San Diego Mineral & Gem Society, Inc.
A Non-Profit Educational and Scientific Organization

THE PEGMATITE

SEPTEMBER-OCTOBER 2020

Remembering Si Frazier

The ties that bind in the gem and mineral community run deep. We mourn a great loss in the passing of our dear, longtime friend Si Frazier on February 25th. Si was the embodiment of the best of the ideals and aspirations we cherish: irrepressible enthusiasm for learning as well as teaching, a sense of adventure and fun, a great appreciation for finding a touchstone in a kindred spirit. Si had an inveterate curiosity that was infectious, his generosity was boundless. Over a lifetime of pursuing a passion shared with Ann, his wife and collaborator, their imprint on our lives and the things we care most about is deep and indelible. Our hearts go out to Ann. We are profoundly thankful for having had Si in our lives and for the life he lived.

Dona Lee Leicht wrote a wonderful remembrance of Si, and she graciously gave her permission to reproduce it here.

A project that went unfinished was Si's research on quartz, a gem that fired his imagination and stoked his interest dating back decades. Part of that research was published as an article, "Quartz as Diamond," which he co-authored with Ann. It appeared in the printed proceedings of the Ninth Annual Sinkankas Symposium, held at the GIA in Carlsbad in 2011. Fewer than 220 copies were printed. Ann liked the idea of Si's work finding a wider audience, and so, she was pleased to allow us to reprint the article in this month's bulletin.

More on Si's legacy starting on p. 12 ››

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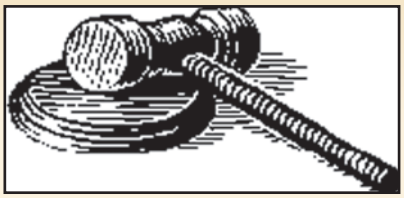
The mission of the San Diego Mineral and Gem Society, Inc., is to disseminate knowledge of mineralogy and earth sciences; to encourage the study of these subjects; to conduct classes in mineralogy and lapidary arts; to conduct field trips for the collection and study of specimens; to encourage interest in mineralogy and lapidary arts among young people; and to procure and maintain a collection related to the earth sciences and lapidary arts.



PRESIDENT'S MESSAGE

September-October 2020

by John D. Kruzel

sdmgpresident@sdmg.org

WELCOME BACK, EVERYONE! Here is to a new year unlike any other. We can expect many changes in the months ahead as we strive to resume normal activities as soon as possible while complying with all the new health requirements.

Although I am a longtime member of the **San Diego Mineral & Gem Society,** familiar to many other members, as the new President, I would like to formally introduce myself to everyone. My wife **Georgene** and I moved to Southern California from Grand Rapids, Michigan. In 2001, I took a jewelry class at **K's Tumble Craft** in El Cajon. I made a turquoise ring that turned out well, and that is when I knew that I found something that I really loved doing! I joined **SDMG** in 2002 and started out as everyone does – in the cabochon class. The cost of classes was $2.00 back then. My first instructor was **Ed Reiber**. He was an excellent instructor, and I found that I took to lapidary work like a duck to water. I made a lot of cabs of different sizes and shapes from the same slab and was mounting them in silver pendants, rings, earrings and so on. There were many lapidary shows, tailgate meetings and silent auctions, and I went to most of them buying up machines, rough and slabs. **Elbert McCune** was my faceting instructor, **Gladys Hancock** taught lost wax casting. I became the Lapidary chairman, a role I held for a few years. I made my own sphere machine, but after beginning to work with **Paul Williams,** I went on to build four more, each one improving on last one.

I want to thank everyone for your confidence in electing me, our slate of officers and board members, with a unanimous vote, to preside over **SDMG** for the next two years.

Let's have a positive outlook that things will change for the better and we will be able to resume having regular meetings and open our classrooms soon. At this writing, we will not be opening the classes this September or have in-person meetings at the **SDMG** building.

John and Georgene at SDMG's annual Christsmas Potluck in 2018. Photo: Jim Parrish.

We are working on a schedule for the regular school year now and will send an e-blast to let everyone know when you can sign up for classes.

We will need people to teach classes and help with events that we usually have every year. I am amazed at how people have always pitched in to get done the tasks that need doing. If you would like to volunteer your time to teach a class, please contact our school director **Wayne Moorhead** (school@sdmg.org). To volunteer for other duties, please contact me directly It just does not happen without YOU!

The **Gem Diego Show,** I am afraid, is not going to be continued. We replaced it with a **Cab & Slab Sale** hosted at the **SDMG** museum, where we sell donated equipment, rocks, slabs and miscellaneous lapidary stuff. That has worked out to be much less labor intensive and more profitable. The **Second Annual Cab & Slab Sale** will be held on Saturday, November 1st. Read more about it on page 4.

We are still planning our other regular annual events in compliance with state and local regulations,

cont'd from page 2

which as we all know by now, are subject to change from week to week. As soon as we can host in-person meetings, society-sponsored events and classes, we look forward to welcoming everyone to come together, again. So, please keep your eye on your email inbox for mid-month updates from **SDMG** – the minute we can host our usual activities, we'll let you know via our email blasts.

BALBOA PARK
CULTURAL PARTNERSHIP
Collaborative for Arts, Science & Culture

Get updates
on Balboa Park reopening at:
www.culturalpartnership.org/notification

Updated September 12th, 2020

UNTIL FURTHER NOTICE

ALL Meetings and Classes
held in the SDMG Bldg
are still SUSPENDED

- All Classes – The Workshop is CLOSED!
- SDMG General Meetings
- Gemological Society of San Diego (GSSD) Meetings
- SDMG/GSSD Library
- Southwestern Miners and Prospectors Association Meetings

As updated information is made available, it will be posted on the sdmg.org website.

School News

Wayne Moorhead, School Director

Greeting SDMG Members,

I'm sorry to report that we will not be able to reopen our classrooms at this time, out of concern for the safety of everyone. This is unfortunate, because almost everyone I spoke with was looking forward to coming back. Hopefully, things will improve in the coming months, and I will keep you informed about our class status via the bulletin and eNewsletters as we go forward.

We will, however, continue our on-line sales of lapidary equipment and tools, including rock grinders, saws, tumblers and other items. Pictures and descriptions of these items can be found at: https://sandiego.craigslist.org .

*Type **SDMG** in the Search Box to see items currently up for bid.*

Items will be deleted as they're sold, and new items will continue to be added.

We'll be taking the best reasonable offers for most items each week, so click REPLY and submit your phone # and your offer. For more information, or viewing of the items, just click REPLY and ask!

Got questions? Email school@sdmg.org

Stay happy and healthy.

Faceting Cut of the Month: Phenakite, The Rare and Unusual

by Bill Brisebois

PHENAKITE IS A RARE beryllium orthosilicate found in some area of Colorado and California as well as the Urals of Russia. There are other sources, but the material I have cut are of Russian origin (see photos adjacent).

I wanted to share my first experience cutting this material, so others can know what to expect.

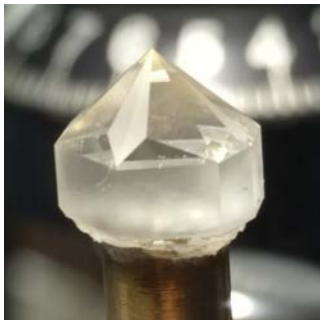
Clean material is rare, and for me it's hard to obtain over 10 carats in rough, so stones will be in the 1.5-4 carat range depending upon the shape of the rough, the cut chosen, and of course, the experience and skill of the cutter. Heat build-up is an issue, much more so than corundum, which also has heat build-up issues, but corundum is nothing in comparison with Phenakite, which is off the charts.

Phenakite cuts fairly easily with few issues. Cut with a good broken-in lap; small material as this will most likely be, I would try cutting with a 1200. Move to a worn 600 if too slow.

Prepolish, and a very good one, is a must! The reason is that final polishing with anything other than diamond is extremely slow. Aluminum oxide is painfully slow. Diamond, either 50k or 100k works very well, but heat builds up after only a few swipes on the lap – a lot of heat! In fact, so much heat that I burned my finger – and I have a high tolerance for heat. This can also cause the glue to lose contact with the stone, so be very mindful of this, and do not use wax to dop.

I just go for about 10 swipes and use a mix of WD40 and oil and it seems to keep the heat manageable. Stop and let the stone cool. I used canned air to help with this. Polishing will be slow, but just take time, and don't rush it, it will happen. When transferring to cut the crown, again, do not use wax! Use a good super glue. I use Gorilla glue cyanoacrylate. It holds well, it's inexpensive, and it's readily available.

Gem mineral: Phenakite, a Beryllium Orthosilicate
Mohs Hardness: 7.5 – 8
Refractive Index: 1.65



Stages of cutting "On Hold with Cable," phenakite, 1.685 cts, faceted by Bill Brisebois.

You can see the the stages of cutting in the pictures above, from rough to cut to polish to the final stone. If you take your time with this material, you will be amazed at the performance and proud of the fact that you have conquered another material. This is a cut I designed while on hold with the cable company, so that is what I named it – "On Hold with Cable." It is a cut for which I used an 84 index gear.

Happy cutting!

News

Top: View from Cima Dome, in the Mojave Desert within the Mojave National Preserve, southeastern California. Photo: Stan Shebs, 25 February 2006.

Bottom: The charred landscape after the August 2020 Dome Fire at Mojave National Preserve. © Chris Clarke/NPCA.

Top left: The chimney plume of the El Dorado Fire in Yucaipa-Oak Glen, viewed from 25 miles away, in San Jacinto, 1:00pm, September 5th. Photo: R. Goodwin.

Trial by fire

MANY PEOPLE have managed to escape the claustrophobic confinement of the coronavirus lockdown and safely venture out to our Southern California mountains and deserts. What a welcome relief to enjoy their pristine beauty and the chance to be outdoors in wide open spaces. However, record-breaking heat and the worst air quality in 30+ years, thanks to fires raging up and down the state, may keep a lot of visitors and recreationalists away for some time to come. Over Labor Day weekend, a 20-year-old hiker died in Joshua Tree National Park as temperatures soared to 120 degrees. Dry lightening strikes have touched off fires everywhere since August. The desert has not been spared. In a particularly sad development, fire incinerated the Joshua Tree forest near Cima Dome, in the Mojave National Preserve.

The adaptation of native desert grasses makes them poor fuel for fire, but the proliferation of non-indigenous, invasive grasses and vegetation such as blackbrush exposes the fragile desert landscape to potentially catastrophic conflagrations, especially this year. For lovers of the desert, it is soul-crushing.

