

The Treasure Hunt

Introduction

During my life, I have enjoyed the good fortune of living three adventure stories. The first was duty, hairy and scary, an exhilarating learning experience, as a military pilot serving in the air during World War II. Later after university, I served out my full military career in criminal investigations and counterintelligence/intelligence matters, another challenging learning episode with involvement in the cold war. Finally, after retirement from the Air Force I became caught up in the greatest treasure hunt, the collecting of gemstones, a totally fulfilling experience. This collector project has covered about as many years as a full professional career. It has been a good combination of duty for others and service of self. I could even say my recent experience with gems has resulted in an enlargement of self. Having trod the path, my objective here is to thrust in your path Aladdin's lamp to light your travel along the joy road to pleasure, enlightenment, fulfillment, possible riches, and certainly treasure, as a collector.

The illumination from Aladdin's lamp is in the form of my experiences in the search for treasure. Hopefully, this light will serve to help you find or even become your genie. You are the bottle and the genie is within you. My task is to show you how to liberate your magic, which will put you into the most exciting hunt for the biggest game in the world: the most magnificent gems, the most coveted of all prizes.

I know and hope this image conjures up mental pictures of *One Thousand and One Nights*, Sinbad the Sailor, as well as Long John Silver and *Treasure Island*, the stories of the conquistadors, and tales of the great gold rushes. This is my intent. The same excitement, exhilaration, and opportunity is out there now waiting for you to focus your energy.

This book has only one objective, to put you in the game. It is not a lecture on gemology, jewelry, craft, art or science of any kind, although it touches these. There is much fine literature covering these subjects already available. When you choose to join the search for the great gems of the world, you will seek and find the material you need. There is a worldwide industry of people, talents and materials to support you. From the essential questions of who, why, what, when, where and how, this book is mostly about, why, what, how and where. You are the “who” and you must select the timing. For my part, I want to describe the search while showing you some photographs of my treasure. This should inspire you to join the great quest. So, I am presenting here the adventure of my collection in two parts. Here is the story. The photos of the treasures can be found in part on the Web site and in full on the Treasures DVD.

There are gems galore out in those hills, at least for the moment. Thankfully, the task does take some effort. Otherwise, with everybody in the game, the opportunities would be less enticing. Actually, it is easier than you will believe. It is pure joy. Come, hear my tale of travels through paradise.

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Chapter 1: Inspiration

It is my purpose to inspire you to see, to know, to love, and to happily experience the sheer joy of gemstones. Why not enter paradise before your time? I expect this effort to be easy since historically there has always been a special affinity between people and their gems and jewelry. I suspect it provides a sense of the eternal as well as splendor. In addition, I intend to inspire you to become an admiring, avid collector of gems and jewelry. This will be more difficult since there will be much competition for your attention, time and resources, and because you likely believe, incorrectly, that the time needed to tune-in sufficient science and the requirement for financial resources are excessive.

Here in the very beginning, I need to define my motive for this book so there will be no secrets between us. Hopefully, our minds and hearts can meet through these pages. I want you to share the absolutely wondrous world of gemstones that has given me such pleasure. It is happiness. Why am I seeking competitors? There are many out there already. I suppose there are many reasons. For brevity, I will just mention a few. First, I have already been there and have covered much, if not all, of the ground. No one sees it all or does it all, but I have already obtained many fine gems far in excess of my fondest expectations. Second, this experience has revealed that people's interests are so different and varied, as are the possibilities, with the result there seems to be room for all at this moment in time. Truly though, this will not last with the growth of both world population and prosperity that will press against limited supply. Even now, considering that each gem is a unique miracle, when you or I pick it off, this one cannot be exactly replaced.

Also, I have the old teacher instinct and then, I want to brag a bit and show off my collection. I do love my stones and I am very proud of them. Ultimately though, I have thoroughly enjoyed a generally long and happy ride through space on our great blue marble, but, every beginning has to have an end and the trip has to be about over. So, I feel a kind of need to pass along to you some of the visions I encountered on my trip. Hopefully, these will add joy and value to your ride. In the final analysis, I suppose this is proof that we are fond of each other without personally knowing each other; that we are a human family.

Why should you collect gemstones? It is because they are beautiful, have permanence, offering lasting enjoyment, and they are very valuable, among the most valuable works of art on earth. Probably, consciously or otherwise, you collect something anyway. It seems to be a human instinct. I suggest you may as well direct your resources and interests toward one of the highest and most rewarding goals.

Sunsets and sunrises, clouds and thunderstorms, landscapes, flowers and trees, fish, birds, animals and people, including their thoughts and their music, are beautiful, but they are difficult to collect and retain in forms which are of permanent intrinsic value. Unless these beauties are captured on canvass or in sculpture, by photography, in books or on recordings, they are fleeting, impermanent and essentially free of cost as they pass our senses, gifts for being alive. This beauty is grand, purely aesthetic and fulfilling enough, unless you want to collect and preserve it. The human reproductions of these things of beauty into substantial forms are certainly beautiful creations of art. These can be collectible treasures. Those judged by the culture of experts to be the best bring astronomical prices on the market, even higher than the great gems and jewels. However, let us be honest about it. In permanent collectible form, gems and jewels are the super genuine originals.

Gemstones and precious minerals are about the only items that come to my mind where great beauty is produced by nature already in permanent, durable, collectible form. They are works of great art, produced by the Greatest Artist and they are ready now. Think about it! The finest works of art, the most spectacular constructions of beauty on our planet and perhaps within the universe, are out there waiting for you, requiring only a bit of study by you, to take and love. No expert, other than yourself, is required to tell you what is beautiful, good and valuable. You already know what you like, your personal vision of beauty. You can quickly acquire the knowledge of science and craft to understand and distinguish genuine value. You don't have to check with the critic's culture to know what you have found. With gemstones, there is no requirement for a critic's judgment that your acquisition is a Rubens or Rembrandt. You can know yourself that you have a fine desirable gem, an original work, and you can know its history and its value.

What is a gem? They are very special creations of nature. Each is a miracle, an anomaly that should not have happened. When an inorganic mineral changes into a solid state it has to form into a distinctive crystal, except for glass which does not crystallize, because, though it appears to be solid, it is not. When rain turns into snow each flake becomes a hexagonal crystal. This is the creative act of energy as it seeks form. This is normal. However, since crystals formed at or near the earth's surface are minute in size due to rapid cooling, crystals of larger, gem quality have to be formed, usually over millions of years, under the heat and pressures of great depth beneath the surface. For this to happen, rare forces must interact near the meeting of the bottom of the earth's solid crust and the liquid magma mass to trap magma into pockets or cracks within the solid crust. There, concentrations of minerals can separate out and slowly solidify, growing into relatively large crystals. The chances of this happening are so miraculous that it has to be theorized as the best explanation of what has occurred. In addition, it is not understood and hardly conceivable for

a spessartine garnet, which contains more manganese than iron, to exist since the concentration of iron to manganese in magma is 60 to 1, but it happens.

Once formed some 30 miles below the surface, how is it possible for beautiful crystals to survive the mighty geologic stresses and forces of uplifts in mountain building, earth plate movements and subsequent erosion processes to arrive at or near the surface? As a result of a second miracle, some do. These exceptionally hard and hardy survivors are found as water worn pebbles in ancient stream beds, on their weathered way to being eroded to the lower elevations, or they are mined as crystals out of their original nests of earth at ages reaching from millions to a billion years. Though seemingly impossible, some make it. Even then, very few of the crystals are of gem quality, meaning transparent and internally clear enough to be beautiful, either as they are in crystal form, or workable by human creativity into gemstones. I like to visualize these gems as being born as molten magma fiery dragons whose bodies seek solid form by leaping into nests in the lower subterranean mountainous crags and crevices of the earth's crust. When the dragons reach the earth's surface they are called pegmatites and they contain the gemstones. This is the creation story of most, but not all, gems.

Needless to say, these ultimate survivors are the greatest of treasures. You may wish to expand your knowledge of the creative process of gems through selective reading of readily available literature. After all they have been through, they have earned the recognition as the rarest of great treasure. In truth, I have always felt that all gems are under priced. Actually, it is remarkable that they are available at all for purchase by the general public. They are national treasures. Slowly, the most prized are placed into the fine public collections. This trend is likely to continue. However, at the present time, there is much precious loot on the open market that is the equal of that contained in coveted public collections. The window of opportunity is still open. Due to their rarity and beauty, pearls, amber, coral and other organic items are considered treasures along with gems.

You should be aware that natural gems have been actively copied and synthesized by man, some for many years and some in more recent times. Ruby, sapphire, spinel, garnet, quartz, emerald, diamond, opal and perhaps others are abundant in man-made synthetic form. Aside from their industrial uses, they are readily available in cut stones and in jewelry. They are supposed to be sold as synthetics, but this may be in the fine print or mention of laboratory origin neglected altogether. They are prevalent at the retail level and find their way into mining areas often unidentified. There are purely man-made stones not duplicated in nature, such as cubic zirconia, on the market. Amber and pearls have long been copied. However, being forewarned by the research you will perform within your interests of focus and armed with some science, you should be able to avoid disap-

pointments. Gem literature will keep you advised on this subject. You will know the people with whom you are dealing and most will be worthy of your trust.

The science of gems required to appreciate and collect is really up to you. It has beginnings but no ends. You have to decide what you need in the beginning and you will learn and acquire as you go along. You ask questions and evaluate answers. Everyone seems to follow this approach. The people in the business of gemstones, selling and buying, at all places and levels are like you and me, old, young, highly educated, without formal education, professional, non-professionals, retired military, housewives, truck drivers, geologists, gemologists, carvers, facetors or cutters of stones, museum curators, wholesalers, retailers, jewelers, students. They have only one thing in common; they are interested in gemstones. Some have vast knowledge of something, none know it all or can know it all. Lifetime professional gemologists will always know more about the broad field, but amateurs often know more about their area of specialization. Everyone in the crowd is learning and enjoying. All are really students. I have never met anyone not willing to assist with everything they know. As a group, this is a happy, helpful crowd.

I have observed that people in the mining areas are mostly self-taught and use little or no instrumentation. This holds true with many gem dealers who depend on their trained eyes and experience. It is the final buyers who check purchases with instruments, and they should though many do not.

Here, allow my experiences to guide you. Regrettably, I found gemstones very late in the game at age 56. With time on my hands and interest on my side, I began alone by withdrawing books on the subject from the local library. Then, I found and audited as a non credit-student a semester course on gemology at the local university. As part of the course, I faceted, gemstones of little value. I used the instruments, the refractometer, the reflectameter, and others for testing stones to identify them. I liked the process and recommend this sort of activity. My professor added much to my life and became a very special friend. If the local schools can't provide the support, there will be a gem and mineral club nearby that can guide you. There are plenty of good books available on every aspect of the subject. You will become proficient in gemology and the use of instruments to the degree you need the expertise as you get involved and move along.

The friendships you will acquire from the associations developed during study are as valuable as the instruction. They are gems, too. At this point, you are no longer alone. You can enjoy companionship during the treasure hunts. Your friends are extra eyes and intellects spotting gems you might have missed, and they split travel expenses.

I don't get too specific about gems at this point, because you will invariably develop a favorite gem and your very special interest may not be the same as mine. For example, you may become obsessed with jade or opal or amber or pearls or sapphires or whatever. Each is a specialty within the gem area. Becoming an expert across the spectrum of gems is not in the cards early in the collecting process. In time, you become competent, but it is done focus by focus.

At some early point, you have to focus on a special area and study it to exhaustion. This is a first major step in grooming yourself as a collector. Each specialty has its own arena of knowledge and identifying tools or methods. No area is more complicated than driving a car, but each requires your focus. Actually, you become sort of an instant expert within a narrow area. The key that takes a bit of time, but which you will really enjoy, is the development of your eye. You have to view the stones carefully and critically within the special focus. Within your area of interest you become very competent quite quickly. Then, when you are ready, you change the focus. No person can be expert across the spectrum. It is done focus by focus. Within your focus, you are soon as good as any and better than most. More detail concerning this process will be discussed as I take you through some of my specific collecting experiences.

Over time and slowly, I have acquired an adequate personal laboratory. I have a polariscope and dicroscope that help identify a stone's crystal habit by the way it handles the passage of light. The dicroscope is pocket size, useful in eliminating glass, a helpful assistant at home and on trips. I have a reflectometer that identifies by the reflection and refraction of light on a scale and an inexpensive device that measures specific gravity. Finally, I have magnifying lenses and a microscope for assessing clarity and inclusions within the stones for identification. The crystal shape is usually the best identifier and you should know the likely shapes of your specialty. However, the shape is often not discernible in rough and never in cut stones. I buy from people I believe reliable and examine the stones as I buy them and later at home.

Until you acquire the instruments you need, you can use instruments owned by others and many professionals in the trade. Little space is required. The microscope is the largest tool. I do check all of my stones. I have found enough mistakes, usually honest and correctable, to justify the effort. Color can fool the finest eye. Gather your instruments at your own pace, but don't wait on tools to begin collecting. You learn as you proceed down the road. There are plenty of collectors who don't own any tools, but I like to check my own material.

In connection with your special interest, you will develop your people networks. This refers to the miners or producers or sellers of a particular gem. Many dealers travel and use registered mail.

You can trust these people to do their very best for you. It is their job. While understanding this, also understand they can make mistakes, but they will make it good when they do. I have been consciously cheated once, but it came from an individual who slipped into the system assisted by my own carelessness. I had it coming. Except for retailers with whom you will not be dealing, your gem or gems of interest will come from only certain areas of the world and you will be dealing with people who have goods from that area.

It is time to discuss the gem market and gem economics.

Chapter 2: The Market and Value Situations

There are a few thoughts about general economics to keep in mind as you collect gems. Economic considerations bear upon your costs and the value of your stones. When the world economy is humming you would expect gems to be worth more and likely cost more at markets in America and the advanced economies. This should be true and will be true when the world as a whole is humming. However, during the past decade, most gems have been very inexpensive even during boom times in the industrial countries, because the important gem producing areas have been in deep economic depressions. The reasons are numerous, with many explanations beyond the scope of collecting gems, but it is obvious that populations have increased faster than the abilities of the local economies to provide suitable employment. When times are bad in gem-rich areas, the unemployed are available in large numbers for the unpleasant, low paying, even subsistence work of mining. It is a matter of survival and production is high with the gems at low prices. When there is other work, the production will decrease and gem prices increase.

In addition to general economic conditions, there are recessions and booms within specific kinds of gems, both quality and quantity, based on the fortunes of finding the stuff. You will find mentioned specific threads related to these factors of economics and luck as we move forward in the collecting process.

Money and the market, as they pertain to gemstones, are both interesting and special. Money is a medium of exchange, a standard of value and a store of value. It is a certificate representing value that you exchange for wealth, gems or other goods, in the amount of its value (based upon supply and demand) at the moment of use. Money serves best as a medium of exchange and a momentary standard of value. It is very good as a store of value during deflationary times, but it becomes less useful as storage of value during inflation, and inflation, in some degree, seems to be the norm of our age. Therefore, the investments that gain most in value normally are items of wealth which are limited in supply and production such as real estate, recognized art, gold and gems. Of these supply restricted items, gemstones are the most rare, precious and, in my opinion, they are art.

During deflation and money shortages, since art, gold and gems are not necessities, they become relatively illiquid. During these periods, you do not want to find yourself in a position where it is necessary to sell your art, gems, gold or real estate. When possible, acquire gems during hard times and dispose during good times. As a matter of interest, during present and recent wildly inflationary times in Brazil, many wealthy people of the area buy gems to protect their wealth. The money loses value daily while gems hold and gain value. Within the gem markets, gems are being cashed in regularly

slightly below current market value for quick sale as investors need the liquidity of money.

As investments, I like to think of my gemstones as small pieces of very valuable prime real estate. They have the same investment character as real estate with enormous advantages normal real estate does not possess. While they are eternal and rare pieces of earth, the location can be changed, they can be carried in your pocket, title is easily transferred without lawyers, they can be stored with security in small places, and maintained in the same small containers in large quantities of high value. There are no property taxes, maintenance costs or related expenses except for nominal fees for safety deposit and insurance as you may wish. It is a way to selectively invest in the most exquisite prime real property of America, Canada, Mexico, Columbia, Brazil, Burma, Sri Lanka, the whole world while having the property under your direct control at home or in your pocket with an absolute minimum of carrying expense. Unlike many goods, most gemstones not mounted in jewelry enter the United States without customs duty.

Unlike paintings, sculpture, and rare books, gemstones have to be genuinely abused to damage or destroy them. Each stone is individually identifiable by size, shape and weight (which can be only changed by cutting) and by color and internal inclusions. Just about every gemstone ever found is still in circulation unless buried with its owner to be worn in heaven, or lost down the wash basin drain. Gems are about as eternal as possible. The stones you handle become part of the eternal treasury of mankind.

How does a person of average means compete against persons of great wealth for rare, precious and expensive gems? I did it. It is the easiest thing I have ever done. Actually, I found that people of wealth enjoy making the money and they concentrate their time doing what they enjoy and are good at doing. So, either they buy a few stones or jewelry (not the best) through retailers without regard to cost or they use knowledgeable people to search and recommend items to them. They do not expend their personal time in the great gem hunt. There are exceptions, but they are more rare than the stones. When they desire a fine collection for beauty and investment, they buy it in preference to taking the years of time to assemble it. In effect, they trade their money for our expert time. In fact, this is the most efficiently economic way. This is fair enough and I love them for it. Wealthy folks are not our competitors; they are our customers. At the end of the great hunt, they may claim the prize, but only after we have the excitement of the hunt and exhilaration of possession. At the end, those that will appreciate and preserve the treasure are most welcome to it.

Everyone has enough money to collect gems. You concentrate your valuable time to acquire valuable knowledge within your focus of interest. As you spend your time, you slowly spend your

money in the amount you can afford to slowly build a valuable collection a step at a time. Over years your collection grows into something of great value and you grow into an expert within your areas of focus. You gain pleasure, fulfillment and a financial investment unlikely to be equaled otherwise. In a word, your financial means relates to the rate of speed of building your collection. You will more likely find that the gems you seek are affordable through your knowledge of the market and the stones, but they are just not available. Rarity will limit you more than shortage of money. Your knowledge and persistence are the principal powers. You allocate your time and effort as you wish. When accumulated, your treasures are unique and usually unattainable without great effort and commitment. You are able to value them as you wish.

An overview of the gem market is important as you approach the quarry. In the very beginning, I decided to rule out diamonds as an area of interest. I know they have long been of major interest to the gem consuming public, but this is due primarily to long-standing, expensive advertising campaigns. As the hardest of substances, it is unquestionably the best abrasive. However, the other gems that will be of interest are substantial enough, and diamond is brittle enough, to make it no more durable in actual fact than the others. Each has its own requirements for care.

