THE MINERALOGICAL RECORD

JANUARY–FEBRUARY 2009 • VOLUME 40 • NUMBER 1

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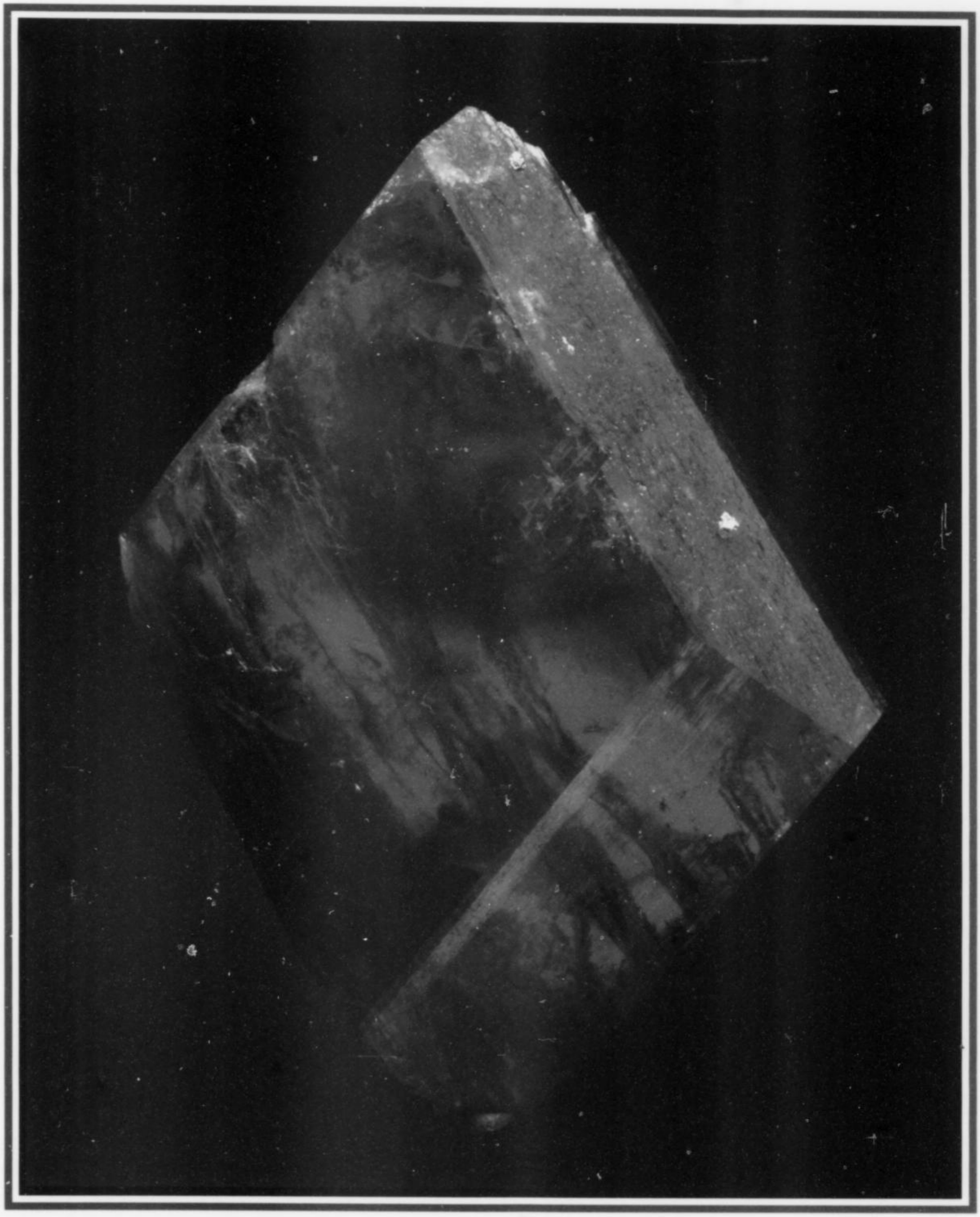

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Photo by Harold and Erica Van Pelt, Los Angles

A note from Dona....

Wayne....
Lois and I have drawn
up some plans for the remodel-
the plan is to start the first of
the year and be ready to re-open
by the end of March (with a Swoon
interruption taken into consideration).
To do: painting. carpets. lighting. eaves-
Since the new look will be "all mirrors",
all the time" . we'll stick with the
"by appointment only" hours - this
is going to be the most stunning gallery!
Don't forget the Explorers Club
dinner tonight - leave at 6 pm —

Dona

The
Mineralogical Record

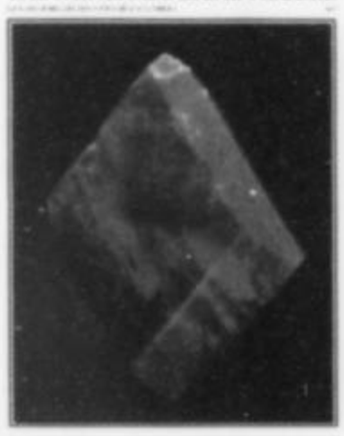
The International Magazine for Mineral Collectors

VOLUME 40 • NUMBER 1 JANUARY–FEBRUARY 2009

Continued on page facing inside back cover

Articles

Columns



COVER: RHODONITE, 10.1 cm (4 inches), from the Morro da Mina manganese mine, Conselheiro Lafaiete, Minas Gerais, Brazil. Probably the world's finest crystal of the species. See the article on this occurrence in vol. 39, no. 2. Daniel Trinchillo specimen, now in the Stuart Wilensky collection; Jeff Scovil photo.

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Guest Editorial:

Happy Coexistence *for the* Married Mineral Collector

I was listening to some men speak about their wives the other day, and they were going on about the fact that their wives just don't understand the importance of mineral collecting. They don't comprehend that this is more than just a husband's passing fancy, it is his lifelong passion. Why can't these women, who profess to love their husbands, learn to enjoy minerals along *with* their husbands? It's a common lament.

I decided to do some further research and, after talking to a number of "mineral wives" about why they don't "get it," I have compiled a dozen simple ways for men to ease non-mineral women into this world of broken fingernails, dusty boxes and sublime natural beauty.

(1) **Minerals in the Kitchen**

Do not introduce a woman to minerals by hauling in flat after flat of dusty and dirty boxes full of just as dusty and dirty rocks! And you only make it worse when you pile those flats on the clean kitchen counter where you deem the light is best. What woman is going to ignore the great mess you have just made in the most insensitive manner possible? She will hate minerals until the day she dies, this is a given. And don't think the kitchen table is any better, because this is where the food goes; this is where women try to protect their families from contaminants and horrible things like germs. No, minerals do not go well with sanitary at all.

(2) **Minerals in the Bathroom**

Do not wash your minerals in the bathroom sink or the bathtub; what are you thinking? Even if you pull the shower curtain closed she will KNOW what you are up to. You might as well put up a giant "Look behind this curtain!" sign and get ready to duck and run. Bathrooms are meant to be shiny clean, and bathtubs are a place women like to soak away their frustrations, not add to them.

(3) **Minerals as Toxic Substances**

Don't hand a woman a mineral and then tell her, after twenty minutes, that it is radioactive or poisonous. These are the hands that probably make your meals for you. Do you want arsenic in your food? You are giving her good reason to add some. You are simply going to make this poor woman go pale, drop the rock and head for the sink. Have you seen what happens to a woman who washes her hands over and over while cursing like a sailor under her breath so the kids don't quite hear? How fast can you pack up, apologize and head for the comfort of the garage?

(4) **Laundry Room Messes**

Don't come home from self-collecting with the boys and drop your picks, chisels, crusty socks and everything else you dragged with you on the laundry room floor. This is what the garage is for. And God forbid she finds bits of matrix and broken fluorite in the bottom of the washing machine after doing your laundry.

(5) **Territorial Disputes**

Don't hog the kitchen counter with your microscopes, trimming tools, tack, plastic bases and labels and expect them to remain there for months to come. She will find an obscure spot to stick them, and it will become a point of contention, especially if she doesn't put them near an electrical outlet so you can get some decent light on that specimen.

(6) **Full Disclosure**

Don't lie about how much you paid. If you tell her you got it cheap, she will think it is cheap and might just toss it out when you aren't looking. After all, specimens do take up space that could be utilized for storing Grandma's heirloom dinnerware or other such treasured items.

(7) **Be Financially Responsible**

Come to an agreement with her about your mineral budget and stick to it. Keep good financial records, and when you sell a specimen for a profit, be sure she knows about it. If she sees your collection as a family asset that could (at least theoretically) be converted into cash in a family emergency, rather than just as money down the drain, she will be far less concerned about your specimen purchases.

(8) **Connect to Something She Knows**

Do bring home a glitzy crystal mineral on lovely matrix with a nice Lucite base, lay a rose and a box of Godiva chocolates next to it and introduce your wife to minerals as "home décor" before introducing her to the other aspects of minerals, like crystallography. Save that for much later. You might even add a cut gemstone to go with the mineral specimen. A "rough-and-cut" pair will be something that every woman understands.

(9) **Sweeten the Deal**

If your wife doesn't want more minerals in the house, bring home a small gift for her each time you bring home specimens. She will soon associate rocks with iPods and digital cameras. And better yet, how about having a faceted example of a mineral in your collection set in some form of jewelry? This technique is sure to make minerals more acceptable in your home. And don't forget that chocolate either.

(10) **Hide the Junk**

Do show that you care by leaving flats of dirty minerals in the garage with the covers on. Don't tempt her to put them out in the yard to make a rock garden or line the path. Hide them if you aren't going to put them in cabinets or she will find a better use for them!

(11) **Don't Foul the Décor**

Speaking of cabinetry, don't buy some horrendous old wooden cabinet from a garage sale down the road that doesn't match, or

a metal cabinet that doesn't fit the décor. Ask your wife for her thoughts and suggestions on cabinets. This gives her some partnering in the decision, and will make her feel she has been helpful with your rather odd but endearingly eccentric obsession.

(12) **Be an Endearing Oddball**

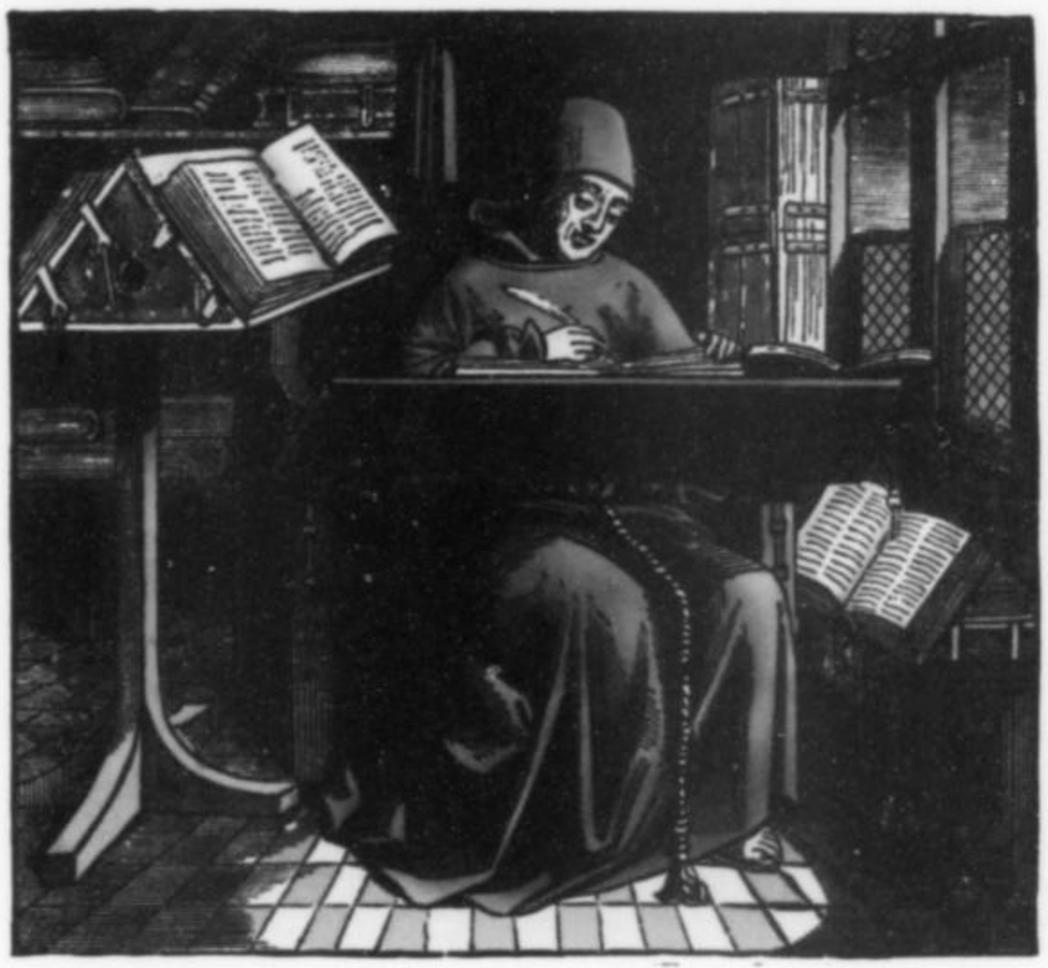
It's okay to let your wife think you are a little quirky; women like to nurture. Seeing your eccentric tendency toward collecting odd objects, she will reflect that maybe it's a good idea for her to permit this hobby in order to keep you harmlessly occupied and out of the sports bars.

My husband is lucky; he has a wife who loves minerals. His friends all tell him how they wish their wives would be more like I am. Of course, I still won't let him put minerals in the bathtub but I will go along with the bathroom sink.

And for those ladies who love minerals, but whose husbands do not, just change the story around and instead of chocolates and roses, make it beer and basketball tickets. I hear this works too.

So here's to marital bliss and mutual understanding, or at least a peaceful coexistence between collectors and non-collectors!

Gail P. Spann



Notes from the Editors

Hard Times

In these difficult economic times, the avid mineral collector on a budget needs to adjust his/her goals carefully. Husbanding limited financial resources becomes more important. Over the last 40 years we have found that one thing tends to remain fairly constant for most serious mineral collectors: maintaining their subscription to the *Mineralogical Record*. Our circulation graph remains pretty smooth and does not show any identifiable dips or peaks that can be correllated with particular recessions and economic downturns or upturns. Presumably this is because, during good times, collectors need the *Record* to keep them informed so they can buy intelligently, whereas during bad times (when specimen purchases have to be curtailed), they need it even more in order to stay connected with their passion. If they can't afford to buy specimens for a while, they can at least read about them and keep up with what is happening in the mineral world until the economic situation improves.

That is fortunate all around. After all, you wouldn't want to drop your subscription temporarily, and then, a couple of years later when funds are more available and you want to resubscribe, find that in the meantime the *Mineralogical Record* has gone out of business for lack of support. Remember, we do not have a parent organization to support and protect us. Also remember that, as a subscriber, you receive the special supplements free; but if you need to catch up later the supplements must be paid for individually, like any back issue (the cover prices for the Romero and Texas supplements total $45). Your subscription is vital to us, so please keep your subscription up to date and we'll keep supplying you with great reading matter—and great value—for many years to come.

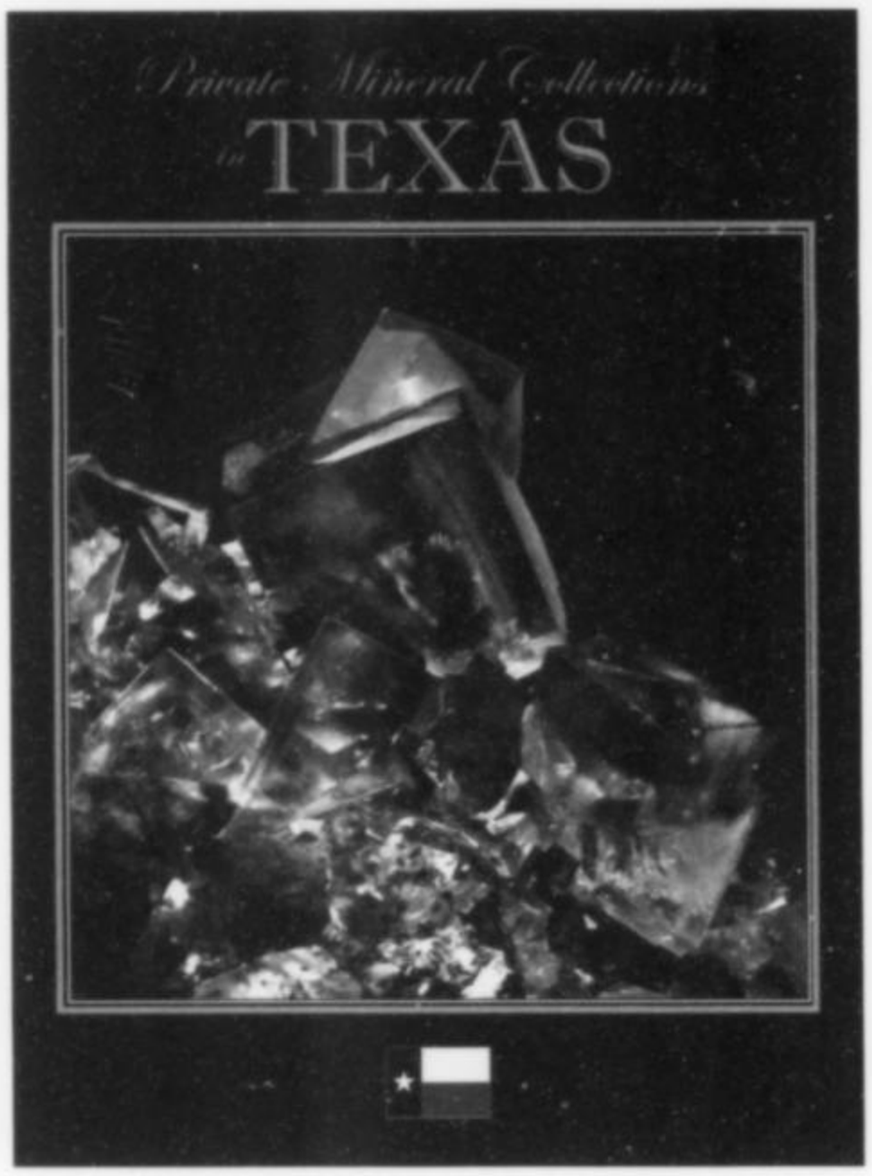
In fact, we'll even help you find high-quality specimens for less money. The mineral specimen market these days is multi-tiered and sometimes confusing. Tom Moore's new sub-column (an addendum section to his "What's new in minerals" reports) is devoted specifically to this question. We've noticed for years that very high quality specimens, sometimes even "competition quality," meeting the standards of the connoisseur, can be found for under $200 and often under $100. Tom will be discussing sources and strategies for rooting out these treasures, so stay tuned.

Texas Collectors Supplement

With this issue comes a complementary copy of our latest special supplement, and quite a spectacular one it is. The idea of organizing a group of Texas collectors to showcase their favorite specimens for readers of the *Mineralogical Record* originated with Houston-area collector Gary White. Gary talked it over at the Denver Show with another Texas collector, Wally Mann. Although Wally was skeptical that the cost would be affordable, he then talked to me about it, and was surprised to learn that the concept was quite feasible.

Gary and Wally then floated the idea around to some other Texas collectors to see if any of them would be interested. Some ground rules were hammered out: each person would get exactly six pages, all specimens shown must be currently owned, each person gets space for a portrait photo and some biographical notes discussing their collecting preferences and philosophies, each person can submit a suggested rough layout or let us do it, picturing as many specimens as they want. In short order they managed to round up *29 collectors* who wanted to participate!

The result is *Private Mineral Collections in Texas*, picturing a total of 470 extraordinary mineral specimens. Such works are invaluable learning tools for the collector, and will ultimately become historical references documenting the provenance of many important specimens. In any field of collecting, there is simply no substitute for seeing a lot of specimens to broaden one's knowledge base. A book like this is the equivalent of a series of non-competitive displays, the next best thing to visiting each of the private collectors and seeing some of their favorite specimens in person. We owe the Texas collectors in the Mineralogical Association of Dallas (MAD)



and the Houston Area Mineral Society (HAMS) a tremendous vote of thanks for sharing their treasures with us.

The work of Carnegie-Award-winning mineral photographer Jeff Scovil is featured prominently in the book, alongside the work of a new mineral photographer: Joe Budd (email: joebudd@mac.com). The worldwide demand from collectors for professional-quality mineral photography services has been growing in recent years, and Joe, an established professional photographer in other areas, is entering the mineral field. He began shooting specimens for members of the Houston group, and was introduced by Gary White to Dallas mineral dealer Rob Lavinsky, who gave him broad exposure through last issue's Romero Collection supplement. Joe has thus been getting plenty of practice and has proven a quick study in learning many of the peculiar requirements and skills associated with photographing mineral specimens.

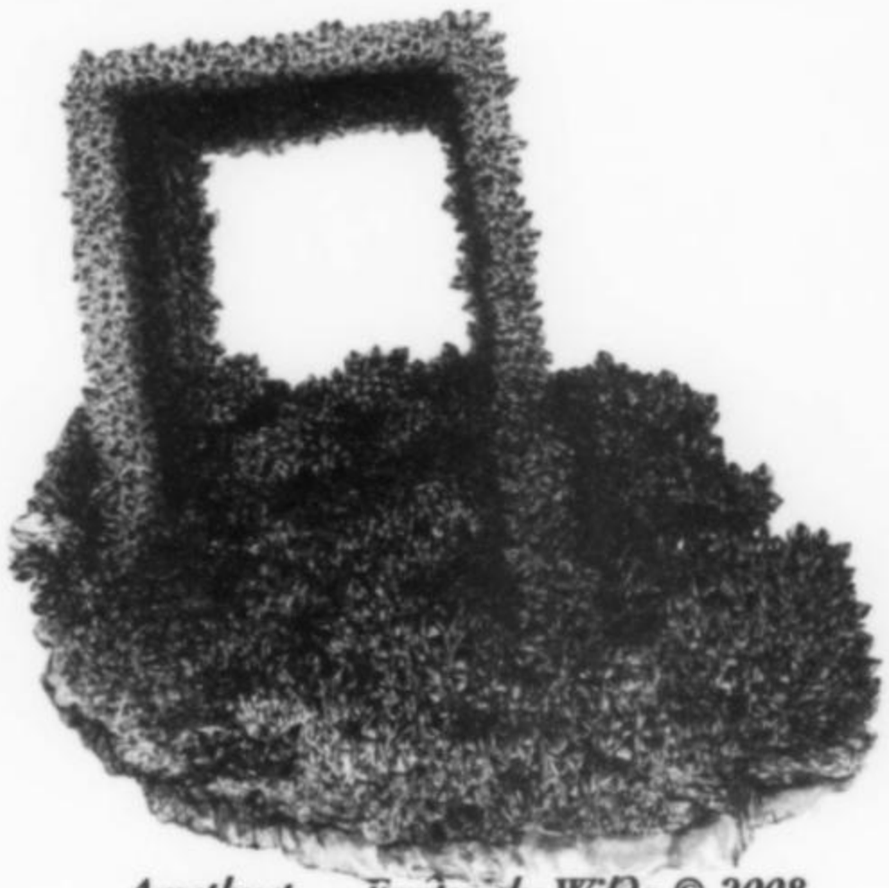
As with previous supplements, we have prepared a few hard-bound copies in bonded leather. You can purchase hardcover (and softcover) copies through the Bookstore section of our website at www.MineralogicalRecord.com, and add them to your growing reference library of works on prominent mineral collections.

Thomas M. Gressman

Tom Gressman Joins Record Staff

We are very pleased to announce that Thomas M. Gressman will be joining the staff of the *Mineralogical Record* in Tucson as Associate Publisher (email: tgressman@comcast.net). Tom, whose position is supported by a grant, is an experienced businessman and former corporate CEO, and has worked in a business capacity for Collector's Edge Minerals for the last two years. He is also a long-time friend of the magazine—he was one of the first volunteers to help with our fund-raising auction back in the late 1970s, and has served on our board of directors for nearly 20 years, including several terms as President. Tom is a highly knowledgeable collector and author, having written articles for the *Mineralogical Record, Le Règne Minéral* and *Rocks & Minerals* (see their September–October 2008 issue for his article on the Mockingbird gold mine).

Like the rest of us on the staff, he will be striving to be every place at once during the coming Tucson Show, but readers can probably catch him most often in our subscription booth. Be sure to stop by and say hello—he loves meeting subscribers!



Amethyst - Frederick Wilda © 2008

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Show hours 10-6 daily

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April 24-26, 2009

Show Hours: Fri. & Sat. 10-6, Sunday 10-5

Holiday Inn - Denver Central
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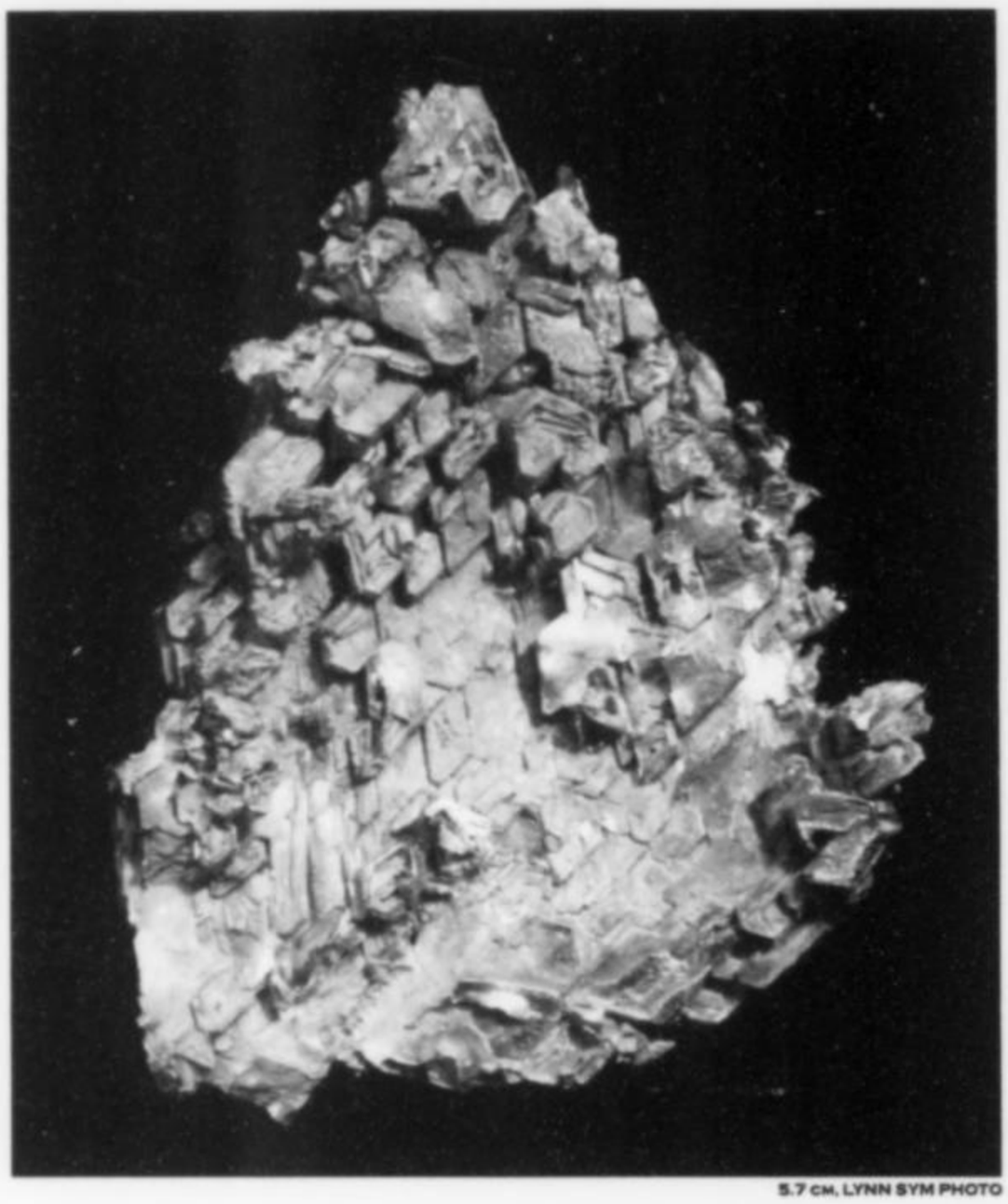
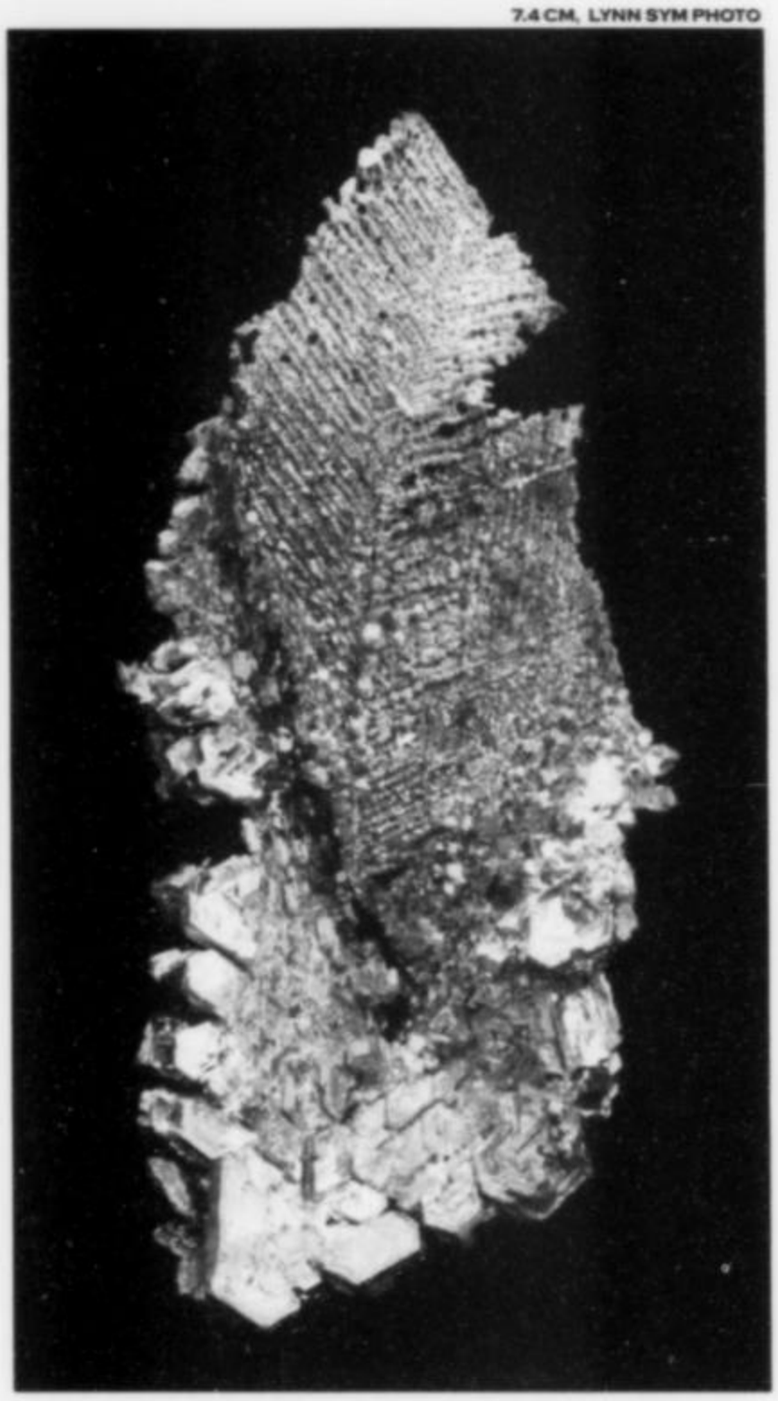
(where I-25 meets I-70)

Rhodochrosite - Colorado Frederick Wilda©



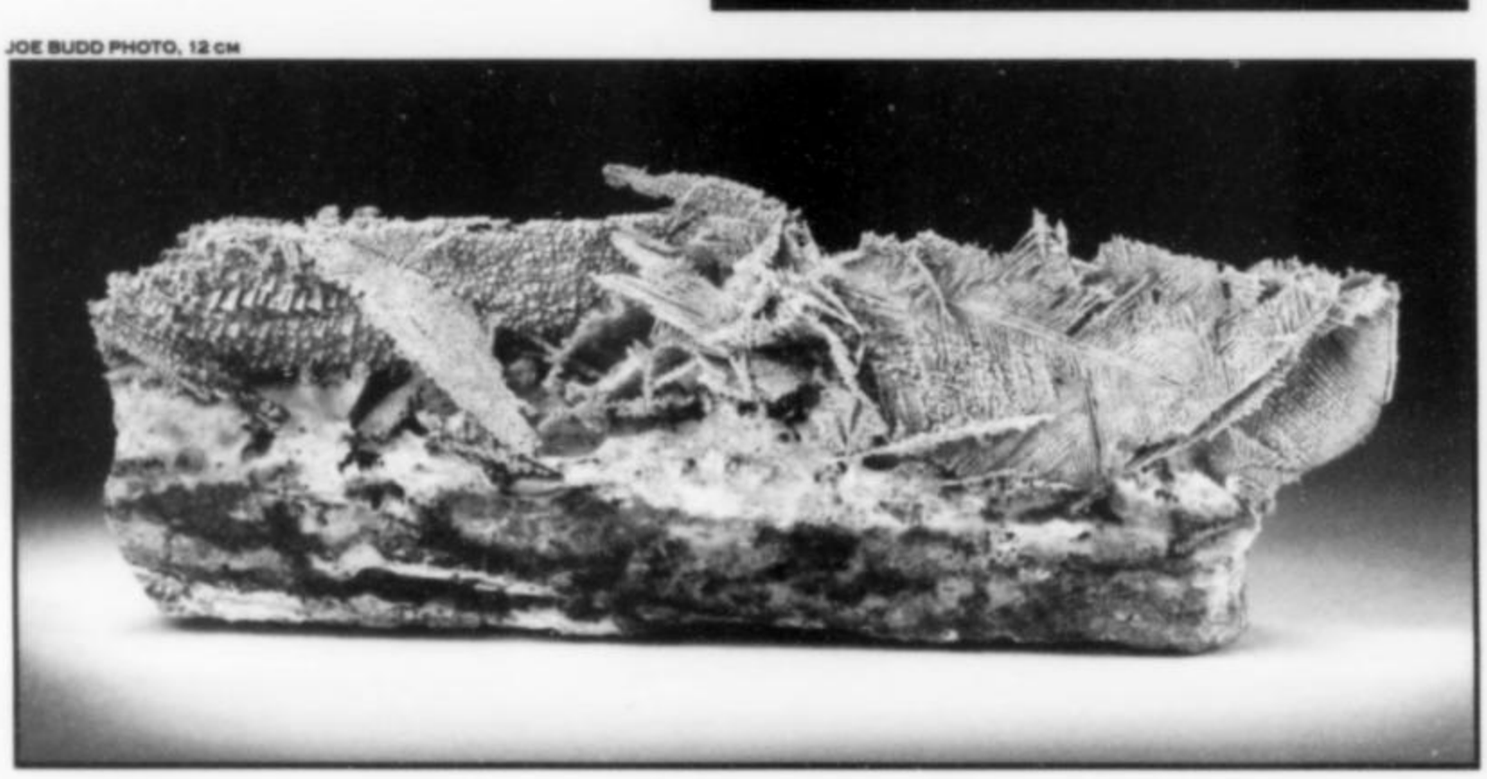
5.7 CM, LYNN SYM PHOTO



7.4 CM, LYNN SYM PHOTO

GOLD
Round
Mountain Mine,
Nye County,
Nevada

JOE BUDD PHOTO, 12 CM



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Topaz

from near

El Chaltén
Santa Cruz Province, Argentina

Robert Brandstetter
Auweg 1,
A-2831 Warth, Austria
Email: fluorite@aon.at

While on a mountain-climbing vacation in the remote mountains of Patagonia, the authors stumbled upon a remarkable series of pegmatite pockets containing superb cognac-brown, water-clear topaz crystals with milky quartz crystals and large, white feldspar crystals.

INTRODUCTION

The South American region known as Patagonia, a barren tableland between the Andes Mountains and the Atlantic Ocean, is so remote and inhospitable that it remained virtually unexplored until around 1869; it was divided in 1881 between Chile and Argentina. Despite Patagonia's enormous size (765,720 km^2; 311,000 square miles) it has yielded relatively few mineral discoveries. In recent years only the spectacular pseudomorphs of hematite after magnetite from the Altiplano de Payun Matru near Malargue, Mendoza Province, Argentina have reached the international specimen market.

