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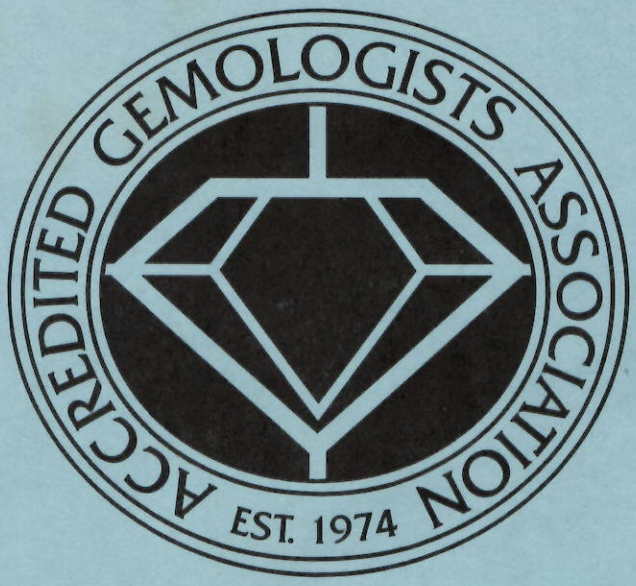

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NEWS AND VIEWS

PRESIDENT'S MESSAGE

A lot has happened since our last Publication.

Vice President Neil Cohen, G.G., ASA, has been meeting and working with Dr. Arthur Brownlow, Ph.D., F.G.A., Chairman of the Education Committee, Donald Palmieri, G.G., and myself in developing a very sound course for our "Master Gemologist Appraiser" M.G.A. program. The program under Dr. Brownlow's direction will be well thought out, creditable, and get the job done. Mr. Stephen Blass, Legal Counsel for the AGA will teach the legal portion of the course.

Our first M.G.A. program will be held in Washington, D.C., (Silver-springs, MD) at the Columbia School of Gemology on July 16, 17 and 18. The M.G.A. Entrance exam will be given on Friday July 15, 1983 and will be graded upon completion. Successful candidates will then be allowed to proceed with course 1A, 1B, and the practical exam if room is available. M.G.A. candidates will receive under special cover forms and instructions that must be completed prior to taking the exam. Space in Washington will be allocated according to the following priorities:

1) East Coast residents who have successfully completed the M.G.A. Entrance exam in Tucson, and who have an AGA Accredited Laboratory.
2) Candidates with the necessary experience requirements.

The other M.G.A. session this year will be in Los Angeles, California. It is tentatively scheduled for August 20, 21 and 22. The time and location will be announced later.

The test on the principal color grading systems for colored stones is progressing nicely. We have been talking to and meeting with Mr. Calvin McCamy, of the Munsell Color Company, in designing our test procedures. Some of the areas we will be testing are: 1) Repeatability, 2) Reproducability, 3) Accuracy, 4) Convenience, 5) Stability, 6) Cost. The systems we will be testing are the GIA Color Grading System, Color Scan, GemDialogue, and Gem Color Guide. The principals of these respective systems, Janice Mack, Cap Beesley, Howard Rubin, and Jim Sharp, have been most cooperative in offering assistance. I wish personally and for the AGA to thank them for their cooperation.

The test is tentatively scheduled for September in four test centers, New York, Florida, Texas, and California.

I would like to acknowledge and thank the most important people in this test: our AGA Accredited Laboratory people. Their skills, help, support and efforts will make our test program successful.

The AGA will adopt a color grading system for color stones based on the results of the test.

EDITORS MESSAGE

I wish to thank the fifty or so members who took the time and effort to send in their questionnaires from the last issue. Some of the suggestions for a name for the Newsletter are quite good. I also appreciated the comments and suggestions I received. Several people expressed their opinions on the Gill letter and President Tenhagen's response. The Association wishes to encourage these members to continue to share their ideas either directly with Headquarters or through this Office, and hopes they will take a more active role in the Association either by joining Committees or by submitting articles for publication.

Mr. Marvin Miller, Chairman of the Nominations Committee, has informed me that it is time to begin the processes for the election of new Officers, who will begin their terms in January, 1984. He will soon be sending out letters to all active members outlining the procedures and requesting nomina-tions.

22 MEMBERS ATTEND GIA COLORED STONE GRADING COURSE

Standing, left to right: Thom Underwood, San Diego, CA; Frank Bonham, Newport Beach, CA; Tom Tashey, Los Angeles, CA; Jim Dolleslager, Houston, TX; Tony Bonanno, Silver Spring, MD; Earl Anderson, Austin, TX; Daryl Allen, Los Angeles, CA; Charles Zawacki, Anchorage, AK; Joe Tenhagen, Miami, FL; Don Palmieri, Pittsburg, PA; Jack Kelsey, Winter Park, FL; Terrie Jensen-Haxel, San Mateo, CA; Jeff Hurwitz, Frederick, MD; Jim Lucey, GIA; Bill Benedict, New Canaan, CT; Lew Bannon, Baton Rouge, LA. Seated, left to right: Ken Bonanno, Fredericksburg, VA; Mark Hawkins, San Antonio, TX; Barb Taylor-Sandys, Redondo Beach, CA; Ben Gordon, Houston, TX; Suzanne Anderson, La Jolla, CA; Neil Cohen, Hartford, CT; Anna Miller, Pearland, TX; Janice Mack, GIA.

In order to proceed with the AGA testing of the four color description systems under consideration for adoption, it was felt that the persons conducting the test should be as familiar with the systems beforehand, as possible. To accomplish this the AGA Board of Directors made arrangements with the Gemological Institute of America for 22 AGA members to take the GIA's new Colored Stone Grading Course in Santa Monica. This is normally a one week class but the Board arranged with the GIA to have the course taught in three days by utilizing eleven-hour days. This took place on Friday, Saturday, and Sunday, June 17-19, 1983.

As well, the Board arranged for Mr. Cap Beesley with this Color Scan, and Mr. Jim Sharp with his Gem Color Guide to each present their systems to these same 22 members on Thursday evening, June 16, 1983. Each speaker had about two hours to thoroughly explain the procedure, and to let each member obtain hands-on experience with each system. Mr. Howard Rubin with his GemDialogue was unable to come out to present his system at this time.

(Continued on page 16)

EXCERPTS AND HIGHLIGHTS FROM THE TUCSON '83 CONFERENCE ON COLOR

(ed. note: These excerpts were taken from transcripts made from tape recordings of our speakers' lectures in Tucson. Because many of the speakers were explaining things shown on slides, I have had to take certain liberties in presenting their talks in this form. My apologies to all our fine speakers if I have inadvertently changed some meaning, or left out something they felt was important.)