I will concede only that diamond is the best and most beautiful *colorless*, clear stone for use in jewelry due to flashes of color created by its high dispersion. Colored diamonds are quite rare and these are unlikely to be as beautiful as other colored stones. Inexpensive clear calcite, well cut, can show the flashes of the rainbow better and certainly in larger sizes than anything, including diamonds, but it is too soft and delicate of cleavages for the hard wear of jewelry. Along with sphalerite and fluorite, calcites are spectacular view stones. Small diamonds are unbeatable as trim and defining stones in support of other gems in jewelry.

Finally, one of the most successful and oldest cartels in history controls the market supply and price of diamonds from mines to retail outlets. Unless you don't mind being shot at, the collecting system is pretty well closed off except at the expensive retail level. Though the annual production of diamonds is usually as large or larger than other kinds of gems, the prices are excessive when their beauty and actual value are compared to all of the other magnificent gems available on the free, competitive market usually at more comfortable prices. It is the cartel, not rarity, which sets and maintains the price. Diamonds are nice stones, but until the great cartel fails, as they have always done in the past, I will admire your diamonds and keep myself out of gun range except in matters of patriotism.

However, before dismissing cartels completely due to their failure in the past, let me honestly cau-

tion that history might possibly not repeat in the future or near future. Conditions are changing as markets become global. Governments are now more involved in direct efforts to improved internal economic conditions with results that may favor some trade associations, including national gem associations or possibly approved cartels. To increase the value of their production, assure credibility of their products and capture the foreign exchange, cartel or cartel-like activity may possibly even increase by being extended to areas of gems other than diamonds. This is not a problem now, but there is no assurance it will not adversely affect market prices in the future.

At the present time, the free market for the most desirable colored gems is wonderfully open and loose. The system, from the mines to local representatives, cutters and entrepreneurs to in-country domestic and foreign buyers who then sell in American and other wholesale shows and markets, which in turn supply the retailers, is absolutely marvelous. It is a perfect mechanism for honest, legal looting and pillage by a thoughtful collector. No wonder the Queen of England is a famous gem collector. Every gem collector actually flies the Jolly Roger from the mast of his personal ship.

The market system is shaped vertically like an elevator shaft in a tall building with the prices for the gems multiplying in fantastic percentiles at each level as you move upward from mine to retail. In a sense, the shaft is not completely straight up and down, but rather, has the shape of the older man in the beer advertisement. There is a big bulge in the middle at the wholesale market. The largest and best of these is held every February in Tucson, Arizona. Others are held around the world, but not yet on the Tucson scale. Each market level has its peculiarities.

At the highest level, the retailer sells to the purchaser for the special occasion. This business is located in the high-rent district where the salespeople and surroundings are elegant and expensive. The retailer's overhead costs are very high and these costs have to be reflected in the price of the gems. The lad greeting you over the counter is in a fine suit bearing a great label. Nearby, the lady is beautifully groomed and is only a few hours out of the hair salon. The jewelry store gets one or two chances in a generation at the purchaser's wallet. The retailer's unit profit has to be the highest in the world (except for the funeral home, a one-shot deal). This is economic fact. At this level you are buying service, with the result that the investment value of your purchase is a lifetime away from significant appreciation.

In the mining area, your money is as good as any and it is a great and profitable experience if you plan purchases in amounts to justify the expense of the travel. There is one disappointment. Although the special rare stones you seek are mined in the area, they may not be available while you are there. These little fellows are genuinely rare. The gems are sold and pass through the local

market and out into world market as they are found. The mining areas are often poor, economically depressed, and the goods are converted into cash as soon as possible. Gem mining is high risk for owners, operators and miners. Gold mine owners/operators are often corporate affairs; this is not so in gem mining. These seem to be more wildcat affairs. The miners, called *garimperos* in Brazil, usually work literally for beans and a share of the find (plus what they can steal, according to the owners). They will line up to show and sell what they have, and it goes to the first person that will pay their price.

Anyone who can make a living doing something else is not in gem mining. There are always exceptions, but not many. Why don't ranchers and farmers in gem rich areas work their own mines on their own property? Ranching and farming are more profitable. Why do most of the famous gem mining areas in America charge a small daily fee and let you do your own digging? You guessed it. It is more profitable for the mine owners. The truth is clear. Gems are very rare, especially quality ones, and the mining is fundamentally uneconomic except under conditions of cartel supply and price controls.

You may have the curiosity to poke around the mines themselves. Personally, I am not all that comfortable around nervous young men bearing shotguns, tramping among rattlesnakes in the rain, or up to my knees in a muddy rice paddy among the cobras. I have done a bit of it, but I prefer being in a dry, warm place with coffee in hand, good light and a pile of gems in front of me. The hardship doesn't change the price. Prices at the mines can even be higher. Miners are dreamers or they wouldn't be there. Reality is a market function that manifests itself away from the mines. However, geologists love the mines and they just have to see them with their own eyes. My compliments are extended to them for pursuing their science with courage.

There is one instance where a trip to the mining area is really necessary. When you have been collecting for awhile and seek that very special super gem which you cannot afford except at the lowest price, you go to the source.

The fat wholesale markets offer the widest possible range of gemstones found throughout the mines of the world during the past year. Also, here are the stones, long held for investment in the mining areas, or elsewhere, being converted into cash. At the annual gathering in Tucson, firms, family operations, mom and pop affairs and individuals line up in a multitude of booths, motel rooms, by the roadside, and out of pick-up trucks to sell. These folks are in work clothes keeping the expenses down. Elegance is in the gems not the surroundings. They set their own prices, but the final sales price is what a buyer is willing to pay. This is your training ground and not a bad place

to buy. You will want to document yourself with an appropriate state sales tax exemption so as to buy wholesale. As a collector/investor, you qualify.

Very likely you will want to attend the great Tucson February market every year. It is the ultimate education. It extends over a period of about ten days. By annually surveying the gems of particular and general interest you obtain a good feel for the ebb and flow of the gem world. You have your hand on its pulse, its prosperity and its pain. This is a good recruiting ground for your people network, those able to track down your stones of interest. In the beginning, the quantity and variety of material will tend to overwhelm. Your salvation is to concentrate on your main focus while patiently studying gems that you may wish to stalk later. Also, you are looking for targets of opportunity, spectacular values that just happen to appear. You have to believe in your luck. Let me illustrate.

My early collecting situation in Tucson found me looking for garnet and natural blue topaz rough (uncut gem material). There just wasn't any good material coming out of the mines. The amount and quality of rough coming out of the mining areas from year to year varies widely depending upon factors aside from the obvious fortunes of mining. The most important of these are the level of economic prosperity and the degree of the local government's ability to promote the local jewelry and lapidary industries. Governments like to increase the value of their mining products to the extent possible. Some (Brazil and Sri Lanka and perhaps others) have laws that require the cutting of gems locally. The ability and desire of governments to enforce these laws is good in good times and poor in bad economic times.

So, in the absence of my targeted rough, I found a giant 205 carat American peridot crystal from the Apache Indian mines in Arizona/New Mexico (at much reduced price the last day of the show), a target of opportunity. It will always be a mystery to me how thousands of old-timers at the market could pass it by, allowing me to capture the largest fine peridot out of these mines in memory from a frustrated, disappointed dealer. But this happens all the time. It just wasn't within the mental focus of the others during that show. How did I know it was a great opportunity? I always carry a gemstone encyclopedia on my trips for quick research as to the finer qualities of most gem types. I try to plan for the unexpected.

Also, with time on my hands, I began my study of tanzanites that were just now coming out of Tanzania, through Kenya, in some quantity. The socialist government of Tanzania is not favoring mining activity for elitist gems. However, a few enterprising dealers have managed to get some material to market. These new gems, available only from this one area, are a beautiful sapphire blue color. I know I will eventually want to collect these outstanding gems. Now, the price is such

that I can afford only a small stone, so I decline to buy – not because I am smart but out of necessity. This year only a small amount of material was available and only in cut stones, with no rough on the market. Being a student costs little but time, so I observed and assessed the stones and prices.

Patiently, I studied the market for tanzanites over the next eight years. For the next seven years the material in cut stones at the market increased in abundance and quality, and prices reached a peak. The following year, a leading indicator of extra abundance, tanzanite rough, appeared in quantity and the high quality cut stones appeared in over-abundance in Tucson. The previous string of great sales at huge prices had provoked feverish production back in the mines. The market choked and the price broke. At one-third of the previous prices, I could now afford to collect large and lush tanzanites. It was a great lesson in collecting.

Please note that this temporary collapse of the tanzanite market occurred at a time of general world economic decline, and it will likely recover as general economic conditions improve. Slight over-production just happened at a time when the market was declining. The next year prices did firm, without returning to their peak, as the system adjusted supply to consumption. In spite of dips, prices over the long-term will likely trend upward past the former highs, pushed there by rarity and beauty. However, even with beautiful gems, huge discoveries can overload the market for periods of time. These conditions present great buying opportunities. To gain the intelligence information concerning a gem that discloses the investment opportunities, you have to cover the market over time. In a sense, you become an investment analyst.

Before the discovery of large quantities of amethysts in Brazil a century ago, it was a most prized and expensive stone often reserved for royal gem collections. Plentiful Bohemia garnets overloaded the market a hundred years ago and, though this supply has disappeared, garnet has not totally recovered its former popularity. However, there have been no new discoveries of tanzanite.

The dealer/seller at Tucson has bought his material in the mining areas in large lots at good prices due to the quantity of his purchase that includes poor quality as well as high quality material. He is a reliable repeat customer in the area. He is entitled to his profit. His price may even be less than your cost to visit the area and perform his service of bringing the stone to you. You are probably interested in only one fine quality stone from the dealer's many. As noted previously, the dealer faces the risks of market economic effects on his inventory, plus security of his stones from theft as he moves about, and the risks of gem availability as they come and go as a result of the fortunes and misfortunes of the mining.

Some years fine red, rubellite tourmalines, as with tanzanites, are relatively abundant and in other

years virtually non-existent. This is the fate of all gems. More gemstones may lie just under the next layer of earth, or they may not. Entrepreneurs change interests, grow old, go broke and have accidents. The mines close for economic and people reasons and reopen later for the same reasons. Sometimes mine owners try the monopoly game as is now being attempted with the sole source of imperial topaz, and dealers cannot replenish inventories. Prices rise and fall relative to these factors. As the dealer faces anxious buyers over the counter, buyers are looking at anxious dealers who have speculated with their money and time.

The dealers tend to specialize in several kinds of goods from a single mining area, such as Brazil, Sri Lanka or Africa, though they may combine in booths at the wholesale market. Within a display you will likely find many stones from Brazil and a few from Africa, let us say tanzanites as an example. This tells you the dealer concentrates on Brazil and his prices on this material will be realistic, but that the tanzanites from Africa are on loan from a dealer friend from Africa and the tanzanites are marked up to include a second profit.

Since the tanzanites are spread throughout the show, a price assessment of tanzanites will average something like the prices of the first dealer. Beware, this is not accurate for your purposes. Continue your survey until you find the African dealer and the bottom prices on the tanzanites. You will know him by the lower prices (by as much as one-half) and the large concentration of tanzanites and African stones. You are searching for *price inconsistency*. As you search, select one size as your standard, say 5 or 10 carats. Since the larger gemstones of fine quality are priced more per carat than the smaller stones, a size and quality standard is essential for accurate price comparisons. Most of the 10 carat stones are priced around, let us say for easy illustration, \$1,000 per carat. When you find this size of good quality for near half the price, you have found the source. Your focus on the gem of interest to you means you will know the source area of your quarry. This knowledge saves you lots of money and raises the value of your investment accordingly.

When they bought, the dealers bargained on price. Sometimes the dealer is a mine owner, but he has bargained to acquire some of the stones in his display case. You should bargain when you buy. Target the gems of interest early but wait until the day before the market closes before you buy, unless the target is one-of-a-kind. This allows the dealer to have uppermost on his mind his expenses during the market, his relative profit for his efforts and the undesirability of taking his goods home. They are not perishable, but he does like turnover and he is thinking about his costs down the road. For sure, he has future plans that require money and these plans are on his mind. Also, to him, the gems are just goods like potatoes. He bought them to sell for a profit. You are in love with them; he isn't. His motive is profit.

These folks are not actors, so you can judge the degree of his success from his expression. When asked, they always say it has been a good market. Only optimists go to market. Whatever the degree of his success or lack of it, he will be very tired from an always exhausting experience, and his present reality will be less than his dream on arrival. This is the character of dreams. At the moment this market dream is about over and it is on his mind.

You will have better luck if you keep it friendly. In a nice way that accommodates his tensions, squeeze him gently. Just overlook his asking price and ask for his final price as you study the stone of interest. Ask to carefully examine your target. When you get the final price, consider it but then say you would be more comfortable at 50% less. Can he help stimulate your interest? This gives him minimal respect for his price, causes him to suspect you may have experience in the pertinent mining area, but lets him know you are serious about that stone or stones. The best discount I have ever gotten is 40%, so later you will have to adjust upward. Nothing has been rejected. He may complain that you have picked his best stone, or even scoff, look over your shoulder or return the stone to his case. Keep it friendly and loose. You thought today was his birthday, the occasion for a special sale. Suggest it is easier to take money home, than the stones. Give him time to look at his hole card, talk to his brother, whatever. You may even wish to walk off and return later to repeat the performance. If you are serious, the price will come down from 10 to 40%.

Since the amount you save will buy another gem, the bargaining is worth the effort. Also, you may consider the discount as an immediate profit on your investment. You haven't hurt the dealer, he understands the real world and the real world is his cost, not his asking price. If the stone is particularly special to the dealer, he will hold firm on his asking price. This shows you it is very special. Throughout the bargaining process, there is some pressure on you. While you may find a better stone at a better price just down the road or next year, it is just as likely you will not. My general policy is to buy if I can afford it and if I really want it. Often fine stones only come by once in a lifetime at a price you can afford. Once, I passed on a very special bicolor tourmaline. I had to regret it for 12 years before I found another one, luckily, of comparable quality at only a slightly higher price. I passed on a hot pink tourmaline 15 years ago; I am still suffering with regret.

I like to leave the bargaining ordeal with the dealer a new friend. Try to leave him feeling you want him to become rich, but with you contributing only your modest share from the larger crowd of buyers.

What about synthetic gems? Though some of the wholesale gem associations exclude these and other non-natural adaptations, these materials are around. Most are identified as what they are. Some are beautiful material in rough and cut form. I find the general view is that these materials

and glass are fine for costume jewelry. However, since they lack rarity and the investment value of the natural and genuine gems, the value of your time and labor is reduced by interest in these items. These materials are not gems, but substitutes. They are not the original paintings, they are prints. They are not treasure.

There is little merit in my discussing specific prices for gems since these change. To establish a general reference, you should know that the gem in the retail store at the top of the vertical market which is priced at \$10,000 should cost you about \$1000 or less at wholesale and perhaps \$100-\$600 in the mining region. This is the value system within the vertical market. It may take you awhile, but with patience, knowledge and joyful labor, it offers unlimited opportunity for loot, superior compounding of value, and most important, acquisition of a beautiful collection. Your specialized knowledge and time has made it affordable. Since you know the best and have picked out the best, your collection is actually finer and more valuable than the gems available at the much higher prices elsewhere.

You will research the sources of gems in precise detail through reading about the areas that produce the gems of interest to you, but here are some general comments concerning gem locality derived from my experiences. Please keep in mind that an outstanding stone can come from an area that is not famous for its production. Nature defies narrow definition. Old mines are worked out and new sources are found. Before continental drift eons ago, Brazil was part of Africa, as were Sri Lanka and India during the birth of many gems. You are interested in geography in present historical time, but the gems were created in geological time and geography has changed.

Brazil is the best source for tourmalines with all colors available. Blue, yellow, and imperial topaz (orange, pink and red from only one source, Ouro Preto) are found there. Brazil is a good source for aquamarine and the other yellow, gold and green beryls. Also, the rarer beryls, pink and peach morganite, are found in Brazil. Amethyst, garnet, and a multitude of other elite gems are at home there, but no sapphires as of now. For emerald, Columbia is still the top source although excellent material can come from Brazil, Africa and the Pakistan/Afghanistan region.

Africa produces fine tourmalines, aquamarine, emerald, amethyst, garnets, the best rhodolite (lavender red) garnet, color change garnets, green garnets, sapphires, rubies and is the only source of tanzanites.

Pakistan/Afghanistan mines fine tourmalines, a very rare pink and light orange (but not imperial) topaz, kunzite, emerald and, from an old mine, the best lapis lazuli. Though this area is a good present source of kunzite, the dealer may be from Brazil since most of it seems to be cut there.

Brazil used to be the best source of kunzite and they know the intricacies of cutting it.

Sri Lanka and Burma are a great source for sapphires, rubies, chrysoberyl, garnets including a fine yellow garnet (Sri Lanka), peridot and jade (Burma) and other less known stones.

Thailand, India, Australia and Russia produce fine gems. India and Russia seem to yield a wide variety of many stones without being a principal source. Australia produces quality opal and sapphires (not usually the best). Thailand mines sapphire and rubies, not usually the finest, but it is the gem trading and cutting center of Southeast Asia. The very best material is available in Thailand.

There are fine gems produced in Mexico (a nice brown topaz, opal and amethyst); Canada has a fine rare golden garnet, rose quartz and sodalite; and the United States has fine tourmaline, the rare benitoite, opal, the finest turquoise, sunstones, sapphire and others.

The four “c’s” (carat weight, color, clarity and cut) are a value guide to evaluating individual gemstones. You will become thoroughly acquainted with these as they pertain to your target focus. You will learn the range of possible colors, likely sizes and weights, and acceptable and likely degrees of clarity by category. These vary considerably and your judgment of the relationships among the factors as applied to a stone will develop and improve with time. You will find good “expert” standards of value derived from these factors, but not so good as to be written in stone, except for the clear diamonds. They are guides to judgments; you will make your own judgments. Often these guides are limited to an average small size of gem that may or may not pertain to larger stones.

Cuts of gems derive from the possibilities offered by the condition of the rough material and skill of the cutter. They vary as to quality of shape, design and finish, with many, but not all, native cuts from the mining areas being windowed (the absence of reflection from the center of the gem). In many markets, windowing to enhance weight is favored since gems are sold by weight as the main factor. There are times, however, when the shallow shape of the rough allows no alternative to the “fish eye” window that reduces the full reflection of refractive light and color from the bottom of the pavilion.

