen was acquired: purchases (with space for price); field collected; or trade.

The Mineral Inventory Record, at a price of \$3.50 plus 75 cents for postage, is available from Robert Fox, 1235 N. Westfield St., Oshkosh, Wisconsin 54901.

From: Rock and Gem  
August 1988

## MOUNT SAINT HELENS ASHES

*WHAT WOULD GLASS MADE FROM THE  
ASH OF THAT VOLCANIC EXPLOSION  
BE LIKE AS A GEMSTONE?*

On May 18, 1980, Mount Saint Helens, in Washington state, erupted violently. The resulting ash cloud rose as high as 10 kilometers, or six miles, into the upper atmosphere, depositing some three cubic kilometers of material over several states. (About 600,000 tons of ash - basically fine particles of rock - fell on the town of Yakima, Washington alone.) The author subsequently obtained samples of ash from Yakima, Spokane, and other localities, including a large sample collected in Central Washington by C.B. Keenan.

The ash was determined to consist partly of glass and partly of crystalline material, including quartz, feldspar, and other minerals. The particles range from over one millimeter to less than one micrometer in size, and have a bulk density of approximately 1.5 grams per centimeters cubed (Nassau, 1981). Chemical analysis of a variety of ash samples revealed the following composition as typical of this material, by weight, 64% SiO<sub>2</sub>; 17% Al<sub>2</sub>O<sub>3</sub>; 5% CaO; 4% FeO (total Fe); 4% Na<sub>2</sub>O; 2% K<sub>2</sub>O; 2% MgO; and 1% TiO<sub>2</sub> (Nassau, 1981). In view of the high silicon, aluminum, and calcium contents, a glass made from this ash would have a very high melting and flow temperatures and viscosity (McLellan





and Shand, 1984)

In 1983, a green glass appeared on the gem market, mostly in the western United States, with the claim that it had been made by melting Mount Saint Helens ash; purchasers thus could assume that ash is the major ingredient. This seemed to be a claim worth examining in view of the high melting point and viscosity expected of such a product. An examination was undertaken when a sample became available from R.J. Cormier. For general discussion of glass, see McLellan and Shand (1984); for discussions of glass in gemology, see Webster (1983) and Nassau (1980).

A sample of Mount Saint Helens ash was heated in a 3.75 centimeter (1.5 inch) alumina crucible in air in an electric furnace. Viscous flow began at about 1300 C, but because of the high viscosity, the air bubbles did not disappear until the ash had been heated for several hours at 1500 C. The result is an essentially black glass, which appears dark grey-green when examined in splinters. The color is presumably derived from ligand field and charge transfer processes (Nassau, 1983) high Fe and Ti content, and can be expected to vary somewhat depending on whether the material is heated in an oxidizing or a reducing environment.

The refractive index of the green glass is 1.508, while the black glass showed considerable variation (1.500-1.526), because the high viscosity inhibited mixing of the various components. Specific gravity (measured by the hydrostatic technique) for the green sample was 2.448 and for the black 2.485. The results for the two samples were sufficiently different to throw doubt on the claimed origin of the green glass, even though some variability in the composition of the ash could be expected.

Semiquantitative (relative) elemental analyses were performed by energy-dispersive X-ray fluorescence using tungsten and chromium radiation excitation. Some elements occur at similar concentrations in both glasses: silicon is 20%, and potassium 30%, higher in the green glass, while traces of chlorine, manganese, and zinc occur at about the same concentration in both glasses. Some elements are present at significantly higher concentrations in the green glass: approximately twice as much calcium, chromium, and zirconium, and three times as much copper, were present. Other elements have significantly higher concentrations in the black glass: 25 times as much iron, 14 times as much titanium, and twice as much aluminum and strontium. These are all the elements that were detected, with the instrumentation used it

is not possible to detect light elements such as boron, sodium, and magnesium.

Here again, a different origin is indicated for the two glasses. The high iron and titanium contents in Mount Saint Helens ash, about 4% and 1% by weight as oxides, respectively, are adequate to account fully for the color in the black glass. Given the lower amounts of these two elements (1/25 iron and 1/14 titanium) in and the lighter color of the green glass, one can deduce that the material contains little if any Mount Saint Helens ash. Allowing for the variability in composition of the ash and for the semiquantitative nature of the analysis, a maximum of 5% to 10% ash in the green glass is indicated.

One final and quite conclusive test was performed by placing small pieces of each glass on a platinum foil and heating them in a furnace in air, increasing the temperature by 100 C every 15 minutes. The green glass flowed at 800 C; the black glass did not flow until 1300 C. This huge difference is undoubtedly caused by the higher silicon aluminum concentrations in the black glass and the probable presence of significantly larger amounts of the undetermined oxides of boron and sodium in the green glass. The melting point of the black glass is so high that it would be very difficult and costly to fabricate a uniform glass from it on a commercial scale.

Green glass claimed to be made from ash from the 1980 eruption of Mount Saint Helens has significantly different properties and composition from glass actually made entirely from the ash. It contains at most 5% to 10% of this ash, if any.

By: Kurt Nassau, Ph.D.  
Lapidary Journal, July 1988

## OPENING OR RENOVATING A STORE

Opening a new store, or renovating an existing one, is a major operation to be undertaken only after serious study, thorough planning and detailed preparation. A seemingly endless number of points, of greater and lesser importance, have to be carefully considered before such a crucial decision is taken.

The first question is - WHY?



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The complete answer, over and above the basic desire to start up or enlarge a business, is closely bound up with many different factors that have to be analysed in detail.