COLOR SCAN

C.R. "CAP" BEESLEY, G.G.
American Gemological Laboratories
New York, New York

What we're going to attempt to do this afternoon is to take a look at the color grading or color analysis of colored stones. One of the things that got me started in this to begin with was, actually, the appraisal issue. One is expected to appraise, yet one is not given the vocabulary with which to communicate, or with which to describe the object you're supposed to be intelligently putting numbers on. So we started with the idea of trying to generate a vocabulary, and, of course, that was some 10-12 years ago, and a lot of things have happened since that point. Obviously, people are throwing around a lot of names, you know, CIE, and it sounds great; God's answer to gemology is a mathematical approach to color. Well, it may be that it's going to be useful to us as an ultimate tool; but the bottom line is it's got a lot of kinks in it that have to be worked out, primarily because it was never designed to do what we're asking it to do - to analyze stones. It was designed for things like plastics and paints and two-dimensional mediums. It was not designed for the complications of colored stones. We have a multi-faceted, three-dimensional piece of material that can be dicroic. So a tremendous amount of work needs to be done. First of all, this whole issue of color is obviously one that's always fascinated everybody. And it seems like no matter what business you're in, there is some attempt to quantify color. I frankly don't care whether what we come up with is ever applicable to any other technology in the color business. The only thing I'm concerned with is whether or not it applies gemologically to the analysis of colored stones.

We also have the issue of having to make some basic determinations about whether the material we're dealing with is even natural or not. And if it is natural, has it been altered or adulterated in some way? You better be able to handle that identification issue right off the bat before you ever proceed to the grading one. When we look at a stone we have a few decisions to make. We have to go through the identification function first. Then, like it or not, we have to deal with the country of origin issue. It is not irrelevant, and there are some good, sound scientific reasons why not. You can take a pink Thai and a pink Burma, and you can look at them in a Duratest Vita Light, for example, and they can be an absolute match. If you take those two stones and walk them over to daylight, the Thai will die and the Burma will fly. How come? Well, quite obviously, because one has the iron content, and one has chromium content; the chromium content fires up the fluorescence; the get gets redder. What happens to the Thai stone. It starts to get more orange-brown, more grayish, more purplish, whatever; but a tremendous difference occurs, so there is a difference. The issue becomes then, first: identity; second: alteration, and how it influences value; and third: the country of origin.

What we have attempted to do in our particular approach to color is to be able to generate not just a communication tool, but also a tool to train people about country of origin - what those specific colors look like. Now, some people who get out there and see a lot of material, it's no problem, they know what the range of Burma color is;

but many people are not in that position. So what we've generated is, in part, an instructional tool that allows a person to do that. We can look at six simulated stones on a single card, and get a sense of what the range of Burma stones look like, or what a fine Kashmire looks like, for example. Incidentally, when we look at the typical three-phase inclusion, we automatically think of Columbia. Well, we can't think of Columbia anymore. We also have to think of Pakistan. Pakistan, in particular, because now Pakistan is producing material that looks, visually for all the world, like some of the best of Columbia. What's the difference? Well, one of the differences happens to be the refractive index, specifically: 1.58-1.59 with three-phase inclusions equals Pakistan; and 1.57-1.58 with three-phase inclusions generally equals Columbian, more often than not, because we don't see that much Indian material, or known Indian material.

Whether you call the treatment process, or the alteration process on a document is determined by the influence of that process on the observable and measurable properties of the material. About 60 percent of the sapphires that are heat treated flouresce. Other things are occurring as well, changes in the inclusions, in the structure of the material, manipulation of textures, elimation of textures, changes in textures. There are a half dozen tell tale signs in the treated material that you can use to establish the fact that the stone has been heat treated. These highly reflective, glassy fractures radiating from frequently very, very small centers are indicative of the heat treatment process. A natural outgrowth of heating these stones up near their melting point, 1800°C, was to then add some coloring agent. You expand the structure, you force the coloring agent down into the structure of the material, so you wind up with something like the rind of an orange, in terms of the rind being the coloring agent actually penetrating into the stone. Under immersion you see a concentration of blue laying on the facet junctions. One of the best ways, by the way, to pick that up very quickly and very simply, is to take a white Kleenex, drape it over the well of the microscope, take the stone, lay it table down, and just concentrate on looking at the facet junctions, which tend to show up a darker blue.

Also, we have indicolites that are being irradiated; rubelites are being irradiated; topaz's are not only being irradiated, they are being stabilized, so that the color will not fade. For example, on any topaz that comes into the laboratory, we do a concentrated fade testing procedure. If the client does not agree to it, we automatically put a comment on the document: "Origin and permanency of color not determined". If we do a fade test we use the comment: "This material has been subjected to concentrated fade testing with no evidence of color alteration", or whatever the results were. Even on a market value report, if there is insufficient information, we will indicate that on the report: "Market value information contained in this document is predicated on the premise that this material has not been subjected to any artificial coloration process", so that everybody knows where they stand. You're not expected to be God when you sign your name to that document. What you are expected to do is to give the best possible information that you can of what you know.

On the issue of color communication. First of all, there's a lot of terms that are used to describe the various elements of color. We are using the terms hue, tone, and intensity. Hue is the attribute by which we separate one color from another; red versus green versus blue. On a finer scale, it would be the separation of a slightly yellowish green from a slightly bluish green. I have a slide here which represents the color space on a diagram made up of spheres of differing shades of color. You can see as you go around the perimeter of the diagram, you have your variations in hue. As you go up and down the center of this diagram you have your variations in tone, where the spheres vary on a white to black scale,

from light to dark, or colorless to black. So we are talking in one sense about the quality of color, and we are talking down the center about the quantity of color. And then as we move in towards the center core, we can see there is a common denominator that occurs that is overlapping on all those spheres. And that is the addition of brown and gray, which we call intensity modifiers. We have the function of hue, we have the function of tone, we have the function of intensity. We therefore have: primary colors, secondary colors, and we have intensity modifiers. Intensity modifiers are very simply brown and gray. What we have done to try and simplify this whole approach is to take brown and gray and treat them as a color. So what we have basically, are red, orange, yellow, green, blue, violet, gray and brown. We also have purple, and we have pink. Now in other color technology, pink is really a diluted red. For us, we treat it as a color. What that allows us to do is to perform a function called Color Scan, which is taking a stone and breaking it down into its visual color components, namely, it is red, it has a certain amount of pink, it has a certain amount of orange/brown, it may have a certain amount of gray in it. Breaking it down into its constituent colors as we visually perceive their significance, and then attaching to each one of those verbal descriptions, a number or quantifier. The whole object is 100% color; we break it down into 5% increments. If we take a look at the red/orange/yellow side of the color diagram, we see that there is a tendency for the intensity modifier to be brown. And if we look at the green/blue/violet side of the diagram, we see that generally the intensity modifier is gray.