You should know that stones are cut from the outside stone girdle in two operations: the larger pavilion bottom (averaging $3/4$ to $2/3$ of the stone) and the smaller crown which contains the table, the center final viewing position. The final shape of the cut viewed from above may be in many symmetrical shapes – ovals, rounds, rectangles, etc., or in asymmetrical forms.

The faceting designs within the shape of the gem can be step cuts, brilliant cuts or a mix of the two. The step cut is a series of layered steps at different angles ascending one over the other like

a ladder. The brilliant cut is achieved by moving around the stone splitting the lines formed by previous cuts. Poor cutting and finish are easy to remedy by re-polishing or re-cutting if the stone has the approximate 3/4 depth in the pavilion. If it lacks this depth, it cannot be improved without also reshaping and reducing the size and weight of the stone. In such a case, you like it or not, as it stands. What you see is what you get, unless you are prepared for a major overhaul. Re-cutting of a plentiful pavilion gives a high return with little loss of weight, while reshaping a gem can reduce the weight by up to 30 percent. Your aim is permanent beauty, but the economics do effect your value judgment.

Although the finished gem is displayed with the crown upward as it would appear in a setting and this is the final test of beauty, your examination of the stone should include turning it over to view the pavilion. Most of the cutting is done on the bottom three-quarters of the stone, and this work is the primary contributor to what you see from the top. The most important part of the gem is the bottom cut or culet angle. For a good return of color reflection, this culet angle and cut must be scientifically correct and should be on the best color. If the cut comes to a fine single point or offers a straight line and the angles are properly installed, you should be getting maximum return of beauty. This is likely true with stones cut as rounds, rectangles and emerald cuts, triangles and squares. Ovals can often provide just half of full color unless they are carefully and artfully cut. It is a judgment call, but you should know in detail what you are buying and whether or not you will have the option of improving the cut. The quality of the cut can make a huge difference in the final beauty of the gem. For example, some of the best sapphires are clear in color with either small spots or lines of fine color. If the culet cut is off the color, a recut placing it correctly on the best color can significantly increase the value of the stone. Correct cutting will spread the fine color throughout the stone.

The faceter's use of brilliant or step facets may be a matter of personal preference, or more likely, it may depend upon the amount of material that is available. Both styles of cuts return about the same amount of brilliance. A cutter with the minimum amount of bottom or pavilion for achieving the correct bottom or culet angle may have to use the brilliant cut that requires less material. Generally, the gem rough suggests the style of cut by its shape, although the color is also an important factor. If the stone is clear or pale, many small brilliant cuts circling the stone can emphasize flashes of light and dispersion, cutting of the light spectrum. On the other hand, the step cut can deepen the color of a pale stone if the material is available. If the stone has rich, strong color, as with emerald, the step cut will strengthen the depth of color.

I believe color is actually the main issue, the main source of beauty, even though this beauty must

be well presented by the artist/sculptor-cutter and goldsmith. Often bold, great color is provided by the significant foreign presence of trace chemical elements within the crystal that likely strains the structural growth of the gem. Experience seems to indicate that the better the color, the more internal inclusions. You will find many relatively large clear crystals of weak color. If the stone has great color, with a suitable size and the internal inclusions do not distract from the beauty, where is the problem?

Ultimately, no stone is totally perfect. At some power of magnification, all gems have imperfections. Careful inspection of the great stone sculptures by the finest artists in history will reveal they are full of inoffensive flaws in both the marble and the workmanship. (I know because I'm a trained sculptor and I checked them over personally.) Inoffensive inclusions are useful in identifying the stone's natural creation and place of origin. Some add beauty and interest. The fanatic on clarity may find himself limited to owning only a few small stones, some of which may well be synthetic. Emeralds must be accepted with abundant inclusions, or gardening effects (visible internal lines), because with exceedingly rare exceptions this is the only way they come. The same is true of the strong red and hot pink gems including tourmalines and among the rubies and sapphires of fine color.

Size is often both a function of stone type and/or mine location. Gem quality benitoites are always small with the largest on record about 8 carats. Sapphires from the Yogo Gulch mine of Montana range from the very rare 12 carats downward to many available in the 1- to 2-carat size. If you want a 12-carat blue sapphire, pass Yogo, and try Sri Lanka where you can likely find the gem without too much difficulty. The Logan, a blue sapphire of fine color in the Smithsonian, is over 400 carats, the world's largest on record, and is from Sri Lanka. The great blue stars are from Sri Lanka. Ruby is a red sapphire, but to find one above 10 carats in size is difficult. I have never seen one on the market. I researched ruby size and have found mention in literature of less than a half dozen cut gems in the 20- to 30-carat range. You do not find large peridots, except very rarely from Apache mines, and nearly all are included. The color can be good and the inclusions beautiful lily pads. Some of the best peridot color is from Norway, but in stones most likely under 10 carats. From Burma and Egypt large fine peridots of fine color are possible in 100 and greater carat sizes.

I feel you will learn much by following me through some of my collecting experiences. Early on, the most pleasing to my eye were gems large and lush but still suitable for upgrading in value in beautiful jewelry. These became my principal targets. This course is contrary to the usual (perhaps majority) advice which recommends fine 3- to 5-carat, ring-size gems of near perfect clarity which have the largest demand over the long term at the retail market level. This view holds that stones

over 20 carats begin to diminish in value. There is nothing wrong and much right with this view, and you may wish to adopt it. My view is that you will always acquire these smaller stones anyway, and I am absolutely elated to have this “majority collecting concept” lower the prices of the larger stones for me. Ladies and Gentlemen, I thank you.

So, whatever your concept of collecting, let us join in the search, the high adventure, for the greatest gems on earth. This is the great treasure hunt. I have never in my life experienced such joy, and it can hardly avoid being very profitable. I hope you will join me. Run up the Jolly Roger! Please, no violence will be required on this pirate expedition. It is lawful and your victims welcome you.

Chapter 3: Focus – Garnet

My first focus was on garnet, less by design than good fortune. On reviewing a circulated inventory of gem rough issued by a dealer and friend, I noted that several stones were highlighted as exceptional due to quality and size. Among them was a giant red spessartine garnet of gem quality, the largest known to the experienced dealer. It was so large a crystal that the dealer had long refused to allow it to be cut, preferring that it go to a museum. He had acquired it 10 years earlier at Tucson as part of a quantity or parcel of Brazilian garnet rough, because of this crystal. However, for 10 years my dealer friend had been unable to place the stone, so he had reluctantly just let it out on memorandum by mail to a cutter who was studying it for cutting into two gems. This memo arrangement is a trusting relationship, usually personal, within the gem business community wherein the mineral crystals are dispatched through registered mail by the seller for study by a buyer. The buyer returns the money or the unmarked stone.

Though a newcomer in the game and aware that I appeared foolish to the dealer, to my wife and principal advisor, and to friends, I immediately requested he recall the stone promising that I would keep it as a single crystal if I decided to buy. Opportunity lost is opportunity gone forever. No two stones are alike, each is an individual miracle. Now late in life with some experience in dealing with my personal phobias, I decided to attempt to exploit this opportunity.

Heck, you have to know a crisis when you are in one. This was no time to shift from foot to foot, mumbling something about bad luck. I had to act quickly in a positive way. Well, I got the lucky break. The cutter had decided to buy the stone but had not yet cut it. The dealer sent him replacement stones and sold me the giant garnet. The rescue worked. He was happy with the double sale and to find someone who appreciated the stone. I cleaned and removed material damaged by inconsiderate handling, and polished the gem in its natural shape into a beauty of 708 carats. I began to study my prize. Due to its giant heart shaped size, bright deep red color and Brazilian rainforest origin, I named it Heart of the Jaguar (or El Corazon del Jaguar). Interestingly, it displays better with a long side down as an equilateral triangle shape, so this is the way I will display it – at least until some jaguar complains.

The more I read, the more it became apparent that El Corazon was truly exceptional. It is best viewed by back lighting. Under careful inspection, it contains several small specks, a crescent shaped web veil and a horsetail as minor inclusions. The bright color is a magnificent central red. It's clarity is remarkable for such a large stone. With proper lighting El Corazon appears bright and eye clean.

I began the quest to find El Corazon's place in the world of gems.

After raiding the libraries and reviewing all pertinent literature, including information about the greatest known collections, I visited and personally viewed many of the great red gemstones of the world and other prized gems. Early in my reading I discovered one mistake, an apparently compounded research error. In several books of authority, I found the great garnet in the Green Vaults of Dresden, Germany listed as weighing 468 carats, when in fact it actually weighs just over 40 carats. According to Twinning in his *Crown Jewels of Europe*, a book more rare than many gems, he reviewed the basic inventory document and found the stone's weight recorded as 40 and 6/8th carats. The photograph of the stone in the book, along with others, is consistent with Twinning's report.

The great gems reside in public collections. These are located in Washington, D. C. at the Smithsonian Museum of Natural History; New York City, the American Museum of Natural History; Los Angeles, the County Museum of Natural History; London, the crown jewels in the Tower, the Victoria and Albert, the Geological Museum next to the V & A, the British Museum of Natural History, across the street from the V & A, and the British Museum; Vienna, the crown jewels from ancient to recent times and the Natural History Museum across the walk-way; Istanbul, the Topkapi collection of the Sultans; Tehran, the Iran crown collection in the National Bank; and Moscow, the old Tzars collection. Queen Elizabeth of England has a fine private collection.

I visited all of these collections except Tehran (not very friendly these days), Moscow and the private collection of the Queen. Missing these is not an entire loss since fine color photographs are available in books covering the collections. I have them. Why should I see the known finest gems ever discovered in the world? It educates the eye. In gemology, experience is the doctorate of color and size education. It was wonderful.

What did I learn? I can now compare the stones I collect with the finest gems on record. And how does El Corazon compare? In weight it is the largest red gem on record. In color, it is the equal of the best colors I observed, which were the great garnets of the Topkapi (unweighed but measuring and appearing smaller than Big Red) and the Black Prince "Ruby," actually a spinel, (174 carats) in the British Imperial Crown.

The other great red stones are the La Bella in Vienna listed in the 17th century as 416 carats (which converts to 426 modern carats). This was described in the 17th century as a "hyacinth" which in those times could describe a garnet or zircon. It is set in a large jewelry piece as the red common body within a double eagle. It is longer than El Corazon but obviously thin. The color was good, though the lighting of the display was weak. There is a large spinel of 500 carats in the Iran collec-

tion. Displayed on top of a Russian crown is a 414 carat spinel which from photographs appears to be a fine stone. Queen Elizabeth has the Timur “Ruby,” a spinel of 375 carats in an ancient necklace which is a grand gem judging from the photographs. All of these gems are uncut polished natural shapes.

The pride of the Smithsonian is a 109-carat cut spessartine garnet, a handsome stone. The fine Hixon Ruby in the Los Angeles County Natural History Museum is a 100-carat beautiful natural crystal of great color, but it is opaque, not of transparent gem quality. The 167-carat Edwardes Ruby in the British Museum of Natural History appeared dark, unlovely and opaque to my eye. I have seen and heard reports of red garnet gems, some cut, of 100 to 300 carats. I have seen quite a few opaque garnet crystals (not of gem quality) weighing in the pounds. However, El Corazon at 708 carats is the greatest red gem on record at this time.

After many years of research I finally reported the facts and submitted a photograph of El Corazon to the *Gems and Gemology Magazine* of the Gemology Institute of America (GIA). The Spring 1989 issue of the *Magazine* published the facts and photograph of this gem confirming it as the largest known red gem on record in the world.

Hopefully, other fine and possibly larger red gems will turn up and will become part of the record. You can understand now why I like garnets. There are other reasons for admiring garnets. Among the public and the markets at the present time, in my opinion, garnets are among the most underrated of gems. Of the well-known elite gems, they refract light better than any except diamond and zircon, more so than rubies, sapphires, spinels and rubellite tourmalines. It takes very special rubies and spinels, which are usually much smaller stones, to excel the great reds of garnets, and then, in fact, they are just different red colors. That fine, bold garnet red color is hard to beat, if it can be, which comes down to a matter of opinion.

The truth is most red gems – rubies, spinels and garnets – come with the darkening mask, but special rubies and spinels do occur without it while garnets are darker without direct light. However, with the light the red garnets are gorgeous. Within the red family of garnets – spessartine (rarely yellow or orange), pyrope, almadine, malaya (orangey and brownish) and rhodolite (purple tint) – you can get some good size in the range of 10 to 40 carats in cut gems. In these sizes, they are actually quite rare, but happily are in little present demand. Truthfully though, prices for these large stones have more than doubled from depressed levels over the past decade. This market condition presents a wonderful window of opportunity for collectors such as we. It is still the best chance for getting your hands on a great, beautiful red gem without mortgaging the house. It won't last forever.

From select mines, rare brown, gold and yellow garnets occur, but in a smaller sizes. These are usually called grossular or more commonly hessonites. There is the very rare yellow/gold spessartine. The larger golds and yellows are seldom over 8 to 10 carats. I have acquired a few large stones as rough and as cut stones. You just have to grab them when you find them. Since they are relatively unknown to the general market, they are usually under-priced. You must learn to have little shame as you take advantage of the market.

Except for the very fine emeralds, the green garnets (tsavorites) are the most beautiful green gems and are likely priced about the same as emerald. Available greens are in the size range of less than one to several carats. They are lively and brighter than emerald, but the great emerald green is unbeatable, even by this spectacular stone. The largest known sizes of tsavorites are about 20 to 80 carats, extremely rare and expensive. These tsavorites, named for the local parkland, are found in East Africa in the region about and between Kenya and Tanzania. They are never in abundance and are believed to have formed about a billion years ago. These non-red garnets are all rare with fine colors without dark masks.

While in London researching El Corazon, I visited Hattan Gardens, the gem cutting and trade district, and found a large lot of rough tsavorite greens in excess of the requirements of a cutter and at a good price. Back home I cut the best of the large ones for the collection and sent the multitude of smaller stones to Bangkok for cutting. Bangkok did a good job at a good price.

So, from the beginning I focused on the beautiful, lush, varied garnet family. It is still overlooked and under-priced, but so much the better for the admiring collector. Except as noted, I have acquired them from dealers in Tucson or traveling dealers who know my tastes for great garnet rough and pass the ancient pebbles along to me on their visits or send them through the mail. I have cut most to my own design here at home. The small diamond saw is on the porch, the grinder and faceting machine, no larger than portable sewing machines, are in a corner of the bedroom. My wife and principal advisor doesn't object to the unusual arrangements. She prefers this arrangement to having me loose on the street.

In total candor, excluding El Corazon, I am certain there are grander garnet collections out there somewhere. I search, I visit, I ask, I continue to seek the great collections. I love them. I think there is a need for a central catalogue of gem collections, which is unlikely to happen. In the absence of this, I hope more information on individual collections will be published. More recently, books have been published presenting a few of the great collections and I am attempting this one, but the surface has hardly been scratched. I can understand some reluctance for security reasons, but pub-

lication of gem photographs provides a compensating security by establishing visual identification and ownership. I have stumbled along for over 20 years accumulating the best I could find during this short time. Now, I awaken to discover I have one of the especially fine garnet collections around. Perhaps I have filled a long neglected gap. I am still looking for a better collection. I will continue adding to this one. I hope you will develop a better one and invite me to see it.

Chapter 4: Focus – Topaz

Aside from El Corazon, my first love is sky blue topaz. I am a sky person. I love that blue color and the best permanent bottle of sky blue is topaz. When you are attracted to focus on a gem of great color, it seems natural to consider all of the gem's possibilities. With topaz, the spectrum of color is grand almost without limit as are the possibilities of size. I don't want them, but the Smithsonian and American Natural History have cut topazes weighing 10 pounds or so. I like mine to be smaller, just big and lush, and Topaz accommodates nicely. It is one of the greatest families of gems. Yet, like garnet, it is neglected to the collector's advantage, at least for the time being.

According to the gem industry gurus, experienced old-timers who venture forecasts during lectures at markets, blue topaz is the investment buy of the century. I agree. Also, it is a beauty buy. The investment reasoning suggests that, in the past, natural blue topaz was too rare, limited in supply, to establish a significant presence on the demand side in the large retail jewelry market. In the old days, it was known and coveted only by connoisseurs.

Because of its fine blue and closely related color and greater availability, aquamarine became known and appreciated by the jewelry market. Hence, the price of aquamarine has gone up to high levels and the supply has declined gradually over time. The jewelers pushed sales for the gems they could supply. Why sell something you can't get? This is answered by another question. How many poor jewelers have you known?

As a matter of information, topaz has not been synthesized. However, the color has been copied in glass and cubic zirconia.

According to the gurus, a great change has occurred over the past decade or so in the blue topaz market. The discovery that safe radiation and heating can inexpensively cause much of the abundant clear topaz to become blue has dramatically increased the supply and demand for blue topaz. Apparently, this was nature's method of coloring that is just extended to more stones. Now, in its own name it has become established in the market as desirable and beautiful. While the new supply of blue topaz is presently inexpensive due to abundance, its supply is certain to decline, as has aquamarine. Therefore, blue topaz is now a good buy, perhaps the investment of the century.

At the present time there is no science that can distinguish between the natural blue and the natural clear that has been color-enhanced. Pale and greenish aquamarine have long been made darker or more blue by heating. This kind of tampering is accepted by the market since the gems are natural and the color is stable enough. No colored gem should be left for extended periods in the sun. Wearing of the jewelry is fine, but over-exposure in some cases can reduce the color or even

change the color. No one knows which stones will be affected. Consider yourself advised to not expose your jewelry or loose gems or bodies for long periods in sunny locations.

I accept the gurus judgment. It seems a good idea and so I have a few pieces of nice blue topaz of enhanced color. Can we improve on this good idea with a better one?

Careful and quiet investigation has disclosed that since the general market makes no distinction between the natural blue and the color-enhanced, the miners follow the same rule. This has resulted in depressing the price of the very rare natural blue to the price of the clear topaz in Brazil, the major source.

You guessed it. For years, I have been skimming off the great rare natural blue rough and an occasional great cut stone. While there is no science now to prove I have the natural blue, I have sworn statements from people I believe, and this kind of evidence has forever been sufficient to send men to the hangman in the name of justice. The price on the natural blue is less now than at any time in history. Collectors favoring completely natural gems expect to pay 10 times the price of enhanced color material.