SHOWS, SALES & EVENTS

September 13, 2020

Six months into the COVID-19 pandemic, virologists and other public health experts warn of a long haul ahead, its course largely dependent upon public behavior and a potential one-two punch dealt by seasonal flu this coming fall and winter. If public sentiment reflects vigorous disagreement about the best way to move forward, everyone can agree that we are all heartily tired of living in plague times and want it to be over so we can get back to normal. Notwithstanding how we feel about it, as Michael Osterholm observed, "We're riding this tiger, we're not driving it."

So, as we contemplate settling into the winter of our discontent, literally and metaphorically, sponsors of the shows, events and activities that we look forward to attending year-in and year-out are balancing uncertainty, apprehension and cautious optimism in their planning. Fire season in California and the Pacific Northwest has come early, and it's come with a vengeance, which only adds more uncertainty and concern to the calculus of planning anything. Certainly, the fires force the palpable urgency of the priorities that demand our attention, our actions and our resources.

In this time of COVID-19, and now wildfires, the best laid plans are subject to revision with little or no advance notice. So, for the listings of shows and events in these pages, please remember to check the sponsor's website in the days preceding a planned event. Be prepared to follow the rules set forth for the different venues: sponsors are doing their best to make a safe and enjoyable experience for everyone. Do your part to help them achieve that goal.

For our friends living under threat of fire, moral and tangible support will be urgently needed.

SEPTEMBER, OCTOBER & NOVEMBER 2020 SHOWS & EVENTS – CANCELLED

Sept 12 – 13	San Luis Obispo Gem & Mineral Club – Gems By the Sea, Arroyo Grande, CA
Sept 26 – 27	Palmdale Gem & Mineral Club Show, Lancaster, CA
Sept 26 – 27	Stockton Lapidary and Mineral Club – Gems, Minerals and Jewelry show, Lodi, CA
Sept 26 – 27	Long Beach Mineral & Gem Society – Gems By the Beach, Long Beach, CA
Oct 9–11	Big Sur Jade Festival – (Los Padres National Forest) Big Sur, CA
Oct 10–11	Searles Lake Gem and Mineral Society – Gem-O-Rama, Trona, CA
Oct 17–18	Santa Rosa Mineral & Gem Society – 45th Annual Mineral & Gem Show, Santa Rosa, CA
Nov 7–8	Indian Wells Gem and Mineral Society – 65th Annual Show, Ridgecrest, CA
Nov 13–15	LLD Productions – West Coast Gem, Mineral & Fossil Show (Fall), Costa Mesa
Nov 21–22	American Opal Society – 53rd Annual Opal, Gem & Jewelry Show, Anaheim, CA

FALL SHOWS & EVENTS – STILL ON SCHEDULE

Vista Gem & Mineral Society 2020 Show

October 2 – 4, 2020

Antique Gas & Steam Engine Museum
2040 N. Santa Fe Ave.
Vista, CA 92083
Parking: $5.00
Admission: Free
9AM to 5PM daily
vistarocks.org

Fabulous vendors in a fabulous open-air rustic setting

FALLBROOK GEM AND MINERAL SOCIETY Est. 1957

Fallbrook Gem & Mineral Society 2020 Fall Festival

Sunday, October 11, 2020
9AM – 4PM
123 West Alvarado St.
Fallbrook, CA 92028

~ SECOND ANNUAL ~ CAB & SLAB SALE

We're working diligently to prepare for this year's sale. Here is where and when we hope to hold it:

Date: Sunday, November 1, 2020
Time: 9am to noon
Place: SDMG Bldg.

Anne Schafer, for the Donation Committee

Due to Covid-19, certain rules must be followed when inside the SDMG Building:

1. Wearing a face mask is required.
2. Proper social distancing must be maintained.
3. Total number of people allowed in the SDMG building at one time may be limited.

There will be all sorts of slabs and rough rock; geodes; tumbling rough; tools; gem boxes; sphere blocks; flats of fossils, yard rock, petrified wood; waxes for casting; polished cabs; faceted stones and faceting rough.

Please be prepared to pay by cash or check.

Please keep your fingers crossed that the stars will align properly and the Cab & Slab Sale will be able to go forward this year. Please check your SDMG eNewsletter and emails for Cab & Slab status updates.

SDMG Membership...

New Applications & Renewals for 2020–2021

The membership year "officially" starts on July 1 and ends the following year on June 30. There is no pro-rating of dues so it doesn't matter when you sign-up or renew – all memberships will expire June 30, 2021.

There are two ways to apply for or renew your membership –

1.) Send a check with your membership form to the membership secretary. The renewal form can be found on the **SDMG** website at:
sdmg.org/pdf/sdmg-membership-app-and-renewal.pdf
OR
2.) Sign up online using major credit cards via PayPal. Visit the SDMG website for details at:
sdmg.org/sdmg-membership/

Membership renewals are usually mailed to current members in late May or early June, and are typically "due" before classes begin in September, because people must be current members to attend fall classes. Some just pay their membership dues in class, on the day they show up, which is fine.

With the Covid situation and no classes at the present time, only about one-half of the normal number of renewals have been paid. The board decided not to change anything, hoping that the loyal members who have supported the club in the past will continue to do so, even with postponed classes.

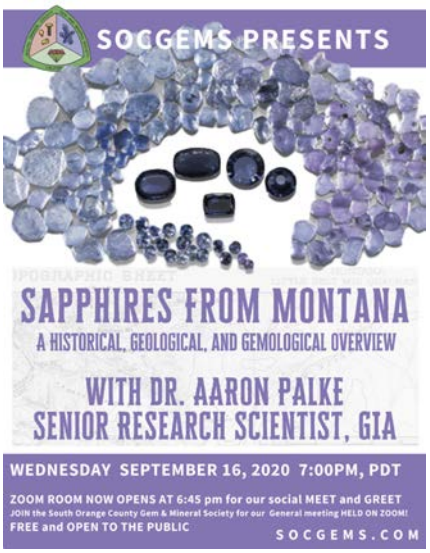
Thank you for being one of those loyal members who supports SDMG!

Subscribe yourself to the eNewsletter at:
http://bit.ly/SDMG-news

Published from September thru June
at the same time as
The Pegmatite bulletin (PDF online version)

(Members, you must subscribe yourself, we cannot do it for you!)

Webinars in September



Sapphires from Montana: A Historical, Geological and Gemological Overview

presented by Dr. Aaron Palke

Date: Wed, Sept 16, 2020
Time: 7PM PDT
Sponsor: SOCGems

The September General Meeting of the **South Orange County Gem and Mineral Society (SOCGems)** will feature a presentation by **Dr. Aaron Palke,** a senior research scientist at GIA. As a colored stone specialist, **Dr. Palke's** research focuses on geographic origin determination of gemstones and detection of intentional treatments applied to gemstones, primarily rubies, sapphires and emeralds. His topic of discussion will be Montana sapphires, notably the world-famous blue sapphires discovered in Yogo Gulch in 1895.

SOCGems is hosting its General Meetings via Zoom this fall, and the public is welcome to attend (free of charge). Registration in advance is required.

To register and for more information, visit:
https://www.socgems.com/events-and-programs/

Photo: Brocken Inaglory (CC By-SA 3.0)

The Granites of Joshua Tree

presented by Richard Hazlett, Ph.D.

Date: Thu, Sept 17, 2020
Time: Noon PDT
Sponsor: Hi-Desert Nature Museum

The rugged desert landscape of Joshua Tree National Park is famous for many features, including its outcrops of monzonite, granite and related granitic rocks. These rocks formed miles below, in the earth's crust, but uplift of the Little San Bernardino Mountains along numerous faults and deep erosion brought them to the surface. The granites reveal clues about the titanic plate interactions that built southern California over hundreds of millions of years, the ascent of countless bodies of magma – some of which doubtlessly fed now long eroded volcanoes – and the origin of gold and other ore deposits. *(Source: Hi-Desert Nature Museum.)*

Richard Hazlett is Professor Emeritus from Pomona College and co-author with **Dr. Dee Trent** of *Joshua Tree Geology*. He is presently an adjunct researcher at the University of Hawaii at Hilo, and with the U.S. Geological Survey.

This event is hosted by hosted by the Hi-Desert Nature Museum in Yucca Valley, California, and the public is welcome to attend (free of charge). Registration in advance is required.

To register and for more information, visit:
http://hidesertnaturemuseum.org/event/zoom-lecture-joshua-tree-granites-september-17-2020/

Home Gemmology Webinars

From March 19th to July 28th 2020, gemologist **Rui Galopim de Carvalho** hosted a wonderful gemological webinar series on Zoom. He presented many of the 48 live sessions himself and moderated others featuring guest presenters well-known for their expertise in a given gem or jewelry topic. The goal of the seminar series was to bring together industry professionals, students and researchers who have been living and working day to day in isolation due to the COVID-19 pandemic. In early April, **CIBJO, the World Jewellery Confederation,** began sponsoring the webinars, with gemologist **Edward Johnson** co-moderating some of the presentations.

The webinars have been given free of charge, the only requirement for participating was registering prior to the event. Over its four-month run, the series attracted more than 27,000 registrants from across the globe. The co-hosts succeeded very well at curating informative lectures that were also entertaining and engaged the participants listening in.

If you missed the webinars presented to date, you'll find an index of them on **Galopim de Carvalho's** website, with a link to his youtube channel, where you can watch at your leasure. They run between about 60 and 75 minutes. There is a gem theme or topic specialty covered in this series that is likely to pique the interest of virtually anyone who loves gem. (My personal favorite was **Jack Ogden's** talk on the early history of diamonds, which was based on his excellent 2018 book, *Diamonds: An Early History of the King of Gems.*)

For more information, visit:

https://www.ruigalopim.com/home-gemmology

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Rui Galopim de Carvalho, FGA, DGA, has dedicated much of his career to producing educational content on gems and gemology. He brings together an interesting blend of information on the science, technology, history and artistry of gems and jewelry. Check out his wonderful posts at: www.facebook.com/ruigalopimdecarvalho/

GIA offers some wonderful educational resources online on gemology-related topics. Here are a few:

- Knowledge Session webinars
- Knowledge Rocks mailing list
- GemKids Program
- GIA's Field Gemology Program

GIA Knowledge Session webinars

A series of talks and seminars on gemology-related topics including gemstone origin, laboratory-grown stones and new discoveries in field gemology. Webinars are presented by GIA field gemologists, educators and research scientists.