Now, there are several things we have to consider in this whole color judgement issue. One of them, of course, is how the object is going to respond to the illuminance. Another is how the observer is going to perceive it. Also, what is the composition of the lighting environment that's being used to stimulate that color? So, we have the object, we have the illuminance, and we have the observer. Those three elements must interact. Our approach has been to use Duratest, which is the manufacturer of Vitalight, which is the trade name. We've used that as a standard reference. We have found that it has given us the best results. One of the reasons is that it has ultra- violet content, which most of the other bulbs don't. Diffused north daylight has always been our ultimate reference. What we have found is that not only does the illumination, but the intensity of that illumination, affect color judgement ability. When your eye looks at a color against a white background, the pupil closes down, it sees more white and less color. So there's actually less color getting to the place that it needs to get to. Namely, the part of your eyeball that stimulates the color perception. When you look at that same color against a black background, the pupil dilates, lets in more light and actually floods the appropriate areas with more color. In our particular approach, we have used that principle to find tune color judgements. We have made our color samples on a white background. They appear to have a certain level of intensity. Then we have a series of gray cards that you can lay right over the surface, so the only think you're changing is the background. And as you change that background, your perception of the color changes dramatically. Another problem, and in fact this may be one that the AGA wants to consider; somebody needs to nail down a testing procedure that is used for establishing color blindness, or color irregularities. One of the best tests around, I believe, is put out by Munsell; it's the Munsell 100-U test. Essentially it enables you not only to pick out irregularities, but to pinpoint where the irregularities are. We've been doing spectral analysis on stones via computer for the last three years. We have thousands and thousands of stones on computer. The computer can, in fact, not only recognize identity to a large extent, it can also identify country of origin, when the irregularities in the spectrum exist. It can

also make color judgements, by the way.

The important thing to remember is we are dealing with stones. We want things to look like stones; we are grading stones. It is very difficult to make the mental jump from looking at a stone and everything that's happening in the stone, to a flat, two-dimensional surface, or even to a flat, two-dimensional surface with transparency. So, we want to try and simulate as closely as possible the appearances of stones, and simulate them exactly, if we can. What we have tried to do is to create something that does exactly what a stone does. When light enters a stone, it passes through a transparent colored medium; it is reflected off the back facets; it comes back up through the transparent colored medium; it is amplified and returns to the observer's eye. That's the effect that we have achieved in a flat two-dimensional medium. We call it Color Scan. And basically, what it is attempting to do is to simulate in exactly the same fashion that the stone performs, what happens in that stone. One of the things we had to achieve and arrive at was some geometric pattern that began to simulate the appearance of a stone. We also had to manipulate the angles such that we could maximize brilliance; we wanted to wind up with essentially 70-80% of the light coming back to the observer's eye, while at the same time eliminating the issue of surface reflection. Then start to combine it and put it into a format that will simulate a particular stone.

Now, the way our process is structured is, since we are dealing with specific gem types, we make up cards for each variety, such as peridot, aquamarine, sapphire, and ruby. Each card contains six master stones. For materials like aquamarine, there are actually two cards or twelve samples. For materials like rubies, there may be as many as seven cards. Some of those cards delineate the color range for Burma rubies; some delineate the range for Thai, and various ranges of Thai. So far, we have not found any color that we cannot duplicate. And just to demonstrate that fact, we have offered the service to the trade to duplicate the color of any stone they want to duplicate. If they want to send out a color sample to their clients, we will duplicate the color in our medium.

In using our system, what we want you to come up with right off the bat is a match. So that when you go to that particular number in the text, let's say 357, or whatever it happens to be, the first thing you will see is the Color Scan, followed by a 4.5/90, for example, as a description of that particular color sample. The Color Scan tells you the color content, what the color components are; the 4.5 quantifies the quality of that color; and the second number, the tone of 90, tells you the amount of color present. There are points at which the Color Scans of these things will overlap. And there will simply be a set of references there, where you can refer to other cards for other colors. Every one of the color samples in our laboratory level set has all the appropriate CIE information in it. Dominant wavelength is plotted, and purity is also plotted. We think the colors are good for at least two years.

GEMDIALOGUE

HOWARD RUBIN, G.G.
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GemDialogue is something I started about 10 years ago. The way it all began is an interesting story in itself. I would occasionally experience difficulties in passing through customs in foreign countries when carrying reference stones for use in buying other stones. I wanted to avoid that problem so I went into an art shop to see if I could match some kind of colors to my own inventory. I found transparent acetate sheets which are used in the graphics industry, and I was able to match a certain amount of stones which I was interested in. I chose about three or four charts from each color to get a reasonable repre-

sentation of the stones I had. I made notes as to what I was selling particular colors for and this gave me a very good buying position when I travelled to other countries. I knew exactly what I wanted to pay for similar material. A few years ago I decided to take this concept and see if I could produce it so that the average jeweler could use it as a way to communicate the color of gemstones with his suppliers, and also, as a basis for an appraisal system. It has evolved into a worksheet which I have incorporated to include identification, color description, and a description of the stone itself.

In talking about color the first thing we have to do is to separate the color from the stone, and think in terms of color alone. If we think of color order and we take a prism and let light shine through it onto a blank wall, we have basically six major colors: red, orange, yellow, green, blue and purple. These can be represented in a continuous color circle or wheel and you will notice that there is no sharp dividing line between one color and the next. As each color leaves its section and begins to approach the next it begins to pick up parts of the next color. The color which modifies another color I call overlay color. For example, in yellowish-green, green is the main color, and yellow is the overlay color. This overlay color I describe in three different strengths, these being slight, moderate, and strong, and I represent these different strengths with the numerals 1, 2, and 3, respectively. For example, slight yellowish-green would be described as Y_1G; moderate yellowish-green would be Y_2G; and strong yellowish-green would be Y_3G.

In the charts that I have incorporated in GemDialogue I give the six pure colors, and the twelve moderate strength overlay colors between them. If you are using this system and find the overlay strength of the gemstone's color to be slightly more or slightly less than the moderate one given, you simply change the center number to a 3 or a 1, to indicate this. I found when applying this color order to gemstones I had to add two more colors to the color circle. One was cyan which is equal tonal mixtures of green and blue, and the other was magenta which is equal tonal mixtures of red and blue. Besides the cyan and magenta colors, I have also included the color brown at the back of the book, simply because many gemstones occur in this color. This gives us 21 different color charts to use as reference.