The Argentine part of Patagonia is divided into the four provinces of Chubut, Neuquen, Río Negro and Santa Cruz, the latter being our destination. Santa Cruz is the southernmost province in Argentina, virtually bordering on the Strait of Magellan. The average population density in Patagonia is approximately two people per square kilometer, but the province of Santa Cruz is even less populated, averaging less than one person per square kilometer. Argentine Patagonia lies east of the Andes in the rain shadow and is quite arid. In this climate a singular steppe landscape developed, which came to be called "the Pampas"—a very rugged and windswept region which nevertheless is home to various flora and fauna which defy the inhospitable environment. Indigenous animals include the armadillo, the guanaco (an undomesticated llama), the nandu (a South American ostrich) and the Andean condor, seen mainly amidst the craggy peaks of the mountains. The condor, with a body length of over a meter and a wingspan up to well over 3 meters, is one of the largest flying birds on earth.

Apart from sheep herding and cattle breeding (Argentine steaks are famous worldwide for their flavor and tenderness), tourism ranks today among the main sources of income for Patagonia. The farms, known locally as *estanzias* or *haziendas*, stand like green oases in the landscape of sand, stone and Pampas grass. The mounted *hirte* (called *gauchos* in Spanish) are famous far beyond the borders of Argentina.

Because of the harsh climate, tourism is limited to the summer months—"summer" in this hemisphere and latitude being November through February. Tourism is focused mainly on the spectacular mountain regions in the Chilean Torres del Paine National Park,

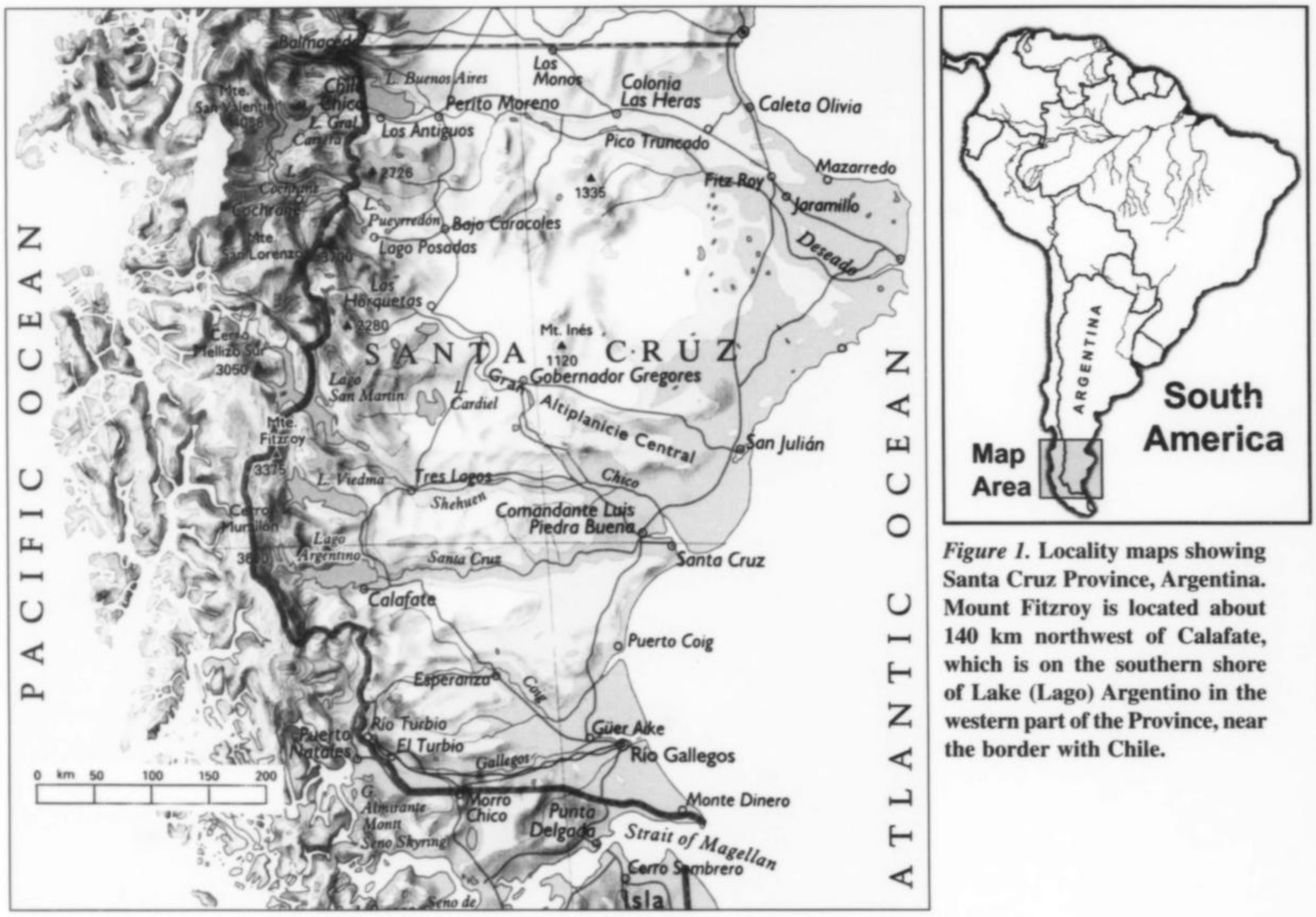


Figure 1. **Locality maps showing Santa Cruz Province, Argentina. Mount Fitzroy is located about 140 km northwest of Calafate, which is on the southern shore of Lake (Lago) Argentino in the western part of the Province, near the border with Chile.**

the south continental ice field, and the Los Glaciares National Park, with the Fitzroy and Cerro Torre mountain peaks in the Argentine part.

OUR TRIP

On Christmas Eve 2007 we left Venice, Italy for Rome, then took a 14-hour flight to Buenos Aires. From there it was a two-hour inland flight to the town of El Calafate, on Lake Argentino. The flight passed over stretches of open country and numerous agricultural fields before reaching the Pampas, with its many and variously colored saline lakes. During this flight one gets an impression of the size of Argentina, the eighth largest country on earth and the second largest in continental South America. The north-south length of the country is 3,694 km!

From El Calafate a bus trip of several hours, mostly over bumpy crushed-stone roads, is the only way to reach the small community of El Chaltén, at the foot of Mount Fitzroy, in the extreme western part of the province of Santa Cruz. This small village of about 300 people caters to mountain climbers, and is the last outpost of civilization. In response to border disputes with Chile, the Argentine government established the settlement in 1985 in order to maintain possession of the region and its tourism income. In the summer months the number of the mountain climbers and hikers is several times greater than the number of village inhabitants, but the population shrinks to a few dozen people during the winter months. Without the world-famous attractions of Mount Fitzroy and Cerro Torre, it is doubtful that anyone would make the difficult journey to this locality. The strong, constantly blowing wind whirls up dirt and dust from the unpaved roads, and within a few minutes of our arrival the sand had penetrated all of our equipment, as well as our clothing from head to foot, and we were never rid of it during our entire stay.

Mount Fitzroy has been referred to as "El Chaltén" in the local Tehuelche Indian language, meaning "the smoky mountain"; this is not in reference to any volcanism in the area, but rather to the constant windblown fog which enshrouds the 3400-meter-high peak

WEATHER PROBLEMS

Because of the late arrival of the majority of our climbing equipment, we were not able to leave El Chaltén for several days, but at last we set out on the 10-km ascent to the base camp, with the help of native bearers. We were prepared to stay at the base camp for a month, and had planned several mountain tours into some very difficult areas. After we had set up the camp, however, the initially fine weather changed for the worse. Rain, snow and freezing temperatures at the 620-meter elevation level, combined with unbelievably strong winds, rendered our planned climb of the 3400-meter peak a potentially lethal enterprise.

The strong winds in this region reach around 150 kph (90 mph) and over. We made our first acquaintance with a strong gust of wind after a short time at the camp; while we were opening a backpack the wind virtually pulled out and blew away all of the contents so fast that we didn't even see what had been carried away or where it had gone. After we had spent almost a week huddled in our tents, the weather had still not improved, and we reluctantly began to consider calling off the expedition. The wind had severely damaged our supply tent and important pieces of equipment had been blown away. In addition, mice had gotten into our provisions. Since the barometer was still falling, we finally decided to pack up, leave the base camp, and wait for a period of better weather. We left the

Figure 2. **The village of El Chaltén, last outpost of civilization for mountain climbers; Robert Brandstetter photo.**

national park and headed northeast, seeking a calmer area in which to train and prepare for the impending climbs.

THE PEGMATITE

It was in this area northeast of the park, at the foot of an unnamed peak, that we happened to notice a vertical granite wall crossed by a series of parallel, lighter colored pegmatite veins running horizontally and ranging up to a meter in thickness. Several open pockets were visible in these veins, even from a distance. Although we had traveled to this country for the purpose of mountain climbing, we could not resist the temptation to investigate these cavities. Since pockets were situated about 12 meters up the cliff face, safety devices and climbing equipment were going to be necessary. However, since the bulk of our equipment was deposited 20 km away, all of the expedition participants had first to be convinced that this plan was sensible.

After a short discussion it was unanimously decided that, because the weather around the summit was so bad, we should abandon our plan to make the ascent and instead take up the new and tantalizing project of investigating crystal pockets in this new, wholly unexplored area. We decided which tools and how much safety equipment we would need if we were to undertake specimen-salvage operations. The long days at that latitude proved very helpful to us, and by the following day we had prepared our equipment and were able to work on the pegmatite from 6 am to approximately 11 pm. Of the three larger and several smaller crystal pockets, two proved workable; examining the others, we found that glaciation during the last ice age had already destroyed or carried away the contents.

The two largest pockets proved to extend farther into the mountain, and they became interesting starting from a depth of a half meter. After removing the loose rubble and small damaged crystals that had been forced into the pocket entrance by the glacier, we encountered tough, damp pocket clay from which we extracted crystal after crystal. Beautiful groups of milky quartz crystals to 15 cm and large, white feldspar crystals to 10 cm first emerged into the daylight. Delicate muscovite sheets that were part of the assemblage disintegrated on contact. The same problem arose when we tried to remove tourmaline crystals, which were encountered frequently but disintegrated immediately when worked on. Only one large, 10-cm sheaf of dark green tourmaline could be removed intact, after the most careful work.

In both cavities we also found some perfectly transparent crystals which differed plainly from the quartz crystals, even while still in the pocket clay; we rappelled down to the base of the cliff in order to examine them more carefully and determine their identity. The terminations are not flat-faced, showing instead a strange kind of irregular growth (or perhaps preferential dissolution), but the perfectly smooth sides clearly exhibit the forms of topaz. A noble cognac-brown color and the ability of these crystals to scratch quartz (hardness = 7) confirmed the identification as topaz (hardness = 8).

Figure 3. **Petra Morolz crossing the Fitzroy River via the Tyrolean cable bridge, near Lake Torre. Cerro Torre is visible in the distance. Robert Brandstetter photo.**

Figure 4. **The two best pockets in the pegmatite vein being worked high up on a cliff face by the author (left, in the southern pocket) and Alois Krenn (extreme right, in the northern pocket). Rudolf Purat photo.**

We will never forget the moment when the first topaz crystal emerged from the pocket clay: we knew immediately that we had discovered something special! At that point we began exercising even greater care in extracting the specimens because, after all, one doesn't find a gem pegmatite every day.

In three days of work we were able to recover approximately two dozen outstanding jewel-like crystals of topaz, most of them doubly terminated "floater" crystals showing attractively irregular, spiky terminations at both ends. Only two topaz crystals were found still attached to milky quartz crystals. The largest crystal measures 8.8 cm in length and has a diameter of 5.5 cm. It was found in the right (northern) cavity, which we dug out to a width of approximately a meter and a depth of about 2 meters. Working in this cavity was very uncomfortable, since one had to lie almost entirely within it, and in the tight confines, measuring only about 25 to 30 cm (10 to 12 inches) high, one's own body impaired the flow of fresh air. But it was in this cavity that the majority of the topaz crystals, including the largest ones, were found.

The left (southern) pocket in the wall was easier to work. The major difficulty there was the strong wind which penetrated into the pocket and blew dust into the eyes of the person working there. On the final day of our work in this cavity, melt water from above

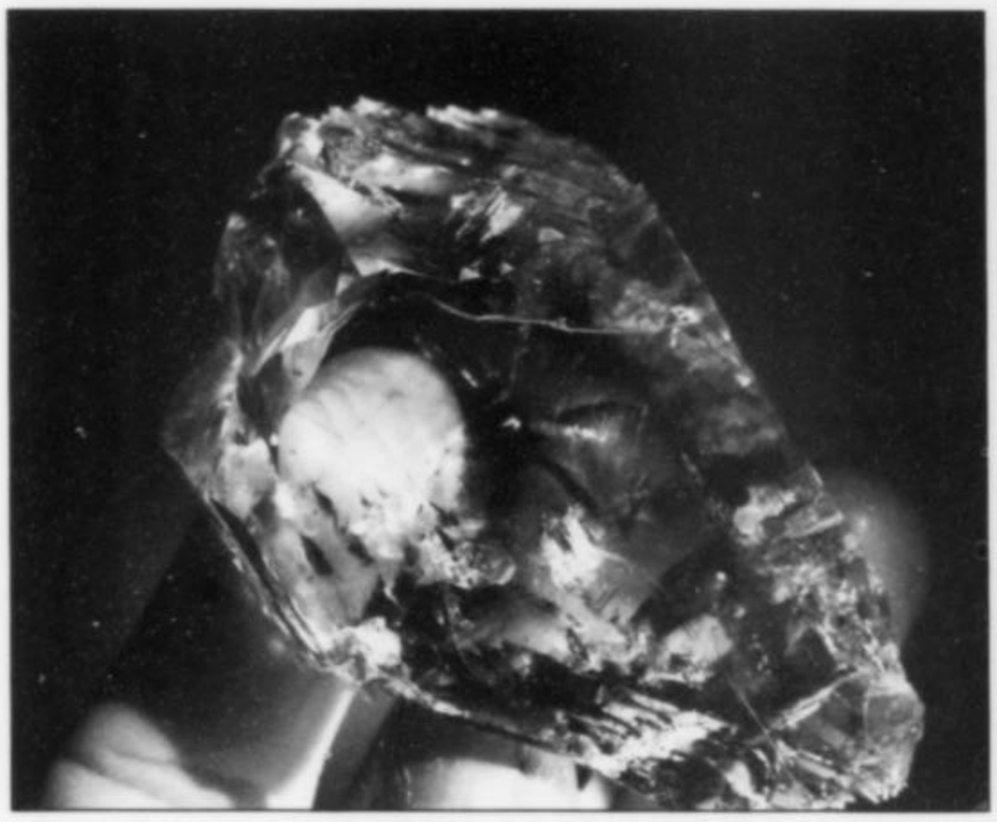
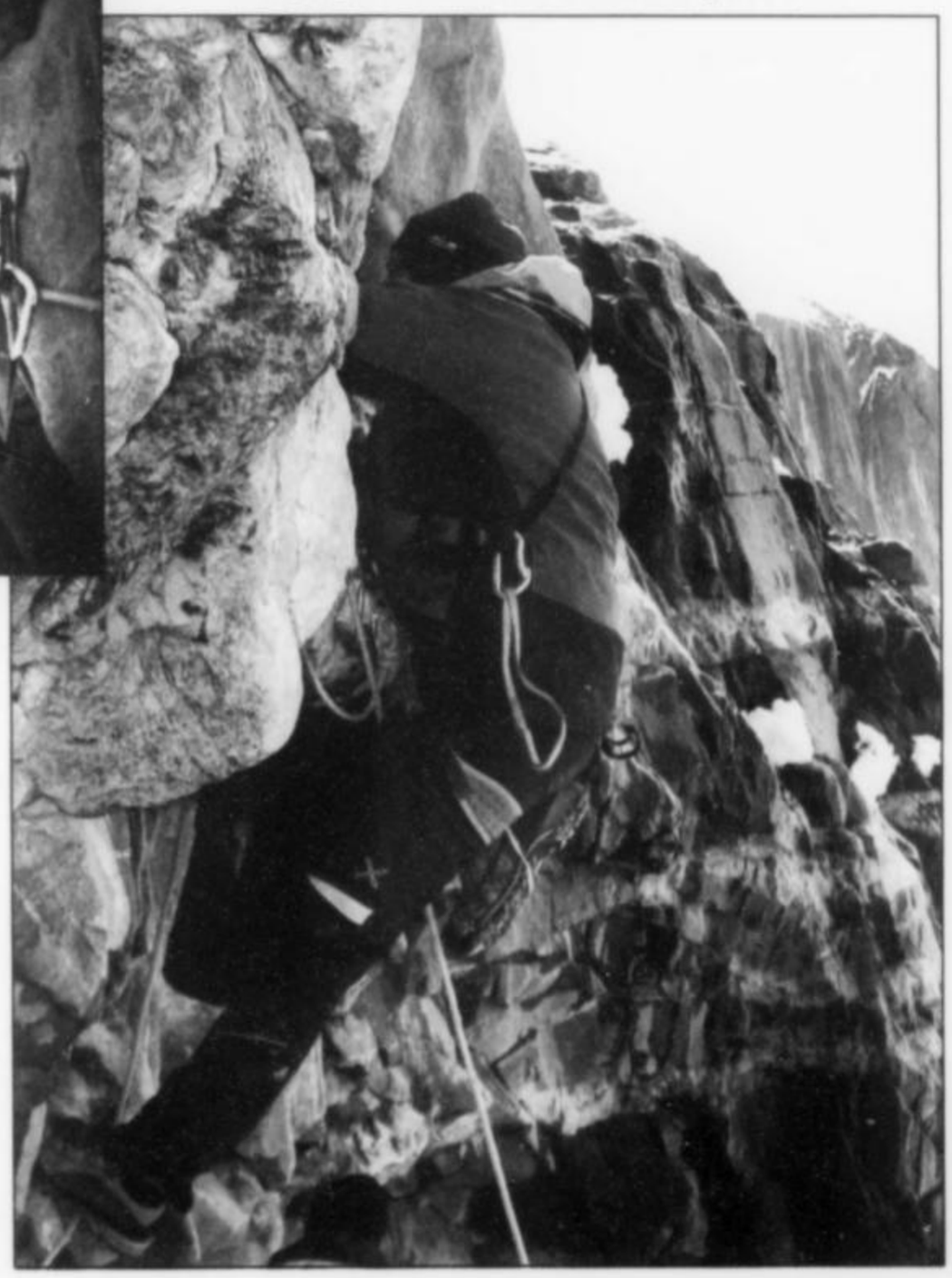


Figure 5. **A topaz crystal, 7 cm, from the northern pocket. Robert Brandstetter photo.**

Figure 6. **Alois Krenn working in the northern pocket. Rudolf Purat photo.**

Figure 7. **The author, suspended by ropes in front of the southern pocket, holding a just-collected topaz crystal. Rudolf Purat photo.**

Figure 8. **Rudolf Purat investigating a pocket which proved to have been emptied by a glacier long ago. Robert Brandstetter photo.**



began falling down over the granite wall, dripping down our collars and under our clothing and collecting in our shoes. This pocket yielded fewer topaz crystals than the northern cavity, but one of them was the best of all the crystals we found.

The cavity branched upwards into several pocket zones which were workable to a depth of 1.5 meters. These and the neighboring cavities were emptied, and a thorough search revealed no other promising places to collect, so we suspended our work after three days. Thanks to the bad weather, it had taken us two weeks to work three days there!

In the last week of our four-week stay in Patagonia the weather turned fair and remained so, and we hiked again up to the base camp on Mount Fitzroy. The fog and the clouds had parted to reveal the enormous rock towers of the Cerro Torre (3,102 meters) and

Figure 9. **Interior of the southern pocket, with milky quartz crystals in place. Robert Brandstetter photo.**

Figure 10. **A large (10.5 cm) feldspar crystal from the northern pocket. Robert Brandstetter photo.**

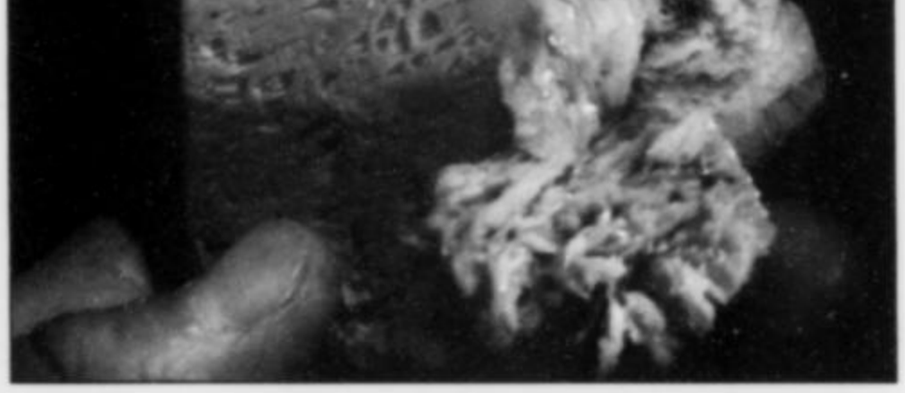


Figure 11. **Quartz crystals to 11 cm, with traces of tourmaline and a small attached topaz crystal (right). Robert Brandstetter photo.**

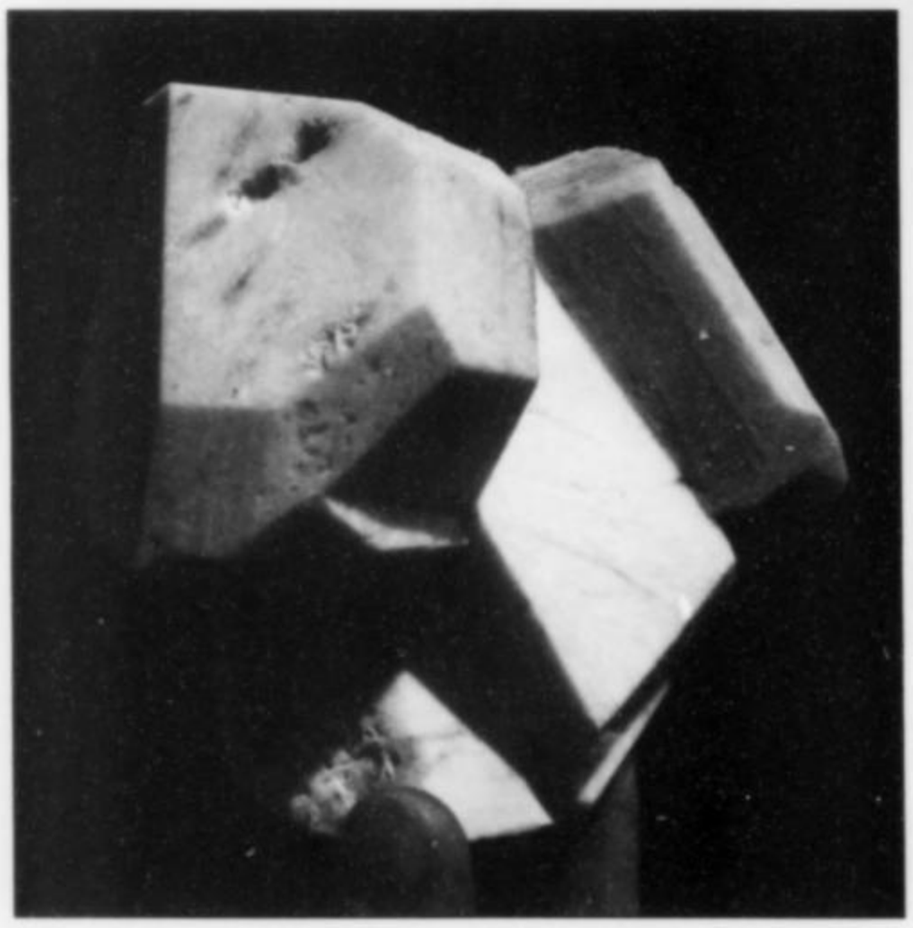
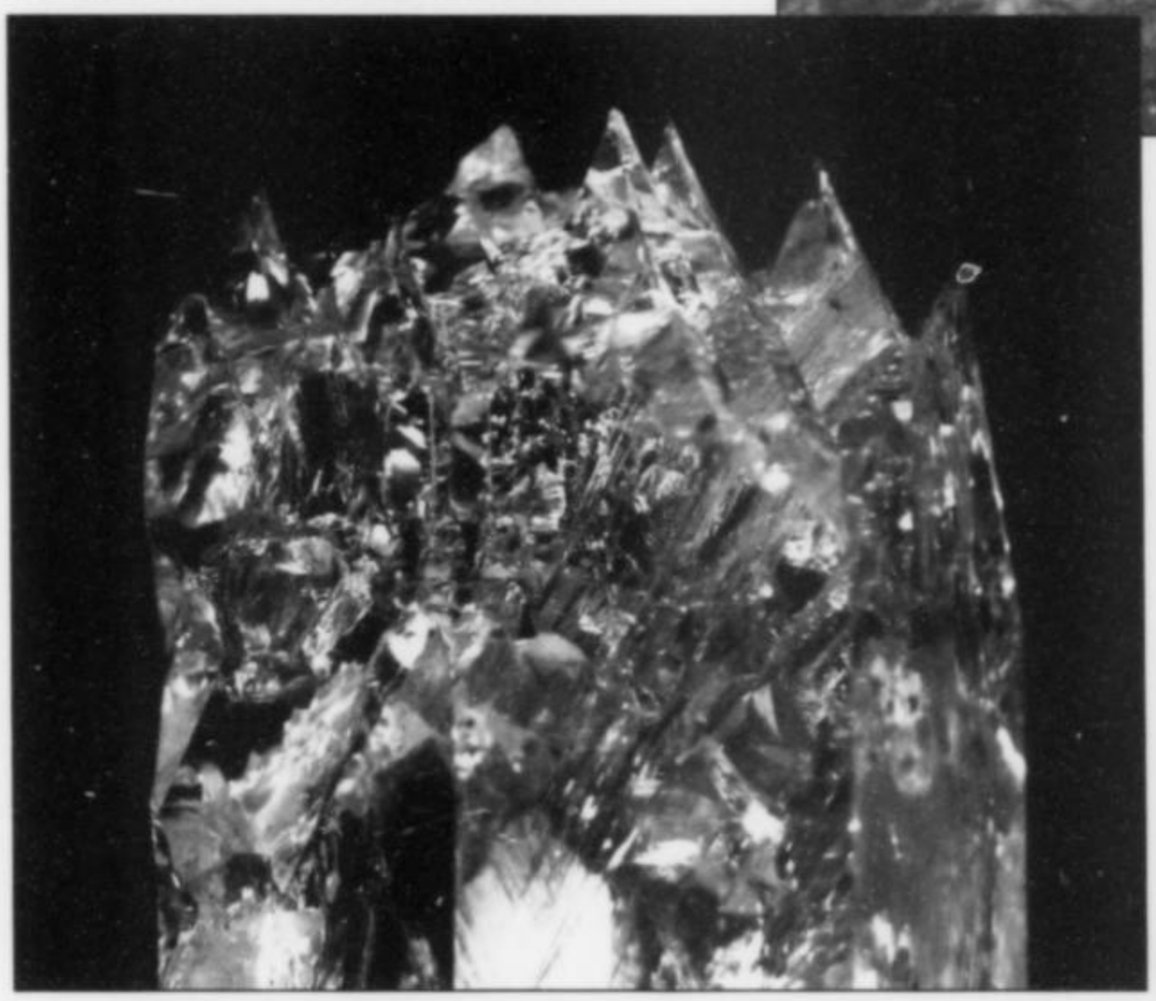


Figure 12. **The best feldspar crystal cluster, 11 cm, from the northern pocket. Robert Brandstetter photo.**

Figure 13. **The only significant tourmaline crystal collected, 8.7 cm, from the northern pocket. Robert Brandstetter photo.**

Figure 14. **Just-collected topaz crystals from the northern pocket, partially covered in pocket clay. Rudolf Purat photo.**

Figure 15. **Close-up of the irregular termination of the topaz crystal shown at right. Robert Brandstetter photo.**



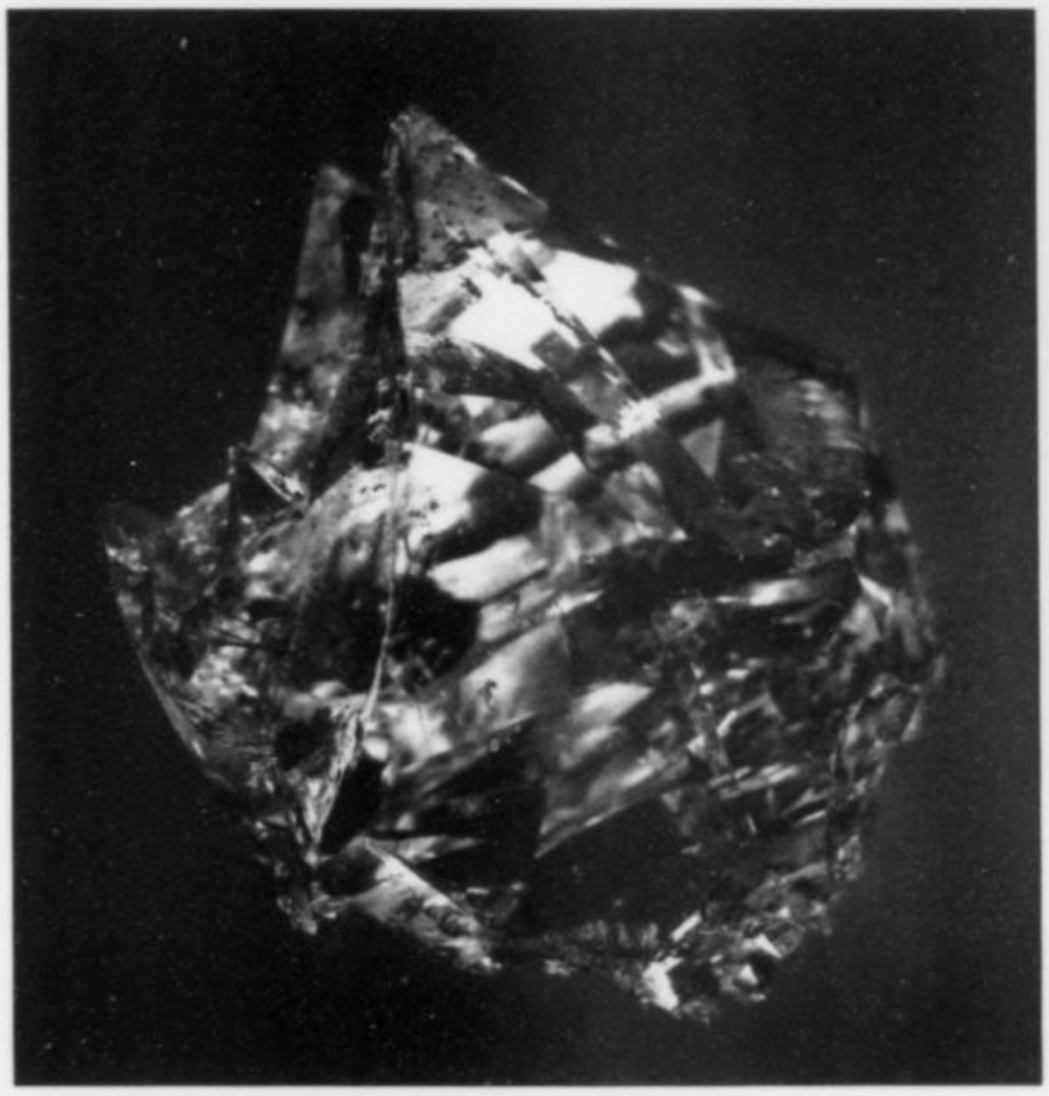


Figure 16. **Topaz crystal, 8.5 cm, from the northern pocket. Robert Brandstetter photo.**

Figure 17. **Topaz crystal, 3.5 cm, from the southern pocket. Robert Brandstetter photo.**

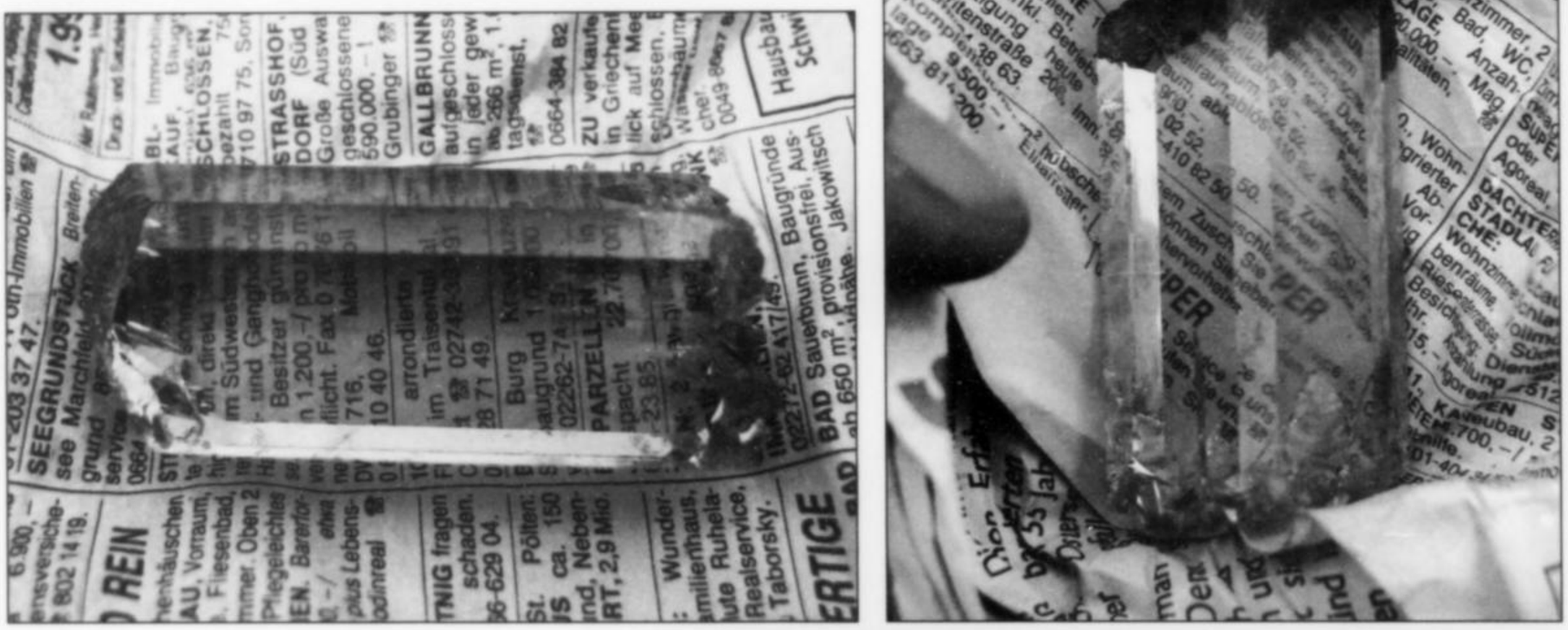
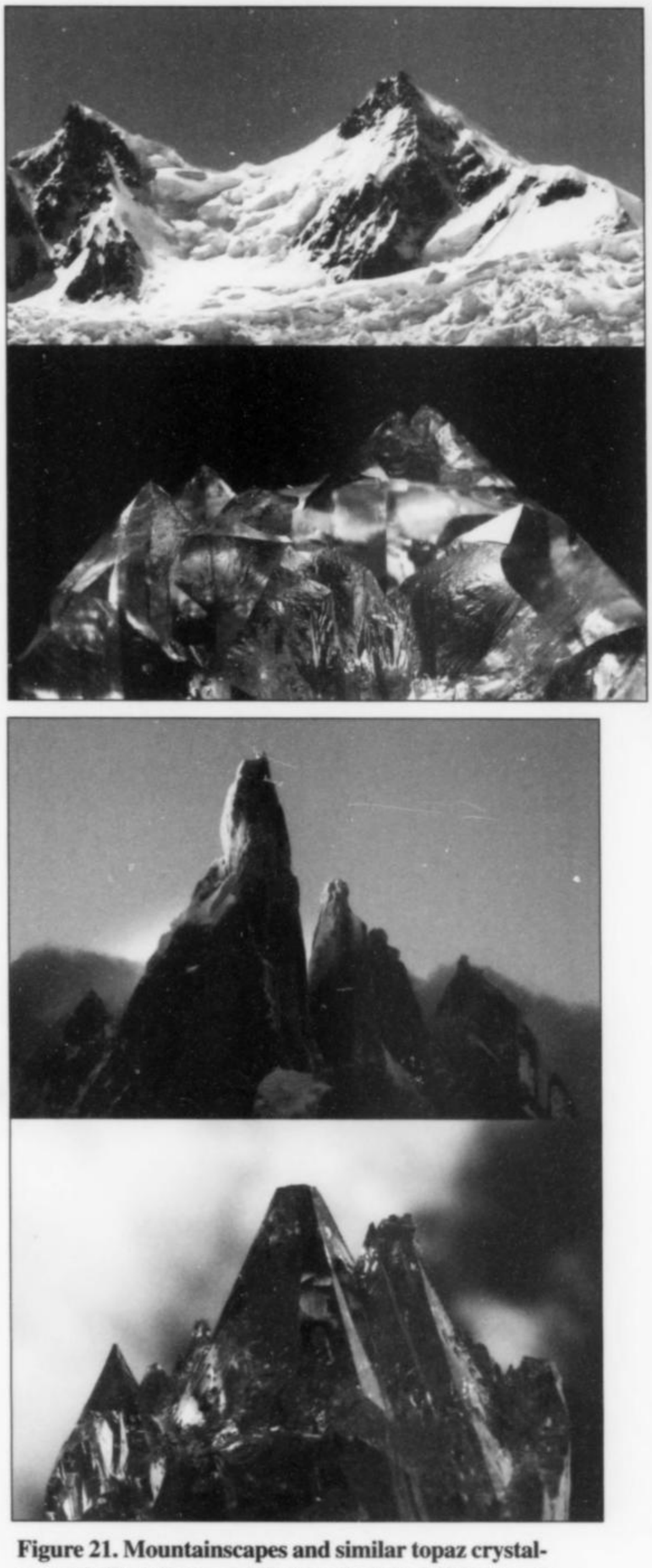