Sessions are free and open to the public
Registration in advance is required
www.gia.edu/knowledge-sessions-webinar

Two webinars on the topic of diamonds are scheduled for the month of September. On the 17th, **GIA's** colored diamond specialist **Dr. Sally Eaton-Magaña** will give a presentation on "Natural Pink Diamonds," and on the 24th **Dr. Evan Smith** will present "The History of Diamond Cutting and Polishing Technology." Both start at 10AM PDT.

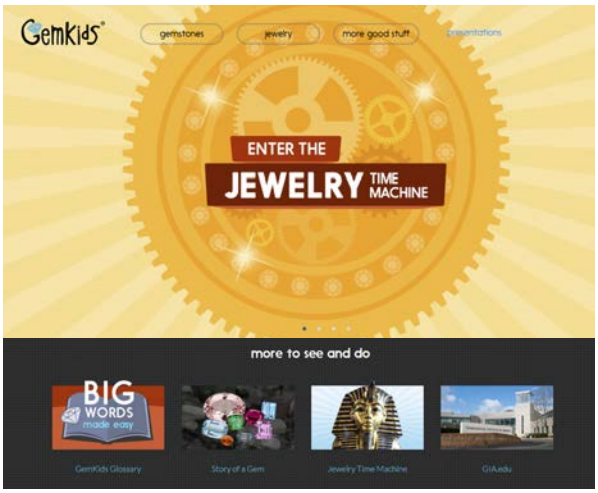
Past **GIA Knowledge Sessions** are available to watch online. The topics are fascinating and varied, so there is bound to be a webinar in this growing educational treasure trove that will appeal to the specific interests or curiosity of students, professionals and enthusiastic amateurs alike. Visit the URL above to browse the webinar archive.

Subscribe to **GIA's Knowledge Rocks** to receive emails containing nuggets of wisdom about gems, jewelry and field gemology. Sign up at:

www.gia.edu/subscribe-knowledge-rocks

GIA's GemKids Program is designed to introduce children to the fascinating subject of gemology and stimulate their curiosity about gems and minerals – where they come from, how they are formed, their varied uses and meaning throughout human history, and how they have been incorporated into making jewelry and decorative arts. Check it out at:

https://gemkids.gia.edu



GIA's award-winning journal *Gems & Gemology* features articles based on field gemology as part of a program established in 2008 to develop the institute's research into the geographic origin determination of gemstones and characterization of gems from newly discovered sources.

Expeditions are led by **GIA** staff, and the published results of their work provide not only new and useful scientific information on gems of the region, but also offer historical context and contemporary perspective on the cultural and economic significance of mining for local communities. *G&G* articles are available on the **GIA** website, free-of-charge. An excellent selection of articles based on **GIA's** field expeditions can be found at: https://www.gia.edu/research/articles-research-field-gemology

In Memoriam: Claren ("Si") Frazier (1933–2020)

*by Dona Lee Leicht**

WHEN NEWS REACHED ME about the passing of Si Frazier, well, all I could do was sigh. When you realize that a well-respected man within the mineral community has departed the scene, a long, long sigh is a natural response after screaming "Oh, no!"

All of us had been used to seeing Si, along with his wife, Ann, at almost every major mineral event. At this year's Tucson Show his absence was noted by many. In recent years Si had been noticeably showing signs of his declining health. He had been in a hospital and care facility since early January and passed on 25 February 2020.

I often wondered how his given name of Claren ended up as "Si" for most of his life. It appears to be one of life's little quirks. We know that his grandfather was named Silas—his father was also a Claren—a popular country-western song with lots of references to "Si" may have played a part, but in the end junior Claren was "Si" for the rest of his life, and no one argued the point.

Si's parents, Claren and Loraine Frazier, owned a ranch in Sonoma, California. During explorations around the area Si discovered some quartz crystals, and his future path was almost predestined. The area was also prolific with Indian arrowheads, and Si said that it was the jasper Miwok Indian arrowheads that he collected that were still among his favorite pieces.

When his parents relocated in Susanville where both worked for the Naval Ordinance Station, Si was moved into the city of Berkeley to live with his uncle while he attended middle and high schools.

Photo: Rock Currier.

Scott Williams (another of the famous faces in the mineral world) operated Minerals Unlimited on Durant Avenue in Berkeley, and thirteen-year-old Si became Scott's first part-time employee! Yes, by his early teens Si was already well versed in mineralogy.

Si entered the University of California, Berkeley, where a degree in geology was probably a walk in the park for the young mineralogist. (Yes, I would call him that well before the degree.) During those years he met a fellow student who was studying anthropology. Si married Ann Talburt in September 1961. At the university Si was in the Air Force ROTC—that tidbit surprised me. I just could not picture him in a uniform. Back in the day, there was such a thing as the draft, and in 1956 Si was drafted into the army. After his stint in the service, he joined the Naval Reserve.

Dona Lee Leicht and her husband, **Wayne**, have owned and operated Kristalle in Laguna Beach, California, since 1974. This article is reproduced by permission of the author; it originally appeared in the June 2020 issues of *Rocks & Minerals,* 95(4), pp. 383–384.

Now that I have the vision, which uniform did he look the best wearing? I asked Ann, but she never saw him in uniform!

Scott Williams sold the business in 1954 and moved to Arizona where Minerals Unlimited continued, as did Si, under Ralph Merrill. After graduation from Berkeley (Si in 1960 and Ann in 1961), they spent an entire year traveling around Europe in a 1952 Volkswagon "bug"; they remembered that year as one of the best of their lives. And, of course, they were gathering rocks and minerals along the way (about 7 tons!). Si had by this time convinced Ann that collecting rocks was way more fun than collecting pot shards—and there went the career as an archeologist; but, as Ann was to discover, collecting those rocks really was fun! Upon returning from Europe, Si enrolled for a master's degree and began teaching (geology, mineralogy, crystallography, ore geology, and petrography) at San Francisco State University.

Minerals Unlimited had moved back to Berkeley, and in 1964 Si and Ann purchased the business, placing an emphasis on gemstones and jewelers' supplies. Si was still teaching, but by 1971 the store was doing so well that he quit. They began to travel to acquire gemstones and gem carvings from Idar-Oberstein for the store, as well as minerals and books. Europe had always been their favorite destination, and Si said he had little desire to drift into Africa or South America. In 1980 they closed the store and concentrated on selling at shows and doing part-time teaching at schools such as San Francisco City College, College of Marin, Oakland Technical High School, Revere Academy of Jewelry Arts, and the Berkeley extension. As if this weren't enough, he also gave lectures to various societies around the world.

Those first pieces of quartz Si found as a young boy would come to be the focus of a life-long writing project on quartz—the mineral and the gem. In just a matter of years the Fraziers built a personal collection of quartz, agate, jaspers, and books—anything with that quartz connection. A great disappointment is that this epic work was not completed. In between, however, Si and Ann wrote more than two hundred

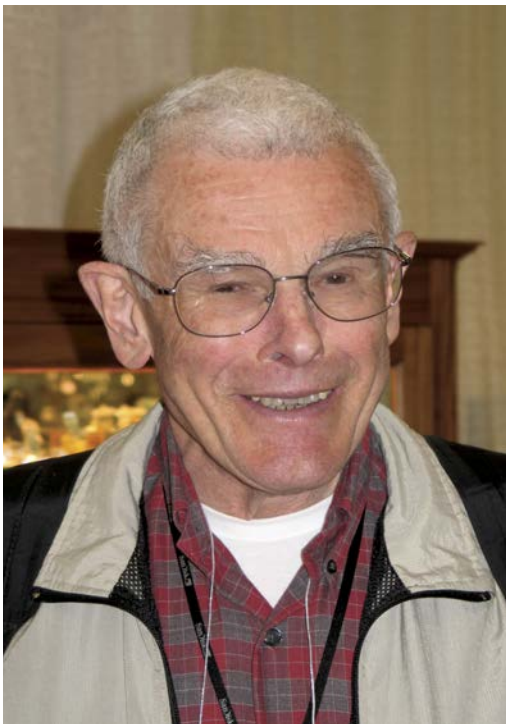


Photo: Wendell Wilson.

articles for periodicals such as *Lapidary Journal, Rocks & Minerals, Gems and Gemology,* and many more.

Each year the Sinkankas Symposium is held at the GIA headquarters in Carlsbad, California. Each symposium has a central theme, and the Fraziers articles were included in the annual programs. John Sinkankas was a huge mentor for Si, and I can only imagine their conversations about minerals and rare books. The $2 copy of Dana's second edition Si bought in the early days turned into one of his collecting interests that eventually took over just about every room in their apartments. The $500 they paid for a first edition Dana years later pushed Si into the "serious antiquarian book collector" category. John also taught Ann bookbinding, which, considering the depth of the book collection, was a handy skill.

The 2020 Sinkankas Symposium was scheduled for this past May, with Agates and Chalcedony as the topic. The entire program was to have been dedicated to Si and Ann Frazier. Unfortunately, like so many events, the symposium was cancelled because of the coronavirus.

The number of professional organizations of which Si was a member is impressive: Mineralogical Society of America, Gemological Association of Great Britain, the German Gemological Association, Friends of Mineralogy, and numerous local and U.S. societies. When the Geo-Literary Society was formed in the 1980s, Si became a member and was eventually president. The society still meets once a year in Tucson. Si was a past director of the American Gem and Mineral Dealers Association, which was news to me because I never knew it existed.

Si and Ann. Photo: Jim Parrish.

Was Si a collector possessed? I'm sure he would have laughed and admitted to it. We are back to those pesky silica minerals, and the Fraziers' personal collection is abundant in agate and jasper. His favorite agate was the iris agate found in the Berkeley Hills.

A 1952 article in *American Mineralogist* by Dr. Francis T. Jones about iris agates so intrigued Si that he followed all of Dr. Jones' (Stevens Institute of Technology, New Jersey) writings until the professor died at age ninety. Part of their extensive quartz collection is cut agates, jasper, and other quartz varieties. Si tried to compile a complete history, locality, and additional notes about each piece. This alone is a major task that took years of work and is ongoing.

And then there is the actual quartz collection, which is huge but the flats and drawers are arranged by type, locality, habit, inclusions, and just about any other thing about that particular crystal—with all handwritten labels! You get the picture now? Si sitting among his thousands of books, examining every quartz specimen, writing labels and notes, perhaps enjoying a cup of tea (or more likely a latte) —an 1850 library scene recreated in their not-too-modern condo.