To produce something that would be good for the entire industry, I felt that I had to have something that was uniform, and that had good quality control, so that everybody will have as close to the same material as possible. It's not an easy thing to do when you are working on acetate with pigmentation that has to be mixed in a lab. There is no black in any of these colors, and this is not done on a four color press. If you do it on a four color press, there are all kinds of formula guides as to how you want to space your dots to give the appearance of the color you want on the material. What we had to do was to mix up very large batches of pigment, check it with a spectro-photometer, and deposit it over a number of days in different thicknesses on each sheet. We tried to get the strongest color possible while keeping the material transparent. I felt it was necessary to use transparent materials as reference points for describing other transparent materials. We also had to consider how long the pigment would last before fading. This material has been engineered to last for two years. I could have chosen to make it last a little bit longer by using more permanent pigments, but it would have increased the cost tremendously. The lightest shades of color in these charts will fade first simply because there is less pigment there. This is why you don't see some of the very pale colors in the low zones of these color charts. We got to the point where if we made them any lighter, they would fade before that two-year period. So, I designated what I wanted to be the strongest color and the weakest color

and we divided that range into ten different areas of equal visible spacing. It's shown here in zones of strength, from 10 to 100. I didn't want to use the word tone, as I felt that people think of tone as a black condition, and I wanted the word zone to represent the strength of color. If you think in terms of color order science, this is not the accepted norm. If you think in terms of what's practical for the jewelry business, I found it to be very acceptable. This gives us 210 different reference points to compare against.

The reason I left the black out, and will include it later under the term called color mask, is because I felt the word tone, as it's been used for the last few years by a number of the labs who are giving certificates, can be very misleading or confusing. For me, when I see something in a 90 or 95 tone, I think of a blackish appearance. But it is also possible to have a very deep color that will still give you that 90-95 tone. To my mind I'm not quite sure if they are describing a very deep color or a blackish color. So I decided to separate black from the color, and this is actually the key to my whole system. I describe the color by itself, and then add the color mask which shows the degree to which black hides that color in the face up position. In the back of each manual, I have included three color mask charts. One is a gray scale on transparent material, another is a brown scale on transparent material, and the third is a gray scale on opaque material that can be used for opaque gemstones. The transparent scales are used for transparent and translucent gemstones. The combination of the ten steps on each of these three charts gives us a total of 6300 reference points, all in a portable unit that you can carry in your pocket.

To give an example, if you're using the greenish-blue chart and you wind up with G_2B, 70 zone, and if the material appears slightly blackish, what you do is then take your transparent gray color mask, put it over the 70 zone and just keep trying each succeeding percentage of mask until you get the color or the appearance that the stone seems to have in the face up position.

There is one other subjective point that you have to remember if you want to describe the color fully and that is color intensity. I have always considered intensity as being the brightness of the color, and I describe this in five grades from bright to dull. These are bright, bright to moderate, moderate, moderate to dull, and dull. I find that if you're looking at a bright stone, the color charts work best against the glossy protective sheet I have behind it. If you have a dull colored stone, I suggest that you use a matte finish paper behind the color sheet that is not reflective.

There is also the consideration of lighting. I have found that the bulbs I like the best are what's considered between 5000° and 5700° Kelvin. This is meant to supply a light that will have the least effect on the stone you're working with. If you're in the low Kelvin degrees you'll find that the stones are affected by reddish or pinkish tones. When you get up in the higher color temperatures you find that you are affected very heavily by purplish or bluish. The 5000°-5700° range is a neutral zone between the reddish and the bluish. The bulbs I have found acceptable are the Vita Light Duratest, the GE Chroma 50, and the Sylvania D.

There is one other effect on color that is very important and that is the effect of cutting. If you have a ruby, for instance, that is a very shallow stone, you're liable to wind up with two shades of color on the same chart in that one ruby. The outside rim will be dark or let's say a heavier zone of red. The center of the stone, depending on how shallow it is, will have a lesser zone simply because the center of the stone washes out, as light leaves through the stone's window. You'll notice I didn't mention brilliancy at all, except to consider color apart from the brilliancy of the stone. I don't like to put brilliancy

in the description of a stone. I have always felt that brilliancy is a function of transparency and cutting, and if you describe transparency and describe cutting, somebody who is well versed in the gem trade, can easily figure out what that brilliancy will be. If you were to evaluate a citrine and a precious topaz, for example, in similar colors, on the same 100% basis for brilliancy, you would find that the topaz will have a much higher brilliancy in its best light than the citrine. It is simply a harder stone, it takes a finer polish, and it has a much higher refractive index. So I hate to evaluate brilliancy on a 100% basis. I prefer to describe the stone, describe the transparency, whether the cutting is acceptable or not, and from that you can figure out pretty close what the brilliancy should be. I'd also like to point out that I have no evaluation system to go with this. This is merely a descriptive system. I do not designate what color is a number 1 or a number 10. I leave that to the dealers, and to the appraisers. I do suggest that in describing the stone, you describe it in its best appearance, because that is usually how people will be evaluating the stone.

I'm sure there will be plenty of bugs to get out of this system but as far as I'm concerned it was something that I was very willing to come to the trade with as a first attempt. There was nothing available that I was satisfied with and I felt that I had finally something that I wanted to offer. Color is actually caused by two functions in our own minds, it's physiological and psychological. In our own minds we keep a dividing line as to what we would call a particular color and yet it doesn't matter what we call it if we are all working from the same chart. The reference points are what's most important. I have taken what I felt could be used for our industry, I have put it together in this particular manual, and I felt let's start from here.

GEM COLOR GUIDE

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In attempting over the last three years to arrive at a technique for evaluating the gemstone and its color, we have developed different definitions of the aspect of color in a gemstone. The aspects include the chromatic portion of the stone, sometimes referred to as brilliance. This is the colored light that is reflected off the back facets of the gemstone. The second portion of the gemstone we consider to be achromatic, not containing a hue. This portion of the stone is generally caused by over absorption of light in the gemstone. If you think about using a spectroscope on a ruby, you will remember seeing distinct bands and lines of blackness in the red portion of the spectrum. That is because the doping agent in the material is so saturated that it completely extincts out the light. And this is a very important aspect to the color of a gemstone. The ideal gemstone would have zero extinction, or zero achromatic portions to it. Those are basically the dark areas in a gemstone. There are also light areas in a gemstone, which are caused by the particular dimensions and proportions of that stone. In the trade, we generally call this a window. The window, while it does affect the lightness or darkness of the gemstone, doesn't appreciably change the color of the gemstone. So, for our purposes, in a quality analysis of color, we will basically think about the darker, gray to black areas which we consider to be extinctions. This can be evaluated on a 100 point scale where zero extinction would be ideal, and 100% extinction would be totally black. Now let's return to the chromatic portion of the stone. Munsell has devised a three-dimensional space to deal with the chromatic portion of the gemstone. The laboratory that I work with, California Gemological Laboratory, is beginning immediately to use on their certificate a Munsell notation for the color of the gemstone. And what that incorporates

is three aspects of color: the hue, the chroma, and the value.