Figure 18. (above and above right) **Water-clear topaz crystal, 6.3 cm, from the southern pocket. Robert Brandstetter photo.**

Figure 19. **Topaz crystal, 5.8 cm, from the northern pocket. Robert Brandstetter photo.**

Figure 20. **Topaz crystals, 8.5 cm and 6 cm, from the northern pocket. Robert Brandstetter photo.**



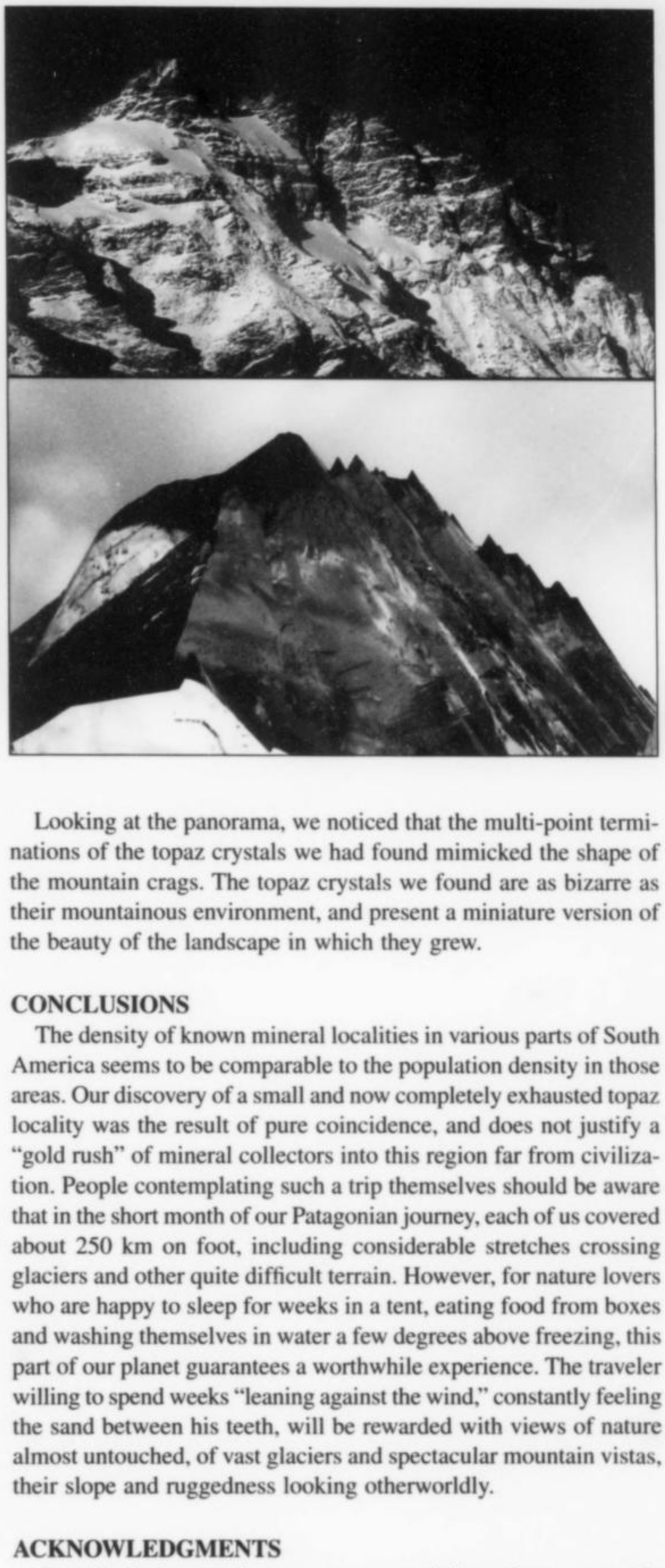


Figure 21. Mountainscapes and similar topaz crystalscapes! (*Top*) Cerro Adela (on the left, 2938 m) and Cerro Adela Norte (2813 m). (*Right*) Cerro Mojon Rojo (2150 m). (*Bottom*) Cerro Torre (3102 m) and Torre Egger (2900 m). Robert Brandstetter and Rudolf Purat photos.

the Torre Egger (2,900 meters). Before us lay the enormous ice fields of the Adela group (2,938 meters) in the west, and the Cerro Poincenot stone giants (3,002 meters) and Mount Fitzroy (3,405 meters) in the east. But unfortunately there was no longer sufficient time left for a serious climb.

Looking at the panorama, we noticed that the multi-point terminations of the topaz crystals we had found mimicked the shape of the mountain crags. The topaz crystals we found are as bizarre as their mountainous environment, and present a miniature version of the beauty of the landscape in which they grew.

CONCLUSIONS

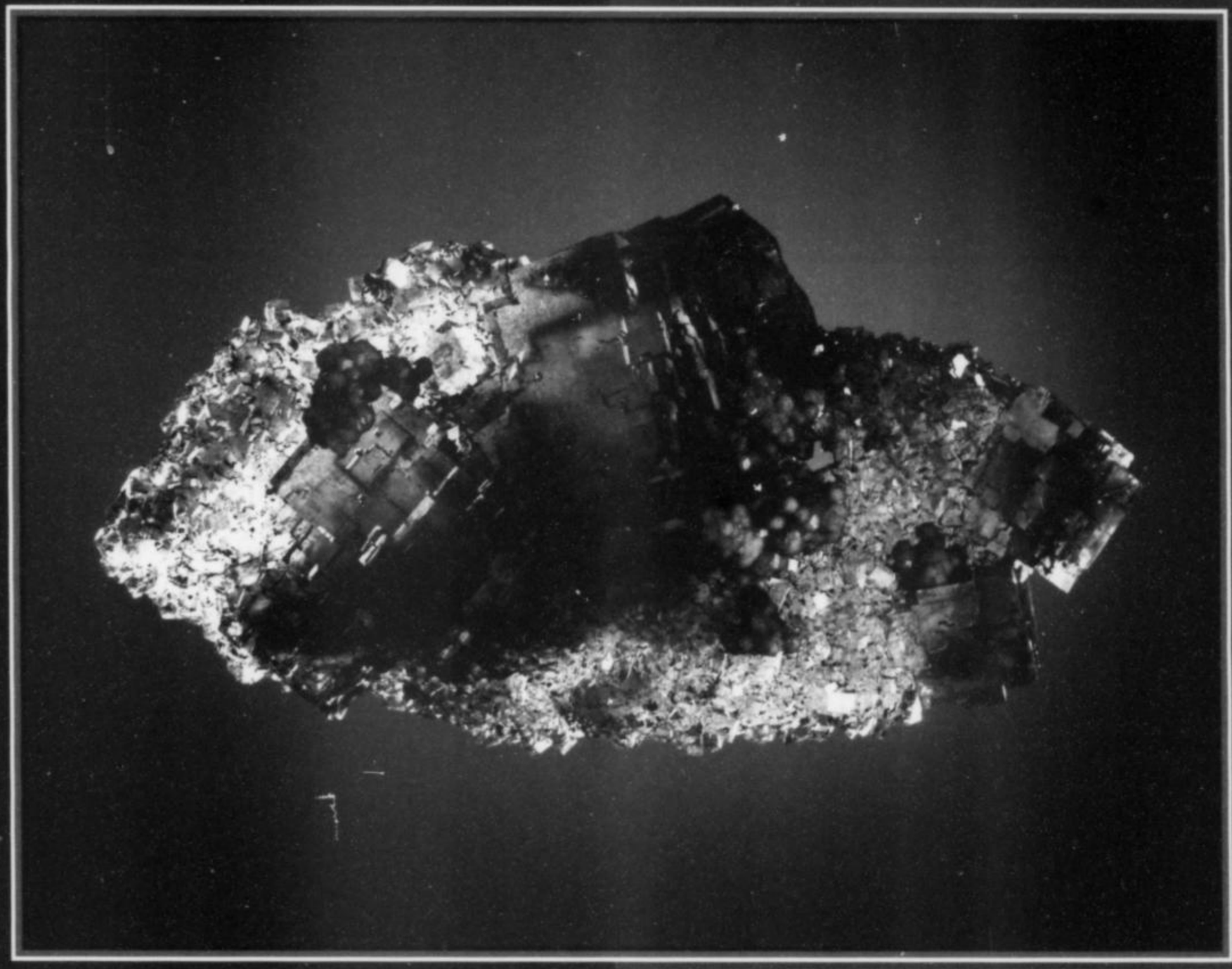
The density of known mineral localities in various parts of South America seems to be comparable to the population density in those areas. Our discovery of a small and now completely exhausted topaz locality was the result of pure coincidence, and does not justify a "gold rush" of mineral collectors into this region far from civilization. People contemplating such a trip themselves should be aware that in the short month of our Patagonian journey, each of us covered about 250 km on foot, including considerable stretches crossing glaciers and other quite difficult terrain. However, for nature lovers who are happy to sleep for weeks in a tent, eating food from boxes and washing themselves in water a few degrees above freezing, this part of our planet guarantees a worthwhile experience. The traveler willing to spend weeks "leaning against the wind," constantly feeling the sand between his teeth, will be rewarded with views of nature almost untouched, of vast glaciers and spectacular mountain vistas, their slope and ruggedness looking otherworldly.

ACKNOWLEDGMENTS

Special thanks are due our team, consisting of our mountain guide Alois Krenn, as well as "extreme" alpinists Petra Morolz and Rudolf Purat, all from Spittal/Drau, Austria. Their participation was indispensible in the mining of the new topaz occurrence, in the organization of our journey, and in assuring our safety at the mountain. My sincere thanks as well to my friend and collecting partner, Oliver Konczer, who helped in the preparation of this article. Further thanks are owed to Tom Gressman of Collector's Edge Minerals, Inc. for suggesting this article, and to Dr. Wendell Wilson for providing the English translation of our manuscript. NOTE: Some specimens from this find have been sold to Collector's Edge Minerals (and will be offered at the 2009 Tucson Gem and Mineral Show).

Mimetite, Pingtouling mine, Liannan Co., Guangdong, China.

Wilensky photo



Hardin County, Illinois. Ross Lillie collection #RCL-1789.

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The Arkenstone

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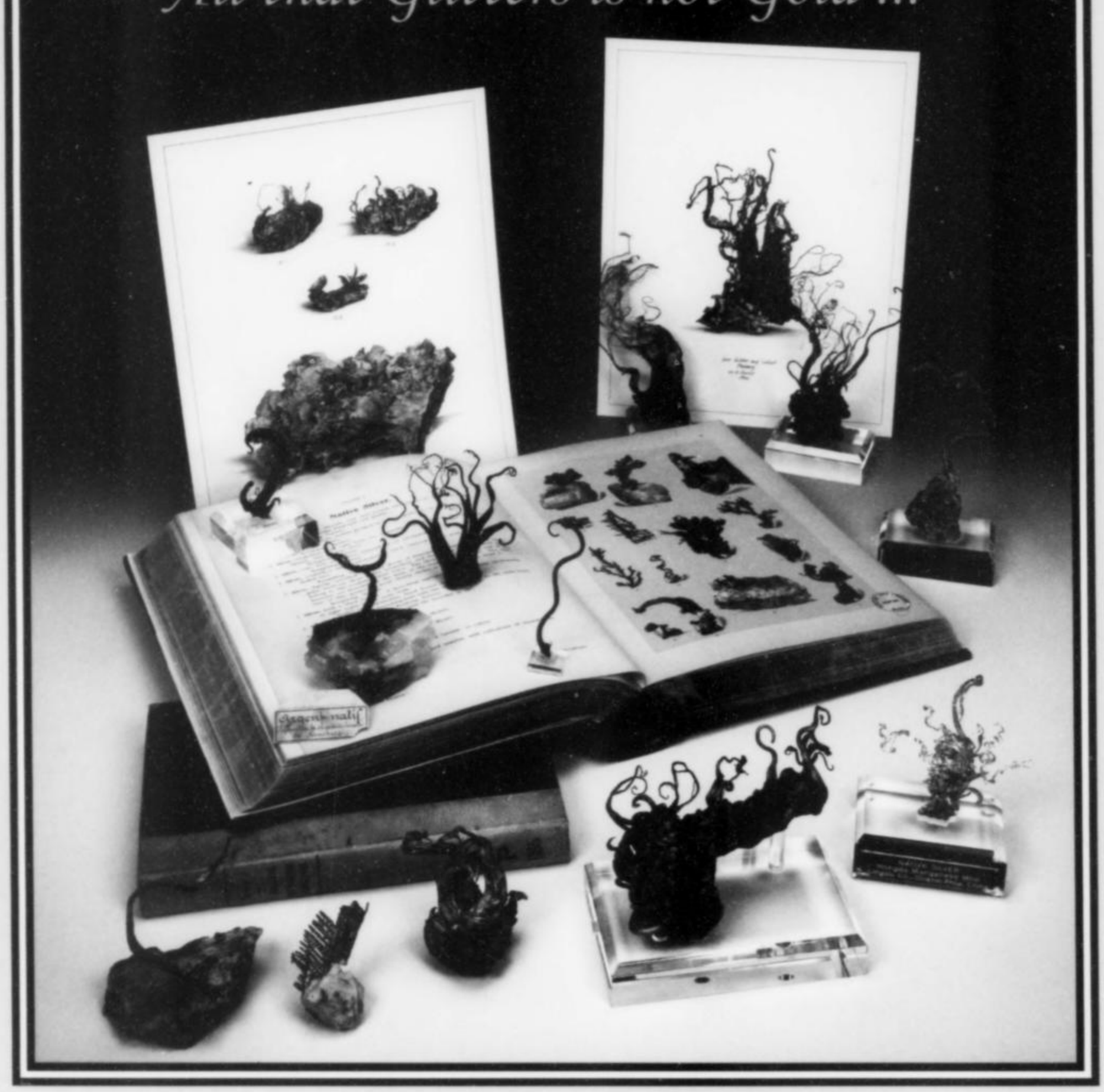

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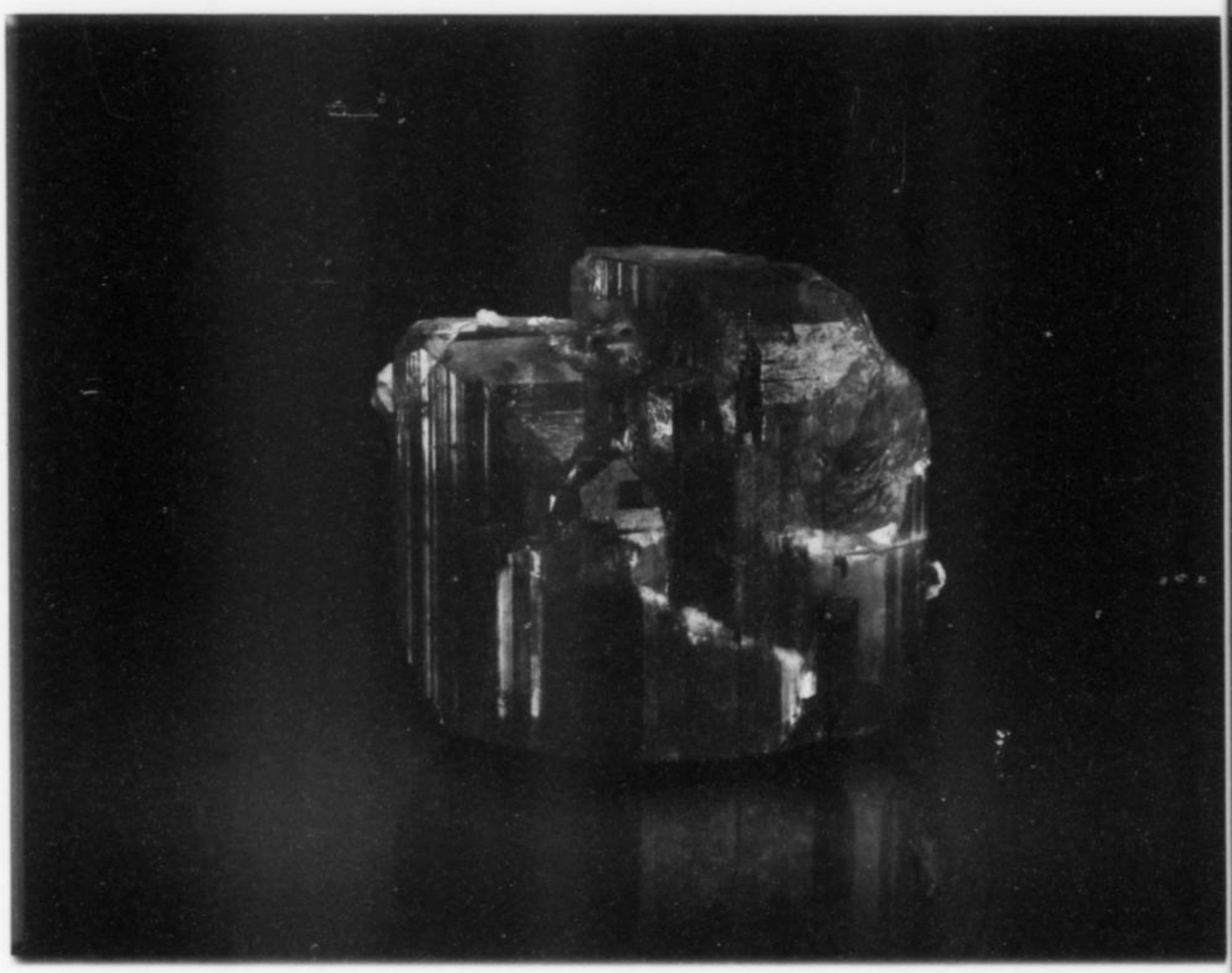

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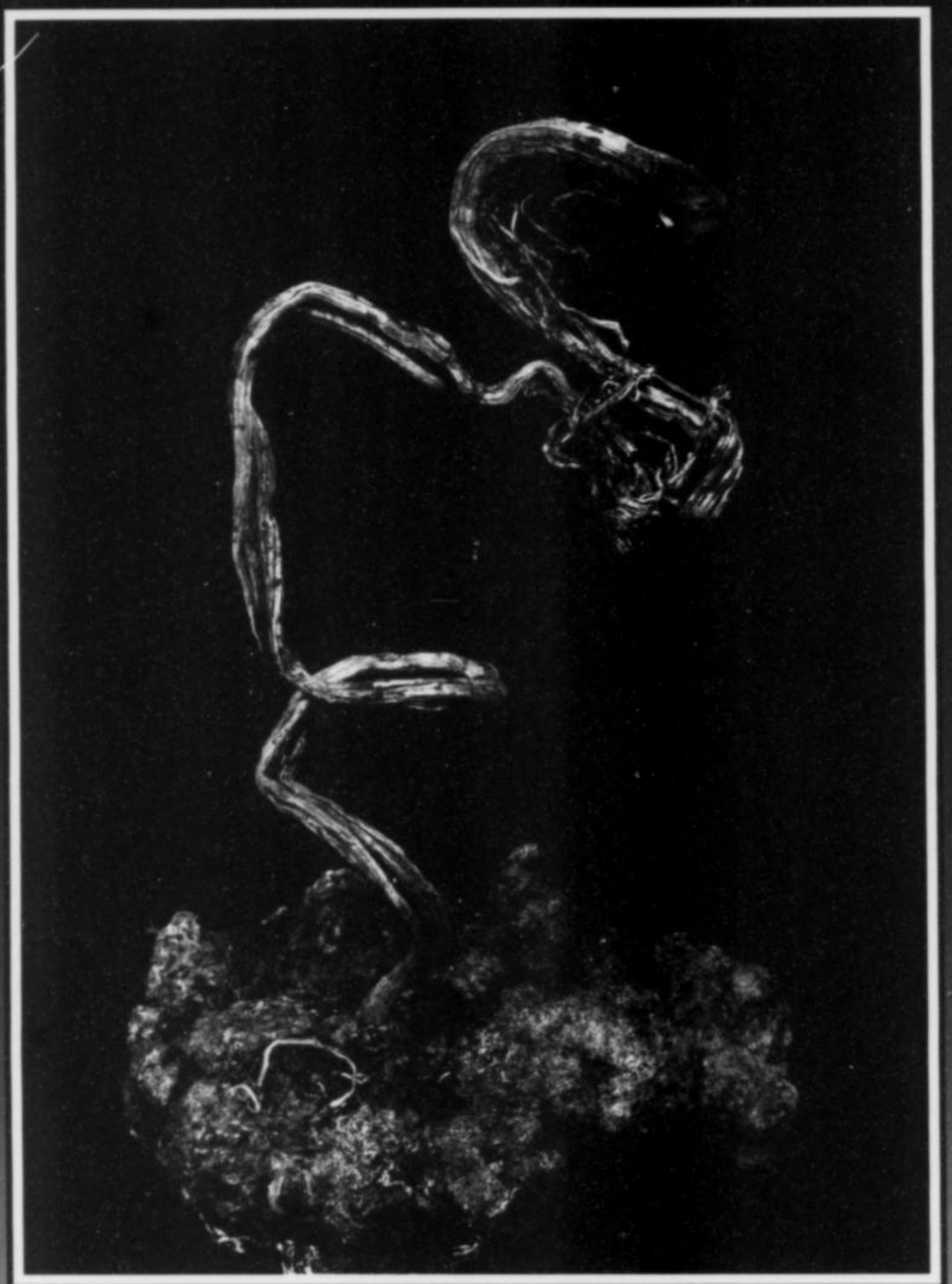

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Memoirs of a Mineral Collector—Part 3:

Treasure-Hunting in Minas Gerais Since 2000

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In two earlier articles (November–December 2005 and May–June 2006), the author recounted many of the 59 gem-crystal "treasure hunts" which he has undertaken since 1969 in Minas Gerais, Brazil. Here he reviews some localities in the region, both old and new, which remain productive of fine specimens today, and makes some observations on treasure-hunting (and its difficulties) in contemporary Minas Gerais.

THE BRAZILIAN MINERAL SCENE AT PRESENT

My 2007 collecting tour of localities in Minas Gerais was devoted chiefly to investigating and photographing any new developments that might have taken place there since my last visit. Times change and, as it turned out, many things in Minas Gerais had changed radically. Production of crystals and gem rough had fallen off very steeply, primarily as a result of fiscal over-regulation by the Brazilian government. The garimpieros have had their necks wrung like chickens! Their discoveries and claims have been confiscated, and consequently their offerings to the dealers have dried up. The production of collector specimens and of cutting material is limited now to mines worked legally by dealers. This situation has raised the (already high) prices of uncut crystals to such a point that acquiring top-quality crystal specimens is possible only for the especially well-funded collectors, universities or museums; collectors of average means have almost no chance of acquiring very good specimens for reasonable prices.

In the past, thanks to my long-established contacts with Brazilian dealers and mine owners, I was able to see and photograph nearly all of the major discoveries. Now, however, the super-pieces are held in secret and are shown only to selected people who are judged wealthy enough to remain active buyers in the face of the extreme price increases. This has much to do with the fact that criminality is rife in Brazil, and many of the well-known dealers and their customers, having had unpleasant experiences with bandits, are now wary of everyone. Life-threatening assaults are the order of the day, and I could cite many examples; not long ago, for example, the mayor of Coronel Murta himself was a victim of the "Pistoleros."

Furthermore, good collector pieces are now more often sold only in lots, a situation which serves the advantage only of well-heeled foreign dealers and not of the private collectors who might want to acquire good pieces individually.

Traveling in Brazil also poses health risks. Dangers like grass-borne dengue fever or other tropical diseases which are exotic to us may be brought back by traveling mineral enthusiasts. And for sojourners in Brazil there are other threats and dangers, just as vaguely apprehended: for instance, poisonous snakes are common, such as the large-headed, rattlesnake-like *Gascavel*, or the small but very dangerous *Schararaka*, whose bite is frequently fatal. I myself only became aware of some of these dangers as a result of talking with natives during my last trip to Brazil, and I am now even more cautious than I was on earlier trips.

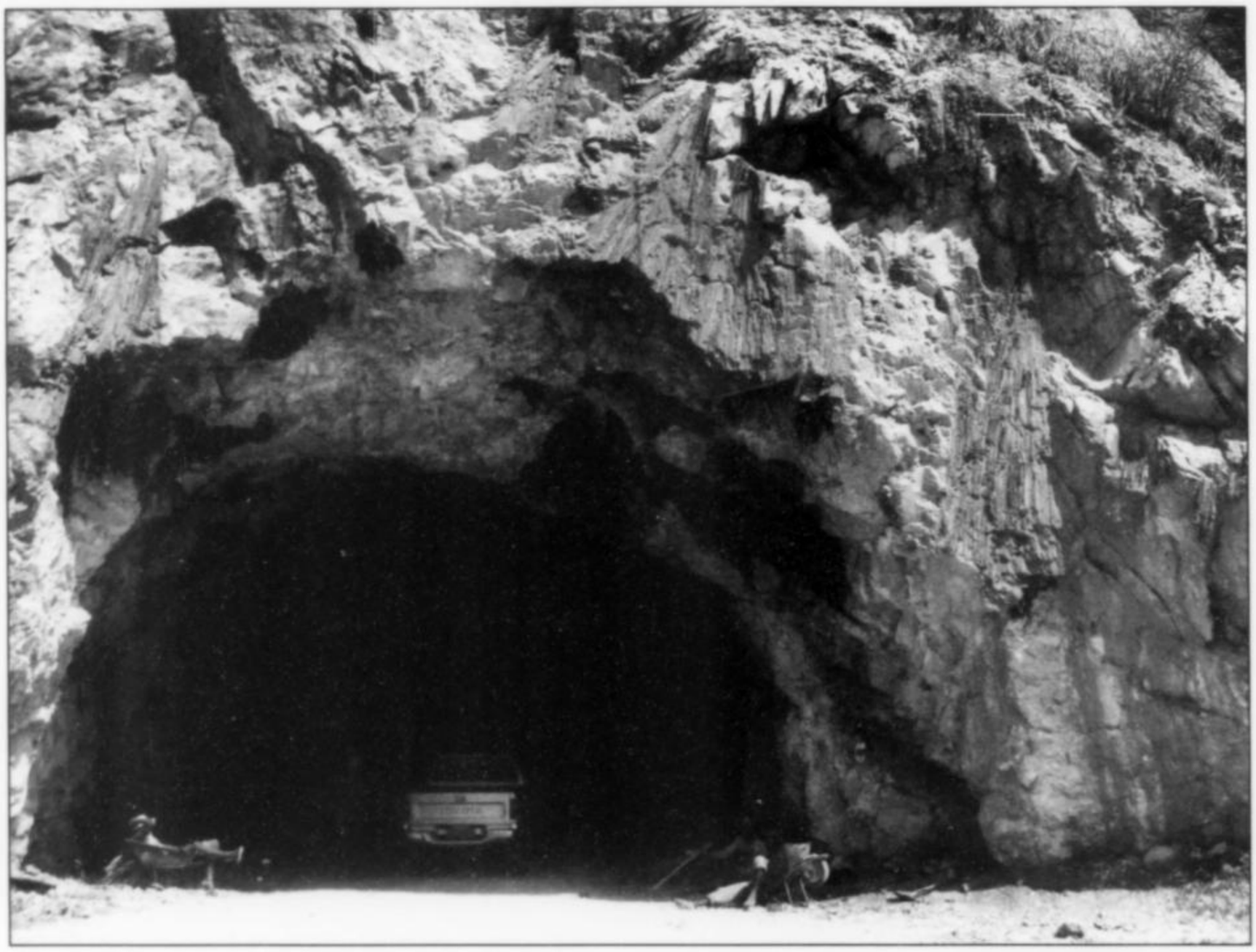

Figure 1. **Adit opening in the Arqueana feldspar mine. Guido Steger photo, 2007.**

Everyone must judge for himself whether it is worthwhile to go to Brazil just to acquire the same specimens which can be purchased—without much overhead, hardship or danger—from the same Brazilian dealers at the shows at Tucson, Denver, Ste.-Marie or Munich. These dealers, I have been told, only come to the international shows if they have already hoarded a stock of good material. The belief that "over there" in Brazil one can at any time find good specimens of all sorts in quantity is now only a myth.

One might ask, "*Quo vadis*, Brazil?" Only the future can give us the answer as concerns the world of minerals.

A FEW NEW MINES AND THEIR OWNERS

The Arqueana Mine

The Arqueana mine, which lies northwest of Coronel Murta in the northern part of Minas Gerais, is the largest feldspar mine in the world; feldspar is taken from enormous underground workings. An access road from Aracuai is black-topped for about 30 km, then turns into a dusty, bumpy cinder track running directly to the mine.

The tunnels, which run on several levels, some superimposed, reach more than 200 meters into the mountain. They are spacious, and in some areas near the entrances there are 15-meter-high arched chambers called "cathedrals." Discrete entry ramps leading to the various working areas permit motorized vehicles to be brought far into the mine.

The penetrating smell of dynamite and other explosive materials often prevails in the tunnels. Some mining proceeds by hand, but there is also extensive use of Caterpillars and other heavy machinery. In the "cathedrals," trucks can be moved easily to the working face. In a level, centrally located place outside the mine, squared-off feldspar blocks to 15 tons in weight are stockpiled until a front-end loader comes to heave them into a huge transporter.

Figure 2. **Amilcar Afghouni, business director of the Arqueana feldspar mine, with a specimen of yellow-green elbaite from the mine. Guido Steger photo, 2007.**

When washed with water, the blocks take on a pale yellow tone: a pleasantly nuanced color which makes the material desirable for use in industry and in the building trade.

Amilcar Afghouni manages the Arqueana mine and a few other mines in the large area between there and Itinga. He leases many "lavras" and receives a percentage share of their profits. In his mines the most interesting collector minerals found include "cat's-eye" tourmaline, yellow-green tourmaline with dark terminal zones, apatite and scepter quartz. A specialty which Amilcar has served up in recent times is yellow-green muscovite in rosette-shaped aggregates forming solid coatings on transparent quartz crystals: these specimens are very colorful and attractive.

Lavra Teixeirinha

In recent times, a mine near Itinga called Lavra Teixeirinha (pronounced "Ty-shy-reen-ya") has become interesting, not only because it is presently in production, but also because it yields diverse minerals showing distinctive habits and accessory species. For instance, specimens showing tabular eosphorite crystals resting on blue topaz have been found there. Interesting, too, are specimens with deep violet lepidolite crystals in attractive groups, interspersed with crystals of tourmaline and rosette-shaped cleavelandite (albite) aggregates. There are very unusual-looking, transparent, pale to dark smoky quartz crystals laminated with phantoms, and in 2007 some outstanding blue topaz crystals were found. In short, the Teixeirinha mine is presently very productive of first-rate mineral specimens.

Fourteen garimpeiros are at work in an active tunnel 180 meters long, with other tunnels branching at right angles to follow the pegmatite zone a further 50 meters into the mountain. The *padrão* (mine owner), Cleizinho Conçalves Oliveira, shows off his treasures in his house in Itinga, where he receives customers who are seeking exceptional collector-quality specimens. His mine—worked manually with the aid of drills and compressors—lies high up in the hills but is clearly visible from his house. Mining began there six years ago; the best year for production so far was 2006, and the end of active work is not yet in sight.

It is especially praiseworthy that the *padrão* has decided not to open the crystal pockets with dynamite. He intends to open all future productive pockets by mechanical means alone, in order to recover the crystals undamaged, if possible, and offer them in that state to collectors—a very good precaution, if the widespread demand for undamaged specimens is to be met.

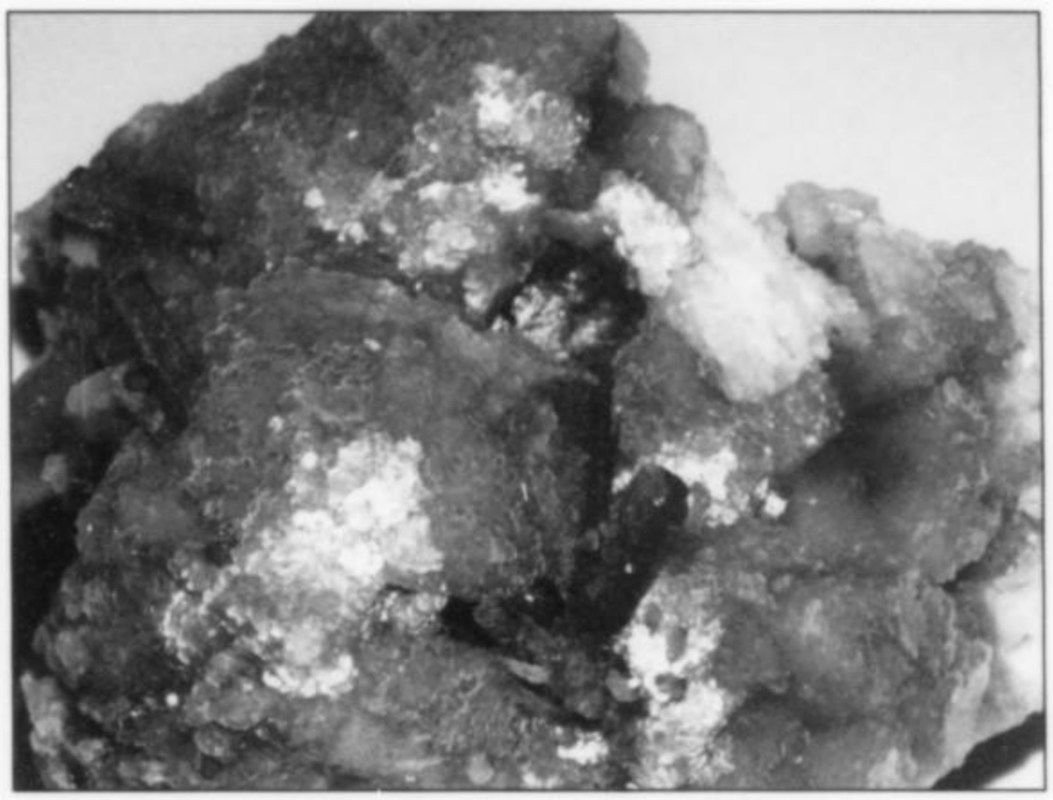

Figure 3. **Detail of the lepidolite specimen pictured in Figure 4, showing small green elbaite crystals. Guido Steger photo, 2007.**

Lavra de Morrão

Nezio Vicente Sales' Morrão mine lies on the outskirts of the city of São José da Safira, a short distance from the Pederneira mine. Fifteen garimpeiros labor there to extract aquamarine, tourmaline (blue and red), goshenite beryl and other typical gem-potential minerals from the pegmatite. The matrix of these crystals consists

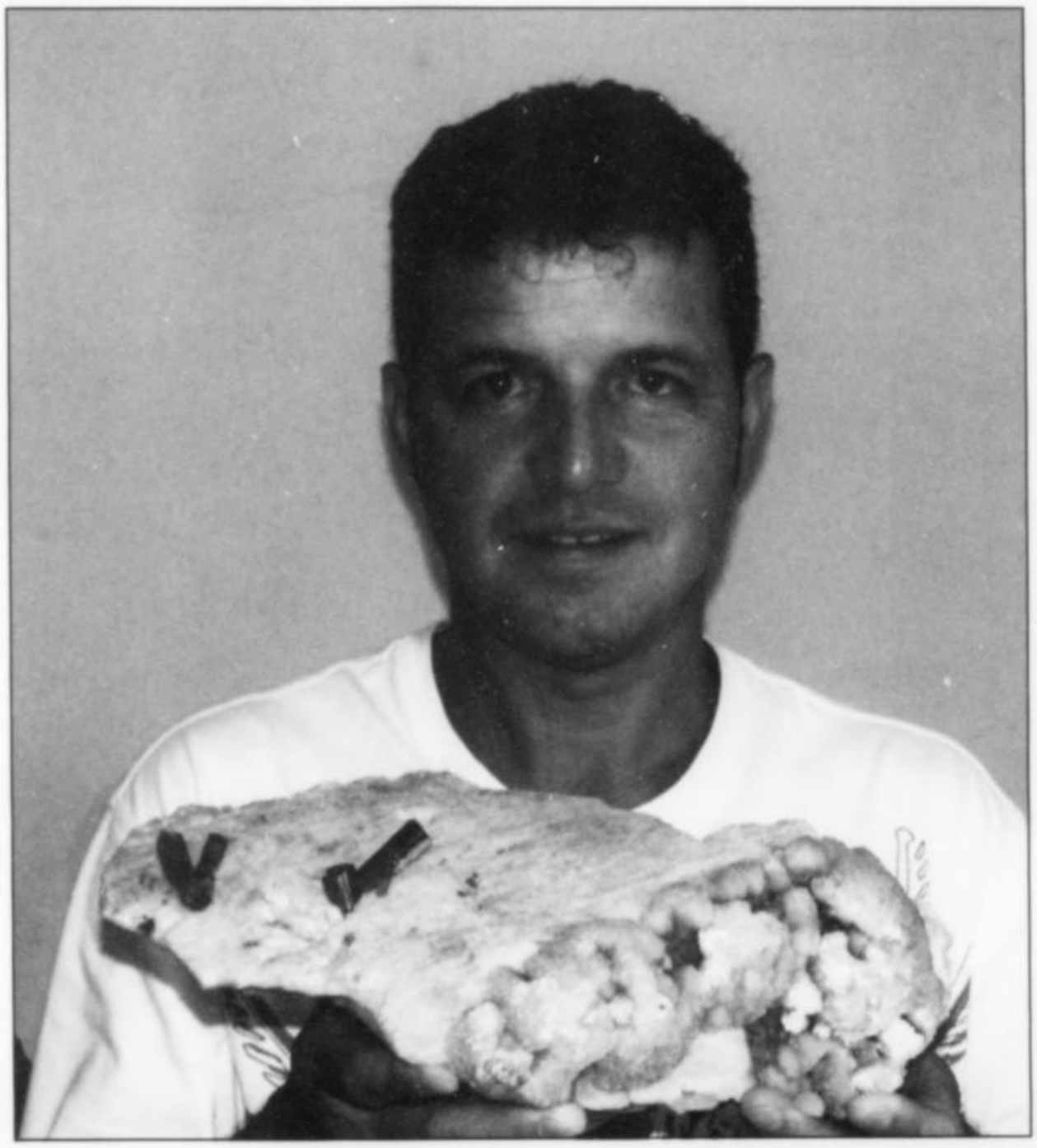

Figure 4. **Lepidolite on feldspar from the Teixeirinha mine; specimen held by mine owner Cleizinho Gonçalves Oliveira. Guido Steger photo, 2007.**

Figure 5. **Nezio Vicente Sales, owner of the Morrão mine, in a telephone conversation concerning some newly found Morrão mine specimens of elbaite, on the table before him. Guido Steger photo.**

essentially of albite and lepidolite. Mining is done mostly by hand; large machines have not been brought in. The production is small.