In earlier days Si could be found behind the saw cutting agate slabs, an activity that was almost mindless but gave him enormous enjoyment. All connections to the lapidary equipment were severed after a move to a high-rise apartment. (I can see that the neighbors would have little patience with the sound of a cutting saw.)

And so went the life of Si Frazier, with Ann by his side for nearly sixty years. I have never heard a bad word about Si. He was so eager to share his knowledge, loved talking to collectors who showed a genuine interest, and enjoyed visiting with old friends at shows and being surrounded at home by the books and specimens he devoted his life to acquiring. There was not a day that Si failed to learn something new about mineralogy or rare books. He had no unbearable ego about just how important he was within the mineral world. That alone was deserving of the affection and love that we had for Si. He was a mentor to so many young collectors, many of whom I have talked with during this writing. That almost hidden sly sense of humor, his infinite patience, and his intense interest that never waned—Si, you are one for the ages. How lucky we all are to have known you; and that makes saying goodbye so hard. We won't forget …

Quartz as Diamond

*Si and Ann Frazier**

SURELY EVERYBODY AGREES that quartz is not diamond, or at least now, in 2011, they should. In the historical past, however, there was a definite convergence, at least enough to give grounds for certain confusions, not to mention opportunities for charlatans to work their special magic on the credulous. One can perhaps understand, however, that in the distant past, before the advent of modern sciences like chemistry, physics, mineralogy, and especially gemology, there was plenty of room for actual, honest confusion.

The English word adamantine is derived from the Greek *adamas,* meaning "invincible" or "unconquerable." This term first appeared in the fragmentary treatise written by Theophrastus around 315–305 BC, *Peri Lithon (On Stones),* the oldest surviving scientific classification of gemstones in western literature. Pliny the Elder (AD 2379), the 1st century Roman encyclopaedist, also listed *adamas* among the gemstones known in his day. In the last volume of his *Natural History* (*NH* 37, AD 77), Pliny described six different varieties of *adamas,* one of which was certainly diamond and another that was rock crystal quartz. However, it is sometimes difficult to differentiate the gem Pliny meant in some passages: "There is the Indian, which is not formed in gold and has a certain affinity with rock-crystal, which it resembles in respect of its transparency and smooth faces meeting at six corners" (*NH* 37.56; translator D.E. Eichholz suggested Pliny might be trying to describe the crystalline structure of diamond). In another passage, there can be little doubt that Pliny was talking about quartz: "'adamas' is found likewise in Germany, namely on the island of Basilia, which also produces amber, and in preferring this 'adamas' to that of Arabia." (*NH* 37.61).

A properly cut and polished modern round brilliant diamond so unmistakably outshines a quartz imitation that seemingly no one could be mislead – or at least until the pavilion faces get coated with body oils, grease and cosmetics. That is why cleaning diamond jewelry can make such a pleasant and startling difference. The contrast between a rose-cut diamond and a rose-cut quartz is not as striking, however. This is also true for many of the early diamond cuts. When reading the older jewelry histories one becomes aware that it was not always so easy to spot the difference between a cut diamond and a similarly cut quartz, which gives some reason not to quickly disparage our ancestors, even if by our lights they appear sometimes rather ignorant. Do not even try to think about the opinions our great grandkids may form about us.

There are many reasons why some particular quartz crystal occurrences have been dubbed "X locality diamond." One of the best-known examples are the famous, and very beautiful Herkimer diamonds found in a number of localities in upstate New York. They have been collected for centuries. Because we are quartz collectors, we decided to see how many quartz crystals occurrences we could find that have earned this sobriquet. We have also tried to obtain specimens, or at least information, about as many as possible. This quest has encountered many difficulties. It is surprising how difficult some quartz "diamonds" are to acquire, or even see. We can make a few rather shaky generalizations, however.

Most of the accessible "classic" "quartz diamonds" are small, colorless, well-formed, very transparent, and have very lustrous faces. The vast majority are formed in cavities in carbonate rich, sedimentary rocks, especially calcareous sedimentary rocks.

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Notable exceptions would include occurrences in salt or gypsum, where the crystals apparently grew as porphyroblasts in the weak host. The best examples we have are seen in the "Pecos diamonds" of New Mexico, which are hosted by gypsum, and also similar crystals called "Mari diamonds" (which "see"); they occur in the Salt Range in Punjab Province, Pakistan (Alam and Khan 1982: 8).

The only examples we have ever been able to see of these are a small boxful in a drawer in the Natural History Museum, London, but the "Pecos diamonds" are easily collected on a long stretch of the Pecos River Valley in New Mexico. The "Pecos diamonds" slowly formed as complete (euhedral) crystals in massive, crystalline gypsum, which is soft enough that the growing quartz crystal could push the gypsum aside so that it could form a complete crystal bounded on all sides by its natural crystal faces.

The "Mari diamonds" formed in a massive halite (salt) which is also very soft, again, allowing the quartz crystals to form compete "floater" crystals with lustrous "diamond-like") crystal faces. Historically, small bipyramidal crystals of quartz known locally as "Mari Diamonds" were found in the gypsum at Kalabagh, Sardi, and Mari, in the Bannu District of Punjab Province, now part of the Khyber Pakhtunkhwa Province, Pakistan (Ball 1881: 452, 503).

Below is a partial list of the "quartz as diamond" terms with locality and other data that we have found. Unfortunately, the complete list was considerably longer, but printing it in total was not feasible. Anyone interested further should contact us directly.

Quartz as Diamond

Alaska diamond. This term is repeated in many gem reference books as being a misnomer for rock crystal.

Alençon Diamond. Most modern literary references define this term as a misnomer for rock crystal from Alençon, a town in northeastern France in the Basse-Normandie (lower Normandy) region. Most modern reference books simply equate Alençon diamond with rock crystal. Bauer and Schlossmacher 1932: 661), however, say that smoky quartz is found in the gravels at Alençon; Burnham (1886: 365) states categorically that "diamond of Alençon is cairngorm." Newman (l981: 15) defines Alençon diamond as "a type of brilliant smoky quartz" and that such stones were used on the Norman Cross. The Norman Cross is a type of locally made silver or gold cross formerly made and worn in Normandy. Newman (l981: 261) also states: "the type used near St. Lô [of WWII fame] and Caen has five high bosses (raised protrusions), one on each limb of the cross and one at the center, all set with foiled Alençon diamonds cut as brilliants."

The faceted quartzes were usually referred to by the French as Diamant Caillou or Pierre d'Alencon. Peasant jewelry ceased to be worn in Normandy about 1840, when wearing native costume was given up (Smith 1908: 343).

Arabian diamond. This term, which appears in many gem reference works, may refer to the rock crystal known as Quisumah "diamonds" (which "see"), and also Khasumi "diamonds," both of which are found as frosted pebbles of clear quartz, and apparently, are still collected and sent to the Orient for faceting, then sold in Saudi Arabia (Munday, 1984: 1242). Quisumah, Quasuma, and Khasumi "diamonds" (all of which "see") are all terms under which quartz from Saudi Arabia has been offered in recent years.

Perhaps Arabian "diamonds" were real diamonds from India traded through Arabia to the Roman world. Perhaps, and more probably, they were pebbles of very clear quartz.

Arkansas diamond. A particularly poor term when applied to quartz, because Arkansas is site of the most famous real diamond mine in the United States. The Arkansas Diamond is also the name given to a 27.21 carat diamond found on a farm near Searcy, Arkansas in 1926. It is owned by Tiffany and Co., the famous New York jewelry firm, which has preserved it in its natural state.

Baffa diamond. Ball (l950: 250) presents convincing evidence that Baffa "diamonds" were actually from Cyprus. He writes, "Morysons in his Itinerary (AD 1596; p. 458) states, regarding the rock crystal of Cyprus, called 'Diamonds of Baffa' and less

commonly 'Paphian diamonds'...that adamante are found which skilful jewelers repute almost as precious as the Oriental." He goes on to quote Richard Pococke (1745: 589): "regarding the 'Baffa diamonds'...it seems rather to exceed the Bristos and Kerry stones, both examples of rock crystal."

Bastard diamond. According to Embrey and Symes (1987: 63), the 1681 catalogue of the Royal Society's collection by Nehemiah contained an entry of "bastard-diamonds," of which "the Cornish are the best." Cornish diamonds are, of course, quartz.

Bornholm diamond. Quartz crystals found in concretions in Mergel (= marl) of Laesaa and Olenaal, Bornholm, Denmark (Strubel and Zimmer, 1990). Bornholm is a large island that is part of Denmark; it lies in the Baltic Sea, south of Sweden.

Briançon-Diamond. According to Jameson (l820: 193), there was "formerly a manufactory, where the rock crystal of Dauphiny [sic] was worked into ornaments for chandeliers." Briançon is 48 miles southeast of Grenoble in the Hautes-Alps (High Alps) Department, southeast France.

Apparently, the quartz cut in Briançon was obtained from the very famous locality at La Gardette, near Bourg d'Oisans, in Isère. The quartz crystals occurred in veins that were mined for gold. The quartz crystals from this deposit were cut at least as early as the 17th century.

Bristol diamond. Quartz crystals occurring in geodes reminiscent of those from the vicinity of Keokuk, Iowa, have been known for centuries from the Mendip Hills, Somersetshire, England. They have been known for so long, in fact, that they apparently account for the earliest known use of the word "quartz" in the English language. Frondel (1962: 249), in his fine and exhaustive treatise on the silica minerals, states: "the earliest known mention of quartz was in 1632, in the second edition of 'Jordan's A Discourse of Natural Bathes and Mineral Water'," which he quotes, "there are also certain stones which we call fluores, which doe naturally shoot in divers forms; as christall six squares sparr, which the Dutch [Germans] call Sput or Quertz." Nicols (1652: 44) cites "small, common... Gemms" that are hard being examples of "Bristol diamonds or the pseudo-diamonds of Hungary."

Like the "Alençon diamonds" (see above), it is well-established that Bristol diamonds were often cut in forms such as the rose cut to imitate diamond. Dame Joan Evans (l953: 166) cites rose-cut "crystals from Bristow – 'the Bristowes brave and bright' [not referenced] - that adorn English and Flemish jewels of the early 18th century." The reference is possibly to Lenton's Young Gallant's Whirligigg (1629), where a "fop" is described with the following lines:

"Haire's curl'd, eares pearl'd with Bristows brave and bright.
Bought for true diamonds in his false sight."