What we do in evaluating the hue is to take a color standard, a material that we will define as something that's used in critical color analysis. There are basically three companies in the world that make critical color standards. One is DIN in Germany; one company is in Japan; and the third is the Munsell company in the USA. In our estimation everything else is a toy and should not be used for critical evaluation of color. These materials can be used to evaluate the hue - whether the stone is red, whether the stone is purple, and the exact increments in between. You can compare a gemstone to this color standard and evaluate it and have a notation for a particular hue. We have durable materials that are standardized and that will not fluctuate. I would say that, under normal jewelry type evaluative processes, the material will last approximately seven to 10 years. This is very important.

The next evaluation is the intensity of the gemstone. How vivid is the color? And what we use to evaluate the vividness of color is the Munsell chroma. This starts at zero, and most of the material that we have evaluated in our laboratory does not exceed about an 18 or 20 chroma. What this does is to enable us to take standards developed by Munsell, and use that as a comparator to look at the intensity of the color. In our laboratory, we've been able to do this within very tight parameters; we're normally within two chroma, having three gemologists evaluate each gemstone that goes through our laboratory. Likewise, in the evaluation of the hue, we are able to evaluate this particular quantity within approximately a 1.25 hue based on Munsell's notation. I will show you materials in a subset of the Munsell Book of Color that we've put together that exemplifies basically the colors that we have experienced in our laboratory over two years; and that adequately give you the ability to identify those colors that you will encounter on a day-to-day basis. It is not necessary to have the whole Munsell Book of Color. The Munsell Book of Color costs $615 and, while for a gemological laboratory that is going to be evaluating hundreds of gemstones on a monthly basis, the Munsell Book of Color is an excellent tool; we feel that we can produce for the industry a subset of the Munsell Book of Color that we can sell for $200.

The third aspect that we evaluate is the overall lightness or darkness of the gemstone. Munsell calls this aspect value, but we will use the term tone to conform to the basic standards of our industry. Possibly we shouldn't have done this because there is confusion; there are other people who have made up tone scales. And I emphasize "made up" because what we need in our industry is a standard that is uniform, that is based on scientific principle. We evaluate the tone in relationship to a neutral value scale. We're taking a gemstone that is transmitting light back to the eye that is reflected internally, and we're attempting to use a scale from light to dark, and evaluate the lightness or the darkness of the gemstone. What is the ideal tone for a particular gemstone? We can define in reasonable scientific terms what is the optimum situation for a particular color. If we look at the color solid, as represented by Munsell, you can see that certain colors have more intensity in certain tones. For example, the color yellow reaches its maximum saturation in lighter tones. You'll see 20 to 30 is approximately the area where you'll get the maximum saturation in yellow gemstones. The ideal tone for this stone is 25. If you look at the red portion of the scale, the maximum saturation is between 60 and 70 tone, the ideal tone is going to be 65. The green area is just a little bit darker than the red area; it's probably more like 65 to 70. The blue area is somewhere in the neighborhood of 60 to 65. We see at which point we reach the most chromatic colors, and we have identified the ideal tone for that particular gemstone.

So those are basically the three attributes of color that we deal with: the hue, the chroma, and the tone. Plus the additional aspect of extinction or blackness. What we have done is to take a collection of color standards to analyze the color of the gemstone. At this point, I would like to tell you that what we are doing is not attempting to duplicate the gemstone, that's impossible; there's no way to add 5% blackness over here, 5% blackness over there, 25% window in the center, and duplicate the appearance of the gemstone. What we're attempting to do is, on a segmented basis, define what is the hue of the stone, what is the chroma of the stone, and what is the tone of the stone. We have found the most ideal, useful thing about the Munsell system is that it's an even unit of perceived color. In other words, if you look at the difference between this sample and the next sample, it moves exactly the same distance. We're able to have this linear projection over the color space and define particular units in that system and use that as a comparative standard.

In attempting to arrive at a quality analysis of the stone, it's important that you evaluate the color of each particular area in the gemstone and to qualify the value of those particular areas of the gemstone, and factor it out over the whole stone. In other words, if 50% of the stone is a 10, and 50% of the stone is a 5, the color grade on a 10 point scale would be a 7.5. It is vitally important that in every gemstone that you do, you evaluate all of the factors that relate to the color of the gemstone: the hue, the chroma, the tone, and the extinction, combined to give you a color grade. I'm going to give you a methodology where you can develop your own system of color grading stones. If you have these four factors, it is very simple. You identify what you feel is ideal hue for a particular gemstone and you see how far you move from ideal. Let's say that the hue grade is an 8. For the intensity of the gemstone, the chroma, ideal is the highest possible number. The higher the chroma, the better the gemstone. Let's say that this particular stone has a 7 grade for the chroma. The next thing we evaluate is tone. Let's say for a yellow stone that the ideal would be 25. Let's say the stone is a 45. We might say that the tone grade on that stone would be 6. The extinction is relatively simple. Let's say extinction is 25% and let's say the grade is 8.5. So, you accumulate the numbers, divide by four, and you have a color grade. It's just that simple. There's ideal hue, there's ideal tone, and there's maximum chroma. There is also extinction. If you analyze these factors with just a little common sense, you can come up with a color grade on every gemstone that you do.

AN APPRAISAL GUIDE

W. DAVID SHOUP, G.G.
W. David Shoup Associates, Inc.
Tampa, Florida

Each written appraisal should be uniform in its presentation of the necessary data. It should include the type of jewelry with a complete description and analysis of the piece in addition to the value. First, in dealing with the public, you must set your customer at ease. Impart a sense of security by explaining where their jewelry will be at all times it's not in their presence. Show them samples of your appraisals, and go over the steps involved in doing a complete appraisal: the photograph, cleaning, assaying, weighing, measuring, construction and design analysis, gemstone analysis, and pricing. This helps them understand why you have to charge whatever your fee structure is.

Step one is to determine the reason for the appraisal request: is it to be for insurance purposes, to insure against loss or damage? If so, explain your basis for retail replacement price. In other words, what you would sell the like item for, or what the average of a retail sale in your area would be for the item. If the appraisal is to be used as a basis for

determining a price at which to sell an item, you've got to explain to them the variations in prices they'll encounter. For instance, the general public will pay a little bit less than retail. But retailers who are going to purchase for resale will pay somewhat less than wholesale. Liquidators and estate purchasers may only buy it for the scrap metal price and give no consideration to labor or to small and poor stones. So you've got to explain to them a little bit about the resale market, and you've got to help them determine why they want the appraisal. When doing an appraisal for an estate settlement purpose, you should explain that the IRS Ruling requires that you make the appraisal at fair market value, which the IRS defines as "that price at which like items are normally sold by persons normally in the business of selling like items". This is not what somebody's going to pay you for an item, but what somebody who buys it is going to sell it back at. It's somewhat unreasonable, and it forces you to possibly give them two values: one which they can reasonably expect to receive, and one which will satisfy the IRS. Until the IRS changes their ruling, which we hope will be soon, you're stuck with that.