Whether or not the collection of natural blue topaz is an improved idea, I liked it and this became my focus. Due to rarity of material, it has been a slow but highly satisfying process. My favorite gem is a 223-carat Portuguese style round of fine sky blue color cut by Quincy Howell, one of our greatest American cutters. He is more than a craftsman, he is an artist. There are deeper shades of blue approaching that of sapphire blue (with a touch of yellow which gives a hint of green). You have to really persist to get one of these exceedingly rare natural deep blue, unique beauties. There is the aquamarine blue, the candy box blue with a touch of pink. An entire spectrum of blue is delivered to the eye to delight the soul by the three colors captured by the orthorhombic crystal habit of topaz.

I have cut most of the gems. I assess the rough as would a sculptor, with my 16 years of study in carving marble as a hobby, using the natural shapes to suggest a final design suitable for each individual piece. The final gem should be art worthy of the name. Having studied the many shapes considered standard by gem faceters over the centuries, I judge that these designs were created by artists through the ages as they studied the natural lines and forms of the natural crystals. A perfect example is the emerald cut which conforms perfectly to the natural hexagonal shape of the beryl (emerald) crystal. Even the standard designs which modify the original crystal shapes, as illustrated by the round and oval, are adaptations to the usual deformations caused by imperfect crystal growth or damage that occurs to crystals. Clearly, gem designs have always been art.

Topaz comes in other colors even more rare than the natural blue. My sources from the mines in the Teofilo Otoni area of Brazil suggest that the handsome strong yellow topaz is rare mostly because there is less market demand for yellow material so it is frequently heated into a fine blue. It is a matter of finding it before it reaches the treatment. Expense is not the controlling factor. Finding them is the problem. Since they are beautiful and out there, to complete my collection I have collected some fine examples of the yellows of Brazil and the orange (not very bold color) from Afghanistan. Why don't these oranges and yellows come from the same locale. Only God knows, certainly not I.

There is the rare green topaz. It is rather pale with a bit of yellow that has appeal more to the collector than the general market. The color seems sort of an apple green, much like the green of diamond and sapphire, without special appeal except on an apple. Hence, the problem is finding one, not affording it. It is attractive enough in isolation, but it is an unhappy fellow when placed among the stronger blue topaz. It pales by the comparison.

The greatest of the strong and bold orange topaz, some with flashes of red, are found only in one place in the world, Ouro Preto, Brazil. These are rare, recognized by the market and expensive. These are the imperial topaz, sometimes called precious topaz. The Brazilians appropriately love this stone and flock to Ouro Preto to buy it. Since imperial topaz is rare and expensive, the Brazilians have commercially named as topaz a more abundant stone, actually a citrine that is orange quartz often derived by heating amethyst. This commercial practice is a widely circulated misnomer that can be illegal outside of Brazil. If you come upon an inexpensive orange or golden topaz, it is likely a citrine, the color mimic of the imperial.

Ouro Preto means black gold and is preserved in its original city structure, like ancient Rome, due to its beauty, its historical significance as an early national capitol and its citation by the United Nations, along with Quebec City in Canada, as a special heritage city of the Western Hemisphere. It is a tourist center in Brazil.

The gem mines around Ouro Preto are not only the sole world source of imperial topaz, but from these mines come the most rare of the rare topaz gem colors – the pinks, lavender pinks and the fabled red topaz. These are among the rarest gem beauties in the world. Although a fine pink topaz is (rarely) found in the Pamir mountains of Afghanistan/Pakistan, none of the other imperials are found there. The Brazilians work the world gem market for all it is worth – except for the production of these special mines. Here they buy imperials themselves, pricing them higher at retail in Ouro Preto shops than elsewhere in the world where they are less well known. Very few of the

pinks and reds make it out of Brazil except during exceptionally hard times. So, only limited quantities of the imperials, and even more rarely the other colors, show up in Tucson. Clearly, the Brazilians don't really care whether or not I am able to see enough stones to determine the best or promote conditions favorable to my getting my hands on a group of fine imperials. I am out in the cold. A trip to the mines is required.

Thankfully fate, the fickle finger of which is an old friend, intervened to help my cause. My gemology professor at the University of Texas, Dr. Edward Jonas, by now a good and favored friend and treasure hunting companion, is invited to teach a petroleum related course to a small group of young, up and coming geologists of Brazil's national oil company at the School of Mines located in Ouro Preto. Better still, my good friend invited me to share his room during the last two weeks of the course. Well, with fate smiling upon us, we planned a month in the area to include visits to the tourmaline area of Governador Valadares and the other concentration of gems, Teofilo Otoni, all locations in the state of Minas Geras. We added in a tourist trip to Belem and Manaus on the Amazon on our way home.

Aside from passport through the Post Office and visa arrangements through the air ticket process, preparations for the trip included purchase of a dictionary, English to Portuguese, two one-hour sessions of a night course in spoken Portuguese and arranging for a few thousand in cash. All money seemed appropriate, ours, theirs, checks and, in places, credit cards. In spite of raging inflation within Brazil, it turned out to be a non-problem since their currency is pegged to the dollar, unofficially. By this I mean, the prices are based on the dollar though you might pay in the equivalent rate that week in *cruzeiros*. The international transport from and return to Miami was on the fine Brazilian airline via Rio De Janeiro to Belo Horizonte, with bus and private automobile travel through the gem areas. Everything went well, but I did use the reliable hotel safety boxes (the word is in the dictionary) and I followed the advisories against straying off alone in the cities.

It was a profitable learning and collecting experience. It was a necessary step to gather some fine imperials. Bypassing the retail shops and street peddlers busy selling to Brazilian tourists, I visited the fine collection of gems, reportedly the finest in the country, at the School of Mines Museum in Ouro Preto. This gave me a feel for the quality of gems I could expect to find. Also, through the Director of the Museum, I found the principal sales representative of one of the important mines of the imperial topaz, the De Silva. Through a colleague at the school, Dr. Jonas found a direct sales representative of the other major mine. So we are in business at the proper market level in the mining area. Without these contacts one can pay hometown jewelry store prices, or more, for the gems in the Ouro Preto stores, where prices are listed in dollars.

Also, my interest in gemstones, *piedras*, became known to the share-working miners, *garimperos*, and they came by the hotel to show their rough stones. They would learn when I would be there from the hotel staff with my approval and I visited with all of them. For security I used a hotel safe and had no problems. I obtained some nice rough stones from the *garimperos*, including some nice pinks and a bi-color purple and orange not otherwise obtainable. It was a bargaining process in mixed languages, theirs and mine, with the fair price usually settling at 40% of the asking price. However, when I saw the purple/orange bicolor, my discipline collapsed and I paid the reasonable asking price (anything was reasonable) immediately, without bargaining, to the wide-eyed surprise of the *garimpero* and his companions. They were usually in small groups and knew me by now as a haggler, and we all laughed at my eagerness on this occasion.

While Dr. Jonas worked all day at the school, after surveying the city for gems, I spent hours and days working on the De Silva mine representative, Vincent. His sales office is in his attractive home with a bright red, stick-shift Ford sports car parked in front at the ready for dashing about. Vincent is a young, aggressive, handsome gentleman in his thirties with two handsome teenage sons and a lovely wife, she being very knowledgeable of the gems and able to deal in his absence. He operates the peddlers throughout the city and everyone in the family is gem oriented.

It is instant good chemistry between Vincent and me. He wants my money, some of which is in the hotel safe and some he can see bulging in money belts around my middle, and I want his gems. At the end, he will have my money and my money belt will bulge with stones. I buy some nice stones the first visit, two splendid rubellite tourmalines from Governador Valadares and a pink topaz for Dr. Jonas. But I avoid a raid on the available cut imperials. I tell him I am really looking for the very best of imperial rough and he has none on hand. The tourmalines were well priced, but my real purpose was to show and spread some green to excite his interest in me as a buyer. You do want attention and no amount of charm can match some money on the table.

It did get his attention and within a few days I was in his office at an appointed time looking at a great "lot" of rough, the mine production for a period of time which I assume will vary in amount and production time. Anyway, in the business, a "lot" is a sales package of material that is not picked over or broken. It just isn't done. Also, two owners of the mine of Vincent's general image show up to meet me after an hour or so.

Before the owners arrived, I had purchased two nice imperial topaz crystals, still showing dirt from nearby mines. After heavy bargaining and being told repeatedly I had to buy the whole lot, I managed to violate the code of miners (like the code of the West) to pick and buy the two best and

largest crystals from the sacred lot. The stones were vermilion (scarlet), the top-of-the-line deep orange imperial color with the red flashes. This is the color of the sun at sunset at the moment it begins to drop below the horizon to produce the red afterglow. We made our deal and the money passed. There is an old Arab proverb I had learned from Middle East experiences. “If you are too flexible, you will be bent; if you are too rigid, you will be broken.” Vincent liked me, and I purchased the imperials with hardly an argument – he had reluctantly bent. However, I was soon to feel a bit like I had committed a sin.

After pleasant greetings, Vincent confessed to the arriving mine owners that he had allowed me to pick the two best crystals from the lot of vermilion imperial. Well, all hell broke loose. I have spent a lifetime in the military, but I believe the arm waving and shouting beat any in my experience. There were no blows, but Vincent was suffering with no line of retreat since he had taken my money. The language was Portuguese, not my language, but the communication was universal. Heck, he is a fellow human being, so I went to his aid. Oh, you think I am about to offer to return the two crystals? Forget it! I will wiggle like the devil before I’ll give up those babies.

He understands a bit of English. I said, “Vincent, it is my wish to add \$200 to the price of the imperials.” He translated my offer looking anxiously over my shoulder at the owners standing just behind me. The room went dead silent. Then, he shook his head in the negative. I said \$400? Again, he repeated my offer looking over my shoulder. This time, with happy responses, he smiled in agreement. From hell, the room became a happy place. The problem had been that a favored dealer in Rio had known the weight of the lot. With the added \$400 incentive, they would reweigh the lot and sell it in Governador Valadares.

They did and I went with them. They were leaving in several days, at a time when Dr. Jonas had to fly to Rio to brief senior officials of Petro Bras on his course. Our program had me proceeding to Valadares in advance of our meeting there in several days with time to set up our headquarters in a hotel and scout the area.

The day before our departure from Ouro Preto, we filled out our separate collecting objectives, and I got a special bonus. We found the most beautiful and largest (7.5-carat) pink topaz available in the local market at the time. We first heard rumors of its existence, then found it passing among various agents. There were no big reds; I had previously bought two nice pinks and two reds, but these are smaller. Until this one appeared, no pinks or reds of this size were about. This stone surfaced and it was a lush beauty. Well, we traced the stone to Vincent. It had become available after our sessions. The price on this gem was very firm, but Vincent came through. He remembered my

assistance to him during his moment of stress, and he reduced the price by \$400. I had escaped the “rape of the lot” incident without a scratch.

In the process of settling up and to conserve my cash, I gave Vincent a large check, and after he had put it in the bank, I replaced the more liquid check by replacing the amount by credit card. Vincent and I agreed that I would cancel payment of the check by long distance telephone. I stopped payment. I was attempting to protect my spending power later in the other areas where credit cards might be less usable. It was a great idea, but it didn't fly. After I had returned home, I discovered the bank had not stopped payment and Vincent had doubled his money.

Even with thousands of miles now between us, I wasn't worried about the money with Vincent. We had been through the “rape of the lot” together. I did need to find a gem in Ouro Preto to buy or arrange some way to get the money. Well, I had the luck of a lifetime. I had rather be lucky than talented any day. Through the grapevine I hear that Vincent finally had a big, fabulous red topaz. I called him long distance to hold it until I could get a friend there with the extra money. It worked smoothly. It is my prize, a 12-carat perfect red imperial topaz. Few of the world's finest gem collections have the great red, so I do count my blessings. Getting one of these great gems seems to be an ordeal, somewhat like facing the challenges of Hercules.

I had enjoyed Ouro Preto, I think. It is sited among several steep hills, a beautiful, charming small city of many churches, with streets paved in cobblestones made of a very strange soapstone which can bend rather than break. This is another proof that the Great One can break any law or do anything He wishes. As another example, on one occasion, as I was laboriously huffing and puffing to ascend the 45-degree uphill path to complete the half-hour, one-block walk from the hotel to the city center, I was passed by a man riding on horseback. I couldn't have been more shocked if I had seen him riding across the ceiling upside down. Automobiles had trouble making it. In his breeding, that horse must have been crossed with a fly.

I know I enjoyed Ouro Preto. In my khakis and straw hat, my peasant outfit, I lost about 20 pounds though I ate heartily and well. I looked more like a *garimpero* than the *garimperos*. It was the hill climbing that did it. Unfortunately, the city is slowly washing away due to years of deforestation and daily rains. The ancient floors of the churches are of giant planks made from trees absent from the area for over a hundred years. The great trees also made great charcoal. The big trees are gone forever. Anything, bush or tree, is used today to survive today. Tomorrow will have to take care of itself.

Back in Ouro Preto, Vincent and the two mine owners arrived at my hotel in the red sports car early in the morning for the 200-mile drive through the mountains to Valadares. As I approached the

car, I got that old feeling of impending doom. The owners greeted me joyfully from the rear seats, leaving the suicide front chair for the old Yankee, me. Obviously, my reactions during the trip are going to make their day. As it turned out, Vincent is a great driver, he had good tires, and I am an over-insured, old military pilot who enjoys flying low. He could make beautiful music with the car horn as we zoomed past young ladies on the roadside. We reached our destination in record time.

Vincent now has adopted me. With no personal contacts here in Valadares, he takes me to his source of the great tourmalines, Brasil Gems, just off the nice central small town square. These are mine operators and one of the owners is the son-in-law of the legendary Jonas (no relation to my companion, Dr. Jonas), who, some 20 years earlier, made the greatest discovery of tourmalines, the source of some of the finest ever found, in the Jonas Mine. I bought a few small gems, made an appointment for Dr. Jonas and me the day after his arrival (in several days) and reserved a very special 5-carat clean, cranberry rubellite tourmaline from the old Jonas Mine for my friend of that name who I knew would cherish it. This stone had been miner Jonas' gift to his daughter years earlier and she had just decided to sell it and present the money to her daughter as a wedding gift. A perfectly clean rubellite of this size is exceedingly rare, as rare as a clean emerald of comparable size.

Vincent and his friends of the imperial topaz lot succeeded at their sale and departed for home. I spent several informative and pleasant days with *garimperos* in the central square park and with sales representatives in the hotel.

A memorable session with a big, rough *garimpero*, well-known throughout the area, with a face bearing a huge knife scar, seemed fairly illuminating. His hands were the size and condition of worn out baseball gloves and his fingernails were long, over an inch longer than the fingers, curving downward and had the texture of horse's hoofs. He said he had spent his life digging through the stream beds of Minas Gerias feeling for gemstones. Seeing the evidence, I had to believe him. He had a few pieces of rough of little importance. His automatic asking price for each was \$200. I bought a yellow worn pebble chrysoberyl for \$20 which made him happy. My purchase was of no value, but I didn't want him unhappy. He confessed his efforts in finding gems had been very poor of late.

At the hotel I went through a high pile of bi-color tourmalines, that must have numbered several thousands, from the Brasil Gems people. I found no tourmalines of interest, but verified that, even when mineral crystals survive the twin miracles of birth and discovery, there are few of gem quality.

From these thousands, I was proudly shown three exceptional stones of fine gem quality at the Brasil Gem Office. With regret, even these red/green bicolours failed to display the finest red and

green colors which I was hoping to find. I had to pass on them. Dr. Jonas bought his great stone and I acquired some fine rubellites as well. The prices of quality rubellites were 40% under the very lowest prices in Tucson, although this differential would hardly justify a collector's visit to the area for rubellites alone.

In addition, we were shown films and provided a thorough briefing on the mining and gem cutting process. Beneath the surface in the mines, water is a constant danger, and can lead to closing of the mines. The mine owners share on an agreed royalty basis (around 10-20%) with the landowners and beans and small share in stones with the workers. Most of the central red color tourmalines are found as small "eyes" within otherwise opaque red tourmaline crystals. Strong light is used to detect them. I have seen small cranberry tourmaline crystals, but never have I seen a single, central red transparent crystal. Now, I know why. Everyone involved knows the mining is high risk for all concerned. However, this is dream country. It has to be.

Omissions can be informative. As mentioned above, I was unable to find a great red/green bicolor. I was also unable to find a blue/green bicolor and was told there are no indicolites (blue tourmalines) available. None have been found lately. I met another owner of two great mines, producers of the finest Brazilian morganite and kunzite. Both are closed due to poor results and water problems. Perhaps they will open in the future. Who knows? Presently, the owner is selling opaque specimen crystals. He had no gems of interest.

At our next stop and final gem hunt, Teofilo Otoni, we will see one nice cut indicolite, 10 carats, and two very nice large pink cut tourmalines. In spite of having a reliable contact (obtained from an American dealer) representing many mine operators and gem buying houses, and after sitting all day viewing material from a line of sellers stretching from our viewing room out into the yard reaching beyond into the street, these three gems were the only fine collectable gems offered. These were good buys but not great, so I passed. The people were splendid. With regret, Dr. Jonas and I viewed large amounts of commercial grade treated topaz, a good bit of natural clear topaz, no natural blue, bags of amethyst, many wonderful gems of no interest, but made no purchases. We did make some fine friends.

The disappointments were learning experiences, perhaps as valuable as the successes. The main target, the imperial topaz was achieved. I came out with an outstanding group of gemstones, cut and rough, which without the visit to the source area, I could not have acquired. So, with mission accomplished, I returned home, a happy collector. All U. S. Customs wanted was an inventory of the stones. Brazilian authorities had waved the weary old, bedraggled Yankee peasant through

to the airplane without a thought in spite of the two money belts bulging with stones around my middle. Out of the corner of my eye as I approached the Brazilian customs exit, I could see them laughing in great amusement at the bulges around my middle, so they weren't fooled. I thanked them for being marvelous hosts to a traveler. At the time, they were not rigidly enforcing the law against export of gem rough. If they had asked, I planned to claim the rough as lawful specimens. Anyway, I didn't show up on their computer as a frequent visitor and known gem hawk.

A year later in Tucson, with Dr. Jonas' help, I found a larger 12-carat imperial pink topaz from Ouro Preto of the same quality as my prize 7.5-carat pink I had gotten on the trip. Surprise! It cost less for the larger stone in Tucson. It was a long-held investment stone being cashed in by its Brazilian owner. Two years after this in Tucson, I found an incredible 12-carat lavender pink imperial, even more rare than the central pinks I owned, at a price I could afford. Once a target, a gem is always a target. Your eye automatically selects them out of the multitude. You can always recognize the distant cry of your own child.

Needless to say, I take special pride in my topaz collection due to affection for the gem and the related fond experiences. Comparison of the incomparables is not really possible among collections. I will say where the great public collections will have a few fine gems, color by color, I have an entire color range of fine stones, color by color. This is due to my special focus on topaz.