Urucum Mine

The famous Urucum mine (Lavra do Urucum) is located 12 km from Galiléia and 60 km from Governador Valadares. The occurrence was discovered in 1972 on the basis of information from local garimpeiros, and production began immediately. Eight garimpeiros currently work in the mine with hand-held compressors.

The pegmatite is dominated by mica and feldspar; these comprise the matrix for crystals of kunzite spodumene, morganite, beryl and apatite. Large quartz crystals are rare. The magnificent kunzite specimens may well be the best in the world; large, completely formed, wholly transparent crystals are common. This mine is the type locality for coutinhoite—a thorium-barium-uranium silicate named in honor of the renowned Brazilian mineralogist, José Moacyr Vianna Coutinho Professor emeritus of Mineralogy and Petrography at the Institute of Geosciences of the University of São Paulo, Brazil.

Maximum production of gem-quality kunzite crystals took place in 1972, the mine's first year, but a second high point came in 1998 when another large, mineral-rich pocket zone was discovered. In August of that year an enormous pocket lined with quartz crystals weighing between 100 and 6,000 kg each was discovered. To facilitate removal of the largest of these crystals, the tunnel had to be widened—a job requiring more than six months. In October, during the tunnel-widening work, an albite crystal-lined pocket was breached which yielded magnificent, totally gemmy kunzite crystals to more than 20 cm long.

Virgem da Lapa

The Virgem da Lapa district lies 76 km off the main highway to Bahia, west-northwest of Araçuai, east of Montesclaros, and 690 air-kilometers north-northeast of Rio de Janeiro. The Limoeiro and Xanda pegmatites, northwest of the town of Virgem da Lapa, were discovered in 1973, and intensive mining began in 1974–1975. Soon the mines were producing magnificent blue topaz and green elbaite specimens, the world's finest lavender-colored hydroxyl-herderite

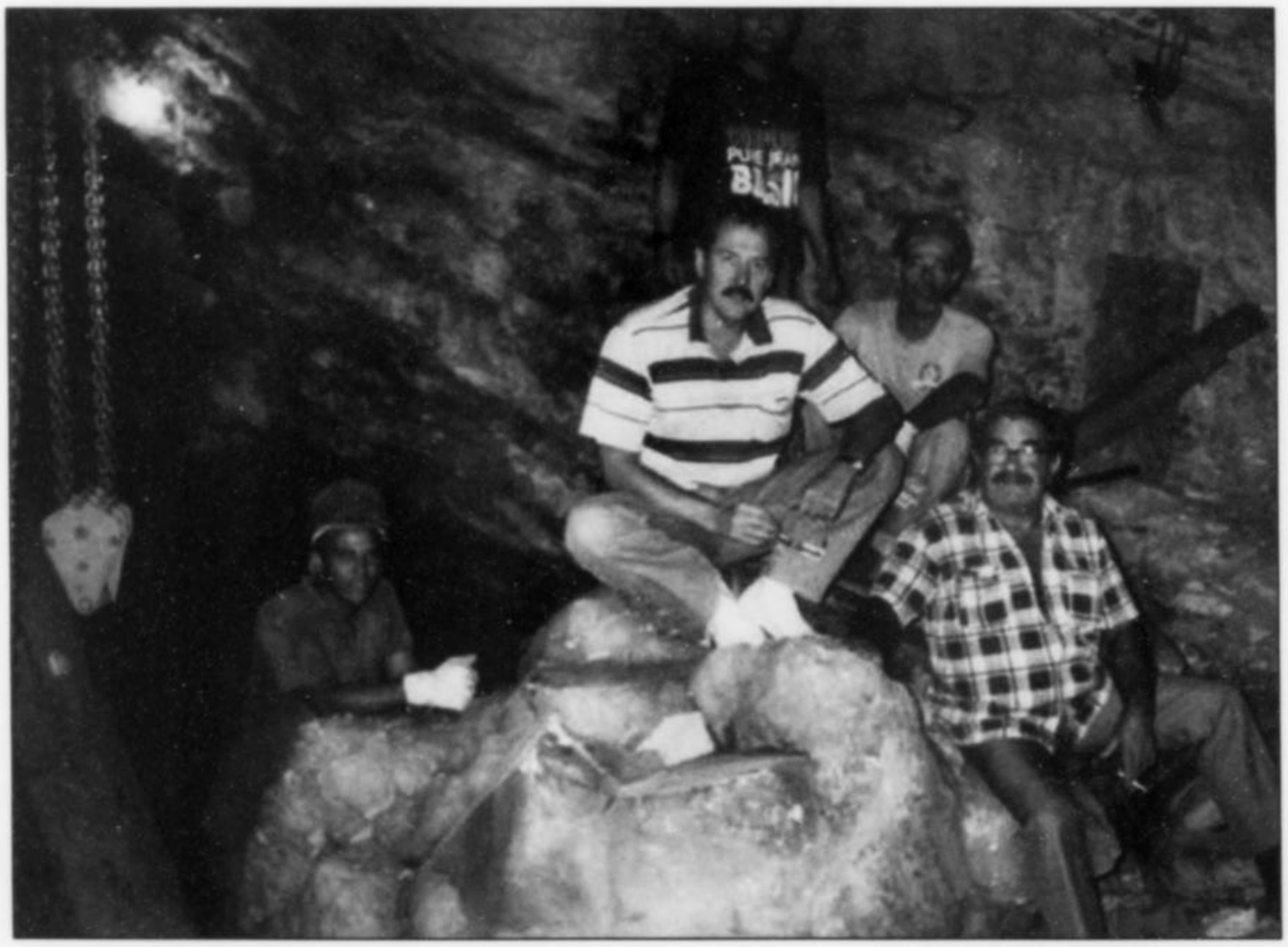

Figure 6. **Dilermando Neto with a crew of miners in the Urucum mine. Guido Steger photo, 2006.**

Figure 7. **Spodumene (variety kunzite) crystal, 23 cm, found in 2006 in the Urucum mine. Guido Steger photo, 2006.**

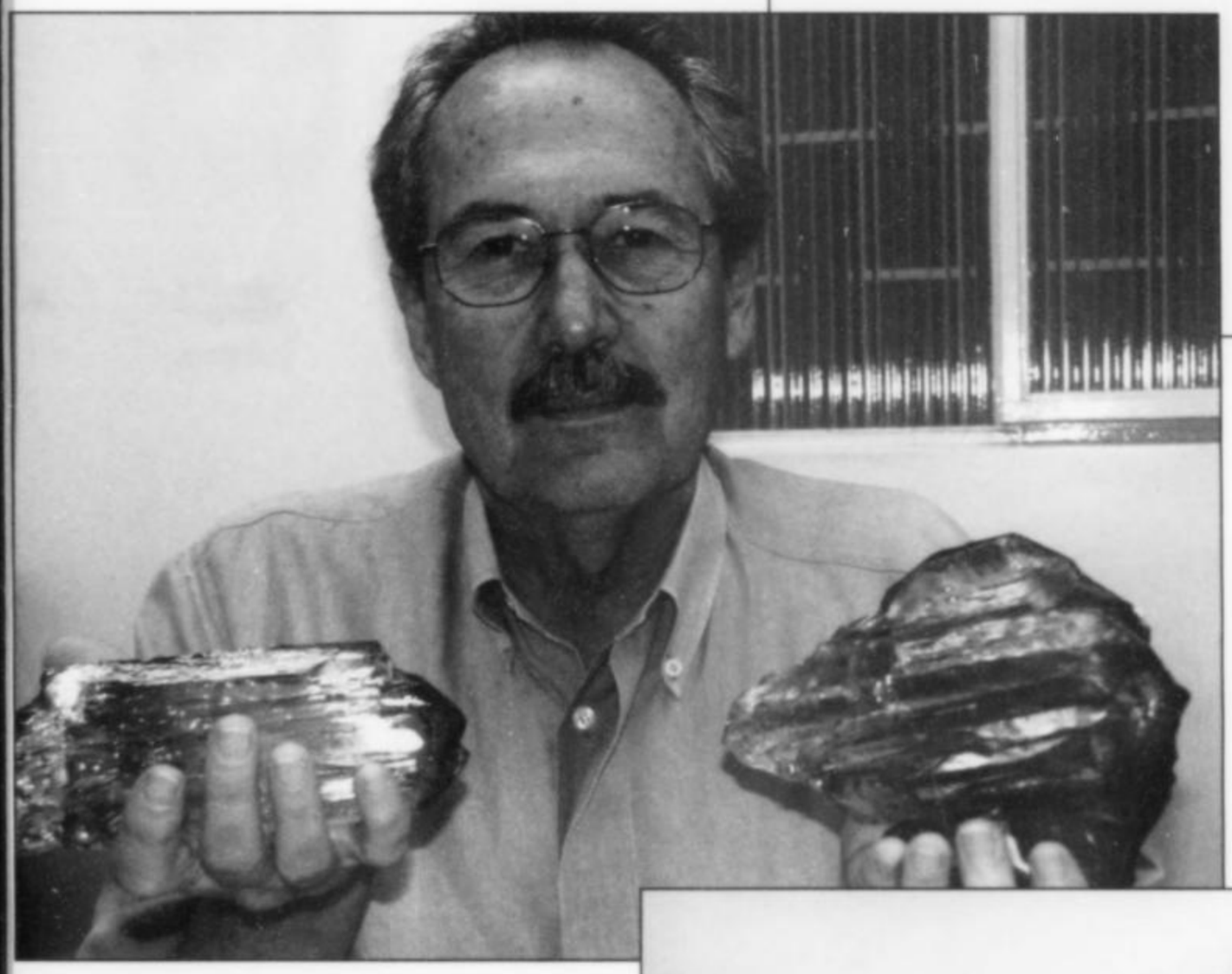

Figure 8. **Dilermando Rodrigues de Melo, Sr. holds two kunzite crystals from his Urucum mine. Guido Steger photo, 2007.**

Figure 9. **Beryl (variety morganite) with inclusions of elbaite, from the Morganite mine, Minas Gerais. The loose crystals were found between 1983 and 1985; the largest is 15 cm across. Guido Steger specimens and photo.**

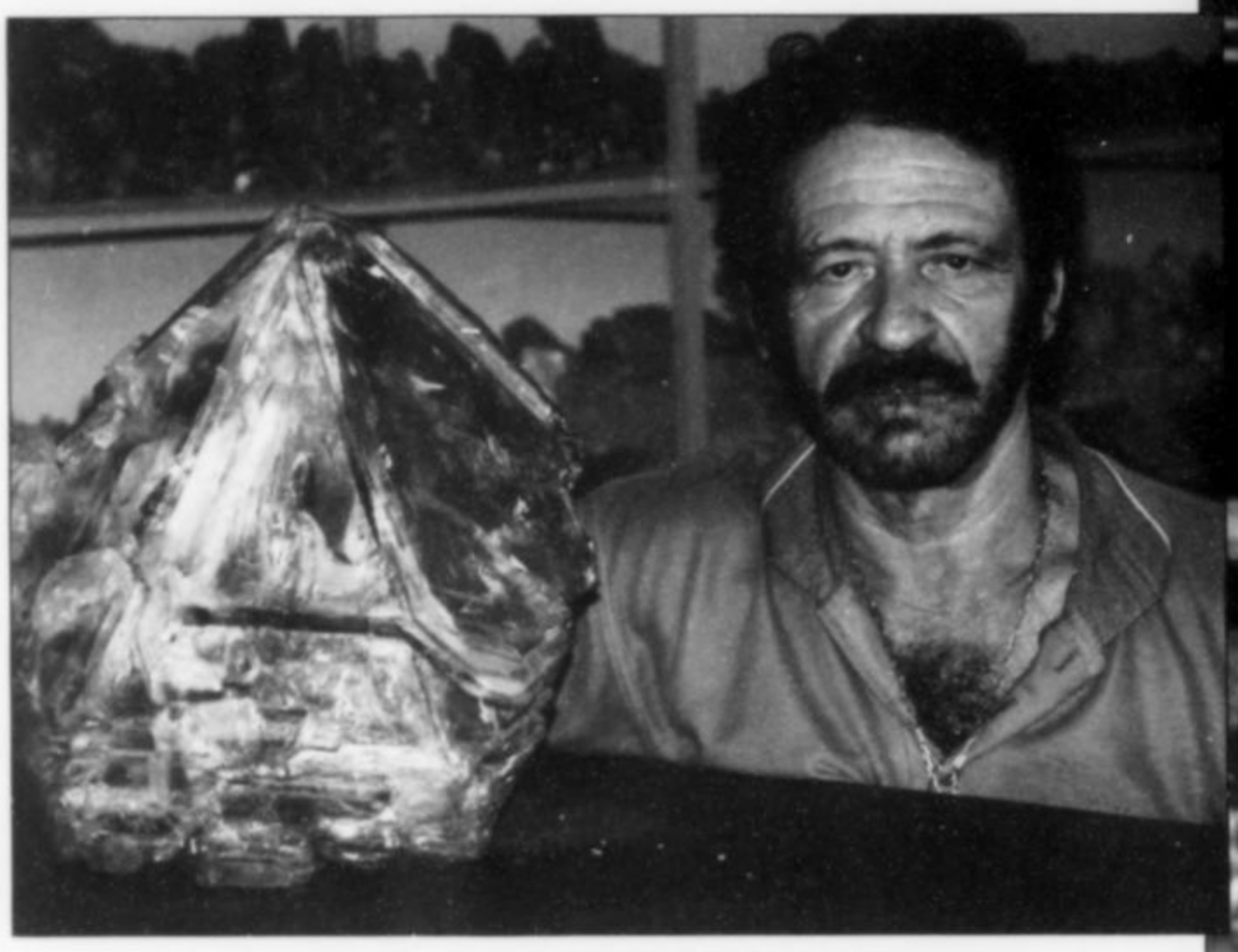

Figure 10. **A crystal of "fenster" quartz, 38 cm, found in 2007 in the Limoeiro mine, Virgem da Lapa, Minas Gerais, shown by mine owner José Estrada. Guido Steger photo, 2007.**

Figure 11. **Dr. Jacinto Ganem Neto with blue topaz on lepidolite from the Limoeiro mine, Virgem da Lapa, Minas Gerais. Guido Steger photo, 1985.**

specimens, and much more of interest to collectors (see Cassedanne and Lowell, 1982).

At first the pegmatites were worked for beryllium, but they soon became known for their gemstone material. The basement rock, a micaceous gneiss, is in part overlain by sandstone. The gneiss is interspersed with quartzite layers and granite bodies which crop out prominently, as well as with numerous pegmatites. All of these rock units are of Precambrian age; the deposits above them are Tertiary.

Quartz-lined cavities in the pegmatites have yielded wonderful blue topaz and large tourmaline crystals associated with cleavelanditic albite and lepidolite; crystals of beryl, especially aquamarine, resting on feldspar are occasionally found. Discoveries have continued at intervals since the mid-1970's. In 2007, an especially fruitful year, the Virgem da Lapa mines produced fine specimens of scepter and fenster quartz, and blue topaz crystals to 10 cm; in March of that year, fine gemmy crystals of red and multi-colored tourmaline emerged.

The "New" Santa Rosa Mine

The "new" Santa Rosa mine, 10 km north of the "old" mine once worked by Don Gomez de Rocha, lies 30 km west of Itambacuri, on an edge of the chain of hills which bounds the Santa Rosa Valley on the west. Half of the drive from Itambacuri requires a cross-country vehicle.

More than 30 garimpeiros work at the mine. From the dumps, one can easily see the hill wherein work is proceeding. The pegmatite vein strikes 45 degrees east, and the plan is to mine it from bottom to top. Mine-owner Jean Claude Nydegger—a native of Switzerland—and his people have been working this productive hill since 2004. Most notably the hill has yielded blue and blue-green tourmaline. Altogether, 80 kg of blue "indicolite" elbaite have been produced, of which 30 kg consist of cutting-quality material. Especially noteworthy are the discoveries of transparent citrine crystals, commonly with crystals of black and colored tourmaline.

Punch drills and other hand-operated machines are used in the mine; heavy equipment such as caterpillars and bulldozers have not been brought in.

Many collector-quality specimens and much good cutting material may be expected to come from the mine in the future.

A Visit to the New Santa Rosa Mine

I was walking among the street merchants and stone-seekers in the *Praca Tiradente* in Teofilo Otoni when suddenly a wide hand clapped me forcefully on the shoulder. I turned around—and it was Jean-Claude Nydegger! Happily we grasped each other's arms in the usual way. In Tucson, this fairly young and robust mine-owner had invited me to visit his "new" Santa Rosa mine. Unfortunately I had misplaced his card, and now I was extremely pleased at our fortuitous meeting in the busy, dynamic "capital city of gems" where I'd been on the lookout for him.

What followed was one of the best of my many experiences in the mines of Brazil. While in the U.S., Jean-Claude had read in the *Mineralogical Record* the combined reports of my Brazilian study and collecting tours and was very eager to take me to see his mine. Done! The next day Jean arrived at the Hotel Lancaster in Teofilo Otoni to pick me up in his cross-country vehicle. We stocked up on groceries and other necessities and then set out to drive directly to the mine.

Figure 12. **Elbaite (variety indicolite) on citrine quartz, 27 cm, found in 2007 in the "new" Santa Rosa mine. Ruy Leite Perreira specimen; Guido Steger photo.**

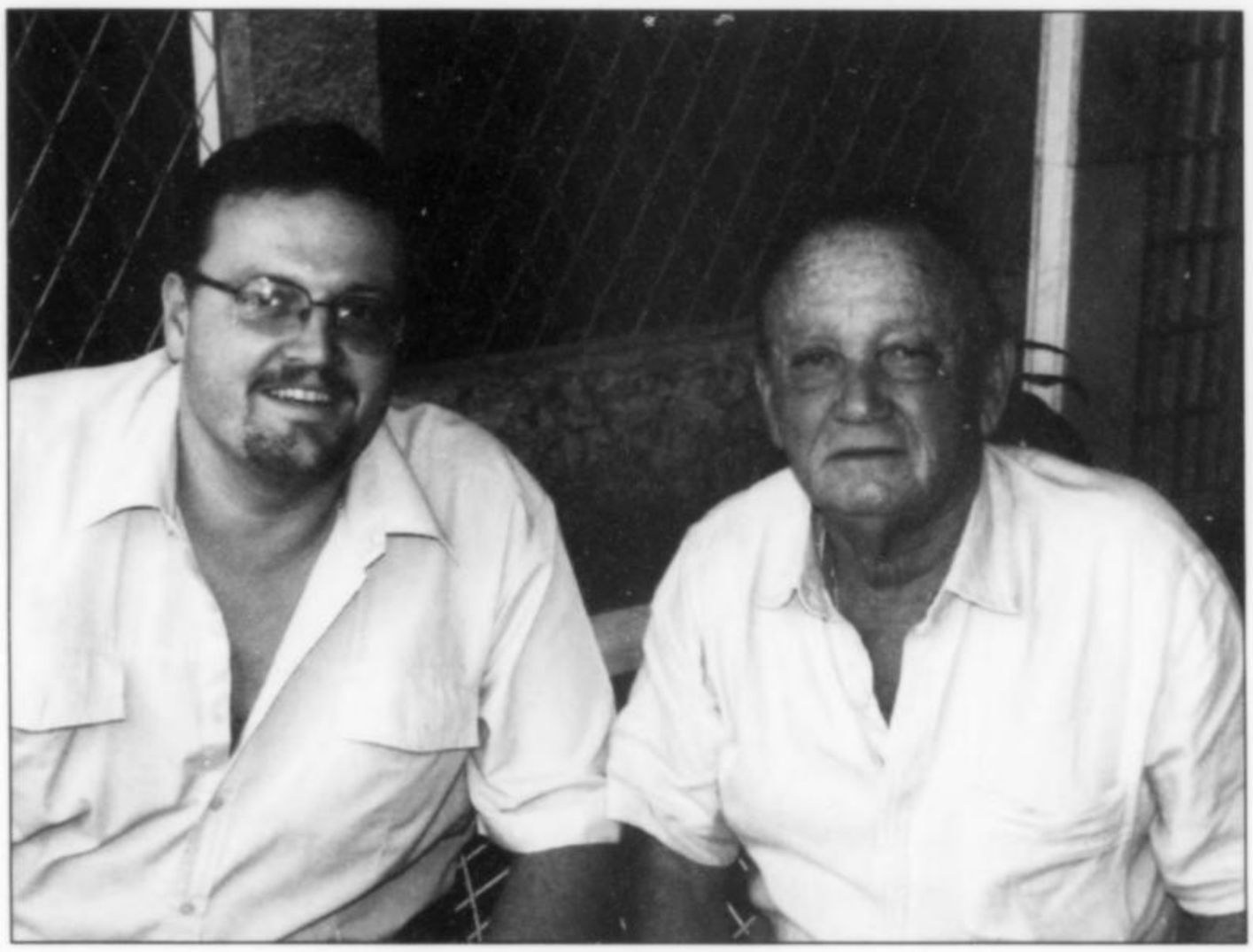

Figure 13. **Left: Jean-Claude Nydegger, owner of the "new" Santa Rosa mine. Right: Don José Gomez de Rocha, former owner of the "old" Santa Rosa mine. Guido Steger photo, taken in May 2007, at the home at Don Gomez in Itambacuri.**

As he drove the 30 km to Itambacuri, the jump-off point of our "mountain and valley drive" to Santa Rosa, Jean-Claude chatted jovially in Portuguese and English. He had grown up in Switzerland and was good with languages—he could speak others as well. I urged him to pull up in front of the house of my good old friend Don Gomez de Rocha, and we thoroughly surprised the old man by our visit. Excitedly the former owner of the "old" Santa Rosa mine led us to seats in his garden, where we talked about old times. I had often been there with him, alone and with the groups I had led to Brazil, and I had long known about his "old" Santa Rosa mine, located in the southern part of a 15-km-long chain of hills. There the best multicolored Brazilian tourmaline of its time was "found" (i.e. taken by the most arduous labor out of the mountain), and in the *Mineralogical Record* previously I have mentioned the beautiful calcite "Rose of Santa Rosa," unique in the world. During this visit I gave Don Gomez a copy of that publication, hoping it would ease his pain in some degree. A few days previously he had fallen from the roof of his house and broken his leg—and yet he was as vital as ever, and animated in conversation.

But we had to move on! At first the drive felt like old times, when in good weather we had driven passenger cars to the "old" mine. We passed a waterfall, in whose cascade I had once very recklessly taken photographs and then glided through—coming out luckily on the other side of the furious spray.

The red-brown laterite road soon turned into a bumpy, eroded surface, and thereafter a dangerous track with deep potholes; the 40-cm-deep channels and projecting rocks were hard on the car and the passengers alike. The road is absolutely impassible during the three-month rainy season.

Thus we labored on towards the mountain, the car's bouncing suspension turning our seats into trampolines. There was not enough room between our heads and the roof of the cab, but Jean-Claude didn't slacken the pace. I have never experienced quite such a "drive" to a mine!

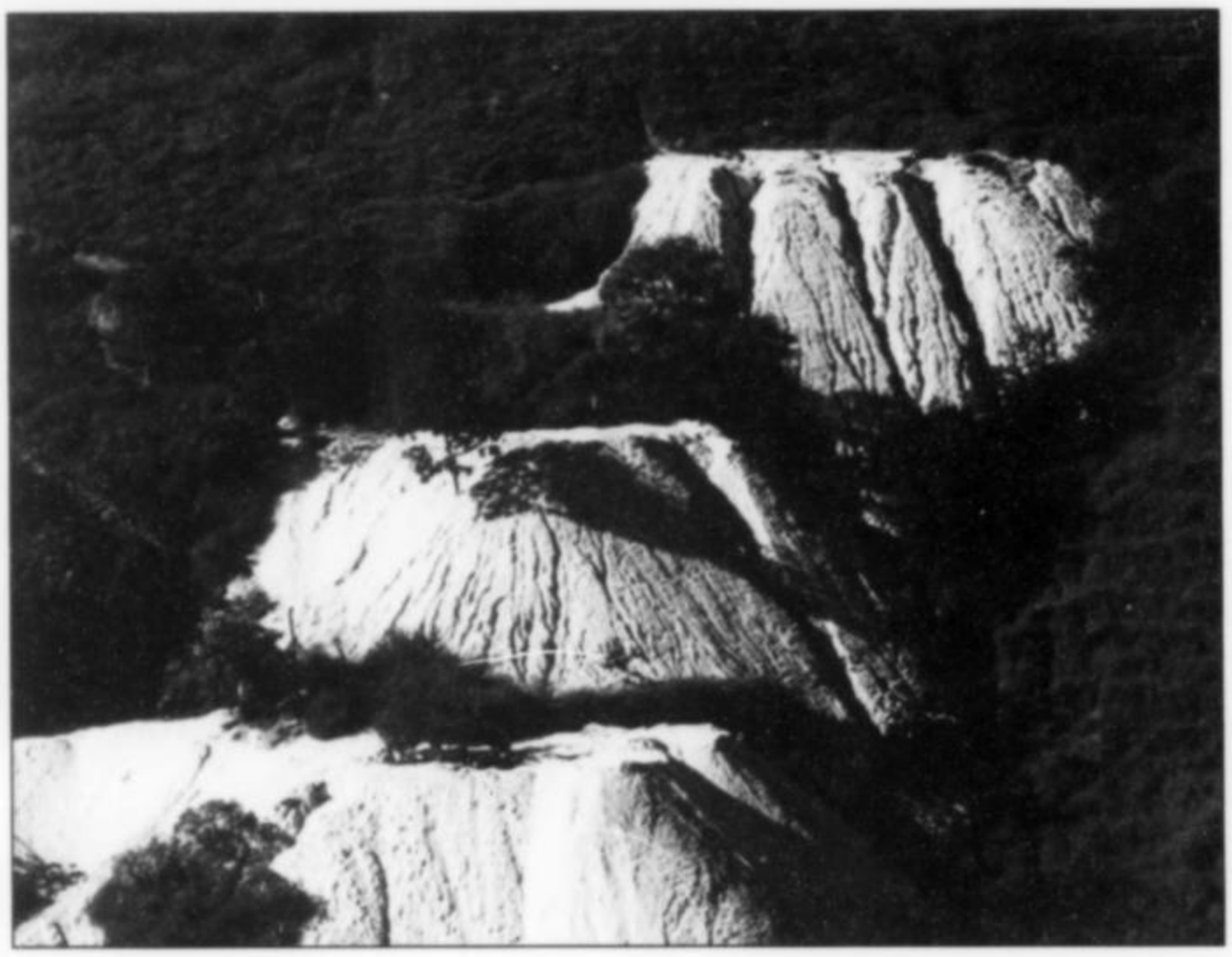

Figure 14. **Dumps of the "new" Santa Rosa mine. Guido Steger photo, 2007.**

At last, on the summit of a hill, the ground grew smooth and the view spread out before us, taking in a huge area far and wide. In the distance the surroundings of the "old" mine of Don Gomez could be seen.

Not far below us now, the mica-laden dumps of the "new" Santa Rosa mine glistened in the sunlight. On the opposite hill slope, several levels of tunnel entrances were clearly visible, one above another in a straight vertical line. We moved a bit farther forward and finally came to a halt in the center of this remote mining camp. It was noon, and the miners were taking a break in the shade of the simple buildings, and even the camp watchdog was sneaking away to hide from the mid-day heat. A little house with benches by the entrance stood there, and within it was a long table with chairs and a well-appointed kitchen where an old cook went industriously about her business.

We parked our vehicle by the open front door, and soon the cook brought out complete table settings. Then she served a simple but good, traditional meal, after which the workers were allowed a short nap.

Jean-Claude pointed out to me the several tiers of adits, some already extending more than 100 meters into the hill. He explained the geological sequence and the inclination of the gem-bearing pegmatite zone, and described the future plans for extending the workings. Looking around the area outside, we heard a muffled explosion in the distance and felt the ground tremble. After some lapse of time we entered an adit, and instantly sensed a sharp, caustic odor.

Jean-Claude led the way underground with a small lamp. I had not expected to be taken to the interior workings, and although I had heavy shoes on, I hadn't brought my hardhat, boots or lamp. I would suffer for this. Ahead of me in the darkness was an iron stake protruding horizontally from the wall. Jean-Claude, with his better light, was aware of it and swerved to avoid it, but I crashed into a corner of it with both shins, and my left elbow scraped against the rocky wall. I noticed that I was wounded, but it didn't hamper my inquisitiveness or my pleasure in taking photographs.

The roar of the pneumatic hammer and the drills filled the air. In order to drill the shot holes, two men held a big drill against the working face. Time flew by while I was observing this work, and eventually I noticed that my legs were bleeding where they had struck the iron stake. To disinfect the wounds I brought out a little bottle of iodine and applied it.

After we returned to the surface, Jean-Claude gave me a tour of his mine precincts, uphill and down, through high grass and crackling bushes. He advised me not to get out of the car, since poisonous snakes lurked in hiding. Before beginning work the miners often had to chase the snakes away.

He described the facilities which serve to maintain contact between this isolated region and the outside world: the mast of a large antenna, diverse reservoirs of supplies, power-supply facilities and, of course, the well-secured sheds in which explosives are stored. Everywhere in the mine's domain we could see the huts of the miners. The many small signs of test drillings bore witness to the difficulty of locating productive zones of the pegmatite.

Explosions again shook the earth at intervals, and following each one the rubble was taken out of the tunnels with wheelbarrows, to be deposited on the dumps.

And that was my visit to the mine. I was allowed to take away a few specimens as mementos, including a pretty citrine crystal and a dark, doubly terminated tourmaline crystal on matrix. Then the satanic ride began again, downhill and back to Teofoli Otoni.

The Belmont Emerald Mine, Itabira (2006)

In 2006 I went to visit the Belmont emerald mine in Itabira, but I soon ran into some very stern-looking guardians. They stood there regarding us with their penetrating gazes, in their dark pants and snow-white, freshly creased shirts, pistols hanging loosely at their sides. They were barring us from proceeding further.

Weapons stood in closely ordered rows by the guardhouse. We pulled up our cars and stopped. Mistrustfully, one of the two watchmen approached and asked us roughly what our business was. We explained to him that Marcellus Ribeiro, the manager, was expecting us. He ordered us to wait and sought confirmation by telephone. Soon Marcellus appeared and led us to his office on the mine property. He was friendly, with a cultivated appearance and manner, and spoke several languages. I preferred Portuguese, since it seems to best convey the feeling of this country.

I had met Marcellus during the Tucson Show, where he represented the Belmont Company, known worldwide for its marketing of emeralds. When I asked whether I might visit his company's emerald mine at Itabira, he very kindly promised to show me around when I came. Thus, a year later, my companion Gerhard and I were being admitted to his well-furnished central office at the mine. Our visit had been arranged in detail via e-mail.

Figure 15. **Excavation of emerald-bearing laterite at the Belmont mine. Guido Steger photo, 2006.**

Figure 16. **Overhead conveyor transporting coarse material for further sorting, Belmont emerald mine. Guido Steger photo, 2006.**

We put on our hardhats, and soon the tires of the mine jeep were eating their way through the dust of the road which led up to the mine workings. Powerful excavators were lifting their loads of rust-brown laterite—presumably including rocks which bore riches—and then dumping them into the heavy mine trucks which stood at the ready. These trucks were rolling into the processing area from all directions. Their oxide-colored loads were then delivered to a grizzly (a coarse metal screen). A high-pressure water jet freed the hard pieces of rock from the muddy laterite paste, then propelled them through a lattice and into a wooden holding container—as in the alluvial mining of gold—to undergo final cleaning. Many emerald-bearing pieces of rock have been fished out of the metal screen. Finally the rocky particles, now cleansed of mud, together with the emeralds lying loose, were sucked mechanically through the cracks in a level container, and added to the store.

The trickle of watery mud was channeled into a nearby pond, where the laterite particles settle to the bottom. In an environmentally friendly way the clear water flows into a passing stream which lies outside the enclosed area of the mine. This emerald-winning procedure as practiced at the Belmont mine differs from that in other, nearby emerald workings, particularly in its mechanical techniques.

We were also able to observe the work going on in the mine itself, where just then an adit was being driven forward, with a deafening uproar of the drill hammers.

Back in the office, Marcellus explained to us thoroughly, with the aid of graphs and an overhead projector, the prospecting and working plans of the mine for the future. More than 200 exploratory shafts had already been dug to determine the extent of the lens-shaped emerald-bearing formation. Mining was presently under way in Area 1, which has the outline shape of an amphitheater. After the work there is fully finished the resulting crater will be filled in, and work will move on to Area 2. After a further two years the process will be continued, relocating to Area 3. Work will finally cease with the exhaustion of the deposit.

This mine, with its modern technology, makes a very good general impression, and the friendly, courteous, highly informative tour which manager Marcellus Ribiero provided to us made for a wonderful experience.