Step two is determining the items to appraise. Your customer may present items that don't warrant the expense of a written appraisal. Most estate appraisals require that all items be appraised, regardless of what they are.

Step three is to explain the time requirements and charges.

Step four is to photograph the items. I use a Polaroid SX70, and find that it gives quick, satisfying results. I include a scale at the bottom of the photo image which helps to relate back to the size. If you accept items to be left for later appraisal, you should take two photographs and have the customer sign both copies. They use one for a receipt which they return to you when they pick up their items.

Step five is to examine the major gemstones and identify and point out any potential hazzards which may be encountered in cleaning or handling, prior to acceptance of the item for appraisal. If there are major diamonds, you should plot their major clarity feature and explain their apparent clarity grade. Explain to the customer that there may be other inclusions, but these are sufficient to insure identification of their stone when they get it back. Items left for later appraisal should have a liability limit established in writing by the customer at the time of the take-in. Explain that this value only serves the purpose of limiting liability for insurance purposes while it's in your care; it has no relation to the appraised value.

Step six is the preparation for appraisal. It entails cleaning, testing of metal quality, and weighing and measuring of the piece. All jewelry should be cleaned to properly appraise. I use the ultrasonic on the majority of my pieces. After I set aside those items that require special care, I soak the item in the ultrasonic for a few minutes with "Mr. Clean". I find that it actually polishes the gold a little bit. I rinse it in alcohol after this and then I air dry it with a hairdryer. On to metal testing. Your accuracy is going to be only as good as the amount of practice you do. I feel very strongly that you need to have a set of test needles. They don't make white metal test needles, so you have to make up your own set. Then you've got to practice until you develop confidence. I don't believe you should test coins because the rub could reduce the value of a collectible. I put a statement in the appraisal that says, "The authenticity of the coins have not been determined; they are priced as genuine", or "imitation", whichever you feel. The weight of a piece, I find, provides a very convenient way to evaluate the precious metal content, which may be hollow; and it distinguishes between thin and heavy gauge metal. To determine the weight of the metal on items that contain stones, you simply find the total weight of all

stones, convert it to grams, and deduct it from the weight of the piece.

Step seven is the analysis of construction, and it should include consideration of the method of manufacture, quality of workmanship and design, and the condition of the item. The method of manufacture is important to note and evaluate because the cost of a handmade item usually is considerably higher than a seemingly identical piece which has been cast. The cost of chains and pieces which are mass produced on a machine or from casting have a much lower labor to metal cost than items that require significant hand labor to assemble and finish. Cast pieces usually show pits and roughness in the small recesses where you can't polish. Handmade items will show tool or saw marks in these areas. Pieces that are cast from wax patterns made from handmade pieces will show pits and roughness on the tool marks. With a little bit of practice it's not difficult to tell the difference.

Step eight is the metal and labor pricing. To establish a base price for the metal, I take the spot market price, and I add to this the fabrication costs which usually run about 25%. I then convert to grams which I use because it relates directly to carats, and adjust the metal to the Karat quality. On 14K gold, for example, at $450/oz. gold, I multiply 450 times 1.25 for fabrication, which gives me 562.50; I divide that by 31.1 for grams to get 18.09; and then multiply by .585 for the gold quality, to get $10.58 per gram. I do the same for 18 Karat gold, platinum, silver, whatever. That's the metal value but that doesn't include the labor that went into the manufacturing of the piece. I find it's convenient to maintain typical labor pricing charts showing the local casting fees, and the cost for filing, polishing, soldering, and setting in my area.

Step nine is the analyzing and pricing of diamonds. I find that in estimating the size of mellee and in measuring stones, a millimeter reticle in my eyepiece is a very convenient tool. I also have a protractor reticle eyepiece that I use for estimating angles. I give an average quality grade for mellee. Along with your appraisal someplace you should explain the terminology you use. For cutting, I say if it's a very good cut, a good cut, an average cut or a poor cut. On the pricing of diamonds, I find that I have got to get every list I can and average them because there are too many anomalies between one and another.

Step ten is the analyzing and pricing of colored stones. If you're unable to identify a stone of some consequence, you should put in the statement that "identity and origin is not determined due to the limitations imposed by the condition of the mounting", and that they are priced as whatever you deem necessary, "natural" or "synthetic". I will briefly go into the colored stone analysis that I use. Basically, if you look at the sample chart for corundum that I have handed out, you can see that I use six different elements to judge the quality and to determine the value of any colored stone. These elements are hue, tone, intensity, size, cut and clarity, and you can see that as the parameters of each of these elements change, I assign a certain factor to assess that parameter. When you multiply these factors together, and then times the theoretical wholesale base price, you arrive at the per carat wholesale cost for any stone. You need to keep a couple of things in mind when you use charts like these. The first is that the base price is theoretical. You may never encounter a stone with sufficient qualities to arrive at that base price. The second is that the parameters reflected on these charts do not reflect absolute values. They reflect analysis of data that has been made available. As more data is made available, there will be more accurate information to put on the charts.

The definition of color must begin by defining the parameters by which to compare the qualities of color: hue, intensity and tone. Hue is the quality normally thought of in color. I stick to the basic six: red, orange, yellow,

green, blue and violet; and I describe stones in terms of percentages of these colors. Violetish-red, for example, would be 75% red, and 25% violet. Red-violet would be 50% red, and 50% violet. The hue that would be located midway between red-violet and violetish-red would be 63% red and 37% violet. The curves that I give assigning factors for hue are going to be different for every species. The intensity is the quality of pureness which causes the color to appear vivid or dull. As the hue is more pure or composed of fewer different wavelengths of light, it becomes more vivid and lively. Where there are more different wavelengths of light causing the apparent color, the hue becomes more dull until it reaches a grayish or brownish cast. Tone is the quality of lightness or darkness which may also be termed saturation. A very pale hue is said to be light or low in saturation.

Size is of great importance in items such as ruby and emerald which rarely occur in large sizes. Special consideration must be given to the transparency of the gem when calculating the size factor. The size factor of normally transparent stones increases less when you have semi-transparent stones, and I find no increase for translucent stones in most species. Stones which are normally faceted, but which are cut in cabochon form, rubies and emeralds, for instance, I find to have 0.2 as a size factor, regardless of their size.

Regarding the quality of cut, I express it in terms of "good", as that which is found in the most commonly available good jewelry: your German cuts. I have a premium category for better proportion cuts which you occasionally encounter. And I have the third quality, the discount cut, which applies to what we all see that's wafer thin, very poorly, native cut. The determination of which category it falls into is made by two major factors: first, the size of the window; I estimate it in terms of fourths or thirds of the gem width. I find the average cut has a window between half and two thirds of the stone width. If the window is less than half, I would lean towards a better cut; if it's more than two thirds, I would lean towards the discount cut. The next feature is the symmetry of the cut. In your very top quality, the symmetry will be very even and quite pleasing. You'll find as the symmetry progresses lower, you'll run down towards your distorted or native cut stones.