Chapter 5: Focus – Tourmaline

This is an amazing family of gems. It seems capable of duplicating the color of other gems, some in large sizes, with the addition of some colors and bicolours impossible elsewhere. It has a non-measurable brightness. This is the favorite stone of many old-timer collectors. It grows in a version of the hexagonal crystal called triagonal and captures two often different colors in separate axes. It is usually elongated, but can occur in round nodules. The giant “Rocket” multicolored opaque single tourmaline crystal, from the Jonas Mine of Brazil now residing in the Philadelphia Museum of Natural History, is more than three feet tall. In Canada, I have seen brittle, black, unbroken but impossibly bent tourmalines the size of a little finger. In sum, the possibilities are rich and endless. You simply can’t miss with tourmalines. It routinely does the impossible.

Having failed to find a large lush indicolite blue in Brazil, a dealer friend I met in Tucson, knowing my interests, found for me a beautiful 275-carat gem crystal from Afghanistan. It cost me, but it was less costly than a trip to the area. I cut it into nice gems for the collection. I continued looking for a great blue from Brazil for some five years before I found a suitable one. There can be a slight difference in blues, with some from Brazil showing minimal hints of green. The fine blue of Brazil is very similar to the great sapphire blue.

Perhaps my best source for tourmalines, and often other gems as he learned of my interests, is a dealer who works the Teofilo Otoni area of Brazil. Instead of selling in Tucson, he buys there also. He has a special knack for buying. Then he sells to a string of professional goldsmiths, jewelers, cutters, and collectors like me. He visits me twice a year carrying two huge, back-breaking cases of gem rough and cut stones. Some material is low quality for some customers and some material is outstanding for others. He knows well his customer’s interests and he makes his money when he buys. He is a great buyer. He finds his customers from other customers and by mingling among the general rockhound crowd. He was a longtime successful truck driver, a good mechanic caring for his automotive equipment, until he found a good connection among the Otoni mining representatives. He learned his gemology by doing, not through academic study. He sold his truck, is a wonderful source of gem material, a fine personal friend, and is very successful financially. Best of all, his interest in life is collecting classic cars, not gems.

Over a number of years, this dealer has helped me build a quite decent tourmaline collection. He turned up with four crystals of blue/green bicolor which must have come from a single pocket in the mine. They are perfectly matched in color and of similar size, a prize of unparalleled beauty and perfection. The total weight of the four finished gems is some 12 carats. I had my favorite

goldsmith here in Austin, the very talented and artistic Brian Mikeska, put them into a single piece of jewelry. I suggest selecting a fine goldsmith for your people network. Further, I suggest that you not attempt to be expert in both the gems and the gold. It is fine to understand something of the gold art form and it is good for the goldsmith to know the gems, but to work the art in both forms seems too much of a reach across different dimensions. The materials and tools are very different and both art forms are consumers of time and mental concentration. I studied and rejected attempting the combination.

My dealer friend turned up at different times with two superbly cut bicolors of my favored red/green color in good size. The larger, just under 13.8 carats, is a stone he had sold 12 years earlier, just before we had met, which was turned back to him for resale. I had passed over a similar stone from another dealer 12 years earlier, balking at the price and thinking that I would have plenty of other chances. Years went by without my seeing this same high quality of color, even during the trip to Brazil. Finally, I felt fortunate to find this stone. Finding the gem was a blessing I celebrated by cheerfully paying a higher price than for the earlier stone.

As yet, I have not recovered from the character flaw I displayed in Tucson some 11 years ago. On the last day of the market, I stood looking at an eye clean (as distinct from 10 magnification power clarity), 10-carat hot pink tourmaline from the famous Pala Mine, located near San Diego, California. You cannot study tourmalines and not know it has produced some of the finest gems in history, especially hot pinks, though always with visible internal inclusions. During her years of rule in the early 1900's, the last Empress of China bought most of the production from this mine. The dealer carefully explained in detail how the stone is a beauty as rare as a clean emerald and should be appropriately priced. Yet, at this moment it is reasonably priced, a once in a lifetime opportunity. He was correct and I believed him.

Since my mind mercifully tends to obscure past tragedies, I find it difficult to remember with precision just why I choked. I suspect I was concentrating on the fact that I had overspent my budget for the trip, and so being tired, temporarily overdosed on beauty and feeling poor, I probably whined something about being broke. While this may have been true, banks have money to lend, my nearby friend Jonas always has money, and my principal advisor back home is never broke and, while she tends to be rigidly tough, she can be bent slightly at times. For sure, I had an attack of stupidity. I was standing knee deep in personal numb dumb. Even brain-dead at the moment, I knew that the rarest of great gems always strike from ambush with numbing surprise when you are least expecting them.

After a few days at home, I recovered and called the company to find the stone gone. Heck, the money wasn't the problem, it was either available for a rainy day or obtainable in an emergency. The gem was the problem. It is not available in an emergency or a on a rainy day. Though it is unlikely I will ever find this missing hot pink, I do have dealers, knowledgeable of the Pala pinks, on the trail. If you find it before I do, I expect you to grab it. I don't deserve it, but I'll take it if I can find it, even though I am unworthy. After searching for some years, my traveling dealer found for me a clean hot pink from Brazil, nice but of smaller size. The very best and most beautiful is still out there somewhere, hopefully appreciated. If it isn't, it will show up and I will not miss a second chance. Second chance? You know how it goes, no guts, no glory.

When tourmalines are mentioned, the color green appropriately comes to mind. The beautiful colors range widely from bright clear greens through greens bursting colorfully through dark masks. Most of these darker stones are darkened by the black or excessively dark color of the long axis. To counteract this feature, the stones are normally cut with the ends just off the perpendicular. This limits the dark mask by not placing the dark into the viewing reflection. You will be happier with your dark stones if you favor the lighter stones. It is possible to find a few that do not have the dark long axis. This feature applies to the blue indicolites as well. For the most part, it is a feature you have to live with.

However, the different colors of the dual axes work to create unusual colors in a range of fantasy. It is possible to find greens with orange, mixes of light brown with pink, pinks with orange tints, melon colors from mixes of pink and purple, apricot and on into color infinity. The impossible is done all the time by the tourmaline. In addition, fine size is available and, except for the reds and hot pinks, clarity is hardly a problem.

With these reds and hot pinks, inclusions are acceptable, as with emerald. You want stones with fine color and inoffensive inclusions. The cutters are expert in orienting the usual elongated inclusions parallel to the depth or viewing position. In these stones the stronger best color is normally the "c" or long axis with the inclusions being elongated tubes lined in parallel to the long axis. By putting the viewing table looking down the long axis, the cutter gives you the best of both worlds, the best color and the small ends of the tubes. At viewing distance the stone will look clear and beautiful.

Through Tucson, I continued to add to my rubellites. Although many of the Tucson dealers mark up their finest rubellites 400 to 500% over the prices in Brazil, I found my stones rather more moderately priced up about 40%. This smaller increase makes the economics favor buying in Tucson, if you shop around. Through the years, you will become acquainted with the correct dealers.

The higher prices certainly do not mean you are getting a better stone. When you pay the higher price you are revealing a lack of confidence in yourself. With your concentrated study and focus, you don't need to buy assurance from a dealer. You know more than he does. He only knows his material and what he has seen within his vision. He lacks the time to survey the market. You have a wider vision.

Chapter 6: Focus – Beryl

This family includes the mighty, incomparable emerald of the green fire, perhaps the favorite gem and most expensive stone of all time. In spite of frenzied production and a large supply, certainly the largest among the beryls, there is never enough to satisfy the demand even at the highest of prices. Everyone has loved it, in the past and now. I love it too, but I have to walk carefully around that mob and those prices. Before I collect any emeralds, I want to spend a lot of time studying, viewing the possibilities of the gem and the people that sell them. To do otherwise is to soon be really broke. Maybe this is one of those occasions that justify a trip to the mines in Columbia? Forget it. Minimal inquiry reflects that prices are higher at the mines for the fine goods, and the body count among bargain hunters near the mines resembles a war zone.

This situation calls for scouting the gem, its peculiar market, and patiently waiting for a rich opportunity to slip through the system. The trick is to be ready and able to recognize it, if and when it comes. If it doesn't appear, I can later approach the gem at least fully armed with knowledge. Since every emerald ever found is still in circulation, most of the supply is owned by individuals outside the control of the active market. As I focused on the beryls, I decided against rushing the emerald. I would look, ask questions and wait.

Valor on the treasure hunt weighs heavily on personal judgment. Even though I was derelict in the matter of boldness regarding the 10-carat clean hot pink tourmaline, which was one of a kind, I believe my caution concerning the more plentiful but very expensive emerald was correct.

The other gem beryls are aquamarine, heliodor (yellow/gold), green including chartreuse, and the pink or peach colors ofmorganite. Although the blue/green aquamarine is popular and priced accordingly, I was able to beat the price for the larger great stones by selectively choosing fine rough. Why was this material available as rough in the United States when there is a good demand for it in the country where it was mined through regular channels? Because in the mining areas, the gem houses who wholesale and retail the gems – and perhaps the mine operators of substance – make the good money, not the share-working mine workers. The latter is able to get a more favorable price for his material from the wildcat dealers when economic depression allows it to leave the area as rough. Also, at brief times, it is just in supply in excess to demand. It is available from time to time. You select it as it comes and goes. You have it cut to your design or you cut it yourself. I have obtained a few cut stones because of failure to sell due to poor cutting. Good material can be reclaimed with by recutting. Fine material originates in Brazil, Africa, Afghanistan and other areas on rare occasions.

Even though I acquired some nice lush aquamarine as described above, my main concentration was on the heliodor and morganite. The heliodor covers a large range of beautiful yellows from lemon, golden, mustard to butterscotch colors. Since women like yellow least of all colors, according to history's assessment, there is little retail market interest in yellow stones. Best of all, retail jewelers think everything in this great color range is yellow, even the yellow/green chartreuse. Maybe they are correct; I am not a color scientist. However, it doesn't take a rocket scientist to know this situation presents a license to loot the market of its finest grand yellow, golden, mustard, butterscotch and chartreuse beryls. I should be ashamed. On the other hand, I may have the greatest collection of yellow beryls in captivity. This has been my objective. I thank the market. I can't quite believe ladies dislike the color of gold.

Morganite is pink or peach in color and very rare, so rare that it is generally unknown to the jewelry market. However, collectors love it and compete for it. It has come mostly from the one mine in Brazil, though it will crop up as a single crystal in tourmaline mines. It can rarely occur in Madagascar, Pala or elsewhere. The pink is cotton candy, sometime with a touch of lavender. It can be natural or heated a bit to change it from peach to pink. It is a beauty and can be large to very large, over 100 carats, found mostly in the great public collections. I have two pinks under 20 carats and I'm looking for more. The peach color, when bold and not too pale, is probably unique and is a fine beautiful color. You just have to see it to appreciate it. I have some fine stones of the peach color, the largest at over 20 carats. I found it as an old piece of rough within the inventory of a longtime dealer.

The problem is finding good material. Price can be a factor when a cut stone is in the hands of a knowledgeable dealer. You don't want to leave your peach gem lying in the sun for long periods. It will likely turn pink on you. I will always be looking for morganites, and so will you when you become acquainted with them. The color is not always strong and bold, so it is difficult to find small stones of several carat size with enough color. However, the pink morganite is one pink that can be found in a size of 10 carats or above. Kunzite and tourmaline are probably the only other rather large pink possibilities.

Well, when I least expected it, the first break in the emerald barrier happened. I was standing in the sun of Tucson as the other person, a raunchy old amateur, among a group of top gemologists outside one of the buildings housing the great gem market. I was there because Dr. Jonas was with me and he is a top gemologist acquainted professionally with some of the folks. A bright young Colombian gemologist and emerald dealer pulled an unusual trapiche emerald crystal out of his pocket, praising its beauty while lamenting that the market has little interest in it due to its rar-

ity. Buyers are just not familiar with it. It has six thin black spokes, like the sugar cane wheel in Columbia called trapiche, crossing the face of the crystal as viewed down the long axis. It is only known to rarely happen in Columbia emeralds. The crystal is large and fat, weighing 113 carats. It came from the Penas Blancas mine near the Muzo mine. The color is the finest green fire and the inclusions are acceptable.

The group gave the crystal a scientific perusal, returned it to its owner, and went on with their conversation concerning who is where these days. I latched on to the Colombian lad desiring his friendship in the pursuit of knowledge and, of course, the crystal. In the process, he found I was from Austin, while I found he planned to visit a Colombian friend in Austin after the market. I wanted to continue our friendship and hoped to host him and his friend for lunch during his visit. It worked out and he still had the trapiche in his pocket, suffering from disappointment in the market. I bought the stone and sold Dr. Jonas half of it. We both needed one each for our collections and the crystal was big enough for the two stones.

Dr. Jonas cabbed his half, as is customarily done with the trapiche, into a large handsome stone. I cut my half, as is never done, into one of the few step-cut trapiches on record. It is a 26 plus-carat beauty showing the finest green fire simultaneously from the six sections around the thin black spokes. I spent over a year moving carefully, cutting it one step at a time, using the finest grits and allowing time periods between the stress of cutting. To me it is a world-class gem. You have to believe in your luck. I got it in full measure with this stone. I owe the Colombian lad a favor.

My luck wasn't over. Like trouble, luck can come in bunches. I had hardly completed the trapiche, when I was called by a dealer friend caught up indirectly in a real estate depression. The banks were falling like flies, folding in numbers and my friend's bank was in trouble. They were calling in the dealer's loan early and unexpectedly. Did I need any gemstones? This was a good time for me to look over his stock. He wanted to help the bank and he would help me on price if I liked something. I looked.

I picked out a few things and as I was about to leave, the dealer pulled out a selection of five matched, high dome emerald cabs of Colombian origin of fine color, total weight 12 carats plus. The finish was superb, the inclusions minimal. The dealer had been saving these for a rainy day and it was raining. My thanks to the dealer, his nice wife, my nice principle advisor and to Lady Luck who put me under the dealer's umbrella at the right place at the right time. I have always liked this young dealer and perhaps he was pleased to give me the break. This is the only way I could ever have collected such treasure. These cabs were soon put into a fine necklace where they

are most likely to remain together, as they should. My goldsmith/artist friend Brian Mikeska put together a work worthy of his art and the gems.

While I join the crowd in raving about my Colombian emeralds, I have seen great ones from Brazil, Africa and Afghanistan. The largest emeralds of the fine green fire I have seen personally are in the Topkapi in Istanbul. Recent research indicates these are likely from Colombia via the Philippines and India. The great stones are where you find them. Also, when I view all of my beryls together, I find the other beryls, the yellows, blues, greens, pinks and peaches are not put in the shadow by the emeralds. All of the gems are beautiful. All are treasure. Ultimately, each is an individual created alone, capable of standing alone, a single miracle, a separate universe radiating unique beauty.

Chapter 7: Focus – Sapphire and Ruby

I approached the great sapphire treasure hunt much the same way I moved toward emerald. It requires careful stalking. This is one of the most durably popular gems. The red sapphire, the ruby, is legendary. The blue is legendary. With these gems, historically and now, the demand has always seemed to exceed the supply with the resultant high prices. Here again, I suggest studying the ruby and the blue to have your eye learn the best colors while attacking the less popular and lower priced other colors to buy. This tactic gives your eye time to separate out the slight differences among the difficult shades and tints of blues and reds. This personal capability will be an important source of wealth to you in making good purchases. It is like an extra income.

Professional gem groups commendably attempt to compose color charts of these gradations and they do the best possible job. The differences between light, medium and dark in the sapphire blues are easy enough distinctions, but when you consider the tiny gradations within the medium and within the dark colors, it is a judgment jungle. There are countless tiny distinctions and you need to fix the correct perfect color and those to either side carefully in your mind's eye until you have it. If you are on the dark side, the gem will likely mount too dark; if you are perfect, the jewelry setting has to be perfect or it will still set too dark. The perfectly mounted stone may be just to the light side of perfect color, with the gem showing some of the greatest color before mounting. It took my eye several years to feel I was getting close to competent with the correct distinctions. Finally, I am comfortable with them. I think women are faster in grasping color shade distinctions, probably due to earlier and deeper interest in colors. These color distinctions change with every variation in the lighting under which you view the gem. I have heard the opinion expressed that a beautiful blue sapphire in Sri Lanka can seem less beautiful in Europe, America or elsewhere due to the nature of the light. The central truth is that you need to educate your eyes to be color sensitive.

Whatever, it is not easy to master the blue. When you have the right blue, you don't want any hint of green in the color. Just a wave shift, a hint of violet is right. You can't really describe it, you have to see it. When you see it, you can say it is right. It is as an artist knows his sculpture or painting is neither under- or over-worked; it is right. Since the finest blue sapphire is scarce at Tucson and elsewhere, an aid to training your eye is to study the more numerous fine tanzanites. These will show the great sapphire blue with just the wave of violet. The tanzanite can add a few tiny red flashes that are not in the sapphire. When you see the red flashes in displayed sapphire jewelry you know it has been misidentified. I believe my earlier focus on tanzanites, viewing the many, was the best help in identifying the great sapphire blue. Within the entire color spectrum of the Tucson market there may be two or three large sapphires of 10 or so carats of the finest color, while you

will see 20 or so fine large tanzanites exhibiting the fine sapphire blue color. The comparison is not perfectly correct, but it puts you close to the mark. Anyway, I found it more comfortable to study and buy tanzanites first. Many will say the great Tanzanite is the more beautiful. When they are both so beautiful, who cares? I wanted both.

Rubies need to be in the medium color ranges of red to avoid the dark mask and dark shadows. Those considered excellent, which are very few, even including those I have seen in good photographs, have been red slightly to the pink side with a slight wave tone of blue. A few are fire engine red and a few carry a touch of orange. Actually, a good rubellite tourmaline is a pretty fair resemblance to the good ruby, with the ruby possessing a touch of the blue undertone. They are both slightly sleepy due to the internal inclusions. Though both are beautiful reds in color, they are not exactly the same.

The green sapphires, like the green diamonds and green topaz, are not all that attractive or expensive. The purple and lavender sapphires are lovely, not in great demand and are good buys though not inexpensive. Then there is the beautiful and fairly light pure orange and the most expensive rare orange/pink *padparadscha*. I can't pronounce it either; I just say "paddy."

The yellow gems are beautiful, usually have fine clarity unlike the blues and rubies, can be found in the larger sizes and are under-priced. They can be pale – too pale – but nice strong lemon and gold colors are available. They will be found in extra strong and heavy yellow/orange colors which is the result of heating. I don't care for those. I prefer the other natural colors in the range. You must consider that most sapphires very likely have been heated to spread the color, deepen it, and to dissipate or minimize the silk or rutile crystal inclusions. This may not be needed or done, but it is used and accepted by the market.