According to H. Clifford Smith (1908: 235), the custom of wearing a single earring was widely followed in England before the Restoration. Apparently, the use of "Bristow diamonds" as a diamond or to imitate a diamond extended to rings. Smith asserts that the love of ostentatious display of jewels by both sexes extended to the practice of wearing so many rings that they were worn both on top of gloves and under the gloves. In the latter case, there were gloves specially made with slits for the rings to show through. Smith quotes the following lines from Bishop Hall (Satires iii, iv), concerning this fashion:

"Nor can good Myson wear on his left hond,
A signet ring of Bristol diamond,
But he must cut his glove to show his pride,
That his trim jewel might better be spy'd"

Buxton diamond. These are found at "Diamond Hill," Counters Cliff, Buxton, in Derbyshire, England, and nearby localities.

Cape May diamond. This is very famous, and the locality has been visited by untold numbers of collectorsm including Abraham Lincoln, who visited the locality at least twice during the Civil War (*Gems & Minerals,* 1976). Presumably, the locality was discovered in 1790 by a Philadelphia jeweler, who thought he had discovered real diamonds (*Lapidary Journal,* 1954). There are numerous instances of unscrupulous people attempting to pass off these clear, limpid quartz pebbles as real diamonds to the

unwary. Such chicanery has not been restricted to attempting to pass off quartz as diamonds. In 1961, the Gemological Institute of America (GIA) identifed some faceted "Cape May diamonds" as colorless synthetic spinel (Lapidary Reporter, 1961). Some kind of nadir is reached by the attempt to pass off plastic or glass imitations for real "Cape May diamonds," which are actually water-worn pebbles of very clear rock crystal quartz.

Carrara diamond. Sharp, lustrous, well-formed, clear and limpid quartz crystals found in solution cavities in the fine-grained and much-esteemed white marble long mined for statuary and building ornamentation at Carrara, Tuscany, Italy. Specimens of these crystal on matrix are much coveted as fine (and expensive) mineral specimens.

Clear Lake diamonds. See: Lake County diamond

Colorado diamond. The origin of this inappropriate and misleading term for smoky quartz from Colorado is perplexing. It seems to suddenly appear, without citation in the glossary of gem terms in Volume 2 of *Gems,* by Webster (1962: 754), and thereafter was picked up and cited without attribution in various gem reference works published in England and the continent.

Cornish diamond. This is an ancient term for rock crystal, appearing as early as 1632 (see Bristol diamonds for the full quotation). Curiously, it seems not to have been mentioned in the rather thorough work of T. Nicols, in 1652.

Robert Boyle, the most famous scientist of his time, mentions "Cornish diamonds" and refers to a "fair and large one, which one that knew not what it was found growing with many lesser in Ireland and presented me" (1972: 10). This passage would seem to indicate that in the 17th century "Cornish diamond" was a generic term referring to certain types of quartz crystals.

There are numerous occurrences of quartz crystals in the veins of the famous old mines of the Cornish peninsula. A number of excellent specimens were to be seen in the systematic display of the Natural History Museum, London, formerly known as the British Museum (Natural History).

Cyprian adamas. Quartz crystals from Cyprus, classified with other diamonds (adamas) by Pliny the Elder (NH 37.58).

Dauphiné diamond. The Dauphiné region in southeast France is famous for its deposits of fine quartz crystals. The occurrence at La Gardette, near Bourg-D'Oisans, is especially famous. See Briançon diamond above for a discussion of the lapidary usage of these crystals. The earliest use for this term appears to be Schaller (1917: 152), who dropped the acute accent on the terminal e.

Fleurus diamond. According to Manutchehr-Danai (2005: 312), this is a misleading term for quartz found in southwestern Belgium and used as a diamond simulant. The earliest use of the term we have found in English was in the list published by Schaller in 1917.

Harrogate diamond. Quartz from the vicinity of Harrogate, West Yorkshire, England. H. Clifford Smith (1908: 257) says that "Harrogate diamonds" as well as "Cornish diamonds" (which "see") were "much employed in jewellry from the sixteenth century."

Herkimer diamond. These are the most famous of all quartz diamonds. They are sharp, very sparkly, clear crystals found in solution cavities in lower Paleozoic dolostones. There is no record of who first observed these beautiful crystals, but it was undoubtedly the Mohawk Indians who inhabited the vicinity. According to W. Ulrich (1989: 109), at "nearby Stone Arabia [Montgomery Co.], arrowheads fashioned from quartz crystals have been excavated from Indian burial mounds." S. Ball's very thorough work on the mining and use of gem materials by Native American Indians does not mention them specifically but does say that "near the village of Lansingburgh [Rensselaer Co.], New York, is Diamond Rock, a mass of Quebec sandstone [an ill-defined lower Paleozoic unit, see: Wilmarth, 1938: 1552] containing innumerable quartz crystals which glitter in the sunlight. According to Mohawk tradition, these are the joyful tears of a devoted mother upon her reunion with a wandering son" (Ball, 1941: 32). Since the American Indian was always very acutely aware of all aspects of his

environment, we find it hard to believe that more use was not made of these widespread and intriguing crystals by Native Americans.

That the quartz crystals probably attracted the attention of the early settlers goes without question, especially since most of the early settlers in the Herkimer area were from the Rhineland part of Germany. There they would very probably have been aware of rock crystal and its uses, since water-worn pieces of rock crystal (Rhinekiesel or rhine-stones in the earliest sense of the word) had been collected from the gravels of the Rhine river for centuries. That they had value would very probably have been known, since cutting rock crystal was practiced at a very early time at Freiburg, in Bresgau, on the eastern side of the Rhine-graben. In spite of all this "probability," we can find no historical records that indicate that the early German settlers did anything with these abundant and fascinating crystals.

The earliest reference that we can find dates to 1816, in the first mineralogy textbook written in the United States by Parker Cleaveland. He does not mention "Herkimer diamonds," nor the occurrences in Herkimer County, but he does mention "Limpid Quartz" being found " on an island in Lake George [Warren County] in very fine crystals." He credits this information to "Silliman" (Benjamin, 1779–1863, founder of the *American Journal of Science,* father-in-law to James Dwight Dana and grandfather of Edward Salisbury Dana). "Lake George diamonds" (which "see") are generally conceded to be essentially similar to "Herkimer diamonds."

In the second edition of his book (1822: 235), Cleaveland expands the description somewhat: "on the islands in Lake George, in very beautiful, transparent crystals, which are generally six-sided prisms, often with pyramidal terminations-these crystals, sometimes 5 inches long, occur loose or in cavities in a quartzy gangue;-also in the sands of West Canada Creek [which is a locality for "Herkimer diamonds"] in small six-sided prisms with pyramids." Again, this information was credited to Silliman. According to W. Ulrich:

> "[the] earliest written account of Herkimer quartz was printed in the *American Journal of Science* in 1819. Professor Benjamin Silliman of Yale University wrote; 'Limpid Quartz:- West Canada Creek, northern branch of the Mohawk, affords in its sands, small crystal of quartz, limpid and terminated at both ends by pyramids of six sides.'" (Ulrich, l989: 111)

A more detailed description appeared in 1823 in the *New York Medical and Physical Journal,* written by a certain Dr. James Hadley.

In 1837, James D. Dana, published the first important scientific reference work written by a native born American. In *A System of Mineralogy* he describes "Herkimer diamonds" without using the specific term "Herkimer":

> "small but remarkably clear and perfect crystals are found in various parts of the state of New York. At Middlefield...on the banks of the West Canada Co. [sic] they occur in calciferous sand rock, lying loose in large cavities, accompanied with a loose earth. Several hundred crystals are often obtained from a single cavity by pryring open the rocks where fissured. The crystals are occasionally smoky, and often contain anthracite [anthraxolite]; rarely cavities occur filled with a fluid. They vary in size from the head of a pin to a length of four to six inches. Several parts of the adjoining county are strewed [sic] with crystals, which are turned up and exposed to the view of the ploughman." (Dana, 1837: 342)

By the time the first mineralogy of New York state was published in 1842, the crystals were sufficiently well-known, so the author, L.C. Beck, published 27 drawings of crystals from the Herkimer region. These drawings were later re-published in Volume 7 of the opus, *Atlas of Crystal Forms* by Victor Goldschmidt (1913–1923).

Apparently, construction activity associated with the building of the Erie Canal turned up numerous fine specimens and excited a public interest that continues unabated to this day.

Herks. Rockhound's slang term for Herkimer diamond, which appears in numerous popular accounts.

Herscheimer diamond. The Gemmological Society of Great Britain, in its first-year gemology course (1977, Paper 10, 3), regarding nomenclature of quartz terms, warns: "not 'Herscheimer' or 'Herkimer diamonds.'" No further reference to this intriguing term could be found by the authors. Herscheimer, however, was the original German version of the Herkimer family name. Herkimer, New York, was named for the Revolutionary War hero, General Nicholas Herkimer (1728–1777). The Herscheimers belonged to a group of religious refugees from the Rhineland (German Palatinate) who settled above Little Falls after receiving a land grant in 1725 (Ulrich, 1989: 109).

Horatio diamond. This term was noted by Schaller (1917: 115) as referring to rock crystal from Arkansas. The derivation of the term is shrouded in mystery, and it has been repeated in many modern reference works, usually with the Arkansas connection dropped.

Irish diamond. This name has been around for a long time, appearing in Schaller's list (1917: 155). It is unclear as to what localities might be the source of the name. A long list of Irish quartz crystal localities was given by Greg and Lettsom (1858: 87–88). "Diamond" from Ireland was mentioned as early as the 17th century (Boyle, 1672: 10).

Isle of Wight diamond. An old term included in Schaller's list (1917: 155) and repeated in most more recent reference books as a synonym for rock crystal. Rice (1951) defined it as a "fine transparent variety of quartz."

Kaysumah diamond. "In Search of Kaysumah Diamonds in Saudi Arabia," an article by Hector Rochin, which appeared in the June 1991 newsletter of the California Federation of Mineral Societies, in turn, credited the term to an earlier society newsletter (January-February) published the same year. Mr. Rochin told of visiting Kaysumah, locating it "in northern Saudi Arabia, on the pipeline road where Saudi Arabia, Iraq, and Kuwait meet."

Rochin describes the locality as a "huge valley, where you find white camels, and you literally walk on fragmented quartz crystals for miles."

We have seen the terms "Khasumi," "Quisumah," and "Quasuma" diamond applied to quartz crystals from Saudi Arabia.