Figure 17. **Miners searching for pieces of tourmaline in dumps near an entrance to the Sapo mine. Guido Steger photo, 2005.**

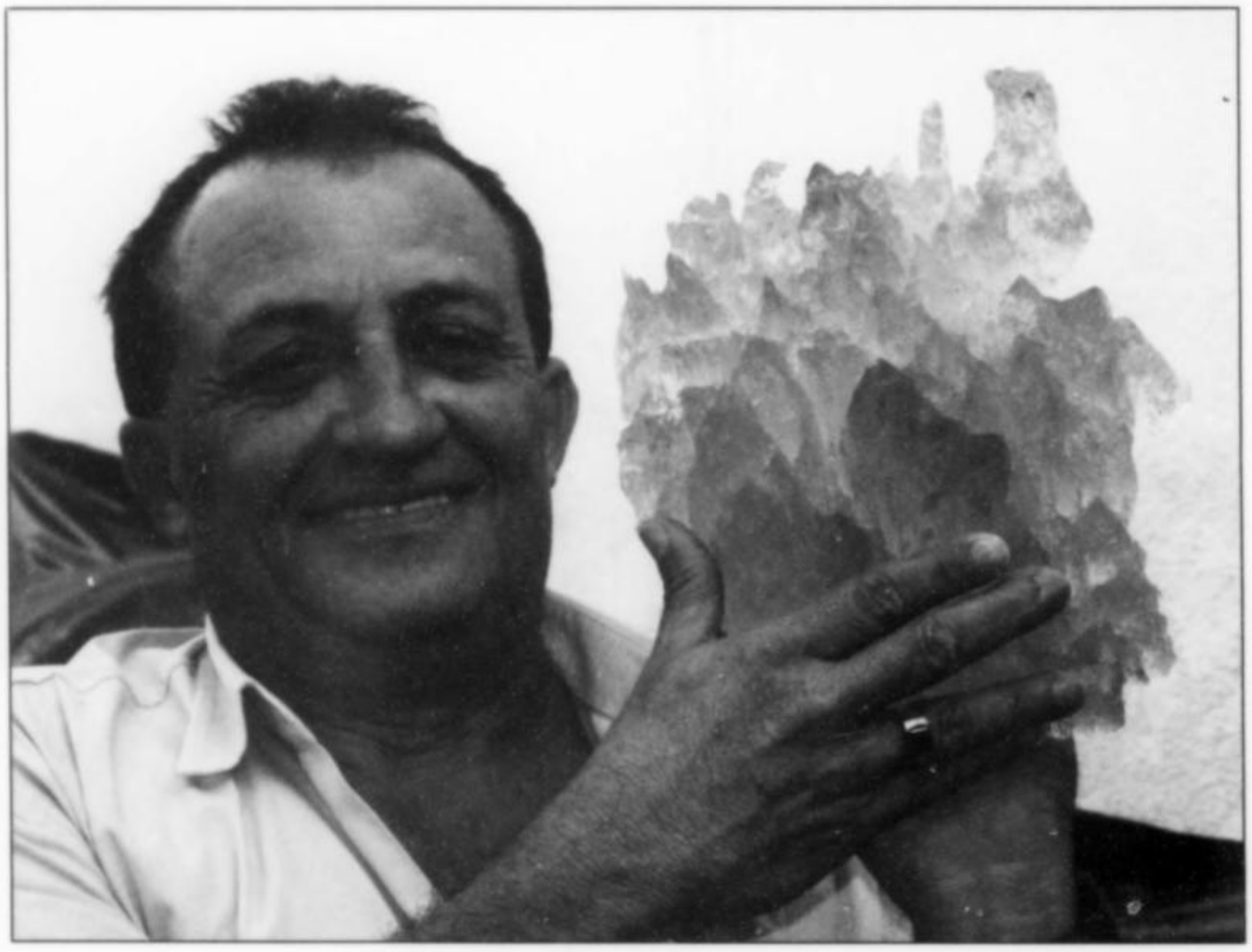

Figure 18. **Skeletal aquamarine beryl weighing 5.2 kg, found in 2005 at the Sapo mine, shown by mine manager Martins Clovis Coelho ("Baiano"). Guido Steger photo, 2007.**

The Sapo Tourmaline Mine

The Sapo mine is managed by Martins Clovis Coelho, nicknamed "Baiano." For some time of late the mine has been producing specimens which show crystals of blue tourmaline ("indicolite") resting on and intergrown with quartz crystals both of the colorless and of the citrine variety. And the mine is again economically feasible, although running it does require enormous expense in personnel and machinery.

I was already on my way to Brazil in January of 2008 when Baiano informed me in a phone call that his mine was again yielding indicolite tourmaline, "cathedral" quartz and many associated minerals. The long flight to Rio de Janeiro, followed by an eight-hour wait for a bus connection for Rodoviaria, and then the nine-hour trip to Governador Valadares (the gemstone center in Minas Gerais), all tired me tremendously. But on the next morning my friend took me to his warehouse, where I saw quartz crystals (many transparent, to lengths of more than a meter), top-quality citrine, and highly unusual kinds of quartz—all newly found. These specimens, which lay on long tables and on the concrete floor of a large room, were shot through with blue tourmaline crystals, many of which were doubly terminated. Large rosettes of cleavelanditic albite encircled the crystal groups, and the quartz showed the so-called "cathedral" habit, with stepped sides rising in domelike formations—a fantastic sight. The scene was further adorned with attractive "crocodile quartz" specimens, these showing brown, doubly terminated crystals in parallel growth, many with fensters—"windows"—on their sides.

Figure 19. **Guido Steger with a 20-cm elbaite crystal from the Sapo mine. Manfred Fuchs photo, 1999.**

With joy, Baiano also showed me some characteristically deformed quartz crystals such as come fairly commonly from his mine.

Then, in his office, surrounded by some especially valuable examples of his new finds, Baiano told me the story of what had happened on December 16, 2000. A landslide had occurred, blocking the entrances to his mine as well as collapsing some sections of the tunnels and filling them with rubble. In five months of hard work, he and his miners were finally able to clear the entrances and make the tunnels passable once more. During the next few months, with dynamite, he succeeded in driving the workings farther along, and the new discoveries soon were being brought to light. Ever since then, at regular intervals, crystals and crystal groups have emerged. Most have been quartz specimens in widely varying sizes and showing different habits and colors: from colorless and transparent, to citrine and smoky quartz, the latter sometimes reaching the very dark "morion" stage. Occasionally there have been finds—as if out of a fairy tale—of quartz crystals from which blue tourmaline crystals rise like candles on a Christmas tree. About 20% of the indicolite is of the finest gem quality, and it is these crystals that make the mine economically viable; even so, it is an enormous effort to meet all expenses and still show a profit. On the next day I was to be convinced of this on the spot.

A half-hour's breezy drive in a small, powerful truck along an already-known route (see *Lapis*, March 1999) brought me to the

Figure 20. **Elbaite with albite, 9 cm, from the Jonas mine, Itatiaia, Minas Gerais. From the great 1978 pocket discovery by Ailton Barbosa (see Steger, 2005b, p. 540–544). Guido Steger specimen and photo.**

Figure 21. **The Rio Doce near Governador Valadares. In the background is Ibituruna, the city's "home mountain." Guido Steger photo, 2006.**

Sapo mine: I hardly recognized the scene! New adit entrances had been driven, and bulldozers, caterpillars and huge heavy trucks like those used in the big ore mines rattled and thundered, making a deafening din. The ripped-open earth was marked everywhere by blast holes.

A brick structure—very unusual for the mine—had recently been erected. Miners would labor in the interior of the mine, then bring wheelbarrow-loads of rubble, which would later be searched through for gemstones, into the shimmering heat of daylight. Streaming with sweat, the miners migrated towards shadowed places and clutched water bottles. It was the same with me: I was drenched with sweat, even though I had only observed the activities while shooting video, taking pictures, and wandering up and down through the area in search of information. Escaping the burning heat, I squeezed through the very narrow main entrance to the mine. Extremely high humidity hindered breathing. Muddy puddles of water and slippery, clayey ground had to be negotiated cautiously, and sharp-edged rocks pointed downward from overhead like spears. Soon I was standing before a steeply contorted, wet, very slippery rock ledge, and decided that was enough for me. An old but serious injury to my left leg from years ago in the Thomas Range began to flare up, and I knew it was too dangerous for me to proceed further.

Back in the daylight again, a blast was being prepared. Overburden was being hauled away from a low area, exposing country rock. Two workers were taking turns laboring with a hand-held drilling machine, to drive a shot hole for the explosives—but with little success. The drill-bit broke and had to be replaced, consuming much time; the attempts to drill the shot hole went on interminably. Meanwhile I climbed over earthen walls and filmed many things: the primitive accommodations, the hard-working miners, the look of the land, the vegetation. In the shade I recovered myself somewhat, eyed by a multicolored Amazon parrot.

At last the explosive charge and the fuse had been put in place. The fuse burned down. The miners left the area. But I wanted to film the explosion (!), and so I settled myself near the fuse but behind a small earthen wall. My tripod held the film camera; both were exposed to the impending hail of rocks. The miners watched me nervously from their safe distance. I let the film run . . . and then there came a huge roar. Quick as lightning I ducked behind the earth wall and pressed myself against it. Chunks of rock flew about my ears but landed behind me in the undergrowth. A few of the onlookers murmured respectfully, but others laughed, expressing their pleasure in my "extreme fondness" for the protective earth wall.

At present, 18 miners work at this mine and share in the profits. It is only through their untiring personal loyalty and the strategic planning of the *padrão* Baiano and his partner that precious stones can profitably be wrestled from the mountain's depths.

ACKNOWLEDGMENTS

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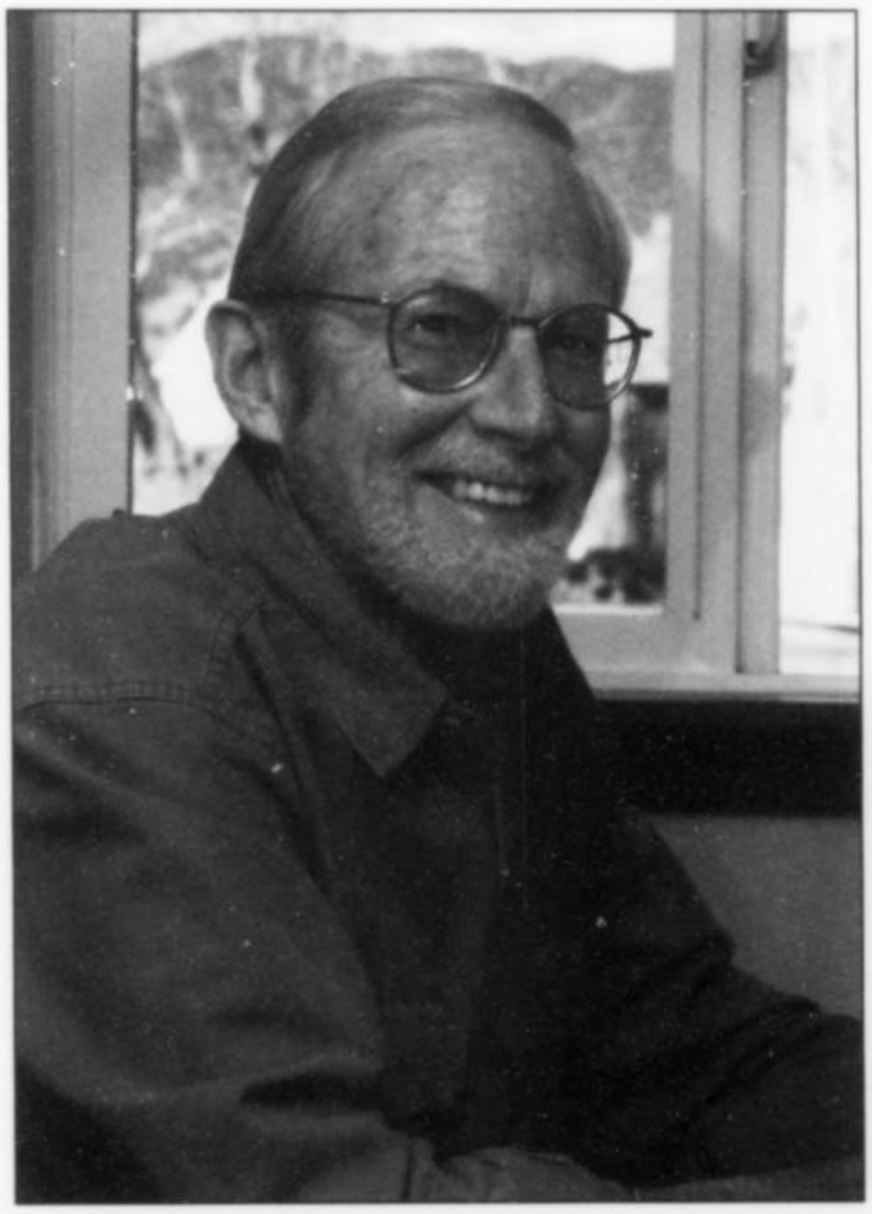
Painting photo-realistic still life scenes in oil is extremely difficult, and very few artists have mastered the age-old technique. Of those, almost none have devoted themselves to depicting historical scenes related to mining, using authentic mining artifacts as props. George Foott is one of those rare artists who can produce a painted image of an object with such perfection that you feel you could reach out and touch it.

George Wade Foott was born in Seattle, Washington in 1939. He enrolled at the University of Washington to study Industrial Design and took a number of art classes, receiving his degree in Mechanical Engineering in 1966. Three years later he moved to Colorado where he spent his professional career designing medical equipment, and developed a deep fascination with the mining history of the Rocky Mountains. George's interest in mining and geology became more focused after he purchased a historic business building in Victor, Colorado. He owned the building for nearly 20 years and spent many of those years doing restoration work in anticipation of some day opening an art gallery and studio there. When he was not pounding nails, he was hiking through the hills exploring old mine sites. He also began to collect the old mining artifacts that he later used as props in his paintings. Unfortunately, legalized gambling and large-scale heap leaching operations had a damaging effect on local tourism, and he decided finally to sell the building in 1998. But his love of mining history remained strong and his collection of mining artifacts has continued to grow.

George told me that he was first inspired to create artworks of mining artifacts and scenes after seeing my pen-and-ink drawings in *A Collector's Guide to Antique Miners' Candlesticks* (1984). Thereafter, in the evenings and on weekends, he spent his spare time sketching and painting, and since retiring in 1999 he has been able to devote even more time to his art. He learned how to work with oil paints and how to mix colors from a neighborhood art teacher, and began producing oil paintings in 1990. He also began to incorporate his old mining artifacts (miner's candlesticks, carbide lamps, tools, blasting cap tins and the like) into his still life paintings.



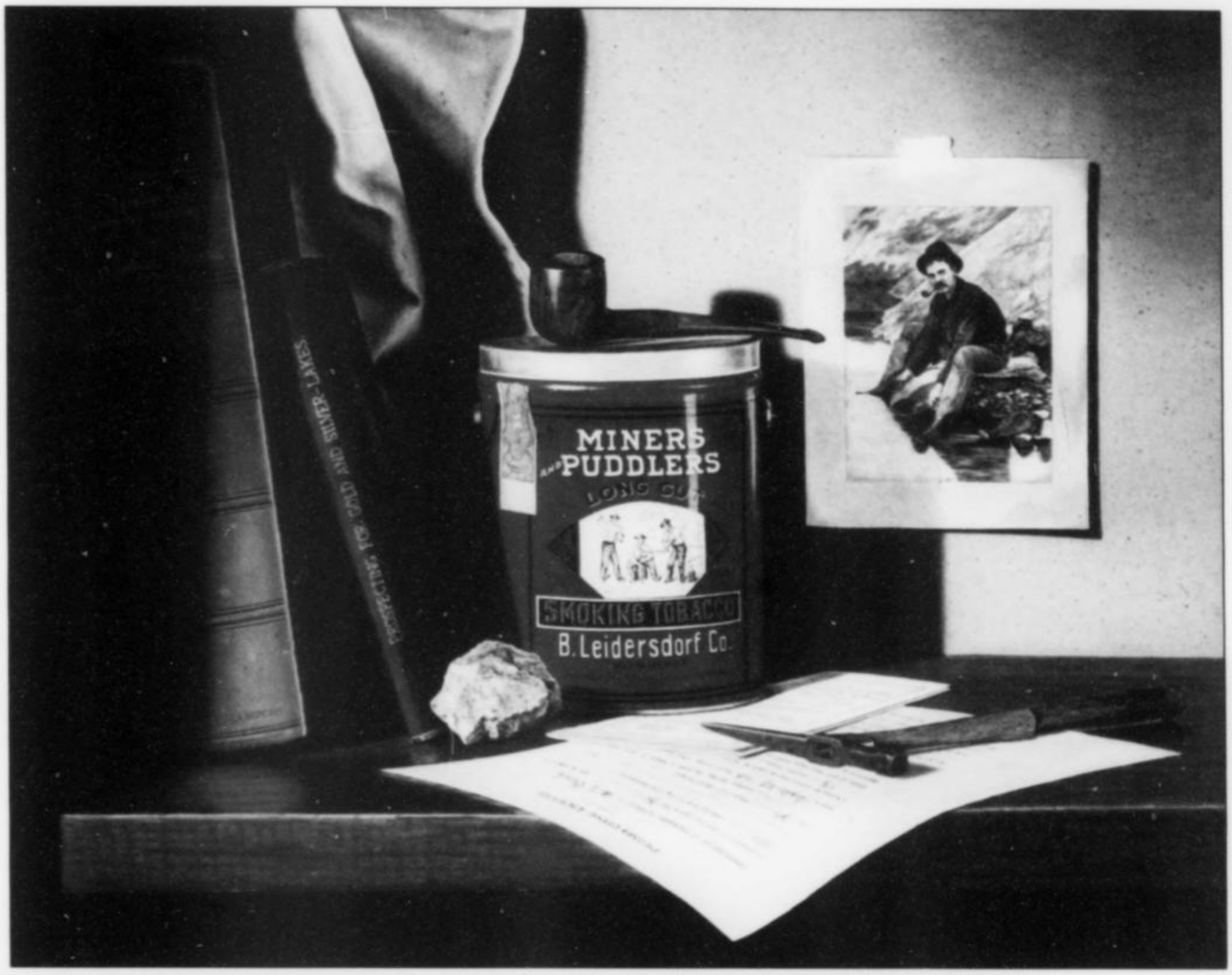
George W. Foott

"Ouray Folder" (2002), 11½ × 15½ inches, oil on panel, by George Foott.

"Robert E. Lee Mine" (1993), 16 × 20 inches, oil on panel, by George Foott; John Kynor collection.

"Silverton Miners' Union" (2003), 13 × 16½ inches, oil on panel, by George Foott; Dave Desmarais collection.

"Pikes Peak Flasks" (2000), 9 × 12 inches, oil on panel, by George Foott.



"Panning for Gold" (2002), 16½ × 21½ inches, oil on panel, by George Foott.

"Folders" (2005), 12 × 14½ inches, oil on panel, by George Foott; Robert Werner collection.

"Single Jacking" (2004), 18½ × 23 inches, oil on panel, by George Foott; Mike Bergmann collection.

"Lighting Fuses II" (2002), 12½ × 14½ inches, oil on panel, by George Foott; John Kynor collection.

"Arizona Copper Miners" (2003), 12 × 16 inches, oil on panel, by George Foott; Terry McNulty collection.

"Tools of the Trade" (2005), 17 × 25 inches, oil on panel, by George Foott; Jim Nicholls collection.

George discovered that the best way to see the old mining artifacts in actual use was to study early photographs of miners at work. The original sepia-toned photos were usually made as contact prints from same-size glass-plate negatives and are therefore often extremely sharp—truly windows into the past. George began to painstakingly copy some of these old photos *into* his still-life oil paintings, achieving photo-realism in his depiction of the actual photos as objects. The oil paintings are painted on smooth-surfaced, gesso-coated masonite board which has no surface texture (as canvas would) and therefore allows him to create the very fine details. Recently he has begun cautiously including the occasional mineral specimen or chunk of ore in a painting, though he does not yet consider himself a "mineral artist."

He says his style of painting is inspired by contemporary artists such as William Acheff, Jerry Venditti and Chuck Sabatino (famous for their paintings of Native American pottery and artifacts), Donald Clapper (co-founder of the Trompe l'Oeil Society of Artists and the International Guild of Realism), contemporary realist Scott Fraser, and others, but it really dates back centuries earlier to the highly realistic *trompe l'oeil* style. The goal of *trompe l'oeil* ("deceive the eye") is to convince the viewer, at least momentarily, that the objects painted are literally real rather than representations. George's work most closely resembles that of the prominent 19th-century American painter William Michael Harnett (1848–1892).

His illustrations have appeared in a number of books on Colorado history including *The Little Book Cliff Railway* (1984), *Cripple Creek Bonanza* (1996), *Pikes Peak Gold* (2000) and *The Great Pikes Peak Gold Rush* (2000). His artwork has also been published on notecards and calendars, and he designed a silver medal issued by the American Numismatic Association to commemorate the 100th anniversary of the town of Victor, Colorado where some of the richest gold mines in the state were located. His artworks have won numerous awards

and have been displayed in many shows throughout Colorado and Wyoming. He was honored in 2004 to be included in the prestigious Colorado Governor's Invitational Art Show.

A few examples of his past work are shown here, but many more (none for sale) are posted in the Art Museum section of the Mineralogical Record website at www.MineralogicalRecord.com. George generally does not take custom orders for paintings; he prefers living a low-stress life in his retirement, so he paints what he likes, in his own time, and then periodically makes them available to interested buyers. He travels to Tucson, Arizona every February to show his latest paintings at the Mining Artifact Collectors Show, and he also travels to several other art and antique shows in the western United States. Limited-edition prints of George's pen-and-ink drawings of historical Colorado and Western subjects have been sold through Colorado galleries, including the Riverside Frame Company, since 1992. He lives in the small central Colorado town of Salida where he is an avid white-water kayaker, skier and hiker when he is not painting. He can be contacted at sfgfco@bresnan.net.

About Mineral Collecting

PART 3 OF 5

Rock Currier
rockcurrier@cs.com
Jewel Tunnel Imports (jeweltunnel.com)
13100 Spring St.
Baldwin Park, California, USA 91706

Some personal observations, ruminations, reflections, reminiscences, ramblings, digressions, grumblings, approbations, wisdom and advice gleaned from 50 years of collecting and dealing in minerals

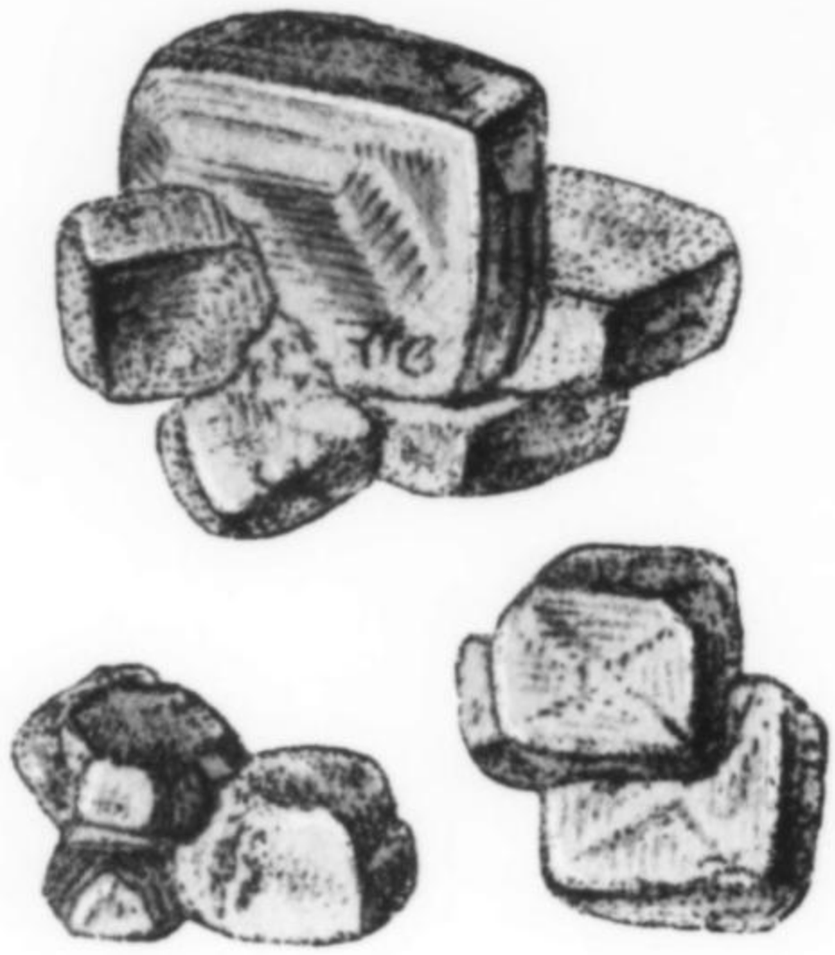
Mineral Dealers and Selling Specimens

There is probably no such thing as a pure mineral collector, as opposed to a pure mineral dealer. Often the distinction between them blurs, sometimes to the extent that it is difficult to tell which is which. If you are a field collector you rarely keep all you find. You are often willing and anxious to trade or sell your duplicate material. When you do, you are a dealer. If you are a silver pick collector you may, from time to time, need to sell some of your minerals that have been superseded by upgrades, maybe to help pay unexpected bills. When you do, you are a dealer. Even if you only trade some of the specimens in your collection for different or better specimens, you are, at least to some extent, a mineral dealer.

Mineral dealers buy and sell mineral specimens to make a living, or at least a partial living. The best mineral dealers love minerals and have their own collections, even though these collections may be limited in scope and quite specialized. If you don't love minerals it will be difficult to learn all you need to know to be a successful dealer. Once you are hooked on minerals it is difficult to get away from them. John Patrick, one-time mineral dealer and later a show promoter, remarked with great insight: "If you think the mineral business is easy, just try to get out of it."

Most people who sell specimens don't just wake up one morning and say "Hey, you know what? I'm going to become a mineral dealer and sell mineral specimens." It is a slow process. First you become interested in minerals, and start to collect them. Perhaps you join a gem and mineral society or two. You start to read about minerals a lot. You go on some field trips and start collecting your own specimens. You visit some gem and mineral shows and start to buy specimens. Unless you come late to mineral collecting you probably don't have much to spend on minerals, so you learn to make every dollar count, but of course you make some mistakes. Pretty soon you may find yourself chasing around after minerals as much as your day job permits, visiting museums, private collections, gem and mineral shows, and active and abandoned mines. Pretty soon you find yourself resenting the time you have to spend on your day job. By this time you have taught yourself to glance at a mineral specimen and know what it is, where it came from and what it is worth. Because you have gotten to know other collectors and have visited museums and mineral shows, you also have learned who buys mineral specimens and how much they are willing to pay for them. You don't realize it, but you have just given yourself an education in the acquisition, buying and selling of mineral specimens.

Eventually you ask yourself "I wonder if I could make enough money selling minerals to do it full time." If you decide to try this,



Collection of John Mawe
(1764–1829)
Gold crystals
Villa do Principe, Minas Gerais, Brazil

From Mawe's (1812) book, *Travels in the Interior of Brazil*. The hand-colored illustration is thought to have been prepared by his friend, James Sowerby. Mawe spent his early years as a sailor with the merchant marine, but gave up the seafaring life to become a mineral dealer in London.

presto! you become one of the most degraded and despised of all creatures, a mineral dealer! (just kidding). This process took me about 10 years. In the beginning I thought I would never be a mineral dealer. Those poor guys were always living from hand to mouth and drove around in junk cars. Well, times have changed.

The key to being able to fool around with minerals full-time, rather than holding down an honest job, is to sell enough minerals to feed you, keep a roof over your head and to pay for your transportation to get you to the next batch of specimens. Of course you hope to keep a few of the good ones for your collection. It's pretty simple and basic, really, and you don't really have to do it full-time. There are lots of dealers who have other jobs, and the mineral dealing is just part-time. But if you do want to do it full-time, you will have to figure out how to make it earn you a living wage.

If you are a dyed-in-the-wool collector you will probably have to make some concessions about how many good specimens you can keep in your private collection. Sometimes you will find it necessary to sell the best specimens in order to make ends meet and get on down the road to the next pile of rocks. If you are a retail dealer, the pressure to sell the good ones will be greater than if you are a wholesale dealer. The reason for this is that no collector wants to buy specimens from a dealer in order to finance that dealer to the point where he is able to keep better specimens than he is selling you: too much ego involved. Some dealers manage to do it, however. One of the classical ploys is "I'm sorry, I can't sell that one, it's in the wife's collection."

Getting the specimens efficiently is only part of the buying and selling equation. The other side is learning how to sell the specimens and get the maximum amount of money for them. Some dealers are much better at this than others. If you are strong on the sales end you don't have to be as strong on the acquisition end, and vice versa. If you can sell your specimens for a lot of money you can afford to pay more for your specimens, and that means that you can spend more time on the telephone and on the computer and letting the specimens come to you. This has happened today with some of the more successful internet dealers who, because of their ability to sell specimens for more than most other dealers, can pay more for their specimens; these dealers find that a great number of specimens are brought to them by other dealers and collectors. As a dealer, the better you can be at both acquisition and sales the more successful you will be.

Extracting the maximum amount of money from your specimens is an art form all by itself. I think that effective selling has more to do with understanding people and how to cater to and even manipulate their feelings and desires than it has to do with the quality of the specimens you are selling. In other words, yes, there is really a skill that people call "salesmanship" that characterizes great salesmen. People can learn salesmanship to some degree, but in many cases it is just an inborn gift that some people have for instinctively knowing how to make people feel comfortable around them and happy buying from them. I have watched some of the great ones at work. They change their spots like a chameleon. And the really great ones, I think, are not even aware that they are doing it. Some of these dealers rarely leave home, but they spend a lot of time talking to their customers and suppliers.

If you want to become a successful high-end dealer you will need to spend time selling yourself to your customers, and even becoming one of their buddies. A simple "I've got a rock, do you want to buy it?" won't do. You will have to tell them how great the rock is, how much you like it yourself, and why it is worth the money. If you don't, you will find that your customers will ask you about those things anyway, so you might as well get good at promoting your best specimens.

Mineral dealers get to know their customers and what their "pucker factor" is. The pucker factor is a price above which a collector will not buy a mineral specimen. Of course the dealer tries not to show such a collector specimens that cost more than his "pucker factor" because he knows the buyer can't afford them. Although this may seem a bit callous, it is necessary for a dealer to know what kind of specimens his customers want and how much they are willing to pay. Without this knowledge the dealer will not be able to help his customers build their collections.

It also helps if you can learn to make up fancy and detailed labels and to display your specimens in fancy display cases with special lighting that will show them to their best effect. You will need a nice house and will need to drive a fancy car, so you can present the specimen being offered in an elegant way commensurate with the comfort zone of your client. This is called "silver traying" a specimen, and many wealthy buyers expect it. If you live in a dump and drive a junker and ask $150,000 for a fine specimen, your customer is likely to look at you and think that you have never had that much money at one time in your life and could hardly know if a specimen was worth that much or not, and that you must therefore be trying to gouge them big-time. At the very least it will be an invitation to hammer you down a lot on the price. If, however, you can pretend that $150,000 is hardly worth your time, then you will stand a better chance of getting it. The more successful high-end dealers have specially built vault rooms where they keep their better specimens (collections). One of them commented to me, "This is where the heavy bread goes down."

There are some questions collectors should ask the dealers who supply them: What is their policy on returning specimens? What is their policy on accepting specimens from the buyer's collection in trade for other or better specimens? How much of the initial purchase price can the buyer expect the dealer to return if they need to raise money by selling it? The more convoluted the answers to these questions are, the more reservations the customer should have concerning the dealer. Most dealers, if they have to pay their own money for a specimen, will want to double that money. I have heard top end collectors complain that on the most expensive specimen they can only make small mark-ups, but this is not always true. If the dealer knows for sure who will buy a particular specimen, he may be willing to work on a smaller margin. If the customer will give the specimen to the dealer on consignment, the dealer is usually willing to work for a smaller percentage.

Museum Curators

To be a successful curator today you must be comfortable with clashing agendas and loyalties. Most mineral curators have many different, and sometimes conflicting, masters they must try to satisfy. Museums today are not as well-funded as they used to be; curators are increasingly being told they must scramble to provide an increasing amount of their own funding. To achieve this, museums and curators have to compete in the marketplace for the attention of the public and get that public to pay for ever-larger parts of their budgets. This means that collections, unless they can be used to help achieve this objective, are increasingly considered by management to be excess baggage. In practical terms it means that mineral collections must be used to attract the public; if they can't, then the collections will be placed in long-term storage or sold off to make room for other things more attractive to the public. Some curators have created "treasure rooms" (walk-in vaults open to the public) where gems and fine jewelry are displayed, and such exhibits have proven popular. So the public is one of the important masters a modern curator must please.

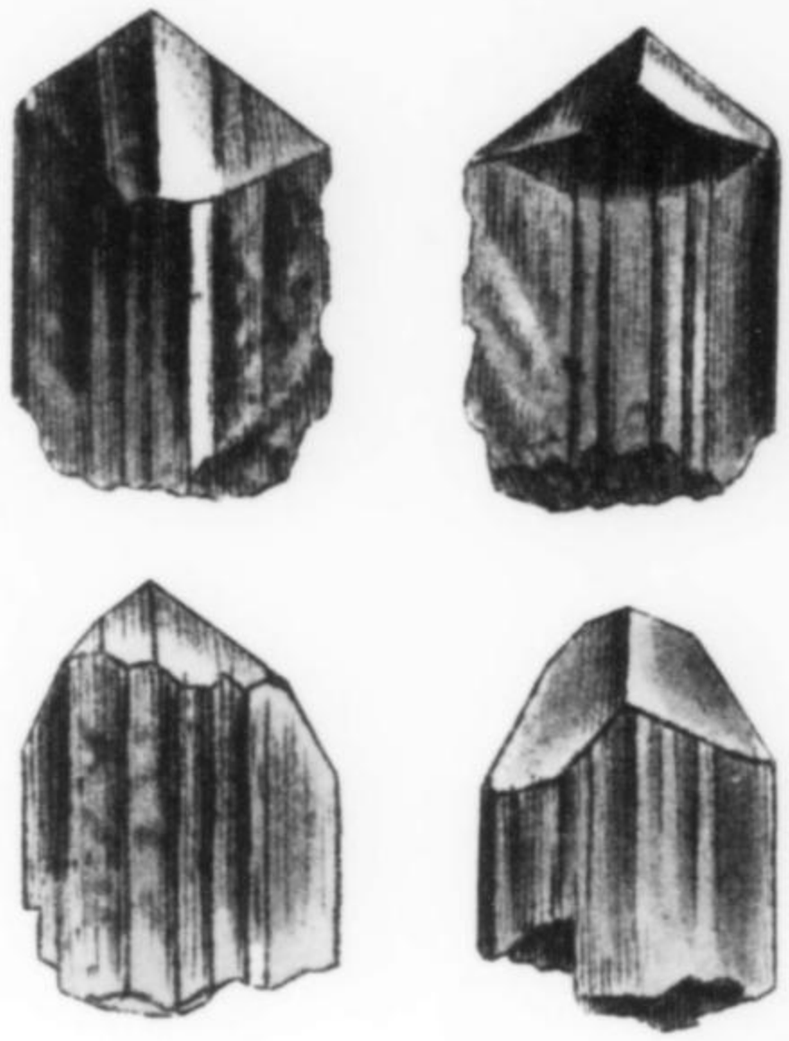
Another master is the "publish or perish" mandate that is often still in force in the museum world. The curators are expected to do research and contribute to scientific journals in their areas of specialization. They are also encouraged, and sometimes expected, to contribute to the funding of their department: in other words, to become a successful fundraiser. This requires finding "angels," people with more than the average amount of money, who are willing to help fund departmental activities and additions to the collection. Sometimes this takes the form of establishing a support group of interested people and collectors. The support group sponsors various activities like field trips (sometimes to foreign countries), lectures, and fund-raising events like auctions.

Then, of course, there is the traditional role of the curator, namely curating the collection. The curator is responsible for the numbering, cataloguing, labeling, storage and display of the specimens. The job of correcting labels is never-ending. The names of countries and other place names are continually changing, as is the mineralogical nomenclature, and the labels should be updated accordingly. Also, no matter how careful a curator is, some errors will creep into labels and nit-picking collectors take glee in being able to correct the curator's labels.

Increasingly it has become important that a correct dollar value be placed on the specimens for insurance purposes. Management needs to know so they can better manage their resources. If the mineral collection is worth 40 million dollars, the management may judge they should sell it and use the money for things which would better garner the support of the public, say a mechanical dinosaur with tape-loop roar and flashing eyeballs. Often dealers will be brought in to give up-to-date valuations, as this is sómething curators are poorly trained to do. However, a good curator also is, to some extent, aware of prices in the mineral market and maintains good relations with mineral dealers, as well as with collectors.