In addition to studying the sapphire, including the red sapphire – the ruby – over the years, without really focusing on acquisition, I was able to locate two water-worn rough pebbles from Sri Lanka. I cut these into a 3.8-carat hot pink and a like-size blue. I bought a small cut lemon yellow. I liked these stones. In the process I learned that color in the sapphires can be peculiar. Within the stone the color varies in shade along color zoning lines and it can exist in blotches of light and deep color. It is a cutter's nightmare, or opportunity if the cutter understands the stone. The culet cut at the bottom of the pavilion has to be on the best color spot. This bottom cut is the director of the color. What you get throughout the stone is the culet cut color. It can provide the cutter the chance to become the creator of beauty.

The crystal habit is hexagonal which captures two colors. It has a hardness next to diamond.

When you research sapphires you may find it listed as corundum, the mineral name. In addition it sometimes exhibits photochromism, meaning colors will change somewhat under different lighting. When you find a blue in natural light that changes to purple under incandescent light, you have a color change sapphire. It is fairly rare. You select what you like.

My first real break in getting a top stone came from a gamble. I was visiting friends at the University of Texas where I had studied gemology and faceting. A student from the mining area, Ratnapura, of Sri Lanka had received a batch of cut stones from his father, a way to help pay expenses. The student, Upalli, is a young gem, a splendid lad in every way. In the past I had acquired a nice spinel, a blue color change, from him, but this is the first time he had sapphires and most of these had some real size. One was an 8-carat fine blue which was priced a bit out of my reach. The largest 10.03-carat stone was pale blue in color and badly windowed in the middle, though the pavilion had plenty of depth. It was very clear, structurally sound, but had to be deeply discounted in price due to the poor color and cut. The lad had attempted to persuade one of the facetors to recut the stone. No one would take the risk.

Well, I would take it home for study to either buy or return. Was it a worthless sow's ear or a silk purse in disguise? Under magnification, I felt that I could see a way to easily put the culet cut on a dark color zone line as the window was closed into a proper cut and design. I rendered my opinion and respectfully asked for advice from my principal financial and cultural advisor, my wife. After all, she is the more practical and solid part of our union. She commented that a sow's ear is what she saw, silk purses from sows are myth, and she recommended against the gamble. How is that for confidence? Well, I dearly love and profoundly respect that lady, but she has long understood that along with my request for advice goes a reservation that I may not take it.

My response was to fall back on the traditional self-inspirational feeling of military pilots on the flight line as you face the day's duty in the morning sunrise, "no guts, no glory." I paid the owner and recut the stone.

My advisor couldn't believe it. It became a silk purse, a great, velvety blue, with a color change to purple/blue under incandescent light. It still weighs 10 carats. Goldsmith Mikeska found a matching 2.8 carat blue color change and created a fine necklace for the collection around the fine and rare 10-carat and 2.8 gems. The gamble turned into glory. Your knowledge is power. It can even produce a little respect from your advisors, always temporary of course.

A year or so passed before the second lucky break came down the road. My goldsmith called to ask if I would be interested in seeing a 5-carat hot pink sapphire. He had one on loan from a dia-

mond dealer who had taken it in as partial payment on a diamond deal. He wanted in payment for the stone only what he had in it. It could be a great deal if it was a natural sapphire as the owner believed. There are few natural gems around in the hot pink of that size. I took it home for examination under magnification. It was well cut with good clarity and contained color zoning and minor inclusions of a folded veil, indicating natural origin from Burma. It is now the pride of my hot pinks. The price came in less than at the mines in Sri Lanka where later I would see stones of the same color. I have not been to Burma nor have I seen a lot of hot pinks from that area.

In spite of receiving my share of luck, as you know, the collector is never satisfied. Every leaf must be turned, each stone rolled over, the other side of the mountain examined in pursuit of treasure. Dr. Jonas and I had long planned a trip to the mines of Sri Lanka. This is the land of legend, Sinbad the Sailor, the treasure of One Thousand and One Nights, the real and actual source of the greatest sapphire gems on earth. We delayed and delayed due to the continuing insurgency violence in Sri Lanka (old Ceylon) between the minority Tamils and majority Sinhalese. Every time we discussed it, a bomb would go off in Colombo. Tourism dropped off, but the country was open to travel. Knowing that terrorists like to blow-up old tourists due to the adverse economic effect on the lucrative tourist trade, we held back.

After a couple of years, our Sri Lanka student friend completed his university studies, returned home and invited us to stay with him and his father atop a mountain a few miles from Ratnapura. This is the gem mining region and the student was in the mining business. I told you the lad was a gem. The flow of events was trying to carry us toward the treasure. Was destiny nudging us?

It was now or never. We went. So did my advisor and a geology professor, a special friend of Dr. Jonas. From two, we became a safari, a comfortable party. I invited my advisor and she accepted with pleasure. She enjoys exotic places, she is a fine companion, and then, I am carrying a fair wad of money and the family checkbook. For sure I need a money guard and may need a bodyguard. We routed ourselves in and out on Thai Air via Los Angeles, Korea, Bangkok, Colombo with several days of layover in Bangkok each way. Visas were available at the airports. Bangkok is the gem cutting and gem trade center of Southeast Asia and certainly worth placing on the route of the great treasure hunt. In the planning of the trip timing, we elected to be in Colombo for 10 days, placing us there during the first ever Sri Lanka international wholesale gem market.

It was a fine flight both ways which puts you in the air for over 20 hours each way. It was a great trip, but just make sure you really want to go. You do get tired of living on the bird. However, a month after your return, you will know it was worth it.

It was a great treasure hunt and a significant learning affair. There was treasure in the marvelous experience of the place and the people. There were great gems in the city of Ratnapura, on the mountain top at the home of our host, and at the gem market in Colombo. However, amid the largest concentration of sapphires in the world, there were few great stones. I saw the gem production for the year plus the unsold accumulation of gems of the nation, the greatest source in the world, from previous years. There were plenty of sapphires, but, I repeat, few great stones. The truth came as a jolt. Most of the gem wealth of Sri Lanka has left the country over the past thousand years. Where is it? It has passed through the market and into the hands of the world public over the centuries.

My buying experience illustrates the extreme rarity of the fine gems. My host, Sam (the father of Upalli), now over 60, had been in gem mining all of his life, as well as directing an estate of thousands of acres of rice, tea and rubber production in the days before nationalization (now reduced to 50 acres). Upalli had been mining for the past year with an experienced team. He had reserved his best discoveries for me and they were two hot pink sapphires (called rubies) of one carat each, a 2-carat spinel of unusual color, and an 8-plus-carat yellow sapphire of excellent quality. These were fine stones and I was happy to get them, but as he said, the mining had been a disaster.

The color distinction between pink and red in the sapphire is in constant controversy. When does a pink sapphire become a ruby? Officials within the industry are now endorsing the hot pink as red while many old-timers in the trade disagree. Whats in a name but hair splitting? It is the beauty that weighs heavily with me, not terminology.

My young Sri Lankan host has two mines at separate locations in different valleys. These are 10 by 10 foot shafts down into the gem gravel, one down 30 feet and the other down 80 feet. The gem gravel strata may range from less than a foot to several feet in diameter and may be located from several feet to over a hundred feet below the surface. I waded knee deep in the water of a rice paddy at the 30-foot shaft. I watched the 7-man operation. The previous week men had been in the hole, kept dry by rerouting the water, filling buckets of gravel from the known gem gravel layer and sending it up. At the surface, the gravel is placed in piles several feet high at the edge of the pit. Now, the team is washing (panning) the gravel in wicker trays in water now routed in to fill the pit. After washing, the gravel-filled tray is placed in a stack of trays awaiting inspection by the team chief who is expert in the stones. Nearby, the expert team chief goes through the trays piling the discarded stones. During my hour at the scene one tiny blue and white sapphire pebble was discovered. Its value will be less than the King coconut milk we drank during our refreshment break. Men guard the pit during the night.

I don't know how many cobras I walked over in the paddy. The bottom line is that I was able to enjoy a wonderful dinner that night. The four-course dinner on antique English china was served after happy hour scotch and was followed by outstanding cognac. British royalty had been served on that china during an earlier era. The hospitality they had received long ago could not have exceeded that being received by our party now. During our three-day visit enjoying the superb hospitality of our Buddhist host, who was educated in law in London, I made only one mistake of manners. One evening during dinner, acting on instinct, I wantonly slapped and killed a mosquito. I quietly apologized for my vicious behavior. I was relieved when my host whispered, "I kill them too, I am imperfect also." This is a Buddhist household where the eight correct ways of living, including respect for all life, are practiced.

The next day I remained with the father at home in the large rambler style home on the mountain top with a view of Adam's Peak in the distance. The Peak, the highest mountain in the country and located in a wildlife reserve, is believed to be the source of the gems. The yard contains many spice trees, some as large as oaks. This is a tropical paradise. We drank lots of tea, viewed his family photographs, and exchanged ideas. His thoughts were wonderful, meaning of course that I had met my philosophical twin, though I am a Christian. In sum, my host stated, "I believe I will live forever." I expect to see him on down the road. My host had grown up with 16 pet elephants, now gone, and he had photographed them about the yard. One photograph showed him feeding an elephant with its trunk through the door of the room where we were then sitting. I'll bet you have never seen elephants have sex? Gently with care, as you might imagine.

While I was becoming fond of our host in the cool shade, our two professors of geology and gemology were standing in the mud examining the other, deeper mining shaft. Through them I learned more about the mining process. Who says professors have an easier life than students? At a depth of 80 feet, shoring is required along with a pulley to raise and lower the buckets of gravel. It is dangerous down there. It is hot and humid enough at the surface. At the bottom it is much worse and there are cave-ins. Occasionally, they lose people in the hole. The miners work for a share. In Sri Lanka, beans did not seem necessary as part of the worker contract. Lunch break is a fruit from a nearby tree. This is paradise and a variety of food in great abundance appears available in the Ratnapura region.

How do the mine operators select where to dig? They make educated guesses. It is wildcatting. There is no record, government or otherwise, of where pits have been dug in the past. No record is being maintained now, centrally or locally. I have the impression this has something to do with secrecy. Old-timers have memories as to places used in the past as recalled by them. This is the

only guide. The mining is always in the narrow winding rice paddies in the valley floors. The steep valley sides contain tea plantations or groves of rubber or other commercial trees. Mining is permitted by the government in the dry season only after rice harvest is completed. As this season ends, the pits must be refilled and the spot made suitable for rice farming.

Are the miners bringing up gravel that has already been mined during past millennia? I wouldn't be surprised. I'll say it again, gem producing areas are dream country. To do it, you have to believe in your luck. In cities and flat country, we use the lottery. It is like my question of long ago to the old Texas oil man concerning the chances of finding oil as they placed the drilling rig. I had received a straight answer. He said, "You know the size of a 6 inch hole and you know the size of the State of Texas."

During that evening I asked our host about his long experience with the discovery flow of gems. To pin it down, I asked about specific kinds of gems. Where are the great red and yellow garnets? Answer: They come and go in bunches. You find a lot or none. The same holds for yellow sapphires and other stones. When he was a boy he remembers dragging gunny sacks of yellow garnets home. He has seen little lately of any kind of garnet. What is your policy with stones you find? Do you save some and sell some? No, the stones are divided among the team and sold immediately to cutters at the weekly auctions. Only one stone was ever held in the family. It was a giant chrysoberyl catseye, the largest ever found. It was kept by his grandfather and is presently shown as a pendant worn by his father in his painted portrait on the wall. It is a great stone from the painting and photographs.

The next and final day we viewed all of the gems from the area dealers that our hosts could bring together for our review for buying. I had already committed to buy our hosts few stones described above. We viewed cut gems for several hours. By law, no rough is available. All rough has to be cut and handled through the local industry. Purchases in any significant amount of money have to be processed with price, weight and quality verified by the Government Gem Export Agency. This protects all parties, the reputation of the gem industry, and captures the foreign exchange.

The stones covered a wide variety of Sri Lanka gems, but my focus now is on sapphires. The 8-carat yellow sapphire I obtained from my host was the largest and best I was offered there at my host's home, at the gem houses in Ratnapura and later at the market in Colombo. I bought the two finest star sapphires, the largest, a blue of 8 carats, and a ruby of 7 carats (a color change red under incandescent light shifting to violet in the natural light). There were not many fine stars. There was one greater blue star of 15 carats, but the price was such that I had to choose between it and a single

fine, beautifully cut blue gem of 15.6 carats in my choice of color.

I had no trouble selecting this great 15.6-carat cut blue sapphire. It was the only large fine blue cut stone possessed by the group. Also, it is my dream color, a rich, deep solid blue with fine deep blue flashes with the wave of violet and lacking any hint of excessive darkness. The stone had these attributes, but they had to be verified by Dr. Jonas.

At the critical moment, I was personally encumbered with Murphy's Law. Every picky little thing was going slightly out of synch, a bit off the spool. My vision seemed a bit fuzzy and my nervous system motor put my muscular timing off, not noticeable to others, but still off. I knew it and assume it was the result of almost no exercise during the four days of travel. My ankles were so swollen there was little bend in the old legs. I felt I was walking on wooden stilts. The excess fluid in my fingers prevented me from making fists with my hands. I felt wooden. Anyway, I sat on my glasses and broke off the magnifying lens. I could still use the lens but not very well. I soon recovered somewhat after a few days, but I was hanging just enough off the spool at the critical buying time to appreciate my friend. Anyway, he verified the quality of the stone and I went for it. Fortunately for me, Dr. Jonas has the finest gem color eye with which I am familiar. It has been honed by 40 years of looking. I was grateful for his presence and his assessment that the stone was our favorite color.

The other blues were in the 2- and 3-carat range. I thought I had better take the grand fellow. It has good clarity for a stone of this size having only good identifying inclusions that require effort to find at all. The owner trusted me to assemble the greater than anticipated cash. He was rewarded with the cash, a bit later, and my less than usual haggling. I had expected to find a 6- to 8-carat stone for which I was prepared. The big fellow overwhelmed my purse on the spot.

Actually, while the gem owner trusted me, my home bank account manager didn't and so refused to send the money to Colombo. The lady in the Colombo bank blushed with embarrassment as she told me my telex request was refused. I thanked her for the effort with a smile. I am not embarrassed; I'm not even mad. I expect stumbling blocks along the path. Nothing is going to prevent me from getting that stone. Collecting treasure about the world isn't suppose to be easy. If it were, everybody would be doing it. The stumbling blocks and problems are useful in culling out the weak of spirit. At least, this is my compensating rationale.

The gentlemen owner, with probable assurances from Sam and Upalli, allowed me to return home and send the money. Even at home, I couldn't find anyone willing to cable the money. They kept finding things wrong with the routing numbers through New York to Colombo. In the end, I sent a

check through registered mail and it was done. After over a month, the owner was able to send the stone to me via insured air freight. Without the money in Colombo, the government would not allow the stone to leave the country. It was a happy ending, though a bit trying. You learn the routine. All it takes is 43 hours in the air to go and come the distance around the world, find the stone only with the help of very special friends, and then... You know, it wasn't easy, just worth it. By now, the big blue is one very valuable gemstone. It is now the centerpiece set of a beautiful ring, set in diamonds and gold, designed by Brian Mikeska.

What are my two professors doing while I'm raking in the lush large stones? They don't mind my actions at all. Their collecting objectives fortunately are different than mine. They were buying small gems of interest to them. Where was my personal advisor? She stayed in Colombo to scout the Museums and shopping opportunities for the famous and unique tribal ceremonial masks of Sri Lanka. She is not a cobra country girl. One travels the country by inexpensive car with driver arranged for at the hotel.

You would have waited to commit to the great gem until after viewing the gems at the big wholesale gem market in Colombo? Well, you haven't been through the once in a lifetime clean hot pink tourmaline episode. The great stone met all of my requirements. If I had not bought on the mountain top, the stone would have gone to the market through another dealer at a necessarily higher price. This is the system. From the area survey so far, I felt uneasy about the availability of large great sapphires. Timing of purchase is always a hard decision. Since there is never enough money, nor can there ever be, you have to take your shot and live with it. This is the reason your focus, preparation, and acquired knowledge is so important.

At the market, which was very nice, I saw four excellent cut blue sapphires over 10 carats but under 14, with more inclusions and at the same price as on the mountain top. There were several larger extremely nice, blue sapphire stars ranging 20 carats and over at substantial prices. These are not yet in my buying focus. For the moment, the 8-carat fine blue star will have to do. I saw one hot pink, called ruby, at the market and another in Ratnapura of 4 carats. They were splendid stones, but the prices were top ruby scale. They are scarce. Instead of fighting the prices of the large stones, I gathered up a suite of nice 1- to 2-carat hot pinks with beautiful color at much more reasonable prices. The reduction in gem size made a huge difference in price. I found one totally red ruby at the market, the only one I saw in the country. It is 1.6 carats and came at a fair price because it is a poor cut that can't be improved. Nature either created the crystal thin or it was worn down into the shallow condition. However, the color is wonderful and right, the gem is profoundly beautiful, and I loved it at first sight.

The relationship of price for quality gem material plus the nice country of nice people definitely makes the trip to Sri Lanka a valuable, profitable and wonderful experience, perhaps the experience of a lifetime. At the Tucson market following the Sri Lanka visit, I was able to specifically confirm my findings. Among the Sri Lanka dealers at Tucson, there were only a few big fine blue sapphires in the 10-12 carat range, none larger, carrying prices up 400 to 600% higher than back in the country. With only a few such stones, three as I recall, to cover the expenses of bringing the material to Tucson, the profit-over-cost comes out little better and they have worked harder for it. Here I am talking about the great stones.

At Tucson there are always a few great blue sapphires back on the market from estates. These estate pieces seem to be handled by big city dealers. These seem to be generally priced higher than the new material coming out of the mines, but not always. I have noted that a few of the big city dealers also are handling new material at prices comparable to the dealers moving only new material. So, the only rule is to survey them all.

Before leaving Sri Lanka our party toured the culturally important city of Kandy, the Temple of the Tooth and the wonderful botanical garden, and we went north through several military roadblocks to view Sigiriya, a 5th century capital. The older cities are still farther north and we had to pass on them due to time constraints. An important part of the treasure hunt is smelling the flowers, tea and spices as you pass down the road. We did just that. During the evening in Kandy, a fine group of performers put on historical tribal dances that covered the cultural periods of the country. The affair concluded with fire swallowing and fire walking performances. The walking is done over some 20 feet of hot coals with a low flame. It was all interesting and well done. One of our drivers, a Buddhist, commented that he could and had done the fire walking. It requires a special meditation for about a week to prepare for the ordeal. He insisted that he was not burned. Well, I don't recommend it.