Khasumi diamond. Cognate variant of an Arabic word presumably applied to clear, colorless quartz pebbles found in Saudi Arabia. A clear, colorless slightly frosted, rounded quartz pebble slightly measuring over one inch was shown to us last year by a worker recently returned from Saudi Arabia. He stated that the pebbles were highly prized and were often sent to lapidaries for cutting and polishing. His pebble had come from the Kuwait/Saudi border. See Also: Qaisumah diamond.

Lake County diamond. In the far West, these are perhaps the most famous quartz "diamonds" of all. They are very different in appearance from "Herkimer diamonds" and most other quartz diamonds. Most striking is that although most other quartz "diamonds" around the world are characterized by sharp, sparkling crystal faces, "Lake County diamonds" show no crystal faces at all! We have seen literally thousands of these little beauties and have never seen one that showed what could be construed even remotely as exhibiting a crystal face. Each one is a little "nugget" bounded by very irregular curved surfaces. The are mostly found as loose fragments in soil and other debris in the fields and ridges in certain areas in southern Lake County, California. Although the loose "Lake County diamonds" are very familiar to California collectors and lapidaries, matrix specimens are rather difficult to obtain.

Despite many reports to the contrary in the literature, "Lake County diamonds" do not occur as crystals in vugs in the host rock. They occur as irregular, glassy blobs of ordinary "Alpha" quartz in a fine-grained, compact basalt (lava). Every first-year geology student knows that quartz should not occur in basalt. In a certain geochemical sense basalt, is the antithesis of quartz. Petrographers usually classify igneous rocks primarily on the basis of the amount of silica they contain. Basalt has so little silica in it that even if free silica were to come into contact with molten rock of basaltic composition, it would immediately begin to

react and form new minerals until all of the quartz was consumed by the formation of new silicate minerals.

Those few instances where free silica (quartz) has been found in basalts have provided a fertile field for petrographers and petrologists to produce many learned papers. In the case of the "Lake County diamonds," one of Americas great geologists Charles A. Anderson, while a graduate student at the University of California, Berkeley, found and studied the basalt flows in which these unusual quartz specimens occurred – apparently in defiance of the basic rules of geochemistry. Anderson showed that the geochemical rules had not been broken, but were only bent a bit. The quartz blobs were actually xenoliths (foreign inclusions in an igneous rock) of quartz broken off from a sedimentary formation containing quartz by the basalt magma on its way to the surface.

Basalt is virtually the highest temperature of all lavas and easily fused the quartz-rich sandstone and quartz or chert pebbles into a pure quartz glass, which then, when the temperature was low enough, crystallized as beta-quartz (high temperature quartz). At about 573°C the high-temperature quartz inverted to ordinary low-temperature alpha-quartz, which is what the "Lake County diamonds" actually are now.

The sequence of change is basically the same as the irregularly shaped blobs of ordinary crystalline quartz found in granite and other silica-rich igneous rocks where the quartz first formed as beta quartz, and then, at lower temperatures, inverted to alpha quartz. The only big difference is that some of the blobs of quartz found as "Lake County diamonds" were relatively large. The Bob Duncan collection contains several examples which are as much as 2 to 3 inches in diameter; although, most "Lake County diamonds" are much smaller.

Under most circumstances, basalt breaks down chemically under weathering conditions, many, many times faster than does quartz. Hence these blobs of quartz caught up in the lava weather out of the basalt and accumulate on the surface, where rockhounds can collect them.

"Lake County diamonds" are excellent for faceting small colorless stones. When cut at the proper angles, a large crown and small table can show enough dispersion ("fire") to make them very diamond-like indeed. Finding pieces to cut a stone that weighs more than 3 or 4 carats is generally quite difficult, but rough material for smaller stones abounds.

Many collectors and lapidaries are convinced that "Lake County diamonds" are significantly harder than other quartz varieties, but there seems to be little to support this belief except that hardness tests are notoriously inaccurate and misleading, especially when attempted with sharp edges and a strong wish to believe.

The most highly prized "Lake County diamonds" are those rare stones showing a slight lavender shade. We have never seen a strong amethyst shade and would love to see someone experiment with the effects of radiation on inducing a more pronounced amethyst color in "Lake County diamonds."

Lake George diamond. Named for Lake George, Warren County, New York where quartz crystals similar to the better-known "Herkimer diamonds" occur in solution cavities in lower Paleozoic dolostones and dolomitic limestones.

As early as the last century (Burnham, 1886: 353) the public was being warned that '"Lake George diamonds' are frequently counterfeited by glass and pastes."

Lancaster diamond. Local name for quartz crystals found at the Pequea silver mines in Lancaster County, Pennsylvania.

Latin diamond. A trade name sometimes used in the metaphysical mineral trade for the amethyst crystals recently found in lithophysae, in Mexico.

Lippische diamond. Quartz crystals found in solution cavities in marlstone belonging to the middle Keuper (Upper Triassic), near Vlotho in Lower Saxony, in Germany. See also: Schaumberger diamond.

Little Fall's diamond. "Herkimer diamond" -type quartz crystals found in the vicinity of Little Falls, Herkimer County, New York. The name is not derived from the town but rather from the Upper Cambrian

Little Falls dolomite in which the crystals are found in solution cavities.

Maramures diamant (= Marmuras diamond, German). Name used by Czechoslovakian mineral collectors selling mineral specimens in Germany; the term applies to small, sparkling quartz crystals from Herja (formerly Kisbanya), in what is now Romania but was formerly Hungary (before WWI). It is not clear whether or not these crystals were being confused with the better known "Marmarosch diamonds" (which "see").

Mari diamond. Their occurrence was described by Valentin Ball (1881: 452, 503) and Thomas Henry Holland (1891). They both observed that the crystals were embedded in gypsum in deposits located near Mari, at the western end of the Salt Range; Kálábágh, on the west side of the Indus, in Punjab Province (now in modern Pakistan); and at Sardi, Kusak and Katha in the Salt Range. Holland wrote: "They weather out from their soft and partly soluble matrix in a manner which at once arrests the attention of the observer from the brilliant luster of the crystal faces." Under the microscope Holland found that they contained numerous inclusions of colorless anhydrite (See also: Alam and Khan 1982: 8). Ball also observed that they could be found as small bi-pyramidal crystals.

"Mari diamonds" are another example of an occurrence of quartz crystals which is famous and frequently cited in the literature but is seldom seen in collections. The only specimens that we have seen were in the systematic collection of the Museum of Natural History, London. They looked very, very similar to "Pecos diamonds" (which "see").

Several authors including Pascoe (1930) reported that these quartz crystals were used locally for making necklaces and other decorative objects.

Marmarosch diamond. These are certainly among the most famous and frequently cited of all "quartz diamonds. They are, however, remarkably scarce in museum or private collections. In fact, even though we have gone through the quartz part of the systematic collections of most of the more important museums in Europe and North America as well as many private collections, we have seen very few specimens from this famous locality and have, unfortunately, not been able to obtain a specimen for our own collection.

The source(s) of these famous crystals is among the most well-traveled of any mineral locality that we have ever heard of. In recent times the locality for Marmarosch diamonds has been associated with with no fewer than four different countries! Not even the most enthusiastic supporters of continental drift ordinarily would dare claim such travel experience for a single mineral locality. As might be expected, politics rather than geology explains the travels of this peripatetic locality. The four nations under whose flag notable crystal specimens occur include the following:

Poland. Marmarosch diamonds have been described from Galicia. The province of Galicia has found itself or parts of itself over the years in both Poland and the Ukraine. To make it even more interesting ,upon on the insistence of Russia in 1945, Ukraine was accorded nation status by the United Nations.

Hungary. The pre-WWI authorities almost unanimously place the locality in the Marmaros Comitat (or Komitat, in German). We have not been able to find a formal definition of a Hungarian Comitat, but apparently it was an administrative unit about the size and importance of a county in the U.S. or England.

Romania. Apparently, the area of the Marmaros Comitat was transferred to Romania after WWI. Maramures is listed in the authoritative *Webster's New Geographical Dictionary* (1988) as one of the 41 counties (judet) in present-day Romania.

Russia. At the end of WWII, a strip of land in the Carpathians was ceded to Russia by Romania, apparently to ensure that the Carpathians could not be used as a barrier to Russian armaments, if they wanted to position themselves on the better tank terrain on the Romanian side of the Carpathians. This territory apparently includes at least part of the localities for "Marmarosch diamonds."

Although "Marmarosch diamonds" are frequently

mentioned in the literature, especially the older literature, the only specific locality that we could find mentioned in general descriptive gem or mineral books was given by Bocsko as: "in the Marmaroschen Comitat" (in translation, Kluge 1860: 371).

In that most exhaustive work, *Der Handbuch der Mineralogie* by Carl Hintze, "Marmaroscher Diamanten" are described [in translation] as "mostly water-clear, also brownish-yellow and light-blue crystals showing the prism, positive rhombohedron, and negative rhombohedron (Hintze, 1915: 1377). They range in size between that of the head of a stick-pin and a hazel-nut. They are found principally on the border of Máramaros next to Galizia. They are found loose, particularly in the region above Vereczke. The southern border of the regions runs roughly through Laturka, Verbias, Timsor, and Volocz, then to the northwest in the mountains forming the border with Galicia to above Laturka. It then continues in a southeast direction from Vereczke in the Carpathian valley of the Máramaros [stream] through Ökörmezö, Királigmezö (Königsfeld) and Bocskó, by Szigeth. They originate in cavities in the Carpathian sandstone [usually referred to as Flysch in more recent publications]. The cavities also contain calcite crystals.

"Other localities are to the west between Zboro and Graab, east of Altendorf in the Folvorker valley and near Landok and also near Leszna and Majer and near Lipnik" (Hintz, 1915: 1377).

With all the variant spellings and other linguistic problems, we have rather arbitrarily chosen "Marmarosch diamonds" from among the many possibilities. We base our choice on the simple observation that this is the form that appears most frequently in the mineralogical literature and, therefore, should cause the least confusion.

Synonymy: Dragonite. This term traces back to at least as early as Pliny the Elder's *dragonitis* (*NH* 37.158), and probably well before. It derives from the long-held belief that the stone was only obtained from the forehead of a still-living dragon. Apparently various stones and fossils were identified as being dragonite and, therefore, possessing the various amazing metaphysical powers attributed to that stone. It is mentioned in many early mineralogy books. For instance, the very fine descriptive mineralogy book by Valere de Bomare describes it as follows: "Draconites or la pierre de dragon is as astroïte [sic] converted into spar or silex. One is indebted to fables for the story of the origin of this stone" (1774: 503).