What is the market potential, and what are its characteristics? What is the general, economic and social environment?

What are the objectives of the business and how are they to be reached? What image, style and product offer corresponds to these objectives?

What are the specifications to be given to the experts - architect and/or interior decorator - regarding store design and fittings, and the areas to be assigned to selling, after-sales service, display and storage? What are insurance companies' minimum security requirements, and what others would be advisable to take account of local conditions? How are certain management functions such as the cash desk, book-keeping and administration to be accommodated? And finally, what legal matters have to be settled?

After all that, there is still the financial survey to be made, a preliminary that is of capital importance - in more senses than one!

To help retailers to remember every detail and prepare all the necessary documents, ASUAG/ETA have published a brochure entitled "Check-list for opening or renovating a shop". As its name indicates, this is a list of all the points to be reviewed and processes to be carried out - it is not a handbook of instruction and advice.

In 9 chapters with 56 subdivisions, the guide lists 515 points to be studied or decisions to be taken, most of which have brief explanations.

This valuable 60 page document can be obtained free-of-charge from:

ETA SA,  
Marketing - Sales  
CH - 2074 MARIN  
Switzerland  
From: CFH  
Bulletin 74  
June 88

## UNITED STATES DEPARTMENT OF COMMERCE INTERNATIONAL TRADE ADMINISTRATION EXHIBIT

Could you increase your sales if your major competitors raised their prices 24-50% and you did not?

With all the international currency adjustments that have occurred during the last 2 years, U.S. products are far more price competitive against other major trading nations now than they have been for sometime.

The Department of Commerce in cooperation with Kallman Associates will offer exhibit space in INHORGENTA '89 in Munich, West Germany next February 10-14.

We are offering U.S. fashion jewelry manufacturers what is essentially a 1 x 3 meter slice of exhibit space, highlighting a glass display case that is about 1 meter wide, and a 1 meter wall panel for hanging graphics (a color blowup of your product would be ideal).

Our arrangements would include full carpeting, spotlights, the display case, daily stand cleaning, pre-show promotion, shipping instructions, and an Exhibitors Lounge for your business meeting. We are working with a travel agent to package the flight program and the hotels in order to take advantage of group rates. The travel agent selected works closely with many U.S. Government agencies. Round-trip coach class air fare (East Coast) and hotel cost (8 days) is \$1,800 per person, a purported savings of 28 to 33 %.

The price to exhibit is extremely reasonable: \$1,500 per 1 x 3 meter unit fully furnished. Also, appropriately priced full 3 x 5 store front units are available. Our pavilion is especially geared to small-to medium sized firms interested in the lucrative European market. The dollar is now more competitive with other currencies, particularly with the German Deutsche Mark, and U.S. firms have a great



advantage in overseas markets.

Constantly increasing numbers of exhibitors and trade visitors indicate that there is no better place than Munich for the international jewelry, watch, and clock industry to adapt itself to the design, model, and price policy of the coming sales season. INHORGENTA in Munich is the pilot event of importance and is the first major international jewelry fair of the year, February 10-14, 1989.

Almost 22,000 professional trade visitors from all over the world came to INHORGENTA in 1988 to obtain information on the 1,100 exhibitors from all over the world displaying jewelry, precious stones, watches, clocks, and manufacturing equipment. These 5 days in February also stimulated business considerably. More than 97% of the exhibitors reported that they had new customers.

Only trade visitors are admitted. This has a most positive influence on the sales climate and because the qualifications of these trade visitors are particularly high, four out of five trade visitors are executives, owners, or managing directors. Therefore, purchasing decisions can readily be made here.

Now is the time to consider INHORGENTA as the venue in which to increase your profits by exporting! If you are interested, please fill out the enclosed application.

## SOFTWARE REVIEW PROJECT IS GOING STRONG!

Two months ago the research and development committee decided to undertake a project to review all of the computer products out on the market for the gem and jewelry industry. We wrote to all of the people listed in the NATIONAL JEWELER directory, for computer suppliers to the trade, published each year and asked if they would submit their software and or literature for our review. We told them that we would be publishing a review of all the products available and making recommendations based on ease of use, price, diversity in application, company support, etc.. Little did we know, that we were taking on a project of momental proportions!

The response from the companies has been

fantastic, with more programs and pamphlets rolling in all the time. Needless to say what started out as a small project is now a huge project. We had wanted to finish the reviews by the end of the year but now we realize to do a proper evaluation, with the holiday season upon us, the full report and review won't be out until January sometime.

We would like to take this opportunity to thank all of the companies who have sent material in and would encourage any of you who might have a system of your own or know someone who does, or you are using a system you really like, PLEASE let us know about it so we can include it in the review.

This will be the most comprehensive research project ever done on the application of computers in our industry and from our final report you should be able to make an intelligent decision about product, cost and application as it might apply to your own business.

We are also pleased to announce our first additions to our SUPPLIER MEMBER category. In this issue you will find listed a number of computer companies who expressed a desire to acquire this status. A one year complimentary SUPPLIER MEMBER status was awarded to each company responding to our inquiry who filled out the proper forms, sent full supporting manuals along with software. In some instances these packages sold for multi-thousands of dollars and they were kind enough to entrust them to us for proper review.

If you would like to join the "BETA" test group and be on the Research Committee to work on this project, please let us know right away. You must have IBM compatible XT or AT equipment, and hard drives are preferred.

Contact:

Robert L. Rosenblatt, President AGA  
59 South Main Street  
Salt Lake City, Utah 84111  
(801) 364-3667



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