Clarity, I find, is the factor of least importance, as long as the material remains in the realm generally accepted as gem quality. It does, however, have a considerable impact when you're in a realm of heavily flawed and included material which should not be considered gem quality, but is frequently encountered in promotional jewelry. Gems such as emeralds, which seldom occur without flaws, have to be taken into consideration in the chart. You've got to allow for a normal garden, but you still have to recognize that there's a bottom limit.

The final consideration is the dollar value per carat as used as a base price on these charts. As I said earlier, this base price is theoretical and it must be maintained, and adjusted. The way I do that is to come to Tucson, and to go to all of the major gem shows that I can. I write down as much information as I can, I take it back, and then I analyze it. I determine the average price of what I saw, for a given quality. Then I determine the overall <u>stone quality factor</u>, by going through the intensity, tone, hue, size, cut, and clarity; assigning factors to these and multiplying them out to arrive at one number. If I then work the formula backwards, and divide that number into the average per carat cost, I will arrive at the theoretical base price per carat. If you do this a few times on a number of different stones of the same species, you will arrive at theoretical base prices which should be pretty close to each other. These can then be averaged and I think with some experience you can become quite comfortable with the idea of a theoretical base price. Let's work through an

example. Let's say we have a ruby with the following factors: say it has a very strong intensity, for a factor of 0.9; a slightly light tone of 40, with a factor there of 0.85; your hue of 65% red, and 35% violet for a factor of 0.8, size of 1.57 carat gives you a factor of 1.3; a good cut, a factor of 1.0; and a clarity of heavily included, for a factor of 0.8. You proceed by multiplying the 0.9 x 0.85 x 0.8 x 1.3 x 1.0 x 0.8 to get a 0.636 stone factor. At a base price of $5,000/carat, this gives you a value of $3,180/carat, times 1.57 carat, or $4,992.60 for the stone at wholesale.

The final step is to add up all this information on your worksheet and arrive at the cost for the piece at wholesale. To this you add your mark-up or adjust it accordingly for the type of appraisal you are giving.

THIS ISSUE ENDS THE ARTICLES FROM TUCSON '83.

NEXT ISSUE DESPERATELY NEEDS YOUR CONTRIBUTIONS.

SUGGESTED NAMES FOR NEWSLETTER

Gemlines	Gem Science Journal
Gemscope	Gemologist Update
Gem Monitor	Gemologists' Forum
Extra Facet	Spectrum
Cornerstone	Reflections
Compendium	Gem Abstracts

GIA Color Grading System

(continued from page 3)

Each member with an Accredited Laboratory was offered the opportunity to attend these classes. Then, as space permitted, other qualified members who were able to attend, were invited. The classes were very well received by all attending, and those members who would be interested in taking the GIA course in a similar manner are encouraged to write to AGA Headquarters, as it was felt that the GIA would cooperate in offering this program again.

The association wishes to express its sincere thanks to Ms. Janice Mack, and Mr. Jim Lucey, of the GIA; and to Mr. Cap Beesley and Mr. Jim Sharp, who all gave of their valuable time to make these classes possible.

Washington, D.C. Chapter

(continued from page 17)

different language to describe the colors. Mr. Tenhagen will tell us about this new method. Marvin Miller will also give the results of the Retail Mark-up Survey.

Following the program, refreshments will be available. Members are encouraged to bring their spouses. Please plan to attend.

MEMBERSHIP MEETINGS

WASHINGTON, D.C. CHAPTER

Catherine Cleiman

The second meeting of the Washington Chapter of the Accredited Gemologists Association for 1983 was held on the evening of April 4th. Members present included: Tony Bonnano, F.G.A., O. Dee Calloway, G.G., Cathy Cleiman, F.G.A., Bill Dougherty, F.G.A., Karen Ford, F.G.A., Chuck Hyland, G.G., Jeff Hurwitz, G.G., Chris Lietwiler, F.G.A., Marvin Miller, G.G., Nanette Monmonier, G.G., Ginger Morgret, G.G., and Tom Teriplak, G.G. Guests included Gary Becker, Ken Schaulis, Mike Gibson and Bob McClain.

Old Business: A final decision was reached on the issue of increased annual meetings. By unanimous vote it was decided to increase the number of meetings from four to six, or every other month. Unless otherwise specified, these meetings will continue to be held on the first Monday of the selected months at the National Gem Appraising Lab.

New Business: New business included the selection of new chapter officers for 1983. The results were as follows:

Tony Bonanno - President
Bill Dougherty - Vice President
Ginger Morgret - Secretary

No Treasurer was elected.

Marvin Miller volunteered to be program chairman and Nanette Monmonier volunteered to chair the membership committee. There was a discussion on how we might raise more chapter money to improve programs. One formidable idea was to have a booth at the various gem shows in the area and charge a small flat fee to identify customer's gemstones.

To enlarge our membership it was suggested that we try to obtain lists from the Gemological Institute of America and the Gemological Association of Great Britain of their GG and FGA graduates in the area. Other topics dealt with the possibility of establishing an interim degree for the M.G.A., i.e., an Associate Appraiser, as well as the need for a course that teaches appraising.

Our guests for the evening were Bob McClain and Mike Gibson from Crystal Gem Imports, who presented a most interesting and informative program on the South Sea Black Pearl. Due to 200 years of ravaging and modern-day pollution, the black-lipped oyster, the cumigi variety of Pinctada Margaritifera, and the black pearls they produce are limited to a very small area around the island of Manihi in the Tuamoto Archipelagos. Recently efforts have been made to cultivate the oysters. Run by the Japanese, the cultivating process, the location of which is kept secret, takes four years. Pearls tend to be large, 10-12 mm in diameter, due in part to the large 5-6 mm beads that are used in the cultivating. Some pearls have reached 19mm in diameter. Colors range from pure white to all shades of gray as well as green and black. Value is based on form, quality of orient, skin and diameter. These factors and the difficulty in finding similar or matched pearls can make a 37 strand necklace go for $500,000.00. Members interested in more information and/or purchasing these pearls can contact Bob at (301) 776-1112.

In the last part of the meeting, Mr. Bonnano and Mr. Miller reported on the highlights of AGA's Conference on Color symposium that was held February in Tucson.