Merthyr diamond. In the English hobby magazine *Gems,* an article by R.S.W. Braithwaite gives a description of this gem:

> "...and the rare and beautiful golden needles of millerite which occur in clay-ironstone concretions associated with certain coal seams in the South Wales coalfield e.g. near Merthyr Tydvil, Porth and Trcharris. The 'Merthyr diamonds' from these same concretions are very clear quartz crystals." (Braithwaite, 1971: 7)

Mexican diamond. The earliest reference that we can find to this term is given by Webster (1962: 758), where it is simply defined as rock crystal. Chudoba and Gübelin (1974: 100) define the German term mexikanischer Diamant as an incorrect name for rock crystal from Mexico. Over many years of dealing with Mexican minerals and gems, we have never seen this term used, even though it appears in most modern gemological dictionaries.

Mirabeau diamond. Very beautiful, sparkling, clear quartz crystals somewhat reminiscent of "Herkimer diamonds" are sparingly found lining contraction cracks in septarian nodules from the vicinity of Ramuzat, in France. The concretions are found in Oxfordian (Upper Jurassic) marine sediments. Associated minerals sometimes include calcite, celestite, barite and dolomite as primary minerals formed contemporaneously with the quartz crystals and with pyrite, goethite, gypsum and strontianite forming somewhat later.

Mock diamond. This term is given as a synonym for pseudo-adamandes [=pseudo-diamond] by Bristow (1861: 302), who defines it as "a name for Cornish Diamonds, and similar limpid Rock Crystal from other localities." The term is not encountered in modern works. M. Landrin (1864: 355), however,

defines pseudamantes as a simulant for diamond or other precious stones ("pierres artificielles qui imitent les pierres precieuses naturelles").

Mutzschen diamond. "Mutzschen diamond" or "mutzschener Diamant" in German apparently refers to rock crystal from Mutzchen in Saxony (formerly East Germany) (Chudoba and Gübelin, 1974: 103).

Oaxacan Diamond. A trade term used by some contemporary dealers selling to the metaphysical market, applied to crystals that resemble "Herkimer diamonds"; sold as being from Oaxaca but in reality according to the late John Whitmire, one of the most knowledgeable dealers specializing in Mexican minerals, are actually from San Luis Potosi (J.C. Whitmire, pers. comm., 1988). The locality is apparently very prolific and produced many thousands of crystals in a very short time starting about 1986. The best specimens rival fine "Herkimer diamonds" in beauty and perfection, and like "Herkimer diamonds" have a simple crystal habit with a relatively short prism and show great clarity. Perhaps, even more frequently observed are black carbonaceous inclusions than seen in Herkimers, and very infrequently inclusions of a fluid that fluoresces brightly under long wave ultraviolet light. Matrix specimens are seldom seen, but they apparently occur in a limey sedimentary rock.

Synonymy: These crystals are also often referred to as Oacamers or Oaxacan quartz diamonds.

Occidental diamond. For many centuries Europeans believed that fine gems could only develop in the warm climates of the Far East. This idea is not too surprising, because from the time that Alexander the Great (Alexander III of Macedon, 356–323 BC) opened up the riches of the "East" (India and beyond) to the classical world, the gemstones of the East were treasured in the western world. Pliny the Elder, who died in AD 79, described many fine gems that came from the "East."

The idea gradually come into being that the Oriental gems were finer, perhaps because the climate of the Orient was much warmer than that of Europe (the Occident). It was thought this climatic difference led to greater hardness and beauty. This idea became implanted in the language used by 16th, 17th, 18th, and even 19th century jewelers. Thus, Oriental amethyst was what we would now identify as purple sapphire, whereas Occidental amethyst was the quartz variety, or even purple fluorite. Oriental emerald was green sapphire and Occidental emerald was the much softer and more fragile variety of beryl that we now know as emerald. Oriental topaz was yellow sapphire and Occidental topaz was topaz or citrine. Oriental diamond was diamond from India (the principle source) or Borneo, whereas Occidental diamond was rock crystal.

Some authorities professed to believe that with time and a warm enough climate, the Occidental varieties of gems could eventually mature into the more valuable Oriental ones. Even Robert Boyle (1627–1691), generally regarded as the world's leading scientist in his day, was sufficiently convinced of this difference in quality between Oriental and Occidental gems that he considered seriously the merit in the medical profession of his era using certain gems to cure ailments.

The use of the term right down to the 20th century is illustrated by W. Goodchild's statement in his excellent little gemology textbook *Precious Stones:* "speaking generally, when Rock Crystal is cut to simulate diamond, the word Occidental is prefixed" (Goodchild, l908: 150).

The term continues to appear in modern reference books. In German it is rendered as okzidentalischer Diamant.

Paphos diamond. Also rendered as Paphian diamond (Ball, 1950: 250) and as Paphros diamond, an apparent spelling error introduced by Webster (1962, Vol. 2: 790) and repeated in both the first and second editions of P. G. Read's *Dictionary of Gemmology* (1982: 153; l988: 169).

A number of authorities identify Paphos as an island off the coast of Cyprus, but Paphos is also an ancient city on the southwestern coast of Cyprus. There is an old Paphos and a newer one. The old Paphos (also called Paleopaphos) is located at Kouklia, about 20 miles west of Limasol, about a mile inland on the left

bank of the Diorizo river (the ancient Bocarus), the mouth of which formed its harbor.

> "In Hellenistic times the kingdom of Paphos was second only to Salamis (an important island in the Aegean Sea) in extent and influence... Paphos owes its ancient fame to the cult of the 'Paphian goddess', a nature worship...maintained by a college of orgiastic ministers practicing sexual excess and self-mutilation." (*Encyclopædia Britannica, Vol. 20,* 1911: 736).

The "Paphian goddess" was the goddess Aphrodite who is supposed to have landed at Paphos amidst thick, wind-driven sea foam. The Greek goddes Aphrodite became Venus for the Romans. "Paphian diamonds" are mentioned by many authorities as a misnomer for rock crystal, and they must have been famous for a very long time. S. Ball quotes an early traveler as follows:

> "Morysons in his *Itinerary* (1596, 458) states, regarding the rock crystal of Cyprus, called 'diamonds of Baffa' [see Baffa diamonds] and less commonly 'Paphian diamonds' they say that adamants [an early name for diamonds] are found here which skillful jewelers repute almost as precious as the Oriental" (Ball, 1950: 250).

"Paphos" ("Paphian") or "Baffa" ("Baffo") diamonds although famous in the literature appear to be even rarer than "Marmarosch diamonds." We have never even seen one.

"Paphos" ("Paphian") or "Baffa" ("Baffo") diamonds appear to refer to exactly the same occurrence. The name Baffo seems to have disappeared from modern atlases and gazetteers, but the first edition of the *Encyclopædia Britannica* (1771: 454) gives the following description: "Paphos, once an elegant city at the west end of the island of Cyprus; but the little town of Baffo is now all that remains of it."

Pecos diamond. Next to Herkimer diamonds, the most famous and best-known of American quartz "diamonds." They occur in Permian gypsum which outcrops for about 100 miles along the Pecos River Valley from approximately Fort Sumner in the north to Artesia in the south. The deposits are located in Chaves, DeBaca and Eddy Counties in southeastern New Mexico. There are many localities where rockhounds can collect these fascinating little crystals, and the localities have been described in numerous field trip guide books, articles in the Lapidary Journal, and other hobby-related magazines as well as in the professional literature.

These crystals have been well-known for a very long time. Minerals of New Mexico cites an early date of discovery: "According to Albright and Bauer (1955) these crystals were observed by Don Antonio de Espejo in 1583" (Northrup, 1959: 423). In 1890 they were sufficiently well known that George Kunz, who was very interested in the occurrence of real diamonds in North America, commented:

> "One of the minerals most likely to be mistaken for the diamond is a form of small quartz crystal found principally at Santa Fe and Gallup, N.M.; Fort Defiance, Ariz.; Deadwood, Dak.; and Shell Creek, Nevada. These crystals range in size from to 5 millimeters and the prism is nearly or entirely obliterated. In addition to this, as a rule, the surface is slightly roughened, and by an inexperienced person such a crystal is easily mistaken for an octahedron, which is almost universally considered to be the only diamond shape." (Kunz, 1890: 38)

Apparently, they were not used by the Indians in either Pre-Columbian times nor in historical times (Albright and Kruckow, 1958). There is no reference to Indian use of Pecos diamonds in the very thorough work by Sidney Ball (1941).

Apparently, the name was first used in the literature by Tarr and Lonsdale, 1929. The crystals have grown authigenetically in massive gypsum beds. the quartz having a much stronger power of crystallization than the gypsum. They occur as euhedral (completely bounded by crystal faces) crystals in massive fine-grained gypsum beds which belong to the Permian Whitehorse group. Dolomite and aragonite crystals (pseudo-hexagonal trillings) are found in the same formation. The gypsum enclosing the quartz crystals is so massive and fine-grained that it has been referred

to as alabaster (Tarr, 1929). The gypsum is reddish in color due to very fine-grained flakes of hematite. Although other beds in the sedimentary sequence contain sand grains, the alabaster gypsum beds which host the quartz crystals are free of sand grains. Tarr reported that the quartz crystals correspond in color to that of the adjacent gypsum. When the enclosing gypsum is dark red, the quartz crystals are dark red, and if it is white, so are the crystals.

The crystals are always of simple morphology, showing various combinations of the prism and the positive and negative rhombohedron with the ratio of the "c" to "a" axes usually rather stubby and simple. In some, the positive rhombohedron is exceptionally developed at the expense of the prism and negative rhombohedron. Such crystals have a pseudo-cubic appearance since the angle between adjoining faces of the rhombohedron is 85° 46', which is not far off of the 90° angles that distinguish a cube.

Qaysumah diamond. Facet quality quartz crystals are found in the vicinity of Al Qaysumah in northern Saudi Arabia, about 50 miles due south of the border with the Neutral Territory. There are many difficulties in translating place names from Arabic into English. The United States Board on Geographic Names publishes a series of guides on place name nomenclature, in which the board recommends the usage Al Qaysumah and hence our spelling Qaysumah "diamond." Other variants include "diamonds" identified variously as Qaisumah, Quaisima, Quasuma, Arabian, and Saudi Arabian Qaysumah "diamonds," all of which are described below. See also: Kaysumah diamond.