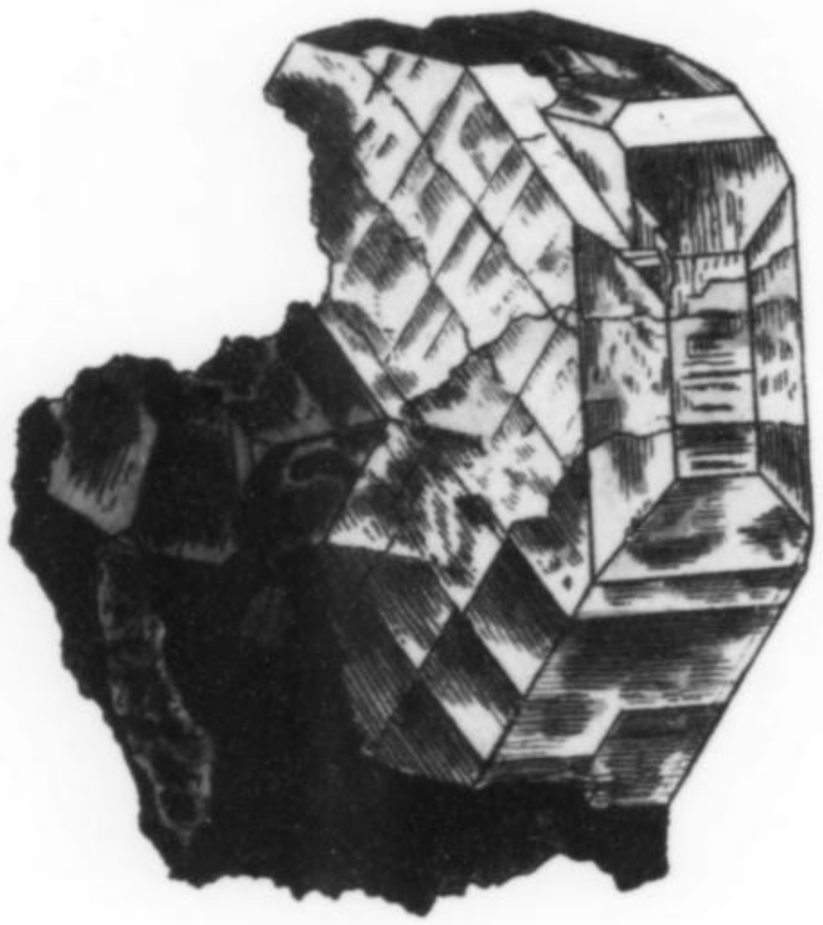
So a curator is pulled in many different directions, and the successful ones somehow manage to juggle all of these balls in the air at the same time: no easy job. Most curators enjoy one or two facets of their job much more than others. Some mineral curators really don't like collectors very much, loathe mineral dealers, and would rather deal mostly with research. The fewer masters a curator is adept at pleasing, the less successful he will be.

Just as some curators of mineral specimens don't like collectors and dealers very much, I think some curators are real dummies when it comes to knowing what collector minerals are and something of their worth. I would like to suggest that a test be developed for prospective museum curators that would insure that they have some idea of the value of the specimens to be entrusted to their care. Create a mineral collection of about 100 specimens of well-crystallized minerals from worldwide localities and require each curatorial applicant to take the test. In order to pass they would need to correctly sight-identify 85% of the specimens and their localities. If they can do that, they will almost certainly know something of their values. It doesn't take all that much of a mineral collection these days to be worth a million dollars. If you had a



Collection of Edmund Rundell
(1743?–1816?)
Euclase
Casson (Ouro Preto?), Minas Gerais, Brazil

From James Sowerby's famous book, *Exotic Mineralogy,* plate 28 (volume 1), printed in 1811. Rundell was one of Sowerby's local friends in Cornwall. These specimens were apparently brought back from Brazil by mineral dealer John Mawe (1764–1829), who described his *Travels in the Interior of Brazil* in 1812.



Collection of Charles Greville
(1749–1809)
Phosgenite
Matlock, Derbyshire, England

From James Sowerby's famous book, *British Mineralogy,* plate 400 (volume 4), printed in 1810. Greville, one of England's most famous mineral collectors, had died the year before, and his collection had gone to the British Museum. Sowerby borrowed the specimen from the museum to illustrate for his book.

machine worth half a million, would you allow some dummy who didn't know anything about it to run it?

How Minerals are Named

In ancient history, when something new was found, the persons who found it would give it a name and others would start calling it by that name. Then that name would appear in print in some scholarly work, and if the name caught on and was used regularly by other writers thereafter it was said to have become "entrenched in the literature," which is about as "official" as mineral names could get in those days.

As time passed and science began to evolve, mineralogists often found that the old name had developed problems and needed to be changed. A classic example is the mineral name "calamine." Chemical analyses eventually revealed that there were actually *two* minerals that had been called calamine, one a zinc silicate and the other a zinc carbonate. It was ultimately agreed, in order to avoid confusion, that the name "calamine" should be done away with entirely and replaced with *smithsonite* for the zinc carbonate and *hemimorphite* for the zinc silicate.

In other cases minerals that had been given different names at different times and places were determined to be essentially identical, and a single name (generally the earlier one, deemed to have "priority") had to be agreed upon. In other cases what had been given a mineral name turned out not to be a mineral at all, but rather a mixture of different minerals. These kinds of situations and others caused a great many early mineral names to be thrown out on the nomenclatural trash pile of history.

The state of mineral names became so chaotic that in 1959 the various national mineralogical societies joined together to form the IMA (International Mineralogical Association). The IMA created a committee, the CNMMN (Committee on New Minerals and Mineral Names). In 2006 the name of the committee was changed to the Commission on New Minerals, Nomenclature and Classification—the CNMNC. This committee established guidelines regarding the data necessary for the existence of a new species to be formally recognized. The guidelines, 14 pages of them, can be read at http://www.geo.vu.nl/~ima-cnmmn/cnmmn98.pdf. Once satisfied that you really have identified a new mineral species and that all the necessary data provided for the new mineral are correct, the committee will allow you to propose a name for the new species, and that proposed name then requires separate approval. Until that point the new mineral has no name, only a number.

Theoretically, if you are describing a valid new mineral you can name it anything you want, but the reality is somewhat different. It is "strongly" recommended that you give it a name suggested by the elements which make up the mineral, by its relationship to other known species, after the locality from which it came, or after some worthy person or organization. If the mineral is to be named after a person, the committee would prefer that it be named after someone who has toiled for a long time in the mineralogical or geological vineyards, but sometimes other names are permitted. Minerals have been named after famous people, well-known mineral collectors, curators, mineral dealers, and even, in one case, a mineral magazine (this one). No one has really tried very hard to have a mineral named after their dog or girlfriend, or at least none have thus far succeeded. Some who sit on the committee feel strongly that minerals should not be named after collectors or mineral dealers, although others think it appropriate to name a new mineral after the collector who first found it and suspected it to be new.

It is also stipulated that a mineral name is not official until it has been approved by the IMA and the technical description has actually been published in a recognized journal. Between the time of approval and publication it is up to the describing author whether he will release the name for use by the public. The *Mineralogical Record*, although predominantly a journal for amateur mineralogists and collectors, is one of the journals that occasionally publishes new species descriptions. This publishing requirement is getting to be a bit of a problem because some of the traditional professional journals like *American Mineralogist* are relatively uninterested in publishing mineral descriptions today. They do devote a small section in the back of most issues of their journal to *abstracts* of new mineral descriptions that have been published elsewhere. I suspect that eventually these descriptions will all be published online, and not in actual ink-and-paper professional journals. The danger there, of course, is that Internet postings are not permanent; they last as long as the sponsoring organization keeps them online.

Mineral Nomenclature

Mineral nomenclature in the last few decades has been stood on its head. Thanks to the continuing development of ever more precise analytical techniques, the Commission on New Mineral Nomenclature and Classification of the International Mineralogical Association (IMA-CNMNC) has now split many minerals into two or more "new minerals." Apophyllite thus became a group name covering the species apophyllite-(KF), apophyllite-(KOH) and apophyllite-(NaF). Heulandite is now either heulandite-Ca, heulandite-K, heulandite-Na

or heulandite-Sr, depending on what metallic element dominates the structure. Aeschynite is now aeschynite-(Ce), aeschynite-(Nd) or aeschynite-(Y), depending on which rare-earth element dominates. Tourmaline used to be a nice mineral, but tourmaline is now the name of a mineral group that includes more than 15 different mineral species. Some tourmaline crystals, when you study them closely, actually have two or more tourmaline-group minerals residing in the same crystal. I won't even go into what the IMA has done to the amphiboles, pyroxenes and micas.

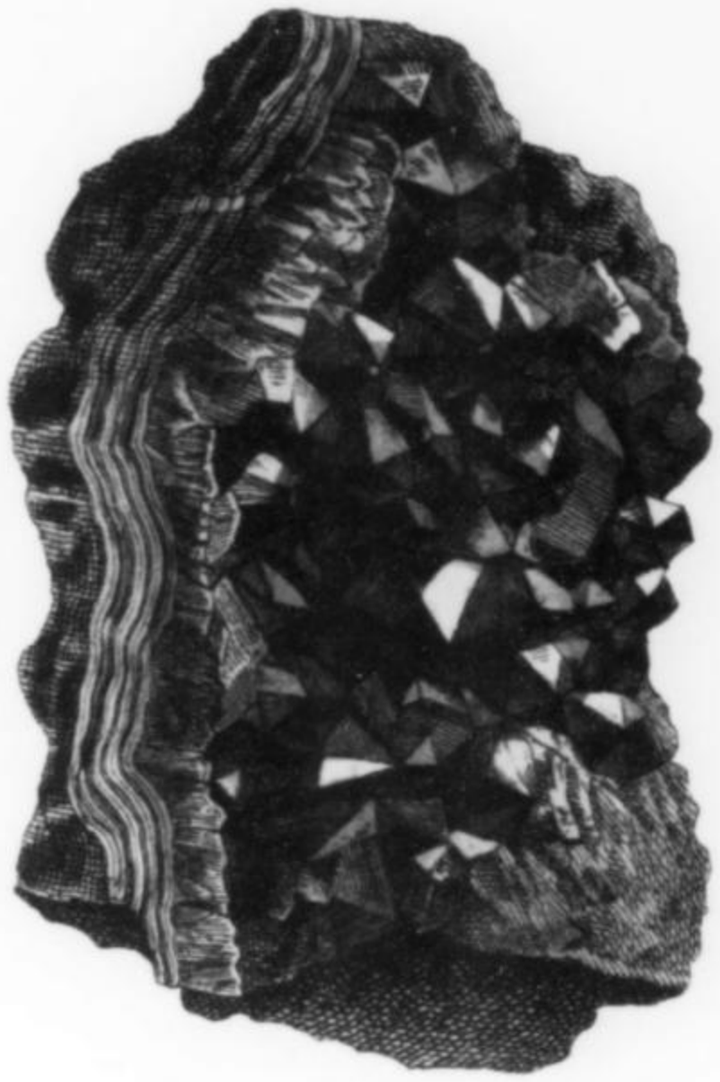
In mineral nomenclature, as in the nomenclature of plants and animals, there are the "splitters" and the "lumpers." Splitters are those who would like to create a new species for every mineral that has even a small difference from others of its kind. For example, the structure of eudialyte has now been determined, and there are those who contend that eudialyte could be reclassified as a group containing more than 150 possible new minerals because of major elemental substitutions in various structural sites in the unit cell of that mineral. The people who would like to see each of these variations be given a new mineral name would be called splitters. A lumper is someone like the late, venerable Dr. Frederick Pough, who said something like "Just call it tourmaline. Tourmaline is a perfectly good name. You don't need 15 new names for the same mineral, that is just dumb!" Younger mineralogists tend to be splitters and older ones tend to be lumpers.

This presents a knotty problem for mineral collectors, curators and dealers trying to decide what mineral name they should put on a specimen's label. Imagine the situation in old institutional collections containing thousands of specimens. If they want their labels to reflect modern nomenclature, hundreds of thousands of new labels must be made. Even more daunting is the fact that, without running the appropriate scientific analysis on each of their specimens, there is no way of knowing exactly which of the new minerals it is. If you have a hundred specimens of heulandite in your collection, unless you run a test on every single specimen you cannot reliably assign to them their correct modern names. Is it Heulandite-Ca, Heulandite-K, Heulandite-Na or Heulandite-Sr? To be certain, the analysis must be done. It is a real mess, and the nomenclature boys are still busily working on yet other mineralogical problems. It is unlikely that this situation will improve anytime in the near future. The general practice today is that you use the less specific (old) group names in the absence of analytical verification of more precise (new) names. Thus it is still "correct" to label a Madagascar tourmaline as "tourmaline" if you really aren't sure whether it is liddicoatite, elbaite or whatever.

Specimen Availability

Specimen availability is influenced by many factors. One factor that has led to the overall abundance of specimens compared to a century ago is the ease of modern transportation. No longer must you take weeks on boats, trains, and horseback to arrive at a remote locality. With modern air transport you can be almost anyplace in the world within two or three days. And the cost of moving specimens from remote localities has also decreased. The result is more and cheaper mineral specimens.

Also, the demand for raw materials has led to the development and expansion of mining in third-world countries where the comparatively small amount of money that can be gained by salvaging specimens while mining ore still means something to the locals. And, with specimen prices now at an all-time high, the amount of money they can bring is more tempting, and is sufficient to support a class of local middlemen who encourage, train and organize the miners.



Collection of Johann von Kurr
(1798–1870)
Amethystine Quartz
Chemnitz, Hungary

From Johann Gottlob von Kurr's highly popular (1859) *Das Mineralreich in Bildern* (first published by Schreiber and Schill in Stuttgart and Esslingen, Plate 3, Figure 5). Kurr's book was so popular among collectors that it went through several editions in German, English and French.

Also there are many more people living on the earth, and therefore many more wealthy individuals (especially in America and Europe) with disposable income to spend on silly things like collecting minerals. Specimen prices are now high enough to make an increasing number of deposits profitable to mine for specimens alone. These are the main factors which have landed us in a "Golden Age" of mineral collecting and have made mineral specimens abundant and available as never before.

In addition to modern transportation, vastly increased mining, and money to burn, political changes can encourage the production of mineral specimens. This has most recently been demonstrated by the collapse of the Soviet Union and the opening of China to world trade. During much of the 20th century, specimens from these places were rarely available to Western collectors. Now the situation has changed dramatically, and specimens have come flooding out of these countries into the West in response to profit-making opportunities that simply did not exist before.

Yet there are still many places in the world where political barriers prevent the full exploitation of mineral resources and the specimens they produce. When the political situations in these countries permit, large quantities of specimens will be produced. Some countries in Africa have tremendous mineral wealth and eventually will produce large quantities of specimens. The Republic of the Congo (formerly Zaire) is but one example. The Congo produces a fair number of specimens today, but they are nothing compared

Collection of Jean Romé de l'Isle
(1736–1790)
Pyromorphite
La Croix-aux-Mines, Vosges, France

From Fabien Gautier d'Agoty's famous book (1781) *Histoire Naturelle,* containing the first mineral illustrations with printed rather than hand-painted colors (Plate XVII, Figure 4). He borrowed this specimen from the Parisian mineralogist Jean-Baptist-Louis Romé de l'Isle, who also wrote the descriptive text for the book.

to what will be produced when political changes permit the return of large-scale mining.

Specimen Desirability

There is a hierarchy of mineral desirability. Though it cannot be rigidly defined, desirability is based on the following factors: beauty, color, transparency, luster (shininess/sparkle), freedom from damage (perfection), specimen size, crystal size, association, provenance, hardness, and composition. Wayne Thompson recently discussed many of these factors in his *Ikons* book. Collectors will argue for hours over which factors are more important. Beauty (and specimen appeal) is in the eye of the beholder, and as your knowledge of minerals increases, you will find that what you consider beautiful will change along with your knowledge. In the beginning a large and colorful amethyst geode might seem the epitome of beauty and desirability, but as you learn more about minerals, color may become less important to you than it once was. When this happens, your amethyst geode may be relegated to a corner of the living room for non-mineral-savvy guests to admire.

At the top of the heap in specimen desirability, which generally correlates to a high monetary value, are the gem minerals. This means well-formed crystals of minerals that are hard, transparent and colorful, and which can be cut into gems. Good specimens of minerals like diamond (even though it is usually colorless), corundum (especially rubies), beryl (especially emerald and aquamarine), topaz (the blue, pink and imperial varieties), and tourmaline are examples of these desirable minerals.

Minerals that are transparent have always fascinated people. The most common transparent mineral, quartz, was for centuries the epitome of transparency against which all others were measured. Transparent quartz, or "crystal" as it was known to the ancients, was thought to be ice that had been frozen so hard that it would never melt. When man learned to make transparent glass (and this took centuries to learn), the makers of course borrowed the upscale term "crystal" for their glass to help sell it. Now when the word crystal is used, people most commonly think of glass.

Next in desirability are well crystallized specimens of other colorful minerals. Specimens of crystallized gold and silver also rate high. Specimens having crystals containing rare elements are always sought after. Then come those minerals that are soft, not colorful—usually white, black, gray or brown—and contain only common elements. Finally, at the bottom of the heap, if I had to pick one group, would be the earthy or powdery minerals and the water-soluble evaporates. These latter specimens are likely to end up as little piles of white powder in your cabinet as they gradually deteriorate over the years.

All other things being equal, there are qualities that make some mineral specimens more desirable than others of the same kind. For example, if you have a table full of dioptase specimens from Tsumeb, Namibia, some of them will automatically appeal to people more than others. If you ask people off the street, who know nothing about specimens, to pick out the best five specimens, you would find that the same specimens would be picked time and again. If you repeated the same experiment with knowledgeable mineral collectors you would find that they picked mostly the same specimens. There would be some differences, because the advanced collectors would be looking for some things that a novice would not, like the amount of damage, crystal size, and association.

Here is what knowledgeable collectors look for. The first thing that catches the eye is the color and brilliance of the specimen. Some of the dioptase crystals mentioned above may be coated with a little malachite or calcite and not be very shiny. Obviously the bright green lustrous ones will be considered for selection first. The next thing would probably be crystal size. Larger crystals are preferred to smaller ones if they are of equal color and luster. Then comes the sculptural configuration, or aesthetic composition, of the specimen. Is it just a flat plate of crystals, or is it a mound or stalactite of beautiful crystals? Perhaps the specimen is a "floater," which means that there is no obvious point of attachment where the crystals grew. Does it look like the crystals are straining to fly up off the matrix? Good, just what I am looking for! These things are particularly cherished by collectors.

Next, and of great importance to collectors, is freedom from damage. A specimen with even a small amount of damage will be worth only a fraction, sometimes a small fraction, of what an identical specimen without any damage would be worth. Often, if a particular mineral specimen has an associated mineral with crystals of contrasting color and form, this will place it higher on the scale of desirability.

Then come considerations like the chemical composition of the mineral(s) on the specimen. Specimens containing crystals composed of rare elements like gold and silver are desired more highly than those containing common elements like iron and silicon. However, these considerations can be easily outweighed by other factors like those listed above.

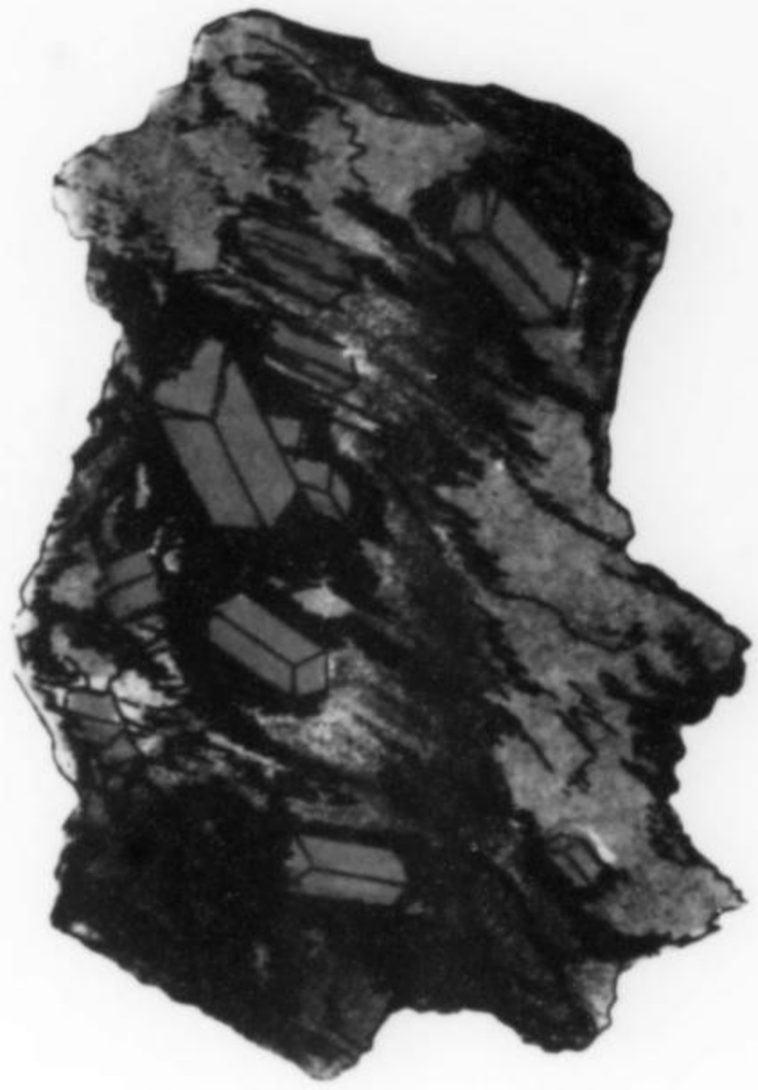
Some people consider historical factors related to a particular specimen to be very important. Perhaps a photograph of that specimen has been pictured in a book or magazine or owned by

a well-known collector or institution. Perhaps the specimen has even been pictured on a postage stamp. Usually, as you become more knowledgeable and sophisticated, you become confident enough to set your own standards and you don't need to borrow those of others.

In the beginning, the size of the specimens was considered important. Men who ran the mines thought that the larger specimens were best, probably because larger specimens better exemplify the abundance of valuable ore at their mine. If the mine produced copper, silver or gold, then, for the men who ran the mines, the larger the specimen of copper, malachite, silver, or gold, the better the specimen. I call this the "hernia complex." If you gave yourself a hernia trying to lift a huge specimen, or if it took five men and a boy to lift a specimen, that piece was obviously better than one which required only two men to lift. Mining companies often competed to see who could mine the largest specimens, and sent these huge things to world fairs for public display and competition.

This kind of collecting almost instantly fell from favor with private collectors because they just didn't have facilities to house such huge specimens. For years in the early 20th century there was a wealthy farmer in the Midwest named Lafayette Funk (1858–1934), who loved big minerals, and for him it was definitely the bigger the better. He had several large barns he used to house his collection. Such collectors are almost non-existent today, and museums all over the world have been given these white elephants. They are still scratching their heads trying to figure out what to do with them.

However, the Natural History Museum in Paris, France has made a virtue of size in an exhibit of giant crystals from Brazil and other places. The museum advertised it heavily to the public and it has become a real drawing card. This may be the only successful exhibit of really large specimens. The traditional curators in other French museums were scandalized by the amount of money that was spent on these large and, in their eyes, poor specimens. The exhibit was a ripping success, and the admission fee charged to view the giant crystals more than paid for the exhibit. Some museums place a few of these big specimens here and there in their exhibit halls, knowing full well that they will be damaged by people picking and scratching at them. They figure they can gain more by satisfying the curiosity of their "customers" than the specimen is worth.



Collection of Jean Romé de l'Isle
(1736–1790)
Crocoite
Pirosev mine (probably Berezovsk) near Ekaterinberg, Siberia, Russia

From Fabien Gautier d'Agoty's famous book (1781) *Histoire Naturelle,* containing the first mineral illustrations with printed rather than hand-painted colors (Plate XVII, Figure 6). He borrowed this specimen from the Parisian mineralogist Jean-Baptist-Louis Romé de l'Isle, who also wrote the descriptive text for the book.

Specimen Durability

As the years pass you will find that some mineral species deteriorate over time. A few of them decompose disastrously and end up exuding acids that also attack the labels and boxes in which they have been kept (as well as other nearby specimens). Marcasite is notorious for ending up as a pile of white and gray fragments that eat their way through paper boxes and, with a little effort, even through the bottoms of metal drawers. Specimens of most sulfide minerals, like chalcopyrite, pyrite, stibnite, pyrrhotite, etc. will oxidize in time, lose their brilliant luster and sometimes disintegrate. Few collectors or museums consider the procedures necessary to keep them in pristine condition worthwhile. Many of these changes have been discussed and commented on for more than a century.

Realgar specimens are infamous for their photosensitivity, cracking apart and changing from a beautiful dark red color to orange and yellow if they are not kept strictly in the dark. However, well cared-for specimens of realgar more than 100 years old exist because they have been kept away from light. Likewise, proustite crystals are well known for changing from a beautiful transparent red color to black. Again, if they are kept strictly away from any light, they will remain beautiful indefinitely.

Most collectors don't realize that amethyst specimens will also lose their color gradually over time. Usually this color loss is so gradual that you don't notice the change until years later. The first time I encountered this phenomenon was in Uruguay. At an amethyst mine near the little town of Artigas near the Brazilian border, I saw an almost continuous pavement of amethyst crystal specimens under some eucalyptus trees near the mine. I asked why they put the specimens there and was told that the shade kept them from losing their color. Later I took a good piece of Brazilian amethyst from Rio Grande do Sul, broke it in half, kept one half in a dark place, and put the other out in the sun for a few months. At the end of that period of time I glued the pieces back together and saw that half was the original color and the other half was a washed-out blue-gray. Amethyst specimens, then, will also keep their color if you keep them away from light.

In his *Popular Guide to Minerals* (1912), Louis Gratacap wrote unhappily of the deterioration of many specimens in the Clarence Bement collection at the American Museum of Natural History:

> I have noticed that specimens of even vanadinite, descloizite, and rhodonite, lose something of their initial brilliancy and intensity under the scourge of that actinic bombardment to which they become exposed in our halls. The fluorites, pink quartzes, even the delicate greens of some spodumene, the

Collection of Georges Sage
(1740–1824)
Sulfur
Conil near Cádiz, Andalucía, Spain

From Fabien Gautier d'Agoty's famous book (1781) *Histoire Naturelle,* containing the first mineral illustrations with printed rather than hand-painted colors (Plate XXII). He borrowed this specimen from the Parisian mineralogist Balthazar-Georges Sage. Sulfur specimens were first collected at Cádiz in 1772, and it became a well known specimen locality.

faintly blushing calcites and the rhodochrosites, also sensibly succumb to these exposures, while it is a matter of common annoyance to find that the realgars, cerargyrites, proustites, cuprites, crocoite, and sulphurs go through changes that slowly alter their substance, texture and appearance. Stibnite loses its splendent surface, cut topazes pale, and some colors in barite slowly vanish. Mercury minerals are altered, cerargyrite changes and andorite tarnishes.[1]

Each mineral was formed in the earth when the conditions were favorable for it to exist. When the mineral is collected, the environment of the mineral changes: the temperature, ambient light level, humidity, and exposure to bacteria and different gases all are different. All or some of these may cause the mineral to become unstable in some way, just as taking an ice cube from the refrigerator will cause it to change. Despite this knowledge, many collectors continue to buy specimens with little regard for their long-term stability. If you spend a lot of money on specimens and you want to preserve your investment, some consideration should be given to environmental conditions.

Some minerals are very soft, like gypsum. Gypsum is so soft that you can scratch it with your fingernail. Others species, like cyanotrichite, produce crystals so delicate that you can't touch them without damaging them. Probably the best specimen of cyanotrichite ever collected was destroyed by persons unknown. One day my friend, Bob Pedersen, who collected it, opened the drawer in which the specimen was kept, and saw a broad line of crushed fine blue crystals across the entire specimen. Someone who knew nothing about specimens could not resist running their finger across the pretty blue fur that covered the specimen. Bob was heartbroken because he had collected the specimen himself; it had cost him hours of driving, hours of hiking up and down steep canyon trails, and more hours of hard labor moving rocks from the walls of the mine to open the pocket from which he collected the specimen. Then he had had to take extraordinary care to carry the super-delicate specimen back out of the canyon and eventually to his specimen cabinet. In trying to repair the damage, he damaged this ill-fated specimen further by partially sucking it into a vacuum cleaner while trying to "lift up" the matted-down hairs. Sometimes you just can't win. The moral here is that delicate specimens should be kept in cases where curious fingers cannot reach them.

Other specimens are subject to partial degradation; for example, kurnakovite and inderite crystals will turn white on their exteriors in response to air pollution near cities like Los Angeles. Others will partially dehydrate, change color, and become opaque. Large sulfur crystals have been known to crack when held because of the thermal stress caused by the warmth of a hand. I have seen crystals of aquamarine and ferberite that have literally exploded in display cases when placed under hot lights. Some minerals will literally melt before your eyes when you expose them to normal room temperature conditions. Examples of these minerals are ice, mirabilite, and antarcticite. If you are concerned about eventually recovering the costs of your specimens or making a profit on your collection, you would be advised to consider carefully before buying delicate and changeable minerals. If you do, you must care for them meticulously.

I really don't know why I am going on about all this at such length. All the information about this sort of thing has been available in the literature for 100 years. When I was getting started as a collector, I read it. I did not take it seriously, thinking, I suppose, that I was never going to die and therefore the physical laws that applied to other people's specimens would not apply to mine. At any rate I ignored the wisdom of my elders and went about, bent on getting more and better specimens, thinking little of the future. I had to learn the hard way about specimens that change on you over time, and I suspect each generation of collectors will also have to learn in the same school of "hard knocks." There is only one thing that man has learned from history, and that is that man does not learn from history.

What Kind of Specimens Should You Buy?

If you are going to buy specimens, you may benefit from some advice about the kind of specimens that will likely retain and increase their value more than others. Buy the best specimens you can afford. In the long run you will find these to be more satisfying than those of lesser quality. If you buy inexpensive specimens, most of what you are paying for is the effort of the dealer to clean, price, label, box and cart the specimens around to gem and mineral shows. This money you will not be able to recover. It is better to buy one really great piece than ten lesser specimens. Otherwise, in future years after your taste has matured, you will probably end up trying to correct that mistake by exchanging or selling off your lesser specimens in order to upgrade—"trading ten Indians for a Chief," as Bryan Lees likes to say.

Avoid buying specimens that will likely never be in short supply. To determine which those might be involves learning something

about the geological settings from which they are recovered. Two good examples of these are amethyst from Brazil and zeolites and related species from India. Both are from vast basalt formations, each thousands of square miles in extent, which have been producing specimens for generations with no end in sight. Such specimens are not good investments, because the chance of their ever becoming scarce is low. There are enough of these specimens in the ground to supply every man, woman, and child on the planet with many specimens. Every collector who ever wanted a nice zeolite specimen from India has at least eight. I know what I am talking about because I have visited the producing areas in both countries and have imported and sold literally tons of specimens.

You will be well advised to stay away from minerals like gypsum, because there are endless supplies of these kinds of specimens, and more grow annually in ponds and other deposits of various kinds. In addition, these minerals are soft and are easily damaged. Some kinds of garnets are very abundant and will also never be in short supply. Many kinds of evaporate minerals like halite are common, and any amount can be collected and will be collected into the foreseeable future from salt lakes and ponds where they grow anew each year—truly a renewable resource. Granted, however, some minerals like this can be so beautiful that collectors can't resist them. Even I have been known to cave in occasionally and buy some.

On the other hand, it is critical to understand that some mineral deposits are large but still finite. For a number of years, specimens from these places are abundant and cheap, but after the mines close, specimens become scarce and start escalating in price. Examples include the Illinois-Kentucky fluorite district and the lead-zinc mines of the Tri-State district which straddles the intersection of Missouri, Kansas and Okalahoma. For generations the mines in these districts poured out endless tons of fluorite, galena, calcite, sphalerite and marcasite specimens. The specimens never sold for much because we thought the supply would never end. But guess what? A few years after the mines closed these specimens seemed to vanish, and we all wondered what could have possibly happened to them all. Now fine specimens from these once- prolific mines can bring hundreds or even thousands of dollars.

A similar example is the Ojuela Mine at Mapimí, Mexico. Again, for generations, this base metal mine produced tons of specimens of which the best known are its wonderful adamites. Eventually, with decreased collecting in the old mine (closed commercially in the mid-1940s), the price of fine adamite specimens shot through the roof. A fine miniature-size adamite today which sold for under $100 thirty years ago will easily cost you more than a thousand dollars today. The kinds of specimens you should look for to maximize your investment, presuming you care about that, are the ones that are being produced in abundance from currently operating mines which will, in your lifetime, cease production. Those specimens are cheap today and will escalate quickly in price once the mine closes. Today's common minerals will become tomorrow's classics. Keep in mind that mining proceeds today at a much faster pace than mining of yesteryear. This means mines will be depleted much faster than in past generations and the specimens they produce will become valuable classics more quickly. This is particularly true of many Chinese localities, where they mine feverishly (and collect specimens diligently) until the deposit is totally exhausted, then move on. Several important Chinese localities are already in the "extinct classic" category.

Repaired, Restored and Faked Specimens

When you drop a specimen—and you will sometimes drop them—they often break. Sometimes, when you are trimming a specimen down to size, it will break in an unexpected manner rather than in the way you had hoped. I have had the experience of trying to trim a tough specimen in a hydraulic trimmer and after applying great force, literally had the specimen explode, with fragments shooting in all directions, even bouncing off the walls and ceiling. At the Natural History Museum of Los Angeles County, one of the great Chilean proustites was borrowed by a staff photographer. A while later it was returned to the curator as red gravel in a small box. The specimen had been dropped on a concrete floor and totally destroyed.

Collection of Jean Romé de l'Isle
(1736–1790)
Pyrargyrite
Himmelsfürst mine, Freiberg, Saxony

From Fabien Gautier d'Agoty's famous book (1781) *Histoire Naturelle,* containing the first mineral illustrations with printed rather than hand-painted colors (Plate XXVIII, Figure 1). He borrowed this specimen from the Parisian mineralogist Jean-Baptist-Louis Romé de l'Isle, who also wrote the descriptive text for the book.

Catastrophic destruction, however, is not usually what happens to dropped specimens. When dropped, specimens usually just break into two or three pieces. Often some of the specimen's value can be recuperated by gluing it back together. If you are lucky, the specimen will break cleanly so that when you put it back together you will hardly be able to see the break. In such cases you can restore the specimen almost to its original condition by using a tiny bit of glue. The reason you should use a very tiny amount of glue is that if the break is clean, the amount of glue needed to hold it together is very small and any excess amount will be forced out of the break when you put the pieces back together, and this excess glue will make a mess that is difficult if not impossible to completely remove from the specimen.

If you are not so lucky, the specimen will not have broken cleanly, and some or many small fragments from along the break will have been produced along with the main pieces of the speci-

Collection of Johann von Kurr
(1798–1870)
Torbernite
Johanngeorgenstadt, Erzgebirge, Saxony

From Johann Gottlob von Kurr's highly popular (1859) *Das Mineralreich in Bildern* (first published by Schreiber and Schill in Stuttgart and Esslingen, Plate 3, Figure 5). The artist remains unknown.

men. In such cases the repair becomes much more difficult and demanding. I would recommend using a water-soluble glue so that if you make a mistake you can soak it apart and take another crack at mending it. Also, more permanent glues like epoxy frequently turn yellow after a period of time and are difficult to remove if you make a mistake.

Repaired specimens are usually worth only a fraction, often a small fraction, of what a similar unrepaired specimen would bring. However, if the specimen is good enough, say in the "world class" league, being repaired doesn't seem to affect its value. Sometimes the repairs are extensive, and the specimens may even be partially reconstructed, and still the value remains high. Don't ask why: that's just the way it works.

Some specimens are more than just repaired. A classic example is the old technique of reconstructing missing portions of broken franklinite crystals with plaster of Paris, then using black shoe polish to color the white plaster of Paris portions to match the color and luster of the original black franklinite. Sometimes broken areas in smoky quartz, tourmaline and other crystals are reconstructed with plastic. Additional coloring agents and/or other materials are added to the plastic so it will match the color and transparency of the crystal. After the plastic has set, the surface is sanded, striated or polished to match the surface texture and luster of the crystal that is being restored. This can be a very tedious and time-consuming business and is reserved for only very expensive specimens. If the job is done well, it is almost impossible to tell where the repaired and/or reconstructed place on the specimen is.

Some mineral specimens have had their color enhanced. The most common technique for doing this is to add some transparent chemical like silicone oil. This non-reactive oil fills in tiny cracks and often makes a blue specimen look a shade bluer or a pink specimen somewhat redder. Tumble-polished stones in Brazil and most other countries receive a dip in hot paraffin as a final treatment. The excess paraffin is rubbed off, and the stones look better than they would without this treatment. Colorado amazonite specimens frequently receive this same treatment, to intensify their color a bit.