Sigiriya was a surprise, even a shock. Our wonderful host of the mountain top paradise had suggested that we see it as we reluctantly parted. The scale was massive and the grandeur spectacular. At the foot of a 600-foot sheer, solid gray granite monolithic mountain, standing alone on the plain, are the remains of a large, impressive, ancient city sloping gently away from the near vertical mountain base to a river-sized moat (formerly filled with crocodiles) surrounding the city.

As you enter the city on a broad, beautifully crafted stone and brick avenue, wide enough for elephant processions and marching armies, you slowly ascend for about a mile, passing formal water ponds deep enough for bathing, interspersed with gravity pressure water fountains (the water is not

now flowing). You reach large, high natural granite towers with carved out stations for guards. At stages are smoothed stone surfaces bearing faint, large mural paintings of fine sophistication and great beauty. You proceed through a stone royal audience chamber and you look upward.

Above you see a level quarter-mile or so of faint giant mural paintings lining the path at the mountain base which leads to steps carved in the monolith ascending to the top of the mountain. These 2,000 or so winding steps lead to the flat top which contains the royal palace and grounds that include swimming pools carved out of the granite. Well, the sight and feel of the place is unbelievable. Could the Hanging Gardens of Babylon compare? You feel like you are in that kind of place.

After a generation in control, the King who built the city was defeated in war. How could he be defeated with the kind of defense he had prepared? He wasn't defeated there. After all the defensive preparations, he was lured by a personal insult into battle out on the plain. His great defense fell to a character flaw. He went down in combat during the battle on the plain, which involved a multitude of war elephants.

What was it like up there with the grand view? I wish I knew. By now, I am being carried, erect but being cradled under the arms, by two bearers to the car. They had been bearing me for quite a while. It is very comfortable being hauled up and along. They knew just how to do it. Long before I needed the help, several strong lads were anxiously following along willing me to wilt so I would require the lift. The professors, in better physical condition, thought I was funny. The bearers thought I was funny, and I enjoyed their pleasure and the ride as we went giggling along. My personal advisor was less pleased as I came into her view as she waited at the car. She isn't much of a walker. I told you she is smart. She handled my bearer scene pretty well, as always, after she realized I was enjoying it, just tired not ill.

Traveling by car is the only way to get about, but it is a fright. Since the villages string along the roads, every thing alive is out on the road, including boys with flutes and cobras peering out of baskets. Rest stops relieved the tensions and featured bananas. Vine ripened and lacking beauty, they still tasted better than most. Many of the villages along the road were specialized producers with their wares at roadside for sale. There would be a village of all baskets, all cashew nuts or all chairs. The drivers fly along at outrageous speeds considering the conditions, but we made it every time.

Bangkok is a fine spot for gem collectors. We were in a fine air-conditioned hotel, which really helped with the humid weather. We were within walking distance of Lambert Holdings, managed by David Glickman. This group will cut your gem rough well and inexpensively, offer you a fine selection of area stones at wholesale, and they will perform jewelry work for you to your design

or their design as you wish. I found their work highly satisfactory with prices the same. In a sense, they are exporting Thai skilled labor. A review of the office project board displayed the names of several very famous jewelry houses from around the world. These folks use them and you can too.

The first day in town Glickman was closed, so we visited the Export Gem Market, a government sponsored or supported affair, which likely never closes. I assume the price system here is fair but above wholesale, since we later found the asking prices were higher than those of Glickman. However, it was a chance to view the available material and we didn't expect to buy. I failed to reckon with Thai salesmanship. What followed can be instructive, a case study in gem buying. It was unplanned give and take.

Within seconds after entry, I found myself seated in a small sales room facing an impressive array of mounted and unmounted rubies, with a tall bottle of Coca Cola bearing a thin straw in my hand. By this I understood that I can't leave for the lengthy period it will take me to empty the bottle through the straw without offending my hosts. Suddenly I am a pampered guest, a hostage to manners. Across the counter is a well groomed, tall, bright English speaking young Thai gentleman. Beside him is a lovely young Thai lady, also English speaking. The material is ample, so it has to be a price struggle even though it is suppose to be fixed price.

What is my interest? Since no peridot was visible, I launched a diversion and expressed interest in a large piece of peridot rough from Burma. In truth I would be happy to find a large piece suitably priced, but I didn't expect any here among rubies and jewelry. My purpose was to induce him to seek to stimulate my interest in the rubies with price reductions. Well, he had some 20-carat pieces of peridot rough in the vault and out they came. His price was \$100 per carat, which was ridiculous, so he was testing my knowledge. I looked over them honestly saying they would only cut stones of less than 5 carats that I already possess. I want a finished cut stone of more than 20 carats. Well, he didn't have it, so he began coming down on the price of the rough. Over time, he worked himself, now with tie loosened and hair hanging into his face, down to \$5 a carat and even asking for a counter offer. I was feeling for him, but I didn't want the material, and he made no effort to move me into the rubies. However, the lady sensed that I would never move on the peridot, so she moved in.

She had been working the professors without success and I could see she had noticed the coke bottle was half empty. Out came the ruby tray along with an announcement that all stones are guaranteed by the government and prices are fixed so all I have to do is select a nice stone. The system has made it easy for me. Well, I like rubies, but none in the trays, and my real interest, as

she knew, was peridot. Well, she bypassed calling me what I was, but she knew better. She brought out a big stone and a small stone, pricing both and asking which did I like best. She began to seek solid, steady eye contact, which I avoided.

Through the continuing clash of wills over a number of gem trays, by now we both knew she intended to win and I wouldn't mind if encouraged. She got the eye contact by saying she just remembered today is a national holiday which means she is authorized to discount the price 20%. She worked the calculator and I examined two stones, indicating the smaller one. After spending a long time over the small stone, I looked up shaking my head, no, and began taking the coke down to the bottom. She now hastily remembers I am her first serious customer of the day which authorizes another 20% off the price. The stone is now down about all she will go. I bought it. Both of us won enough, but the eye contact during wrapping and payment told me she had won the struggle. She was a nice lady tiger. When you enter the tiger's den, they intend to sell you. One of the professors bought a ruby from the lad, so all ended well.

We took the regular tour of the Palace grounds and enjoyed the exceedingly interesting, beautiful and completely different art/architecture. On leaving the tour, all buses were routed into the Royal Lapidary establishment as we were briefed by our guide that the Thai foreign exchange comes first from tourism and second from gemstones and jewelry. They put on a briefing by color film that focused on Thailand as one of the leading gem centers of the world. This was followed by a tour of the lapidary functions, the cutting of gems, which ended in the splendid salesroom. The best gems were very nice and priced at the world retail level. It is a well conducted affair and sales seemed brisk. For sure, the Thai are in business to do business and the products, including hand-loomed silks, are very fine.

The trip was over with primary missions accomplished. I left a few hope orders, a wish list, in Sri Lanka with Upalli that included a larger yellow sapphire, two great garnets, a yellow and red, and other items. With my Sri Lanka contacts, it is unlikely I will return. Certainly, with Sam and Upalli there, another trip would be more for pleasure than gems. They will fill my wish lists. I trust their judgment to obtain the best possible gems. I will buy what they recommend. If I don't like something, I will sell here at home at a profit and keep trying. It is an all-win situation.

My future foreign travel projects, if any, will likely point to Kenya to find special stones or to a search for the gems of the old Soviet Union. Perhaps Burma will open up to foreigners. I have acquired some nice Burmese rubies from an American dealer, Lance Davidson, who works Southeast Asia out of Thailand. Everything is possible.

Chapter 8: Focus - Other Gems

A collector/treasure hunter of gems is almost routinely exposed to quite a few unexpected, exceptional opportunities. These are outside your immediate focus, but through your reference material, at home or in the library, instant research can bring you up to speed. I have found “once-in-a-lifetime” chances come by fairly often (remember El Corazon). Also, remember the times I failed to respond adequately. I have made no secret of my warts. The trick is to listen, become alert, and only reject opportunities after research. A quick check of a gemstone encyclopedia is easy and you should keep a good one nearby. The opportunities come as you travel the path of your focus. They are on the road to be uncovered by what you have learned and who you know. This is how the other gems came into my possession. I think you will agree these additions to the treasure chest are considerable.

Amber

I will never seek to become an expert on amber or seriously collect it. However, in the process of pursuing my objectives, I could not avoid learning the good and the bad ambers. It is a warm, even lovely material in the good pieces of jewelry. When my advisor and I planned the trip to Istanbul and Vienna to view the great gem collections in the course of assessing our large garnet, we elected to go with a tour group which included pleasant friends and which went aboard a Russian ship up the Danube River between these cities. Though we had visited these cities before our interest in gems, we had never made the river trip. As we went aboard ship, I noticed a fine display of beautiful Baltic amber for sale in necklaces and rings, and they were practically giving it away.

The communists were showing their scorn for jewelry. Their hospitality was very nice as was the trip. One necklace, the only one of its kind, was so fine that I have not since seen its equal. This long necklace is made of 72 circular cylinders, approximately 3/4 inch diameter and 1/4 inch thick, of virtually flawless lemon colored (now darkening a bit) Baltic amber. I don't see how the makers were able to find enough fine matched material to put it together. The other amber pieces were top material. I happily became an ugly capitalist by buying all but a few duplicate pieces. I do apologize to my fellow tourists who never knew such fine amber had been aboard.

Now, as I visit the gem markets, I pick up the occasional nice red necklace or piece with insects or whatever. My small collection is no big thing, but it becomes better all the time.

Andalusite

This is a rare gem that has never attracted interest from anyone but collectors. It has the hardness and beauty attributes (though its color is somewhat strange, orange and green that mixes into a nice brown in the same gem), but there is not enough of it to justify promotional efforts to sell it. An andalusite over 5 carats is extremely rare, and I felt it would be fun to cut one to split the colors with green and orange in different areas of the stone. The stone always excites interest among inspired gem “nuts” of the kind with which I associate, and this is how it came to my attention. Without any priority, I stayed alert for a nice big piece of rough. After years of seeing only small, uninteresting material, a rare lot of large rough was found in Brazil, circulated and then disappeared again in the manner of mines (or pockets) working out. A dealer advertised it. I had been following the situation for years, so I was able to react quickly before it disappeared. I cut one of about 10 carats, a nice stone of a nice size.

Benitoite

The University of Texas Geology Department collection lacked a benitoite. At the time, Dr. Jonas was in charge of the collection. I was fond of the Department for having set me on course, so I got them one of 1.8 carats. In the process I learned about the gem and acquired a 1.25 special little beauty for my collection. This is a big stone for a benitoite. The largest on record, in the Smithsonian, is a bit less than 8 carats and it stands high above the others. It is sapphire blue with a refractive index like sapphire and a dispersion of .047 (ability to cut the light spectrum), higher than diamond at .044. It is very rare and quite a spectacular stone, coming in gem quality from only the Dallas Mine, San Benito County, California. I acquired it from Michael Gray, son of the mine owner. Michael is an outstanding professional cutter and dealer. He goes through mine tailings once in awhile to find gem quality material that he cuts himself. The mine is exhausted and closed. I wanted this one for the collection as an especially fine and rare gem. At over 6 hardness, it is suitable for jewelry.

Iolite

This can appear as a lovely gem. It is from a crystal that captures light from three directions. Properly cut it is a lovely sapphire blue (and is sometimes called “water sapphire”) and can range from (usually) small up to (rarely) 28 carats or so. It is rare, unknown except to collectors and is not expensive considering the beauty it delivers. Recently, it has been available in Tucson from India in lush sizes. I studied it at times when focused elsewhere. I found a beauty of a bit over 10 carats. The fine current supply will likely be running out soon.

Lapis Lazuli

This opaque blue/purple stone has been coveted as cabochon jewelry and carvings for thousands of years, and the ancient “old mine” area high in the mountains of Afghanistan is still in production. It varies in color and content of tiny pyrite crystals, which appeal to some but not all. Good material has been available in Tucson in recent years as rough, beads and cabs at decent prices. It has not always been so and the quality and quantity can slide away again. As it passes by I have obtained some nice quality items, because I like it and I don't wish to go through the agony of having to madly search for it at higher prices once it disappears. I hope it never disappears, but I am ready for it. Meanwhile, the price will surely go up. When price becomes a problem, I have the option of standing firm or of selling. While seeking something else, I found and bought a single fine crystal of lapis lazuli the size of my thumb from an Afghani dealer. I had not seen one before and only rarely since.

Opal

I like pretty opal well enough, but one has to limit the focus or it is not a focus any longer. Opal is a special study area requiring the expertise I have preferred to develop elsewhere. It is expensive. However, when someone asks you about a big finished piece of white opal that has been lying around for at least 12 years, not used and not going to be used, you research the piece for him. You identify it as an exceptionally fine piece (though from an unusual perspective), likely from Mexico and large at 25.9 carats. You survey the wholesale market and find the going price, which you offer and he accepts. So, I added a fine contraluz opal to the collection. It differs from other opal in that the centers of opalescence are spread perpendicular to the stone top surface rather than parallel. Generally, jewelers feel the perpendicular spread is not good for setting because the maximum color is not facing up. Actually, this piece is thick as well as broad and displays beautiful color all around. It is just more beautiful from the sides rather than from the usual viewing position.

Pearl

Again, I love pearls, but have preferred to allocate my time and attention elsewhere. One cannot know it all. However, I have not been totally unaware of the beauty and market. Once when I was standing in an Austin, Texas craft shop gazing at some tools, a diver for mother of pearl in nearby Lake LBJ appeared, attempting to sell the shop owner a huge lavender pink baroque pearl he had just found. He still had the shell it came from in his hand. He sold it and I immediately bought it with the shell. At 18 carats it is one of the largest freshwater pearls ever found in the area. It is a beauty. I don't know a lot about pearls, but I wanted that one. Though I try to be slow on the draw and careful on the trigger, I allowed a quick strike in this case. I don't regret it when I get a great gem.

Peridot

In the process of buying the big 205-carat Arizona peridot during my first trip to Tucson, I began to focus on this gem with the strong grass green color. At that time I was carrying my gemstone encyclopedia, so I began loading up on information. Over the next four years I had the gent representing the Apache Reservation screen out, from the buckets of material sold usually for bead making, the best and largest gem rough each year and save it for me at the Tucson market. This was the man I had acquired the big stone from. It worked out. There wasn't much, but I got some dozen pieces of rough in the 15- to 20-carat range. I had already cut the big crystal into a 35-carat keystone shape. It is a nice gem, a beautiful medium rich, grass green color, the second largest American peridot on record. Though not a good yield from the rough material, it was the best I could do at the time. The additional peridot was cut as obtained into mostly diamond shapes, which provides me with a fine suite of gems of matched color. These stones have inclusions but they are not offensive.

For clean gems in the Arizona material, the cut stones have to be too small. As a matter of fact, I like the lily pad inclusions. They are so beautiful, I have cut several large peridots featuring the iridescent lily pads under the table. These are absolutely unique and make stunningly beautiful gems. These are the pride of my peridots. Suitable stones are almost impossible to find and touchy to cut. If you cut into the inclusions, they can pop, explode, on you. It doesn't hurt you but you hear it. These are likely the only gems in existence containing visible rainbow colored flowers.

Over the years I finally found a large Norwegian peridot of about 10 carats. This is about top size for the area. I am looking for a big lush Burma peridot. I haven't seen any good ones for awhile, but I have scouts out looking in Burma.

Unlike other gemstones, peridot's are created out of volcanic eruptions, with Arizona peridots dating back to some 70-80 million years. Presumably, while globs of magma are airborne the exterior cools and the orthorhombic crystals (three colors) grow rapidly inside when concentrations of olivine are available. This olivine should be quite rare since it is supposedly located in concentration only under the normal magma next to the iron/nickel core at the center of the earth. In addition to the previously mentioned locations of gem peridot, it has been found in Hawaii, Antarctica, on the moon and in meteorites – the stuff of outer space.

Quartz

This material produces an incredible number of beautiful gems: amethyst, citrine, chrysoprase, rutilated quartz and the entire family of agates, just to mention some. As previously mentioned, a century ago prior to the discovery of vast amounts of amethyst in Brazil, it was a highly coveted and expensive gem. Now, it is readily available and widely appreciated by the market. I have acquired some nice pieces large enough for important jewelry, which is my habit. The most beautiful of the colors can be the deep blue/red of the purple, called the Siberian color. The light side of the Siberian color has been found in Zambia recently and is especially pretty and a bit higher priced. Though it is usually relatively small, I found a huge nice piece in Tucson and cut a nice gem of just under 100 carats, an impressive size in this particular material. Amethyst can be as beautiful in jewelry as you wish to make it.

Citrine can be natural but is usually heated amethyst. Depending upon the material, it can supply a wide range of color from deep to lighter orange, even yellow. It is popular since it is a way to obtain a substantial size in a large orange gem at the least expense. The cost in large sizes of imperial topaz runs very high and the orange tourmalines are too rare.

I collect rutilated quartz. It is just a fantasyland of hairlike crystals of rutile within otherwise clear quartz. There isn't all that much around, but it is interesting enough to concentrate upon.

There are collectors that collect only agates, or even certain kinds of agates. Quartz routinely does strange, wonderful and impossible things. You can enjoy them without great expense.

Scapolite

I had never even heard of this rare gem until a dealer friend plunked a rough crystal weighing in the region of 150 carats on the table in front of me. "You like big stuff. How about this scapolite from Kenya?" It is a big fat crystal shaped like tourmaline, and like tourmaline it has two colors. It is bright orange down the barrel of the long axis and a lighter but strong gold through the short direction. I walked to my library, researched the material on the spot and within the year I may have put together a world-class collection of the largest gems of scapolite on record. This dealer works Brazil, but had contact with a Kenyan dealer with a few pieces of great material. Anyway, the largest orange color on record is 70 carats and my finest is 85 carats, a bicolor orange/gold. A year later Dr. Jonas helped me find a record size purple color of 10 carats. Being rare, these treasures were affordable. My material had passed around, but as usual, everyone was focused upon something else or failed to research the opportunity.

Spinel

This is a great gem with a long and distinguished history. Most of the great large “rubies” of history are, in fact, spinels. The interesting thing is spinels are as rare as rubies, except in large sizes where rubies almost never occur. In the blue and other colors, spinel is so much rarer than sapphire that the latter has dominated the market by being better able to supply it. So, though not inexpensive, spinels are less expensive than the sapphires and rubies. I think they are beautiful and my principal advisor agrees. So, while I studied and slowly stalked sapphires and rubies, I went after spinels as they became available. It was not often, but I have pulled together a fair collection.