Quaismah diamond. See: Qaysumah "diamond." Listed without reference or citation by a recent English dictionary of gemmology with the definition: "a misleading name for the rock crystal variety of quartz." It is probable that this is yet one more spelling variant of Qaysuma "diamond."

Quasuma diamond. See Qaysumah "'diamond." Probably yet another spelling variant of "Qaysumah."

Quebec diamond. This term has appeared in many lists over many years as a synonym for rock crystal from Quebec, Canada. The term "Quebec diamond" seems to have become well-entrenched in English language literature. For francophones, however, the term is more usually diamant du Cap. In either language, it refers to the lovely, sharp, lustrous, well-formed clear quartz crystals that have been famour (or infamous!) since Jacques Cartier (1491–1557), discoverer of the St. Lawrence River, founded Québec City.

The dominating landmark of Quebec is a huge promontory called Cap Diamant surmounted by the star-shaped Citadel crowning it and the nearby storybook Château Frantenac. The promontory is made up of Ordovician limestone with solution cavities in which diamond-like quartz crystals similar to the "Herkimer diamond" of New York are found. Some were collected, and with great pride were sent to the King of France. It turned out to be a great disappointment when the king learned that they were merely quartz. It is thought by some that this might be the basis for the old French saying, "faux comme un diamant du Canada." It's an old saying that does not quite ring true anymore since Canada began producing some of the best real diamonds currently on the market.

We could find no specific references to the occurrence in any of the many excellent mineralogical publications of the Canadian Geological Survey, but in the early 19th century, the great Scottish mineralogist Robert Jameson noted that "beautiful small [quartz] crystal are found at Cape Diamond near Quebec" (Jameson 1820: 190). G. W. Traill noted that brilliant specimens of rock crystal from Cape Diamond near Quebec frequently contain liquid" (Traill, 1870: 6).

Radium-Diamant. K.F. Chudoba and E. J. Gübelin (1974: 121) wrote that this gem term as a misnomer for smoky quartz. Perhaps this term dates to pre-WWI when experiments were made to change the color of gems using the newly discovered and mysterious radiation from radium salts. The successful but dangerous efforts to turn diamonds green by immersing them in radium salts are well-known to diamond historians. It has also been known for a long time that various kinds of radiation will easily turn clear quartz with the appropriate range of aluminum

impurities into smoky quartz.

Rhine diamond, or Rhein Diamant (German). A very old term for the clear quartz pebbles found in the gravels of the Rhine River. The Rhine starts it long journey to the North Sea in the mineralogically famous Canton of Graubünden in Switzerland. For centuries people along its course have recovered placer gold and occasional pieces of clear quartz washed out of the Alps.

Cutting rock crystal is a very old industry along the Rhine River, the industry was particularly well-developed at Freiburg im Breisgau, in the old Grand Duchy of Baden. An industry there based on water-wheel turned sandstone wheels – just like the ones for which Idar-Oberstein is famous – survived down through the centuries only to fall victim to the Great Depression.

The modern term "rhinestone" can be traced to the pieces of clear quartz from the Rhine River that were cut as gems and later were imitated in glass. Although the word "rhinestone" has a certain pejorative connotation to most people, perhaps the lowly rhinestone should not be dismissed so quickly. In 1991, one of Michael Jackson's rhinestone-studded stage gloves was auctioned by Christie's, London. It fetched a little over $30,000 (Christie's 1991). We can only wonder what a pair would have been worth!

Saint-Maime diamond. In cavities in marlstone (Mergle) at Saint-Maime, in the French province of Basses-Alpes, are found very attractive 2–3 mm water-clear quartz crystals known as diamants de Saint-Maime (Hintze, 1905: 1404–1405).

Schaumberger Diamant, or Schaumburger Diamant (German). Refers to small, very brilliant, euhedral to nearly euhedral quartz crystals found near Schaumburg in northern Germany. Schaumburg is now in the state of Lower Saxony. It was in the former duchy of Schaumburg-Lippe. It was founded in 1613, became a republic in 1918, became a free state of the German republic in 1922, lost its independence to become a Land (state) of the Third Reich in 1935, and in 1946, it was made a part of the state of Lower Saxony. This complicated history could make a historical collection of Schaumburg "diamond" labels very interesting.

The locality is in the Extern Valley, south of Rinteln, a picturesque former university town. The crystals occur in cavities in nodules, apparently concretions, in a marlstone belonging to the Upper Jurassic Keuper formation. The nodules are aligned along particular horizons. They are walnut to fist-size. The nodules contain both calcite crystals and the wonderful, lustrous quartz crystals known as Schaumburger "diamonds." The most prized specimens show scepter development. Some crystals appear to be citrine, but this is only due to a very thin coating of limonite. Many of the best crystals have a light smoky color.

Schaumburger "diamonds" have been well-known for so long that they are mentioned in many descriptive mineralogy books. Collectors now generally use the term Schaumburger "diamond"; although, they occasionally used to be called Lippisch "diamonds" (which "see"), or Lippische Diamanten, in German. This latter name is apparently the older designation, since, according to F. Hamm (1959), this name (in Latin, *Adamantibus lippiacis*) was used in 1684 by Matthias Tiling, a professor at the former Rinteln University. Tiling stated that they were sent to Belgium where they were cut and sold as European "diamonds."

According to J. Zapel (1973), the name Schaumburger "diamond" originated because the prince (ruler of the then-independent duchy of Schaumberg-Lippe) had his crown set with these "diamonds." If true, we wonder whatever became of this crown.

Stolberger Diamanten, or Stolberger Diamant (German). An archaic local term for beta quartz crystals (di-hexagonal dipyramids) that weather from a quartz porphyry at Stolberg, in the Harz Mountains of Germany.

Tolfa diamond. Defined by most authorities as rock crystal from Tolfa (La Tolfa, formerly in the Papal states), near Cicita Vecchia, north of Rome, Italy. Various authorities define it as "colorless rock crystals found in a quartz rock near Tolfa" (Bristow, 1861: 381). It seems highly probable, however, that the term may have referred to a grade of alum manufactured

at La Tolfa. The alunite deposits at Tolfa were the source of the best grade of alum available during the Renaissance. It is used as a mordant for dyeing cloth and tanning leather and, thus, was a very valuable mineral half a millennium ago.

Tyrone diamond. Clear and colorless rock crystal found loose in the glacial drift of Tyrone, Ireland. Crystals are found in sand pits located southwest of Lough Neagh (O'Donoghue and Bridley, 1972: 6).

Unripe diamond. An archaic term generally referring to quartz and connected with the once prevalent notion that gemstones "matured" into precious gems in the hot climates typical of the Orient, while stones formed in the cooler climates of Europe failed to "mature" into precious gems. According to this view rock, crystal and/or colorless topaz were immature versions of the true diamonds found in India and Borneo.

Vallum diamond. Name for rock crystal cut for use in inexpensive jewelry in the Tanjore District, Madras Presidency, India.

Wichita diamond. In a 1909 USGS bulletin, Douglas B. Sterrett reported receipt of the following note from Mr. Oliver Powers of Lawton, Oklahoma:

> "Some years ago there was considerable interest in 'Wichita diamonds' and several people in the region sent specimens away for cutting. A number of the cut stones were very clear and of good luster, and part may have been topaz which is reported to have been found in this region. When it was found that the crystals were not diamonds the interest in them subsided."

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Authors' note: This list of quartz crystal occurrences, dignified by the addition of the term "diamond," is very much a work in progress. Any additions, corrections, or other improvements would be very much appreciated.

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TOURMALINE with ALBITE and QUARTZ

Himalaya Mine
San Diego County, CA

CANCELLED

Watercolor by Frederick C. Wilda ©

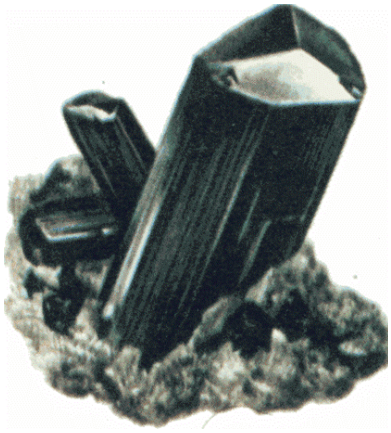
& 80 Select Retail Wholesale Dealers

Minerals ♦ Gems ♦ Lapidary ♦ Jewelry
Fossils ♦ Decorator Pieces ♦ and much more!

FREE Admission **Parking $10/day** **OPEN to the Public**

See our website for directions

www.MineralShowsLLD.com
mineralshowslld@gmail.com



CLASSIFIED ADS

OCEANVIEW MINE
TOUR & SCREENING TRIPS:
CALL FOR CURRENT SCHEDULE
For more information
please visit www.digforgems.com
or call Jeff Swanger at 760-415-9143
Reservations required.
$75. Adults $60. Children (ages 5 to 11)
Family rates available.

HIMALAYA MINE TAILINGS:
CALL FOR SCHEDULE/HOURS OF OPERATION
At the Lake Henshaw Resort on Highway 76.
Adults, $75 per day. Kids 12-15, half price.
Screening tables, buckets, and shovels provided.
Call (775) 830-5797
or (775) 772-7724 for more info
www.highdesertgemsandminerals.com

THE PEGMATITE – SEPTEMBER 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	31	1	2	3	4	5
6	7 GSSD NO Gen Mtg in June	8	9	10	11	12
13	14	15	16	17	18	19
20	21 SDMG Board Mtg online	22	23	24	25	26
27	28 SDMG No General Mtg	29	30	1	2	3

San Diego Mineral & Gem Society, Inc.
A Non-Profit Educational and Scientific Organization
1770 Village Place, Balboa Park
San Diego, CA 92101-1651
www.sdmg.org

WELCOME!

The SDMG Building is located at the north end of Spanish Village in Balboa Park

SDMG Museum hours: 11:00am to 4:00pm

Get information on classes, events, field trips, reports, reviews, slideshows and more at: sdmg.org

ADDRESS SERVICE REQUESTED

THE PEGMATITE – OCTOBER 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
27	28	29	30	1	2 Vista Gem & Mineral Society show Vista, CA – begin	3
4 Vista Gem & Mineral Society show Vista, CA – end	5 GSSD NO Gen Mtg	6	7	8	9	10
11 Fallbrook Gem & Mineral Society show	12	13	14	15	16	17
18	19 SDMG Board Mtg online	20	21	22	23	24
25	26 SDMG General Mtg? Check October eNewsletter	27	28	29	30	31