Some minerals are helped much more by this treatment than others. Quartz is not helped that much, but damaged areas on fluorite crystals almost disappear when treated with a touch of silicone oil. The miners in Tsumeb, Namibia would always spray their calcite specimens with a particular brand of sun screen. It would soak right into the cracks, and since the spray was water- soluble, the excess could easily be rinsed off. You could always tell which ones had been treated: they had a nice smell because perfume was one of the ingredients in the spray.

Many Brazilian dealers, when cleaning their specimens, employ a water rinse as the last step of their specimen preparation routine. This rinse water has a layer of baby oil floating on it, so as the specimens come out of the final rinse they receive a coating of oil. It does make them look better, if more slippery. The paraffin treatment is long-lasting, but silicone oil gradually evaporates. In addition, if too much oil is used, it will catch dust, and the specimen will become dirty sooner than it would have otherwise.

Sometimes the color enhancement is more invasive. The use of green dye in oils to enhance the color of emeralds has been a standard practice among emerald dealers for generations. Some emerald crystals are just painted with a green enamel to make them look darker. Dealers and collectors have been known to touch up black sphalerite specimens from Tennessee with a brown felt-tip marker, and scuffed green fibrous malachite with a green marker. A few years ago some miners/dealers in Morocco found they could take white anglesite crystals, put them in household bleach for a few minutes, and change the color to a very attractive red-orange. A number of sophisticated mineral dealers fell for that one, lost a lot of money when the fraud was discovered, and had to make refunds. Of course their suppliers in Morocco had long since vanished with the money.

Beware of fake mineral specimens. Most fake specimens are those in which crystals from one or more specimens are glued onto another specimen. Sometimes these fakes are clumsy, and an experienced person can spot them from across the room. Others are done so well that you would need a microscope and/or other tests to find out if the crystals have been glued or altered. The varieties of fakes are extensive. Some species should be examined more closely than others. Emerald and cinnabar specimens are notorious for being faked and should always be inspected carefully.

There has probably been more effort and cleverness expended in the counterfeiting of emerald matrix specimens than in any other kind of specimen. Typically the emerald crystals are carefully fitted into hexagonal holes delicately cut in the matrix and are glued in place. It used to be fairly easy to spot these by using an ultraviolet light or a hot needle to probe areas on the specimens suspected of having glue. The glue would fluoresce and a hot needle would cause it to deform easily and sometimes even smoke. With time these fakes have become increasingly sophisticated. The practitioners in Colombia stopped using glue that fluoresced and began using adhesives designed for dental work. They also employed great care

in fitting the emeralds into the matrix and covering the contact points with material that closely matched the surrounding natural matrix. If the emerald crystal was of pale color they would sometimes drill a hole into the crystal from its bottom and fill the hole with green epoxy. These made fabulous- looking fakes. They would sometimes facet-polish terminations to do away with broken ends, and coat the crystal with a hard green lacquer which had the added benefit of covering up any wheel marks that might be left by the polishing lap. It got to the point that I could often not tell for sure if such specimens were fakes or not. At that point I had to admit defeat. The fakers were smarter than I, so I stopped going to Colombia to buy emerald specimens. To really test a matrix emerald you have to soak it for a day or two in a strong solvent like MIBK (methyl isobutyl ketone). That usually will soften up the glue enough to reveal a fake. It is easier just to assume any emerald specimen that looks like it might possibly be a fake, is a fake.

You rarely see single crystals of cinnabar offered for sale. This is because most of them have been broken into thin little cleavage tiles for use in traditional Chinese medicine—or else used to create fake cinnabar matrix specimens. These too have become more cleverly made over time. The people who make them keep stocks of various kinds of dolomite and small quartz crystals from the cinnabar mines that they use to match the crystals on the matrix when they glue on the cinnabar crystals.

Fake specimens have been known for hundreds of years. The practice most probably started just because miners would take some pretty rocks home from the mine and then, with little else to do, would glue them together in various ways to make ornaments for their houses. When they discovered that some lazy, dumb city dudes would pay money for these artifacts because they thought the specimens were real, the race was on.

Classic European fakes include epidote specimens from Austria where the hair-like actinolite associated with the epidote crystals was used to hide evidence of their manufacture. Many fakes with pink fluorite crystals glued onto quartz crystals were also created and sold.

Usually you can spot fakes without using a microscope or other tests if you examine specimens carefully. You can't examine every specimen you see carefully, so the secret is to know which ones should be examined. When I was fooled it was usually because the specimen looked wonderful and was inexpensive. I wanted to believe that it was real. If a specimen looks too good to be true, this should be the red flag that causes you to stop and examine it more carefully. Once the seed of doubt takes root in your mind you will seldom be fooled. Sometimes the fakes are so good they can fool even experienced dealers, but if a dealer is reliable he will always refund your money if a specimen turns out to be a fake.

In the last few years there have been some examples of well-made fakes that fooled everyone for a while. An Italian man discovered that he could grow beautiful big sulfur crystals on matrix. He would dissolve elemental sulfur in carbon disulfide, chuck in pieces of authentic matrix and let the carbon disulfide slowly evaporate, which would cause fine, big sulfur crystals to grow on the matrix in exactly the same habit as the natural crystals. Carbon disulfide is quite smelly (and poisonous) and it is a wonder the neighbors didn't complain. He sold and traded them all over the world for fun and profit. He even allowed himself to be interviewed for an article in the *Mineralogical Record* and seemed proud of his work. The only way to identify his fakes is by isotopic analysis: it turns out that he used Texas sulfur, not Italian sulfur, to produce his specimens. For the full story see Pagano (2002) "Artificial Sicilian sulfurs," *Mineralogical Record*, **33** (2), 149–153, and Peterson *et al.* (2003) "Sulfur isotope analysis for the identification of sulfur sources," *Mineralogical Record*, **34** (2), 171–175).

Collection of Johann von Kurr
(1798–1870)
Silver
Kongsberg mines, Norway;
Collected in the 1780s

From Johann Gottlob von Kurr's highly popular (1859) *Das Mineralreich in Bildern* (first published by Schreiber and Schill in Stuttgart and Esslingen, Plate 14, Figure 4). The specimens pictured are assumed to be from von Kurr's own collection, though they may instead be from the collection of the Polytechnic Institute of Stuttgart where he was a professor.

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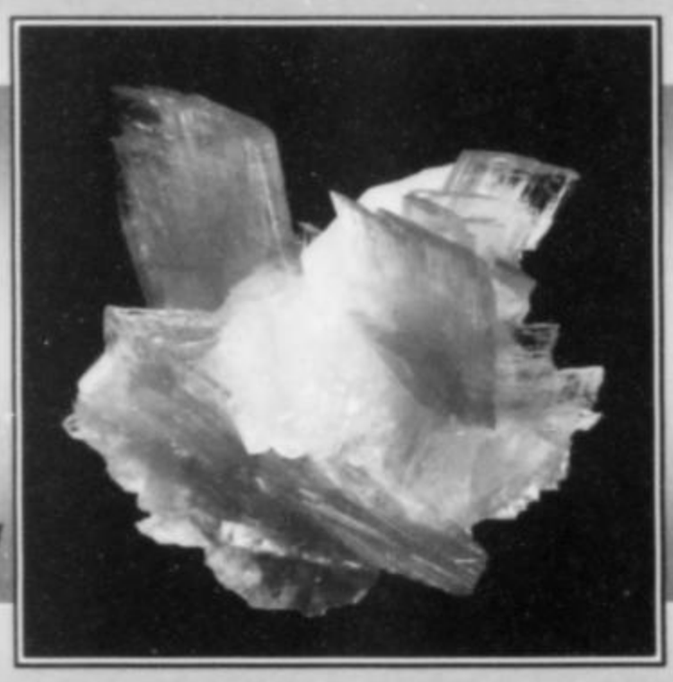

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What's New in Minerals

Sainte Marie-aux-Mines 2008 by Bill Larson

[June 26–29 , 2008]

My favorite European show, *Sainte Marie-aux-Mines*, takes place in France every June. This year we sent a group of five men: myself, my two sons Will and Carl, friend Ben Sobczak, and my friend and fellow gem dealer Mark Kaufman. We arrived without too much travel trouble at the Frankfurt airport and navigated our way to Ribeauvillé, just in time for lunch. It is tough in the Alsace region with so many fine restaurants, great French (real) wines and so little time, but we always make the most of it. After stuffing ourselves with foie gras for lunch, we drove to what has become our home at the Sainte-Marie show, in the fir tree forest, for the past many years—thanks to the generosity of our French friends Eric Asselborn and Alain Martaud. After unloading and tossing our baggage into our condo we headed to the show.

Day One—Tuesday

We arrived on Tuesday afternoon at 3:00 and talked our way through the security with my VIP pass provided by the wonderful show manager, Michel Schwab. Michel has really outdone himself in expanding the show over the years; it is now divided into two venues: minerals, fossils and meteorites in the original area, and gems, jewelry and beads in the second area nearby, with a small train going between the two at regular intervals. Despite the expansion, Michel has maintained the charm of the Sainte Marie show. He greeted us all warmly and I knew this would again be a great mineral experience for all of us.

I saw many of the usual suspects arriving that afternoon from America. One would think that the high euro would have kept some of us away, but the European dealers are smart and make many deals in dollars, so there we all were. I had emailed prior to the trip, and asked around that first afternoon, but there was no "buzz" concerning new finds, just a lot of material to be seen.

The show has upgraded a lot over the years and this year the theater (now called "Espace Prestige") was almost set up by the first afternoon—a day earlier than usual—and what a nice selection of booths there were, many with superb, well-lit cases, just like the Westward Look and TGMS shows in Tucson. Less than a decade ago many dealers were just setting their minerals out on tables on a blanket in this same theater!

The theater had more or less the same cast of dealers as it had last year. As we entered the theater, Jordi Fabre's booth was on the left. Jordi was almost finished setting his minerals up, and I immediately found a fine Chinese gem, a single crystal of **calcite** which he says may be featured in a future issue of the French mineral magazine, *Le Règne Minéral*. I liked it, so I purchased it.

We walked into the main area and greeted many old friends. Just in front of the stage was Alain Martaud, our main contact at Sainte Marie; he shares Pala International's booth in the Denver and Tucson shows. His booth was large and fine, featuring a whole case of excellent French minerals, several of which were already reserved, including a fine Chessy **malachite** pseudomorph after cuprite, almost 2 centimeters! I was sad to have missed it, but he assured me that I will find another.

One of this year's featured exhibits was the mining district of Chessy, a remarkable mineralogical locality in the Rhône region of France. I had been asked to bring some of my own Chessy azurites and cuprites, so we found the two relevant display cases and asked Alain to include my 14 pieces. I was happy to see already displayed the two best specimens from the École des Mines Museum in Paris, certainly among the finest ever recovered. But there were many other fine Chessy pieces as well, and the exhibit was superb.

Figure 1. **Fluorite crystal, 8 cm, from the Erongo Mountains, Namibia. Desmond Sacco collection; Bruce Cairncross photo.**

Up on the stage were the Gobin brothers, who always have fine pieces. They showed me a great green **fluorite** crystal from the Erongo Mountains in Namibia, perhaps 10 cm on edge, on a large quartz crystal that has color-center phantoms—truly superb and new to my eyes. They'd had another, finer one at the Dallas show last May, so perhaps we shall see a few more in the future. Brice Gobin also showed me a fine blue single crystal of Erongo **jeremejevite** 3 cm long and perhaps 5 mm wide, much larger than normal. He said there had been some giants found, up to 1 × 7 cm—unheard of in my experience.

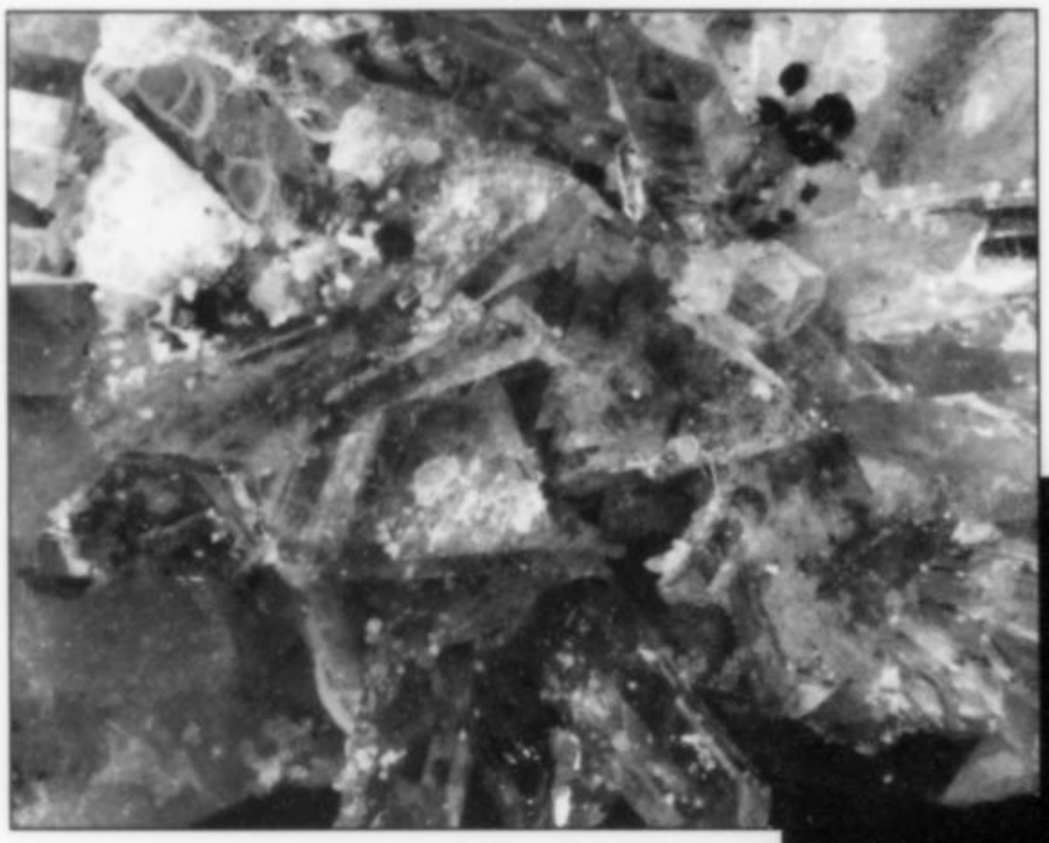


Figure 2. (right) **Helvite crystals with quartz, 5 cm, from the Kruchov Dol mine, Madan, Bulgaria. Spirifer group specimen; Jeff Scovil photo. (Detail shown *above*.)**

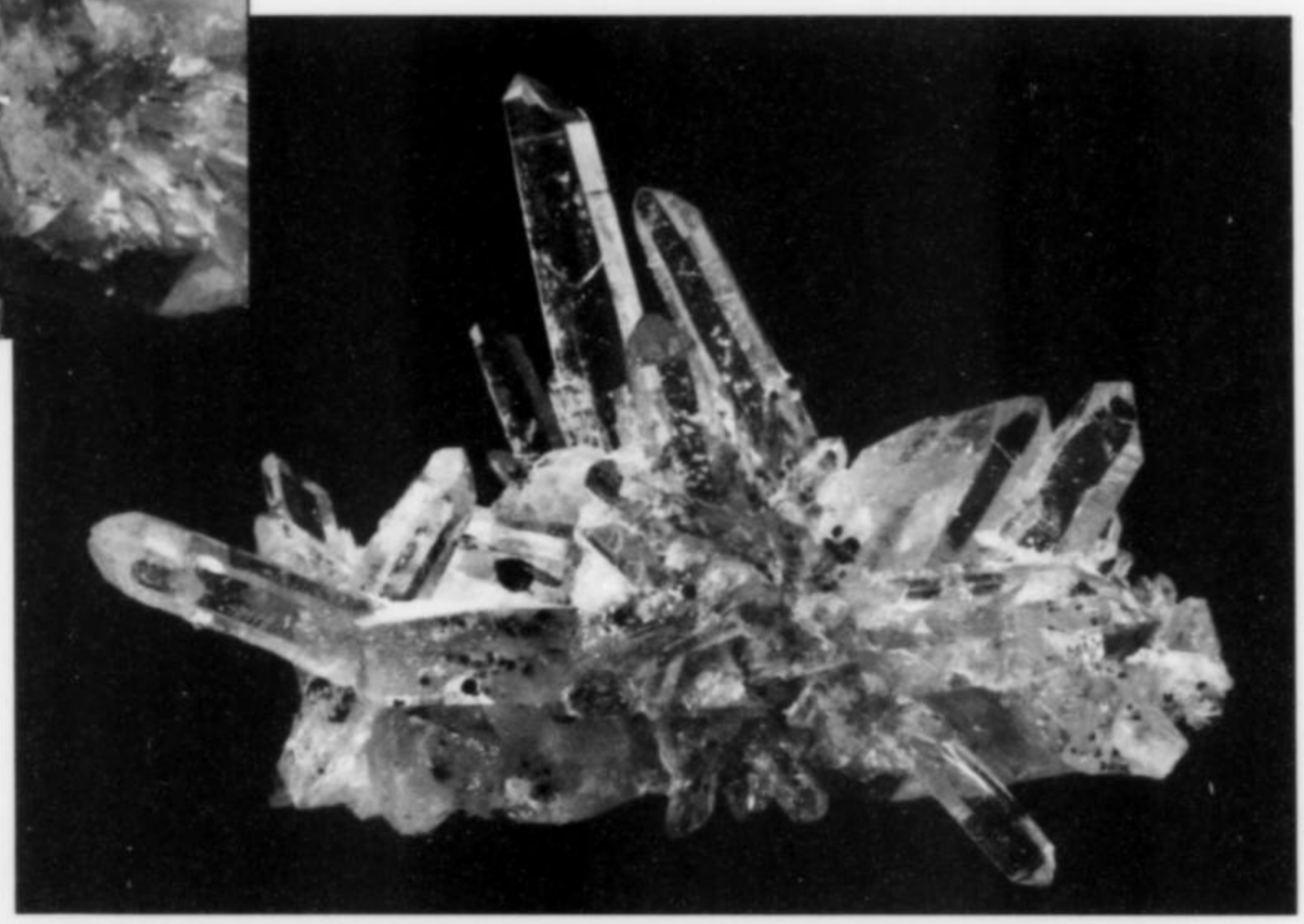
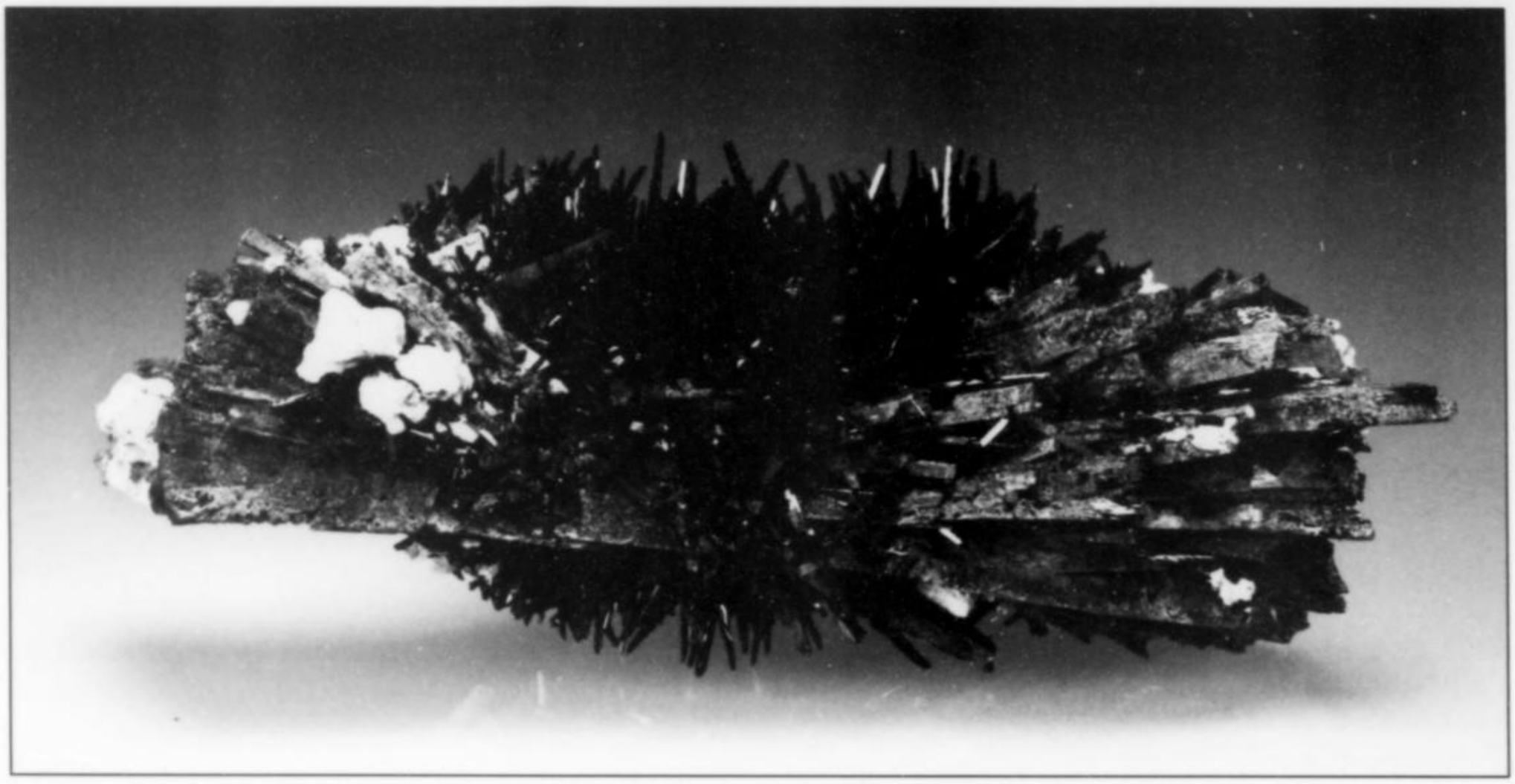


Figure 3. **Azurite crystals to 5 mm on malachite pseudomorphs after azurite, from Kerrouchen, Khénifra, Morocco. Jordi Fabre specimen; Roberto Appiani photo, taken at the Ste-Marie Show.**

We left the theater area and headed out for the buildings and tents where dozens of Chinese, Moroccans, Africans, Brazilians, and even a Bolivian were setting up. We left the show for home in the late afternoon and stopped at the Super U market for sundries, wine and cheeses.

Day Two—Wednesday

Next morning we were early to the setting-up. There were more dealers with displays so I started to search out anything that was new while visiting with everyone I knew. We were shown, clandestinely, some dark blue **barite** from Daye, Hubei Province, China by Jürgen Tron. My spy was none other than mineral photographer Jeff Scovil, without whom I would be unable to do these reports. He showed me also some miniature-size, pale orange **helvite** crystals on quartz found for the first time at Madan, Bulgaria by the Spirifer group. These same dealers had lovely **pyrite** clusters from the closed 9th of September mine at Madan. These are groups of pyritohedrons, mirror bright, in miniature sizes—really superb.



Behind the Gobins were the showcases of Marcus Budil. These were the same metal cases, made in the U.S., that are utilized in many of the rooms of the Westward Look Show. Marcus was the first to import them into Europe. Fine minerals show a remarkable difference in appearance with proper lighting. I expect many other dealers in Europe will follow up with similar designs or even improvements. Next door was Riccardo Prato with some very fine Namibian **amethyst**. These seemed larger and more intensely purple than usual, so I selected and purchased a fine one.

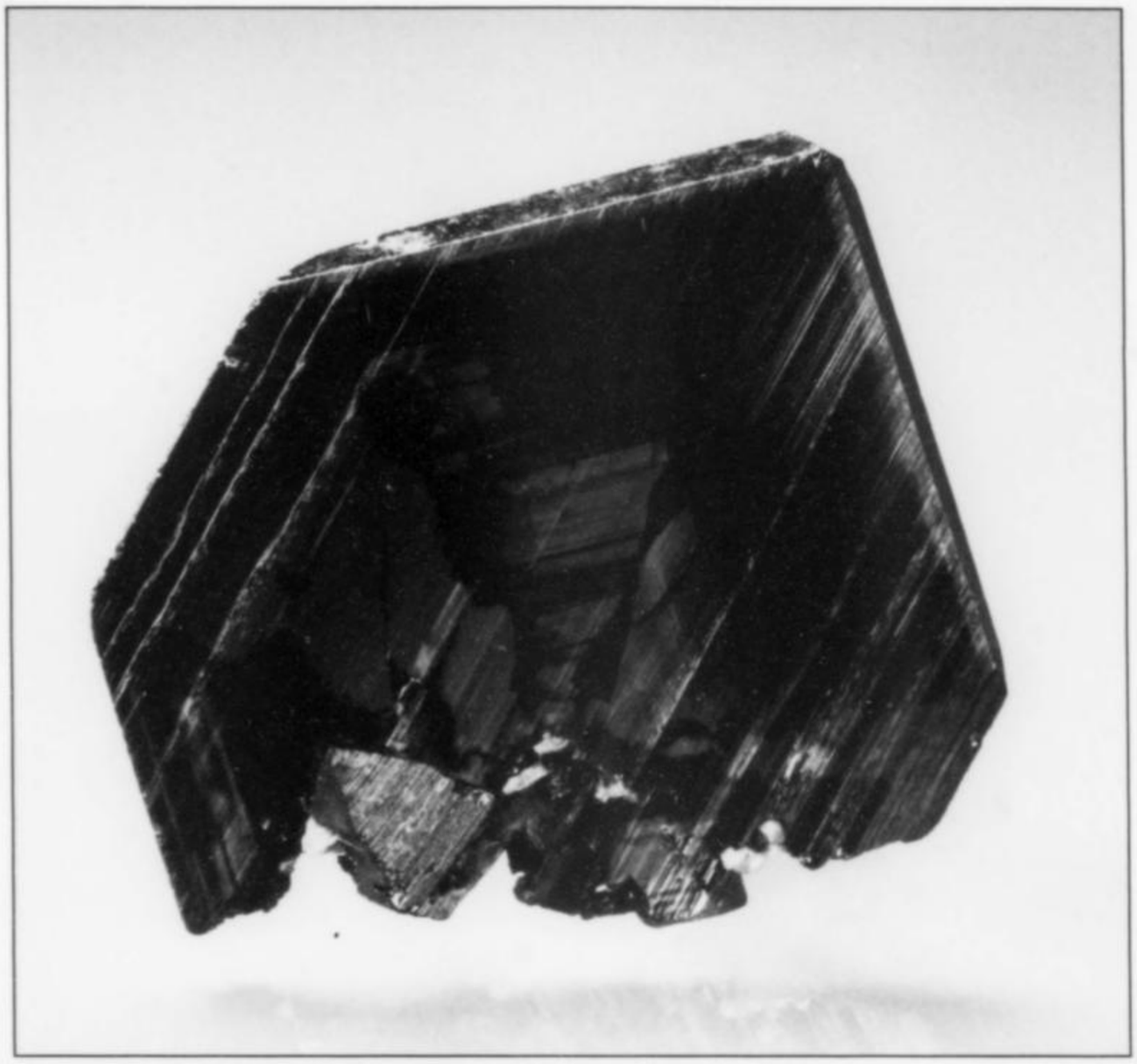
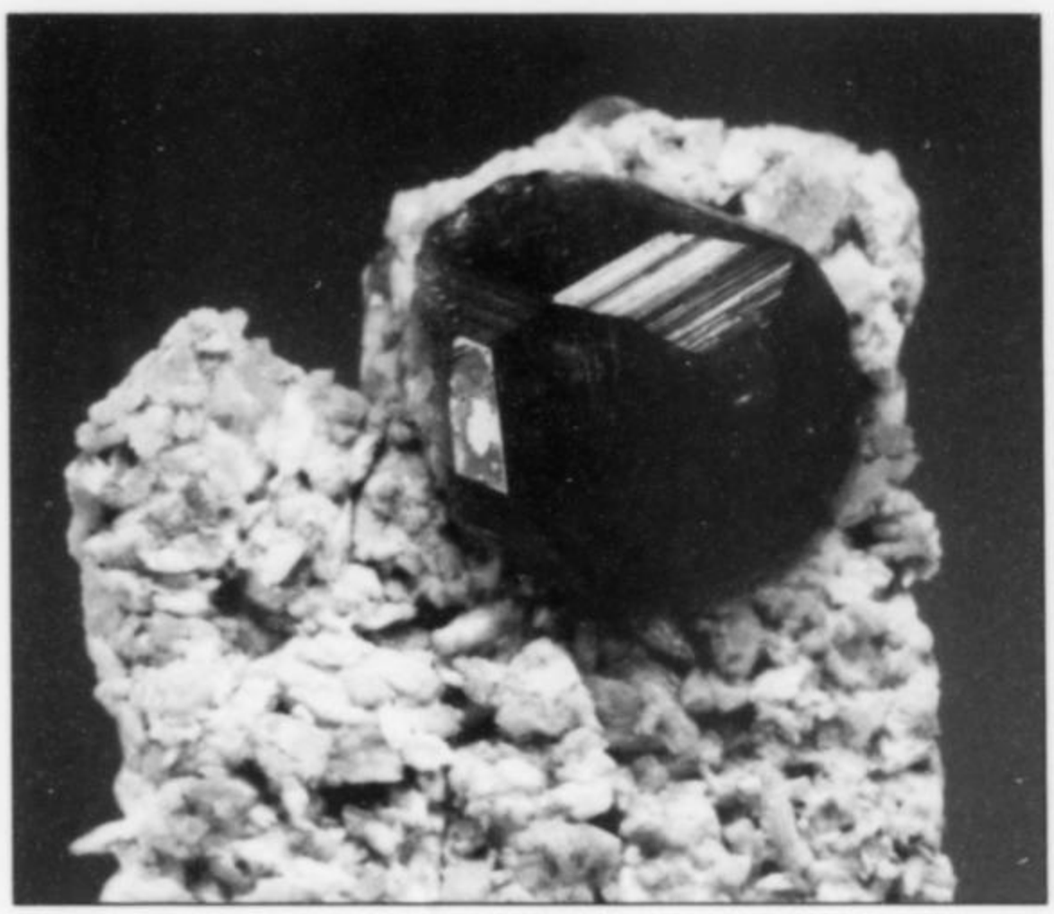
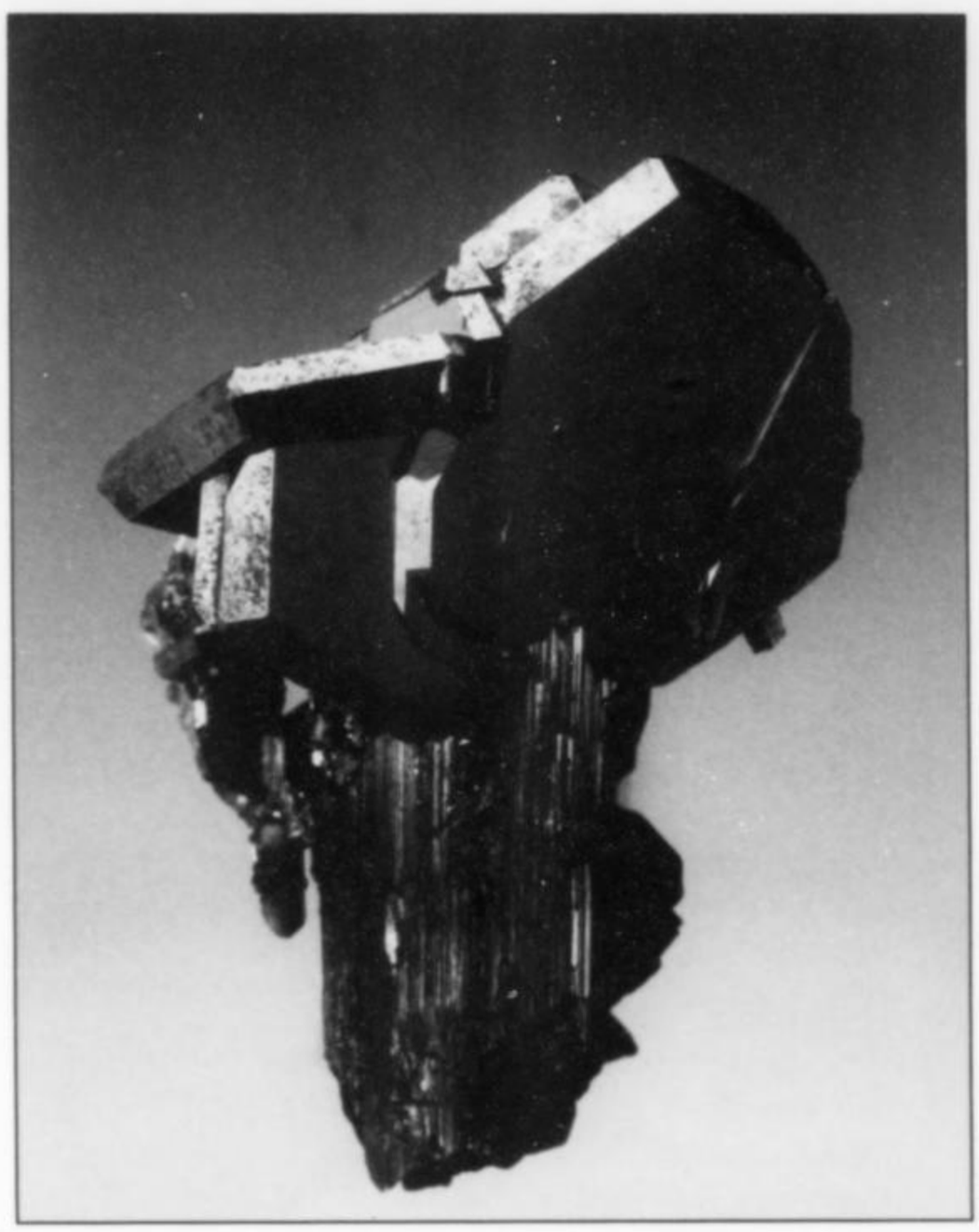


Figure 4. (left) **Brookite crystal, 2 cm, with anatase, from Fitampito, Ikalamavony, Fianarantsoa Province, Madagascar. Laurent Thomas specimen; Roberto Appiani photo, taken at the Ste-Marie Show.**

Figure 5. ***(below left)*** **Demantoid garnet crystal, 1 cm, on feldspar, from Tubussis, Karibib district, Namibia. François Lietard specimen; Roberto Appiani photo, taken at the Ste-Marie Show.**

Figure 6. (below) **Hematite crystals epitactically oriented on a rutile crystal, 5 cm, Tetikana, Ambatofinandrahana Province, Madagascar. Laurent Thomas specimen; Roberto Appiani photo, taken at the Ste-Marie Show.**





We all split up looking over the show and met later back at the theater for another look through. Ian Bruce and Wayne Leicht had displayed some matrix **spessartine** from the new find in Tanzania. I had spotted a few other dealers with the same type of material, but these seemed the best selection. Several were gemmy orange, 2-cm crystals on a schist matrix, quite showy, and priced around 1,000 euros (≈ $1250). Ian also showed me a small group of **azurite** crystals from Morocco, very attractive, with a coating of an unknown greenish mineral.

Just before noon my son Carl and I ran into Gabriel Reisse. He had told us the day before that his mineral collection was to be for sale, since he is looking to upgrade his home and has a 9-month-old son. But he does not intend to give up collecting, and will start again. He took us to his hotel room and there we saw the collection: 140 or so excellent pieces, fairly priced. He had kept only a few self-collected specimens and one Pakistani tourmaline from his early trips there. We haggled a little and made a deal for the whole lot.