I imagine the finest collection of spinels in one place in the world is in the British Museum of Natural History, London. I viewed this collection while in London viewing, across the aisle, the rarest mineral gemstone in the world called Painite. A single Painite crystal (from Burma) exists, named for its discoverer, and it resides there. The wonderful spinels were collected in Sri Lanka in the late 19th century by a gentleman named Paine who was serving in the British Embassy. As I recall, there were six to eight stones of about 15 carats representing the main color range. I presume, Mr. Paine of the spinels is likely the discoverer of the Painite.

My collection is well represented with spinels. I have a large mulberry red of 17 carats, a small ruby red beauty, a big blue color change to purple of over 12 carats, and some others that supply a decent color range. There are no greens in spinel. It comes in a beautiful hot pink and I am fortunate to have collected several.

The red spinels are easy to confuse with garnet since both are of the cubic crystal habit. The usual way to distinguish them is on the refractometer. The refractive index of spinel is just a tad lower than garnet and is never higher. Garnets will range a bit but the reds are higher than spinel.

Sunstone

This is one of the lesser known feldspar minerals which, in gem and jewelry quality cut stones, is usually a yellow or straw color. However, I had seen photographs of sunstones from collections displaying an attractive red color, so I had been hoping to capture one for years. But these stones are really scarce. They come from Oregon, are not well known, are not found with other better known gems and so are mined erratically on a small scale. Hence, I just had not seen any. Well, during a Tucson show, some friends directed me to a booth that had them in unusual abundance, both cut stones and rough. What a break! What beauty in the gems and the people! From Oregon

Sunstones, Jolene and Judy, Inc., the granddaughters of the mine discoverer (in days past the King of Sunstones), I bought one of the most beautiful red gems ever at an offering price at which even I would be embarrassed to haggle over. Additionally, I was congratulated personally by Jolene and Judy for having the good taste to select that stone. I felt like I had won the cigar at carnival or the lotto; I was charmed into Plush, Oregon sunstone heaven. This was just the beginning. Following this great introduction, Judy has built my collection into over a dozen rare beauties through the mail. Judy and family mine these stones in a “mission impossible” operation which extends into a vast desolation, 80 miles from an outpost which begins at nowhere. No one would do it for money or gold. The motive has to be a kind of spiritual love for the beauty and art of sunstones and for those of us who appreciate them. What can a very grateful person say? Thank you Judy!

Tanzanite

This fabulous gem is the great sapphire blue with red flashes thrown in as a bonus due to its orthorhombic crystal habit. At a hardness of 6 on the scale of 10, it is harder than steel and suitable for jewelry. The sole gem source is Tanzania and fine material at a fine price is coming out at the moment. Latest reports indicate the deposits are being worked by local barefoot people taking unacceptable risks working in deep dangerous tunnels without safety precautions. Modern mining equipment is planned, but has not reached the very distant mines over dirt roads of poor quality. There is a rainy season which makes access to the mines even more difficult at times. Easily reached sources of stones are worked out, making difficult tunneling necessary. At the deepest depths some gemstones with pleasantly green color have been found of the same basic mineral, zoisite.

With the green we have a new gem. I will study it and probably go for one. So far, they are fairly small with a limited supply. No one can know the fate or future of tanzanite of either color. With the discovery that gem quality zoisite exists, people will be digging around all known deposits. To date, Tanzania is the only place, and the mines are either about finished or about to be better exploited. Who knows?

Turquoise

This wonderful gem of powerful color has long been a favored gem in jewelry and justifiably so. It has been targeted by admiring collectors, some of whom collect nothing else. It varies in color from the great blue of the Persian, known from ancient to recent times for its beauty, to green, with all colors ranging from the pure to variegated. The word in the gem community is that the Persian is finally exhausted after 3,000 years of exploitation. Turquoise called Persian now essentially refers to the beautiful sky blue color, which is still available particularly in significant production

from Arizona. A fine supply of the Persian recently has been available from the Sleeping Beauty mine, presumably of Arizona (the mine location is secret). This is my favorite. I obtained a quantity in Tucson for the collection and carved six large matched pieces, possibly for a necklace. I selected the hardest material of the highest quality from the now plentiful material. The quality can vary widely within the best color from hard to soft, which dusts off, to powder that is mixed with plastic to form workable pieces. You will want the best hard quality.

Chapter 9: Welcome To Paradise

Welcome to Paradise! As promised by the good books, it is a land of milk and honey, truly a happy hunting ground. However, before I release you on your personal search for treasure, I want to emphasize some points, previously just highlighted to prevent me from bogging down the rhythm of the story. My intent is to assist you to achieve the full joy I have experienced. So for whatever these late comments are worth, they are laid out for your perusal. This is my last shot, I promise.

You will learn by doing. This is the actual process by which you learn everything – driving a car, flying an airplane, developing expertise within your focus, and seeing definitively the beauty of gems. This story has been about creating and seizing your interest. Paradise is a big place and you will find your own special interest within it, learning by doing, focus by focus, following each discovery with another.

There is a fine worldwide infrastructure supporting the entire gem establishment. There is academia, the gem and mineral clubs, the science support of the Gemological Institute of America (GIA) with its foreign counterparts, the gem and mineral associations which put on the markets, gem, jewelry, lapidary and mineral publications and splendid books. What is known and being learned on every subject is available. A fine source of information that will put you in the picture is the *Lapidary Journal*, a monthly trade magazine, 1094 Cudahy Place, San Diego, CA 92110. This infrastructure represents a revolution in being and expanding. Particularly, the past 50 years have seen a great burst of information activity.

This revolution is about the equivalent of science's leap to the moon. Fifty years ago, the science, craft and information concerning gemstones was confined within something of a secret society. You could buy the jewelry, but for all practical purposes, paradise could be considered closed or a very limited club. We owe thanks for this opening of the gates to a few devoted pioneers, some of whom are still around. I lack sufficient familiarity with the names of these wonderful people to do them justice. I have mentioned my personal heroes, Doctor Edward Jonas, Professor of Geology and the gemology course at the University of Texas, and Glenn and Martha Vargas, who taught me to facet, helped train my eye and encouraged my interest. Now, the cadre of leaders in the gem community is expanding even more rapidly with the devotion of large numbers of talented men and women. It has become a world community of talents directed to support the gem and jewelry industries from mining to retail, which includes you and me in our search. I welcome the support provided by these outstanding, dedicated and lovely people, and you should use it.

Of course, all of this greatly expanded infrastructure means there has been a burst of activity to

increase pressure on the demand for gems and on the always limited supply of rare gem resources. The overall supply of gems has thus far been expanded by increased discoveries and mining with only a moderate general increase of cost for the gems due to conditions of economic depression in the producing areas. I can't say when, but in my opinion these conditions will change in the next decade or so, more likely sooner than later.

With the recent removal of the threat of general war overhanging the world for most of this century, decolonialization, and air transport linking the world community within an open commercial climate, a favorable change in priorities should and is occurring. The good life for all will surely be a top priority for the many nations now sensitive to popular wills. Prosperity is spreading and should move rapidly, no more to be limited to just a few industrial countries and a fortunate few elsewhere. Millionaires should multiply, and why not? Prosperity will either reduce the mining for gems by reducing subsistence labor or significantly raise the cost of gems by the payment of decent wages. I definitely hope this is coming for the obvious popular benefits.

Thailand is hardly mentioned among the economic success stories of Asia. During my trip I learned it has a population approaching 80 million and a five-year economic growth rate of better than 8%. Folks, Thais have the German work ethic and about the same population size. The streets of Bangkok were lined with masses of young faces, and at 2 o'clock in early morning the streets of the city were still clogged with truck traffic. I saw boom time Germany and I have never seen Germany this busy. We already know about the Arabs, Japan, the Pacific rim booming economies, the Europeans, but one should not forget, either, that a billion Chinese are not just coming; they are here. Also, one must mention a billion Indians and Eastern Europe and the folks of the old Soviet Union. I suggest you launch your treasure hunt without delay.

Another priority likely will be ecology and the environment. This has to happen. How will this and the advent of world prosperity affect the gem industry and markets? I don't know the future, but let us think about it. Earlier I said cartels always fail. This has been the history, but will history forecast the future in this case? History has never shown much concern about natural resources since they were viewed as unlimited. This is changing rapidly to a categorization of resources as renewable, limited renewable with help, and non-renewable. Those in the latter category are coming under careful scrutiny. Governments are already tightening control over private exploitation of local gem industries.

Actually, the diamond cartel may be a better forecaster of the future with its successful history. As diamond discoveries multiply to more national locations, the nations have signed up with the

cartel to protect prices. Another non-renewal resource, oil, is protected by OPEC (Oil Producing and Exporting Countries), certainly a success story and one recognized by the world market. If gem resources were placed under an OPEC prototype, the producers would coordinate supply and control prices. While I can't predict the course of history and I doubt exact replicas of the present successful cartels will appear, I do suspect we will see ever greater government or sponsored organized intervention to conserve, enhance, and increase their income from their non-renewal national treasures. I would do so, and I imagine they will. The result will favor the old-timers in paradise who have enjoyed the free market in colored gems. Generally, he who hesitates will pay more.

Having years of professional experience in military security and counterintelligence matters, I have given careful thought to security protection of my bit of treasure. For security, I keep my collection in security vaults of more than one bank. The contents of the security boxes cannot be insured by the banks as a matter of policy, since they don't know nor want to know the contents. These facilities are as secure as humanly possible. If the security of the banks is violated successfully, the thieves should thoughtfully avoid the boxes in favor of cash. Personal items within the boxes should be identifiable except for cash hiding from the tax men. The unidentifiable cash of the bank should be the thieves' target. With human control present 24 hours a day, this is the best security. The vulnerability is in the human control. It can be defeated but you have your inventory and should have photographs (bad ones are alright) of your gems. Should a thoughtless thief get your gems, not all because they are in more than one bank, you stand a chance for recovery.

Nothing in life is one hundred percent secure. Even gem paradise has a few potholes, and this is one of them, though it is smaller than with any other property. So, you may wish to insure. Fine, do as you wish. I do not. The rates are high and part of the insurance program is making a record of where you keep the treasure. You have entered a two-handed deal. At a substantial rate, you have purchased a refund of your cost for the gems, not their value, and obtained the company to help pursue the recovery of your material. Also, you have made available to people within the company, who you don't know, your hiding places. I am not blaming anyone, but the intelligence operator (thief) seeking information concerning the location of a secret obtains it from someone who knows it. The smaller the circle of knowledge, the better your security.

Your treasure losses are less likely to be from theft than to your carelessness. Keep tight personal control on your gems at market when you buy them and around home. They are easier lost than stolen. How do you enjoy them? You show them in trays and return them to their boxes. You keep some at home for personal enjoyment, rotating them in and out of boxes. If you collected a lot of paintings, you couldn't hang all in your home at one time either. If a thief beats me, and it can

happen, I will just collect some more treasure. Certainly, I will refuse to allow him to run me out of paradise.

At the markets I have heard of only one large-scale theft and this was from a dealer. It was beautiful stuff. The theft was advertised through trade publications and was later recovered. The gem community is very sensitive about thievery even though some pilfering does plague dealers. The markets usually have plainclothes people circulating among buyers to detect and prevent thefts. The sponsoring cities help promote these affairs and they provide security support. Gems just aren't a good target for theft. The hostility of the infrastructure makes it as hazardous for the thief to sell as to steal. The great gem robberies of history seem to occur during political upheavals, such as revolutions, exploiting breakdowns of general law and order.

Personally, I do not use outside appraisals. I do my own. Other people may find them useful and I do not object to them being used. However, there is only one accurate price of a gem. It is what you, as buyer or seller, and another buyer or seller agree as mutually acceptable. If you wish a professional appraiser to confirm your judgment, fine. Since I don't use them, many people are more expert than I. I understand they are used for insurance value, tax value (more in the past when donations allowed "market" value tax write-offs instead of cost write-offs as now), and current market (exchange or sales) value which is related to appreciation value. Cost is real. Current market value requires the buyer and the seller. Anything else seems hypothetical to me.

I feel the most comfort comes from buying high quality gems at the best locations within the vertical market. This provides protection from big price swings. You are always ahead in terms of value. Generally, gems are a good inflation hedge, unless you bought heavily into amethyst at retail a century ago. This is sort of like having the expensive painting that has fallen from favor in the market. No one can predict it. However, if you buy as you should, you will remain ahead. The value key is you make your money when you buy gems you love and wish to keep with money you can do without. Having done so, you are in a position to sell whenever you wish or to hold and pass to heirs something of aesthetic and intrinsic value and of you.

Another view of value of your gems can be described in terms of the value of your labor. When you purchase a gem, you have applied your expert knowledge acquired through expenditure of your labor through study of the gem and the market. Your act of expert recognition and selection of the gem immediately adds the value of your labor to the price you paid. Your collection is always worth at a minimum the total price you paid for the gems, plus your other expenses of acquiring the expertise and performing the purchasing, plus the added value of your labor in pulling the collec-

tion together. The cash value of your added labor, or profit, is established by you when you choose a sales price above your costs in conjunction with a buyer.

This final value is influenced by the appreciation or depreciation of the general market value of the gems and their relative availability elsewhere and the desirability of the treasure chest to the buyer and his financial capability. The collection represents your labor of love and savings. Don't forget about taxes. This added value or profit is taxable income when you sell.

If you seek the advice of another seller on a gem you have purchased elsewhere, my experience has usually been somewhat negative. There is either something wrong with your gem or you have paid too much. When challenged to supply a better deal, they have never delivered. They want to make you a customer. The wise jeweler, however, will always admire the gem you bring for mounting. These are psychological games.

I avoid retail outlets while recognizing their legitimate function that justifies the higher prices to the gift buyer as earlier indicated. With the recent giant gains in popularity of colored gems (gems other than diamonds), a few retailers have begun employing gemologists and this is good. The retail jewelers have long known diamonds or trusted the people who supply them. With only a few exceptions though, I have found their knowledge of colored stones pretty thin. Often they still refer to some gems as semi-precious, meaning gems other than diamonds, rubies, sapphires and emeralds. This is outdated thinking and has long been discarded by gemologists. It is like saying something is half dead or half alive. Many of these "semi-precious" gems are rarer and more expensive than the so-called "precious" gems. Certain chrysoberyls, cats-eye and the color change alexandrite, for example. Green garnets, jade, certain topazes and tourmalines are others. A fine topaz or tourmaline is worth a lot more than some emeralds, rubies or sapphires. It depends entirely upon the quality of the gem and the market. They are all precious miracles and each is an individual.

Miracles, precious treasure, and paradise, what on earth is the old gent rambling on about? Gems are just pretty rocks. Well, not quite. Each is a unique special universe of beauty that has defied or defined exceptions to natural law in the creative and survival process. Comparisons can sometime illustrate better than other means of description. I suppose the first and grandest miracle is the unaccountable creation of our universe, to be followed by the creation of life and our luck to be a part of it. Within the context of this background, certain events just should not happen, but rarely they do. Let me put a human face on it.

Each gem has a story like the lad in a bomber four miles high at noon on a day during unpleasant

times in 1944 not far from Berlin. His aircraft took a direct hit from hostile ground fire. It exploded, now you see it and then there is nothing. Actually, this was not an unusual thing in the air war at the time. There are never survivors, but a body is seen floating by with no parachute opening. The owner of the body was back at home base in England two weeks later without a scratch, only an unbelievable story. He awoke at dark lying in a field without a parachute, remembering only flying toward the target, an airfield containing some of the meanest and best German fighter pilots. He walked to the nearby highway, crawled aboard a truck with enemy troops headed, as it turned out, for the front in Northern France. He off-loaded with the troops and walked in the opposite direction they took. Later that night he was with American troops. This is a miracle and this is a gem.

Miracles are not pro-American although we have been blessed. There was the German rear gunner, with a single machine gun, aboard the outmoded slow reconnaissance plane caught dead over North Africa by a 3-ship formation of the finest Allied fighter aircraft, each armed with 10 guns, a total of 30 machine guns. You know the encounter can only have one outcome. Actually, no, the German gunner shot down the three allied fighters, including one of the pilots that told me the story. As he said, you just don't know when you will run into a miracle. When something can't happen, but does happen, you have a gem.

To me these events, which I know to be true, reinforce my contention that you can and should believe in your own luck and please always respect the gems. These works of art have been through a lot to get here and they will be around forever. If you have not personally experienced the magnitude of luck illustrated by the stories, you have been blessed already with good fortune. You have to give your luck a chance by going through the gate.

If you have a bit of surplus money, it is just easier. If you don't have surplus funds, prepare yourself with study, develop your focus and operate in a joint venture with someone who has the money but lacks the time to develop the expertise. It is a straightforward arrangement. Each side gets half of the material and both sides win. After a session which included some folks on a very tight budget with one of them running to the telephone to call an associate, one of my favorite dealers advised me that small sporadic sales add up to justify his time and patience. It is done all of the time. Don't worry about having to scrape to buy a gem. If you do, you are just joining the club.

On the great hunt among the hunters, retired people are considered financially substantial. I can assure you those folks unable to afford much jewelry at retail, with acquired expertise and focus, obtain the very finest of near priceless gems. Within the commercial structure of the market, the rules of gem mercantilism move supply to meet demand with the blind leading the blind. Within

this structure, there isn't enough of the best, so the merchants have to deal in the higher quantities of available goods, which allows those with the concentrated focus to pick off the very best. The system clearly favors the collector, who taps into the market before the goods reach retail.

How difficult is it to acquire the expertise? The gemology course was an hour of classroom sessions, three days per week, for three months. Following the lectures, for two weeks I spent a couple of hours per day in the faceting program. You cut one or two stones. This teaches you how to do it. Afterwards, you learn by doing, setting your own pace, always improving for the rest of your life.

Gems are precious both because they shouldn't happen and because they are eternally beautiful. When you appreciate them, you enter paradise. Why? When you give them your focus of appreciation, they present you very special gifts in return. It is more than their own luster. They sharpen your senses. They elevate your capability to see in full definitive color the wonders of the world. I lack the words of the poet, but I have acquired a bit of the vision. You become able to really see in full glory the sapphire blue of the darkening sky, the blue topaz of the day and the imperial topaz of the sunset, and the peridot of the fresh green of the new leaf growth of spring. Believe me, you get more than you give.

In the beginning of my treasure hunt adventure, I always marveled at the many happy faces of the masses at gem markets in contrast to elsewhere. I asked the old-timers about it, and they agreed but had no answer. I think it is because they are experiencing the joy of poking around paradise.

Now, off you go.