Our next meeting will be held on Saturday, June 4th at 7:30 P.M. at 8600 Fenton Street, Silver Springs, MD 20910. Phone (301) 588-7770. Our guests will be Mr. Joseph Tenhagen, F.G.A., G.G., current president of AGA and Mr. Neil Cohen, G.G., current treasurer and first Vice-President. Mr. Tenhagen will discuss the new M.G.A. and Accredited Laboratory programs. He was also most impressed with recent improvements GIA has made in their color grading system. Although they will still use their ColorMaster, they have devised a

(Continued on page 16)

ACCREDITED LAB NOTES

We have not yet received any lab notes from Accredited Laboratories. I do hope members will share with us unusual items that come into their labs, as I feel this could become an excellent source for continuing educational information. To encourage other members to contribute, I will describe a couple of unusual stones that I have seen recently in our lab, the Independent Gemological Laboratory, Los Angeles.

The first stone came from a colored stone dealer in a parcel with two other stones. He was being offered the parcel as Natural Emeralds, but became suspicious when he louped one stone and thought it to be a triplet. Upon examination the first two stones of the parcel revealed themselves to be synthetic emeralds. All three stones had the typical characteristics of synthetic emeralds: low R.I., low S.G., wispy veils, and what I refer to as elongated spicules or cavities. In the microscope, the third stone also appeared to be a synthetic, but I could readily see why the dealer had thought it to be a triplet. It appeared to have two planes running through it, roughly parallel to, and at the same level as the girdle. There were no gas bubbles or other indications of glue in these planes, but with close observation I was able to see what looked like polishing scratches on their surface. I immersed the stone in an Eichhorst Horizontal Immersionscope, and was indeed surprised to see a colorless slab of synthetic beryl, sandwiched between overgrowth of synthetic emerald. I assume that someone used the polished slab of synthetic beryl as a seed crystal to grow synthetic emerald on. I was not aware that this was a viable technique, and can't imagine why the material with the seed crystal was cut into a faceted stone.

The second unusual stone was a round yellow diamond in excess of 10 carats, brought in by a law firm for origin of color. The first thing I noticed when looking at the stone under magnification in the face up position was a cloudiness, caused by a grayness on the pavilion surface of the stone. The grayness was similar to the appearance of burned facets, except that the pattern was one of many small brush marks over the entire pavilion surface. The spectroscope revealed a strong cape series, but not as strong as what I would expect from a Natural Fancy. I obtained permission to boil the stone in concentrated Sulfuric Acid, and was somewhat surprised when it had no effect on this suspected coating.

While at the GIA Gem Trade Laboratory, I had seen one other stone with an obvious coating, which would not yield to the concentrated Sulfuric Acid.

Regrettably, the quality of the photos I made of these two gemstones was not adequate for publication. We would be most interested in hearing from any member who might be more familiar with either of these two oddities.

NEW AGA MEMBERS

Michael I. Fracter, G.G.
Palm Springs, California

Ruth Geller Gold, G.G.
Anaheim, California

David Henry Jackson, G.G.
San Diego, California

John F. Reusch, G.G.
Petoskey, Michigan

Hank Bradley Siegel, G.G.
Lawrenceville, New Jersey

DIAMOND MARKET MONITOR

AGA has arranged with the Diamond Market Monitor the following savings for our members: All renewals and new subscriptions will remain at $125.00 until October 30, 1983. This is a savings of $25.00.

Checks should be made out to AGA, and mailed to the Treasurer's office:

Neil H. Cohen
99 Pratt Street, Suite 211
Hartford, Connecticut 06103

NEWS AND VIEWS

ORANGE COUNTY GEM SCAM

Sarabeth Koethe, G.G.

The appraisal world was shaken with the recent multimillion dollar purported fraud scheme involving the exchange of overvalued gems for real estate and personal property.

Although the announcement was made by the Anaheim police on May 12, 1983, additional Orange County Police Departments had been working on similar cases for at least one year prior to the above date.

Several cases have actually gone to preliminary trial and are awaiting further investigation and testimony.

The current case, as reported by the press, involved a Costa Mesa record store manager, Richard Taxe, and Computerized Gem Labs, also of Costa Mesa. Additional sources claim several other labs are involved and will be named in the future. In a comment appearing in the Los Angeles Times, Mr. Taxe is quoted as saying, "I always tell people that they have to have a sense of humor to deal in colored stones because these things really are a joke.... They are only worth what you can get somebody to pay for them...."

In addition, Henry Terry, owner of Computerized Gem Lab has demanded $10 million in damages claiming his business was ruined as a result of the press allegations.

In a personal report given to United States Gemological Services, Inc., Orange police stated that as a result of this fraud case, over $40 million in cases have been averted and subpoenas are now being prepared in order to gather testimony for trial.

The question of appraisal ethics has long been debated, but this focus on southland laboratories as hotbeds of overevaluation and fraud are being reported nationwide in often over-exaggerated terms. Fellow AGA members are urged to report accurately to members in other geographical locals so as to limit this focus to its proper perspective. With legal action imminent, further reports will follow.

TAAFFEITES

I received a short note from Sri Lankan member D. F. Jayakody, B.Sc., F.G.A. regarding Taaffeites. He states that in 1982, after the surfacing of two stones in spinel parcels received wide publicity, an islandwide search began through all spinel and corundum parcels. A number of stones were found in these parcels, and he states that he owns three stones which are available to our members for purchase. Any members interested in more information should contact Mr. Jayakody at:

8, Batagama North
JA-ELA
SRI LANKA
Telephone: 536423

COMPUTERS

Member John P. Kuehn, Gem., Owner of Universal Jewelers in Morgantown, West Virginia, wrote in to say he has developed and is now marketing a portable Minicomputer which has been programmed for everyday use in jewelry stores. It utilizes four color graphics, and can draw crown views of diamonds, profiles of diamonds, store logos, and other related subjects. He has found it to be an extremely useful tool at the counter, but moreover it really impresses his clientele.

Members interested in obtaining more information should contact Mr. Kuehn at:

Universal Jewelers Computer
Monongahela Building, Suite 313
P.O. Box 4043
Morgantown, WV 26505
(304) 296-6891

AGA ACCREDITED LABORATORIES

Lewis A. Bannon,B.Sc.,G.G.,F.G.A.

LABANNON, INC.
3155 Murphy Drive
Baton Rouge, Louisiana 70809
(504) 925-8987

C.R. "Cap" Beesley,G.G.

AMERICAN GEMOLOGICAL LABORATORIES, INC.
645 Fifth Avenue, Suite 1500
New York, New York 10020
(212) 935-0060

T. William Benedict,G.G.

CONNECTICUT GEMOLOGICAL LABORATORY
43 Bayberry Road
New Canaan, Connecticut 06840
(203) 966-2227

Antonio C. Bonanno,F.G.A.,P.G.

NATIONAL GEM APPRAISING LABORATORY
8600 Fenton Street
Silver Spring, Maryland 20910
(301) 588-7770

Donald A. Brownell,G.G.

GEMOLOGICAL LABORATORY OF CHULA VISTA
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