After lunch it was time to see some of the local sights, especially for Ben Sobczak, as it was his first visit to Sainte Marie. Our first stop was Haut-Kœnigsbourg Castle, a great fortress overlooking

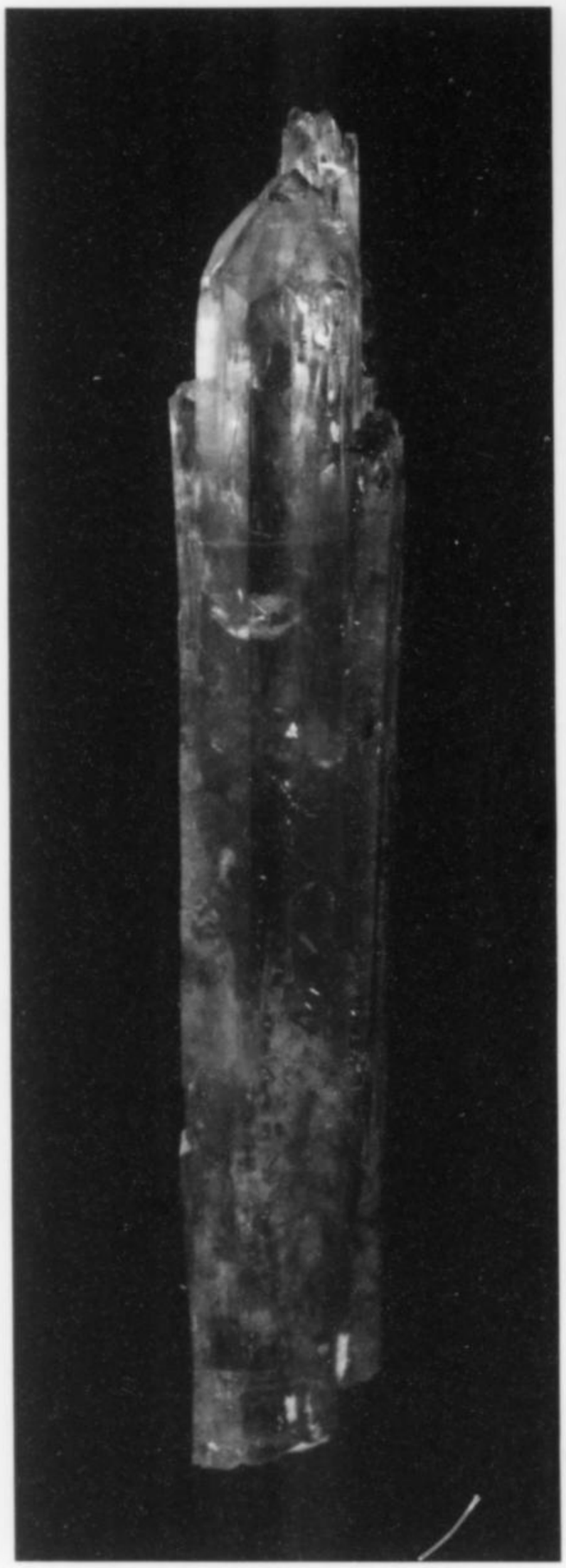


Figure 7. (above) **Senegalite, 7 cm, collected in March 2008 at Kourou Diakouma, Linguere, Tambacounda, Senegal. Jordi Fabre specimen; Roberto Appiani photo, taken at the Ste-Marie Show.**

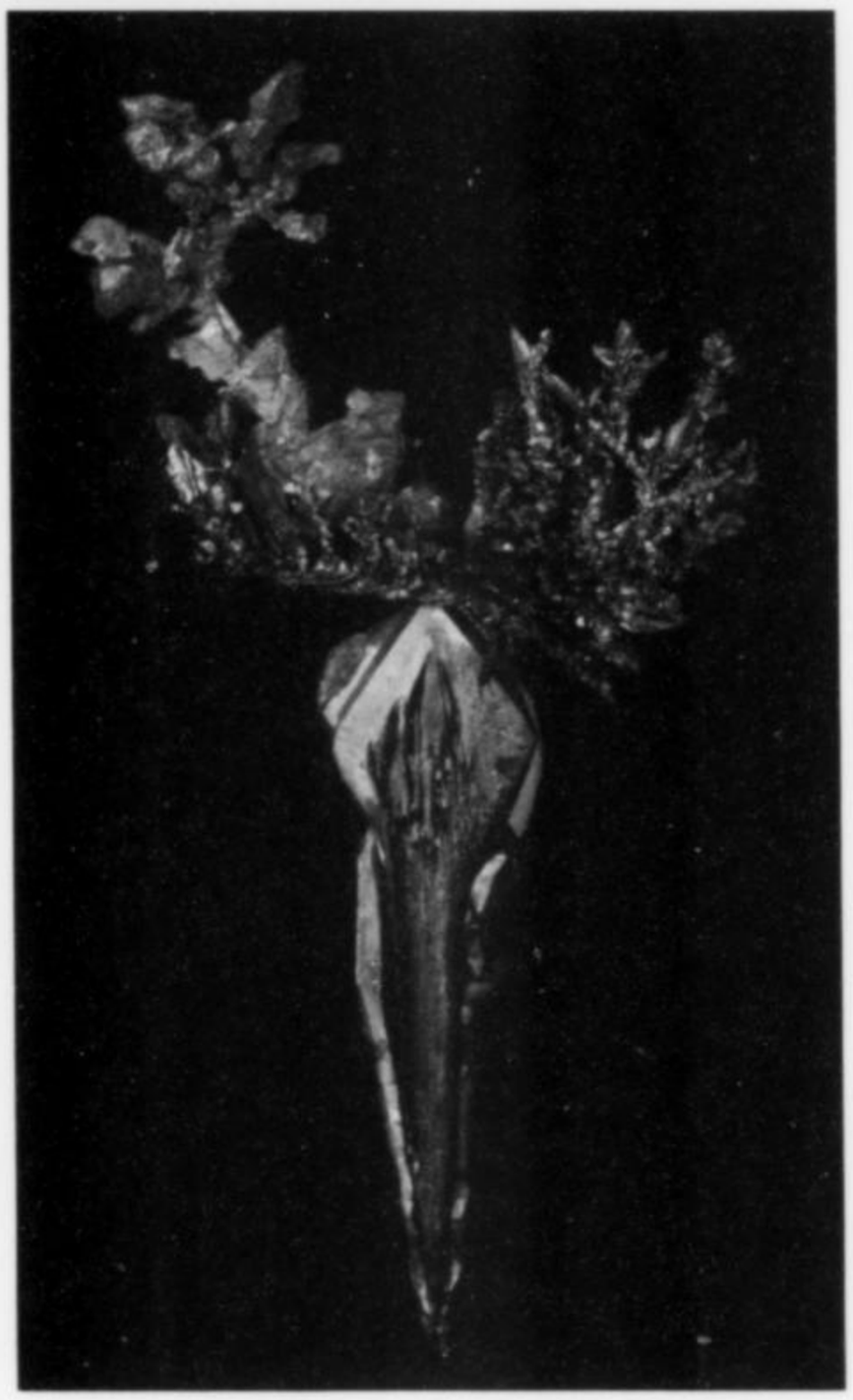


Figure 8. (left) **Jeremejevite crystal, 4.5 cm, from the Erongo Mountains, Namibia (new find). Gobin specimen; Jeff Scovil photo.**

the Alsace valley. The castle is near La Montagne des Singes (Monkey Mountain), a preserve for endangered monkeys (300 Barbary macaques).

Day Three—Thursday

We again arrived at the show early on Thursday, and by that time the set-up was more or less complete. We split up again and searched different areas. I came across some first-time visitors from Tucson, the Megaw family: Allison, Peter and daughter Lauren. They were flush with excitement and had already found a few very exciting things. I visited Mikon Mineralien, where Mathias Rheinländer let me in to select a few new items. Laurent Gautron had a section in the Mikon booth with his latest shipment from Mali in Africa. He had garnets and prehnites as usual, but this time he had a few fine green **vesuvianite** groups with crystals up to 4 cm.

From Mikon we went to Czech dealer KARP for an espresso, and Vaclav Budina offered me a taste of a fine Czech beer they serve

Figure 9. **Copper, 9 cm, from Itauz, Dzhezkazgan, Kazakhstan. Merveille de la Terre specimen; Roberto Appiani photo, taken at the Ste-Marie Show.**

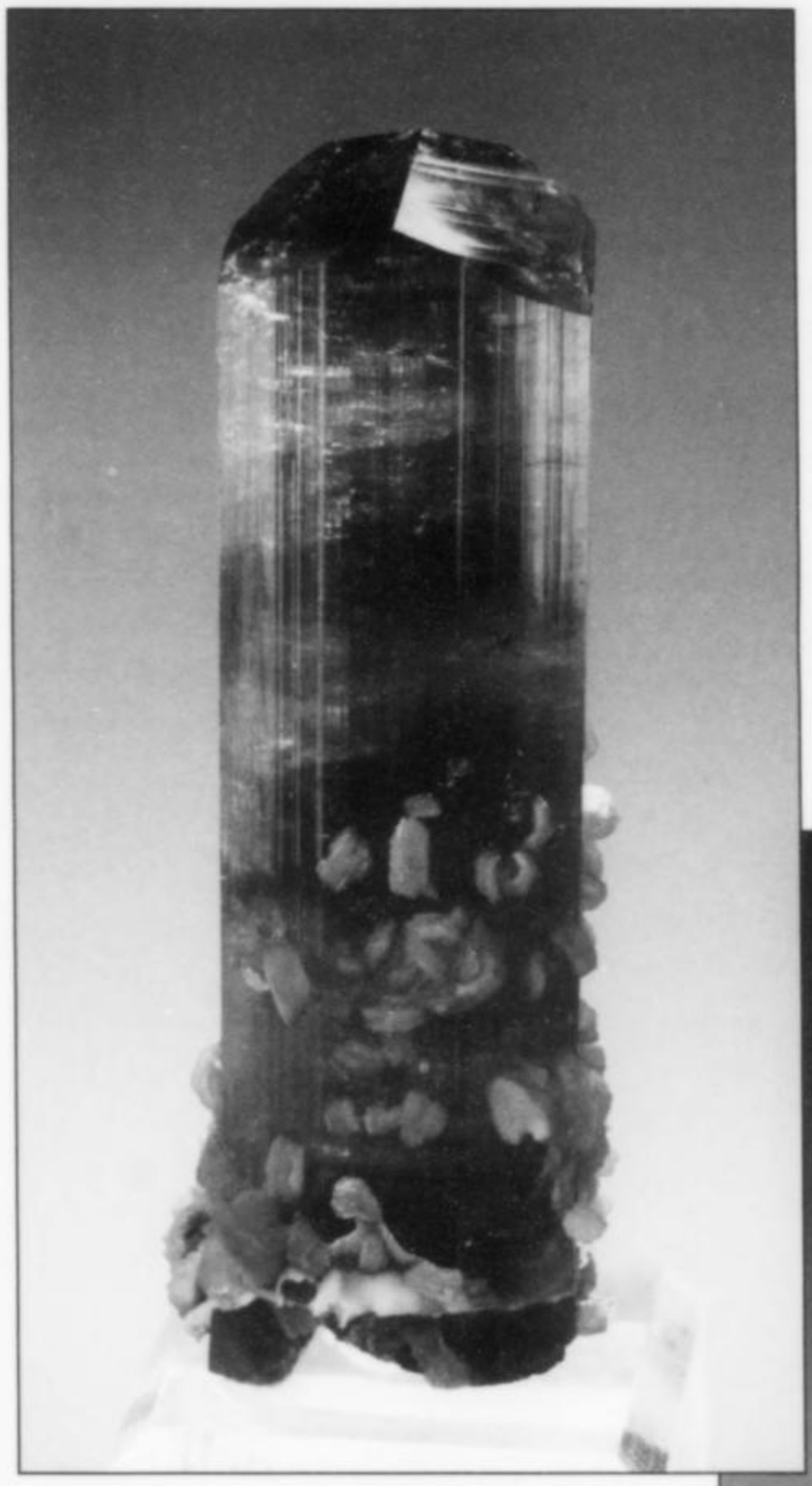


Figure 10. **Elbaite crystal, 8.9 cm, from Paprok, Kunar Province, Afghanistan. Pregi Gemme (R. Prato) specimen; Roberto Appiani photo, taken at the Ste-Marie Show.**

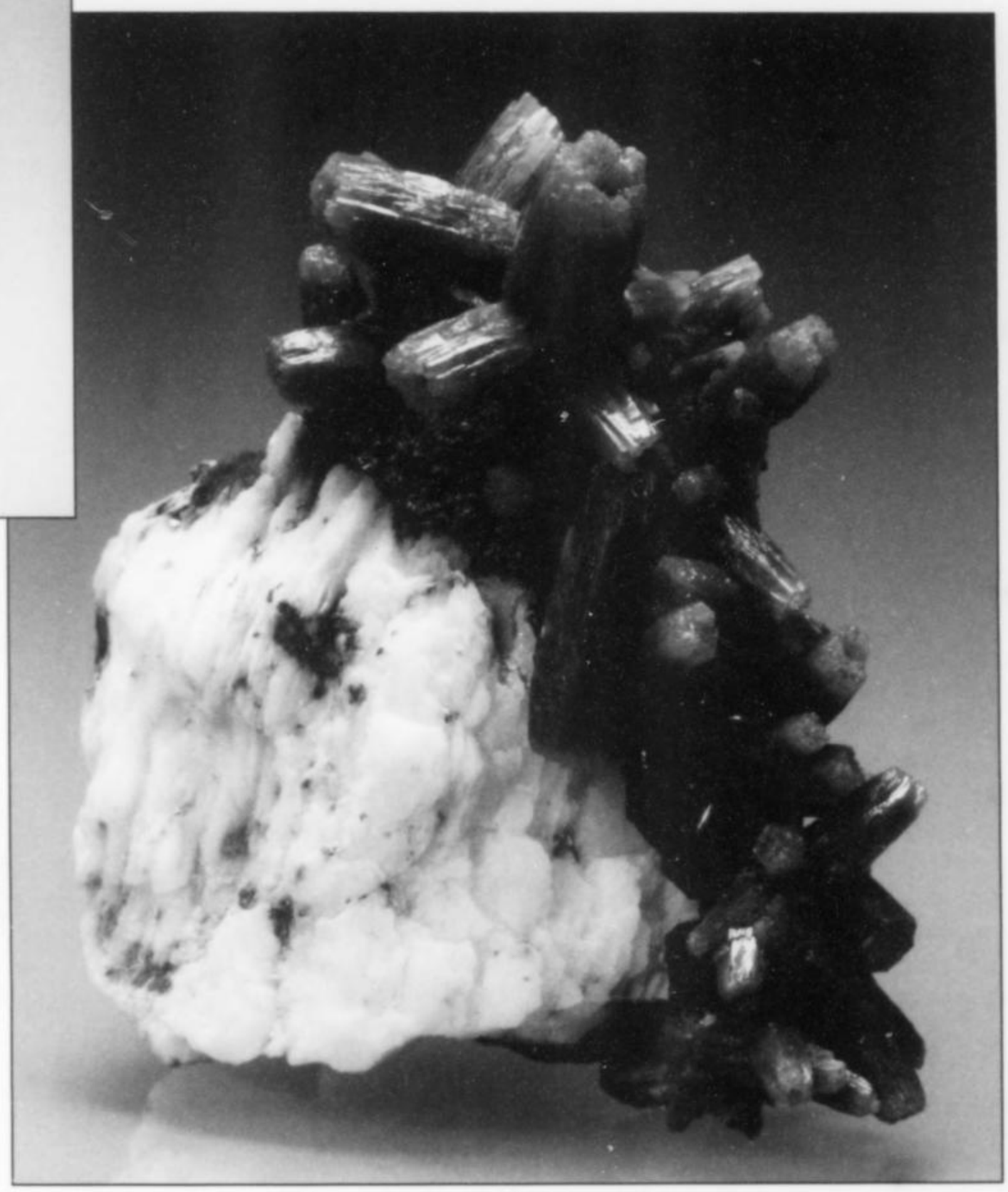


Figure 11. **Pyromorphite crystals to 1.5 cm on barite, from the Les Farges mine, Ussel, Corrèze, Limousin, France. Alain Martaud specimen; Roberto Appiani photo, taken at the Ste-Marie Show.**

on tap. This booth was perhaps the most popular among those in the know at the show. I found a few new items from Dalnegorsk, Russia, including a few fine **ilvaite** specimens. He also had rare faceted, colorless **forsterite** crystals from Pamir (Tajikistan), which I found interesting and selected two for stock. In a Chinese booth nearby I found a few pale lavender stalactitic **fluorite** specimens with **pyrite** balls. I had seen similar ones in Tucson last year with Marcus Origlieri, but only two. The locality is given as the Xiefang mine, Jiangxi Province, China.

Day Four—Friday

The crowds were much larger and the only available parking was far away on Friday. I went down into the basement of the theater and visited photographers Louis-Dominique Bayle and Jeff Scovil to see if anything else new had appeared. They showed me some new and different native **copper** in dendritic groups, and spinel-law twinned clusters etched out of **calcite** from La Calamita, Elba, Italy, on loan from Scott Werschky of Miner's Lunchbox. Scott said he got them from *Wendel Mineralien*. He also said that he'd heard a rumor that the Elba pegmatites may again be mined for specimens starting in 2009; that may be just a rumor, but rumors make the mineral business interesting.

Other points of interest included several dealers offering Sri Lankan **sapphire** crystals, but when they saw me they apologized up front that prices had risen to high levels in Sri Lanka. Indeed they are much more appreciated locally now, and prices were too high for me to bring any home.

Scott Werschky then showed me another fine new mineral locality piece: a **montroseite** said to be the finest ever found at Prachovice, Zelezne Hory, Czech Republic. The piece is about 6 cm across, a complete carpet of shiny black needles on matrix.

Our day finally came to an end, and the final thing we saw on the way out was Gilles Emringer's Ferrari parked just outside the show. I was immediately taken by nostalgia, since one of my favorite sights used to be seeing Gilles parked on the side of the main street in Sainte Marie with his boot up and selling minerals from the trunk! This is a beautiful 599 GTB Fiorano silvertone-colored

(formula one) Ferrari. Gilles's company, Multiaxes (or as I call it Multi*taxes*), now has a real booth just across from the theater.

We had our last dinner in Sainte Marie, and celebrated with friends. In the morning we left for Dijon, already excited thinking about coming to next year's Sainte Marie-aux-Mines Show!

Springfield Show 2008

by Joe Polityka

[August 8–10]

This year I vowed that while driving home after the Springfield Show I would spend some time studying the geology of New England. Recent articles in the media had referred to a "newly discovered" (that is, new to the media) fault zone under New York City and adjoining parts of New England, so I decided to do some research on the subject. I ordered a geologic map of the northeastern United States from Ward's in Rochester, and I put in a few hours of research on the Internet. The more research I did, the more I realized how complicated the geology of the northeastern United States actually is. According to what's written on the Ward's map, "The Northeastern states, especially the southern New England area, possibly has undergone more violent geographic changes over a longer period of time than any other portion of the United States." Sure enough, on the map the northeast looked to me like a bowl of vegetable soup loaded with alphabet noodles. I decided to visit Cameron's Line, a fault that runs through New England, Manhattan and Staten Island, then through New Jersey and into the Atlantic Ocean—but only on the way home from Springfield, after the show was over.

Every year I look forward to the Springfield Show in August, and this year was no exception: it was going to be my 20th time attending the show, so I became quite nostalgic on the drive from Pennsylvania. I thought of friends, such as Ron Bentley and others, who are no longer with us, and of great exhibits at past Springfield shows. Also I was pumped up because this year the comprehensive collection of Herb and Monika Obodda was going to be featured at center stage; more about the Oboddas' fabulous collection later.

We arrived at the show on Thursday, and Marty Zinn allowed me in on the same day, one day before the show opened, so I could do an unhurried, systematic assessment of what was new. Approximately 170 dealers (both retail and wholesale) were set up this year.

Don and Gloria Olson were disbursing the collection of the late Russell P. MacFall, author of *Gem Hunters Guide* and countless articles on fossils, rocks and minerals which were published in mineral magazines and even in *The Chicago Tribune*. MacFall was an editor for the *Tribune* who died in 1983 in Coronado, California. His daughter held onto his collection until her own recent death. For more information on the remarkable life of Russell P. MacFall, go to the Biographical Archive on the Mineralogical Record website at www.MineralogicalRecord.com and check out his biography. Most of the specimens the Olsons had from this collection are from the copper mines of the Upper Peninsula of Michigan. The majority are specimens of crystallized **copper** in fantastic arborescent shapes, in miniature to cabinet sizes. The crystals are quite sharp, and have that antique patina that collectors search for.

Dudley Blauwet of M*ountain Minerals International* had his usual inventory of minerals from Pakistan and Afghanistan, including something outstanding and new: red **zircon** crystals from Harchoo, Astor, Diamar district, Northern Areas, Pakistan. The lustrous, translucent crystals average 1 cm and occur in a matrix of biotite schist/massive quartz. The specimens are very attractive.

John Betts Fine Minerals was disbursing the collection of the late Bob Lambert of New Rochelle, New York. Most specimens in this collection are one-of-a-kind, including many from classic localities in the United States and Europe. Bob and I go back at least 40 years. We first met at the Sears parking lot rock swap in White Plains, New York—which, by the way, attracted quite a few serious collectors back in the late 1960s and early 1970s. I remember Larry Conklin, Fred Cassirer, Rock Currier, Bill Butkowski, Fred Parker, Terry Szenics and others tailgating. Bob Lambert and I were friendly mineral competitors for years, and I will miss him.

*Oconee Minerals (*gailkarwoski@hotmail.com*)* had a large cabinet full of **amethyst** crystals on white quartz matrix from the Diamond Hill Quartz mine, Antreville, Abbeville County, South Carolina. Some specimens are very large cabinet-size, with amethyst crystals reaching over 10 cm, as singles and in groups. The crystals vary in color from pale to deep purple. Antreville is about 15 miles west of the village of Due West (the well-known classic location for amethyst in South Carolina).

Figure 12. **Spessartine crystal, 2.5 cm, Loliondo, Arusha Region, Tanzania. Françoise Lietard specimen; Roberto Appiani photo.**

Crystals of **spessartine** by the hundreds were prominent at the booth of *New Era Gems* (www.neweragems.com). This find at Loliondo, Tanzania created quite a stir when gemmy orange trapezohedral crystals to golf ball size first appeared earlier this year. At first they were thought to be quite rare, but they have since become more available on the market, so now is the time to get a good crystal at a reasonable price. Keep in mind, however, that the best crystals (showing good color and clarity) are still pricy.

Overall, as in previous years, there were countless one-of a-kind specimens to suit every taste and wallet. Gold, silver, diamonds, emeralds, rubies and tourmalines (in myriad colors) were plentiful, as were also the "rare uglies."

The *piece de résistance* of the show, as mentioned above, was the collection of Herb and Monika Obodda. According to the show program, "The Oboddas have compiled a collection that offers many different views of the world of gems, minerals and mining. The 53 cases on display here at the show contain an amazing diversity of objects for your enjoyment. Minerals, gems, gem carvings, old books, mining artifacts and mining-related collectibles are included in this wonderfully varied exhibit . . . Don't miss the cases of mining scenes and themes in media as varied as 18th-century Meissen porcelain, 19th-century carved ivory, cast iron objects, copper memorabilia from Butte, Montana and Michigan, and items related to the Klondyke (sic) gold rush."

There were multiple objects of mining art, and beautiful gem carvings by Gerd Dreher which had never before been exhibited in the eastern United States. Each of the animals in the Dreher exhibit was carved from a single block of gemstone rough. I especially liked the brown mouse on a fall-colored oak leaf carved from layered agate, and the chimpanzee carved from dark brown agate. One case contained a 1905 colored lithograph of a 12-cm heliodor beryl, with the actual crystal displayed in front of the lithograph in the same case.

Most educational were the cases of fine Pakistani minerals accompanied by photos of Herb's adventures in Pakistan. The photos capture the geology, terrain, people, culture, mining and cuisine of the country. I especially liked the photo of the native man carrying a large tray of raw ox feet (yummy!). If you want to learn more about the Oboddas and their collection, see John White's article in vol. 39 no. 4 (July–August 2008) of the *Mineralogical Record.*

In 2009 at Springfield, the featured minerals will be from the collection of Jim and Gail Spann of Dallas, Texas. Marty Zinn and his crew must be commended for bringing these top-quality displays to the show each year, and Dave Bunk, the "quiet man" involved in transporting and setting up the exhibits, deserves special thanks as well.

As usual, the guest speakers were great. Gail Spann gave a lecture describing a woman's perspective on our hobby. Her enthusiasm is contagious, and I must warn you male dealers of something I learned from her: women do not like to do business with you when you have food stains on your shirt, or a mouth full of food, when you are dealing with customers. Gail owned an art gallery, so she knows how to make a customer feel welcome and comfortable.

On the way home we stopped for lunch in Ridgefield, Connecticut, a town bisected by Cameron's Line. This, as I mentioned before, is a fault line traversing much of the northeast; it was formed some 250 million years ago by the collision of proto-North America and proto-Africa, and today earthquakes occur on it occasionally. The fault is named for Eugene Cameron, a geologist who discovered that rocks west of the line differ greatly from rocks east of the line.

After dropping my wife and daughter off at a local mall, I spent several hours walking through the woods in what I thought was the right place, but never found any sign of Cameron's Line. I did meet a policeman who asked me what I was doing walking through the wooded properties of local residents. When I explained, he graciously put his ticket book back into the squad car and sent me on my way, leaving me with another great memory to add to my Springfield Show experience, and lots of laughs for my wife and daughter.

Denver Show 2008

by Thomas P. Moore

[September 8–14]

Customarily, calmly, inevitably as the change of seasons and yet with all due excitement, the Denver Show spread itself out again this year at the Holiday Inn Denver Central and at the Denver Merchandise Mart. The skies were intermittently rainy, but Hurricane Ike was far away and the presidential campaigns at least could seem so (the visitor needed only observe the No Watching TV News In The Hotel Room self-discipline). In the show's routines and rhythms there was just one really salient change: hotel-show manager Marty Zinn had at last found a way to make parking easy around the Holiday Inn. I'm not sure how he did this, but the important thing was that in 2008, unlike in earlier years, parking spaces seemed always available, and the foot-traffickers plying into and out of the big wholesale tents were not in the least imperiled by cars circling in the old angry, skittish hunts. Could this change be part of the reason why hotel-showgoers *and* even visitors to the "Main Show" at the Merchandise Mart seemed more than usually cheerful and eager this year? Or was it that a good number of what's-new mineral discoveries were on hand, despite everyone's (including my) initial impressions to the contrary? Somehow, a rote "there's nothing new this time" feeling seems to have become a part of the routine for many showgoers in Denver, as at other big shows . . . but keep hanging out, look more closely, and you will find new items. How could you not, at such a huge, generous, truly international show? What's more, you will find significant *bargains* in beautiful and desirable minerals—a theme that will be addressed in an addendum to this report. Now let's run down the what's-new roster for Denver 2008, without further palavering.

As once or twice before, the tour commences with a dramatic discovery of California **gold**, with specimens being marketed (as once or twice before) by Bryan Lees' *Collector's Edge* dealership. Some of the finest gold specimens of all time and from anywhere have been those found in the Colorado Quartz mine, near Midpines in Mariposa County, where modern production of major gold specimens began in the mid-1970s and climaxed with the unearthing of the famous "Dragon" specimen in January 1998. For the past few years the mine has been idle, its fame for gold specimens having been temporarily usurped by the neighboring Mockingbird mine, which exploits the same vein. But new work in the Colorado Quartz mine has lately begun, directed by the mine's new owner, Lance Barker, who, with his son Max and with miner Matt Ingram, dug out about 15 miniature and small cabinet-size gold specimens, plus two stupendous larger pieces, between December 2007 and mid-spring 2008. These new finds were to be ogled in the *Collector's Edge* room at the Merchandise Mart in Denver. Some seasoned collectors were quick to call the two giant gold specimens "the hit of the show," and (speaking of quick) one of them reportedly sold in mere minutes after the Main Show had officially opened on Friday morning. The miniature and small-cabinet specimens show gold as bright dendritic and "herringbone" aggregates, and as irregular clusters of sharp octahedral crystals to 5 mm, most with milky quartz, some without. Just for fun, the two larger specimens have been given names—"El Fuego" is a 15-cm matrix of milky quartz with a brilliant, thin, slightly curving, 5-cm crest of well individualized gold crystals rising straight up, and another such crest lying flat on the front; "The Bristlecone" is 15 cm tall, its lower third consisting of milky quartz, the other two-thirds consisting of a cone-shaped aggregate of curving sheets and horizontal-tending stalks which wrap around the main mass, each "stalk" like a linear cluster of ripe berries, each "berry" a fine octahedral (slightly rounded) gold crystal, with individual crystals to just under 1 cm.

Another **gold** thrill was also available at the Main Show—not really as major as the one just described, but remarkable for the provenance. The Belshazzar gold mine near Quartzburg, Boise County, Idaho has not been commercially active since the 1930s, but for an indefinite time before that it produced fairly good specimens of wire and dendritic gold. In 2004, Idaho collector Allan Young went digging in the old mine dumps, and found three good gold specimens; in 2006 another investigator recovered a few thumbnail specimens of wire gold in quartz matrix. Word having gotten around, some collectors this past summer attacked the dumps with metal detectors, and found about 100 gold specimens in a range of sizes and qualities; six of the finest were brought to Denver by Scott Werschky of *Miner's Lunchbox* (www.minerslunchbox.com). Belshazzar mine gold occurs as lustrous, elongated microcrystals and as curving wires to 1.5 cm or so inhabiting shallow veins and vugs in milky quartz. Scott's matrix specimens range in size from 3 cm to an extremely impressive 12 × 12-cm flat plate almost

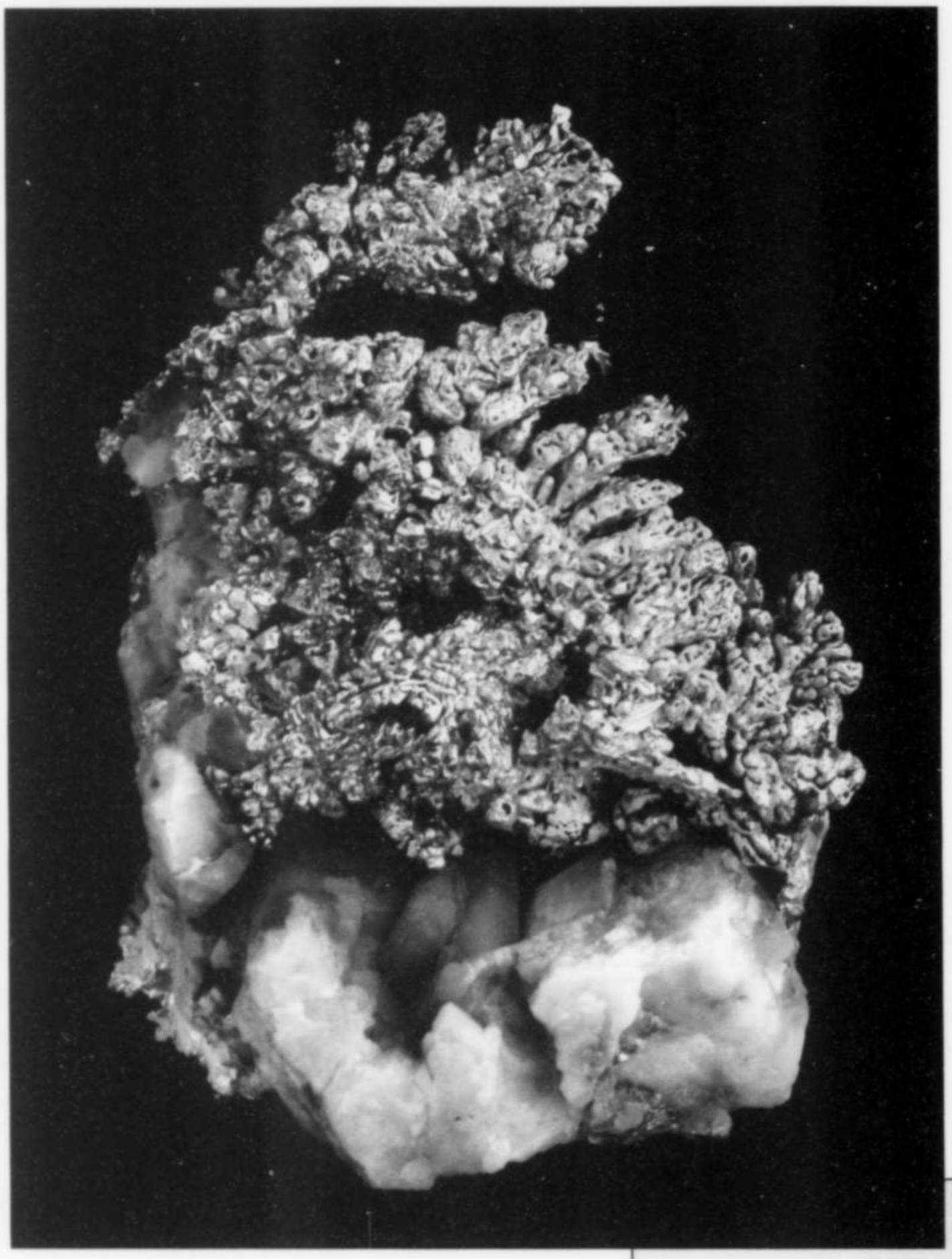


Figure 13. **Gold on quartz ("The Bristlecone"), 15 cm, from the Colorado Quartz mine near Midpines, Mariposa County, Colorado. Collector's Edge Minerals specimen; Jeff Scovil photo.**

Figure 14. **Gold on quartz, 12 cm, from the Belshazzar mine near Quartzburg, Boise County, Idaho. Allan Young collection; Wendell Wilson photo.**

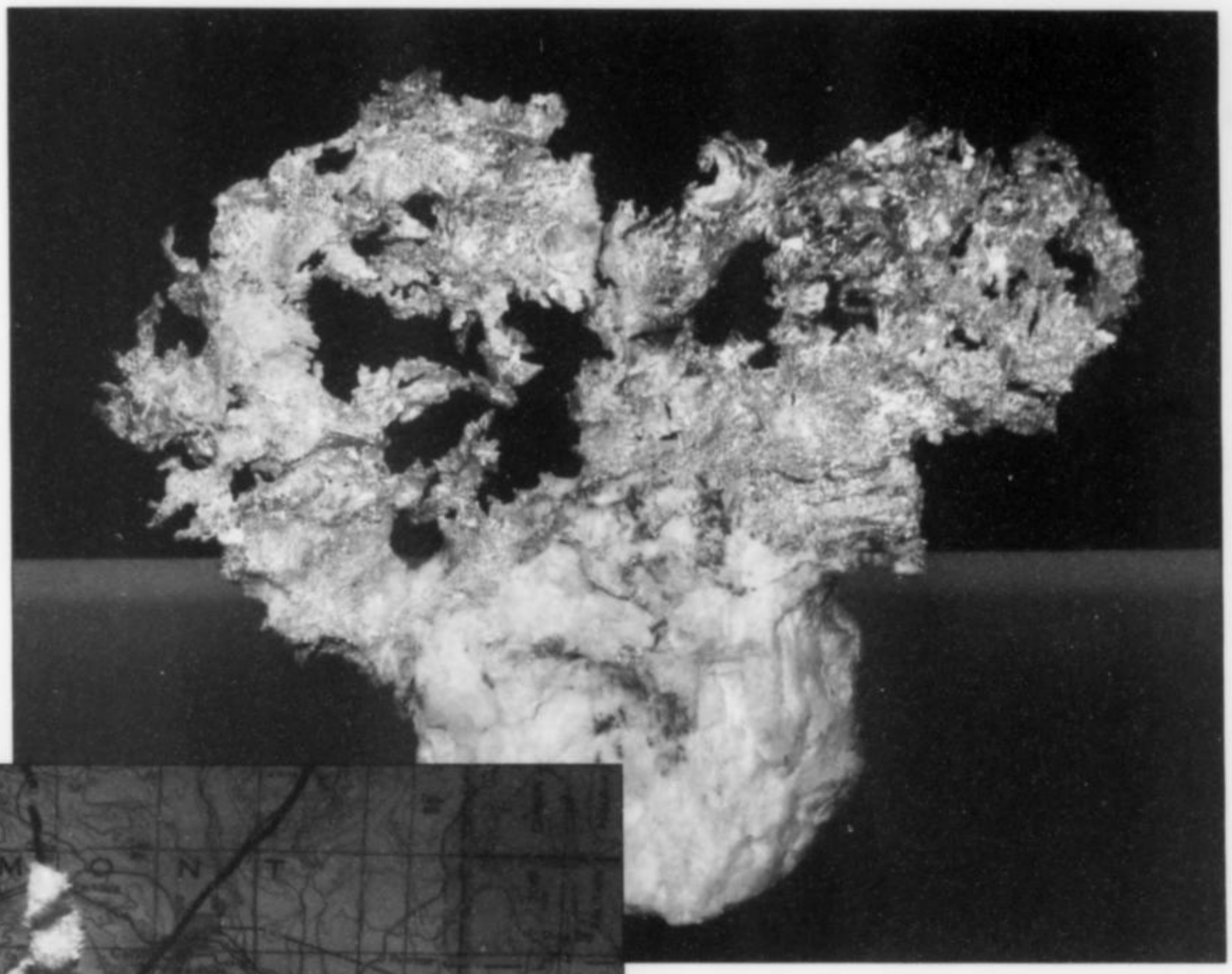


Figure 15. **Gold on quartz, from the Eagle's Nest mine, California. Wendell Wilson photo.**

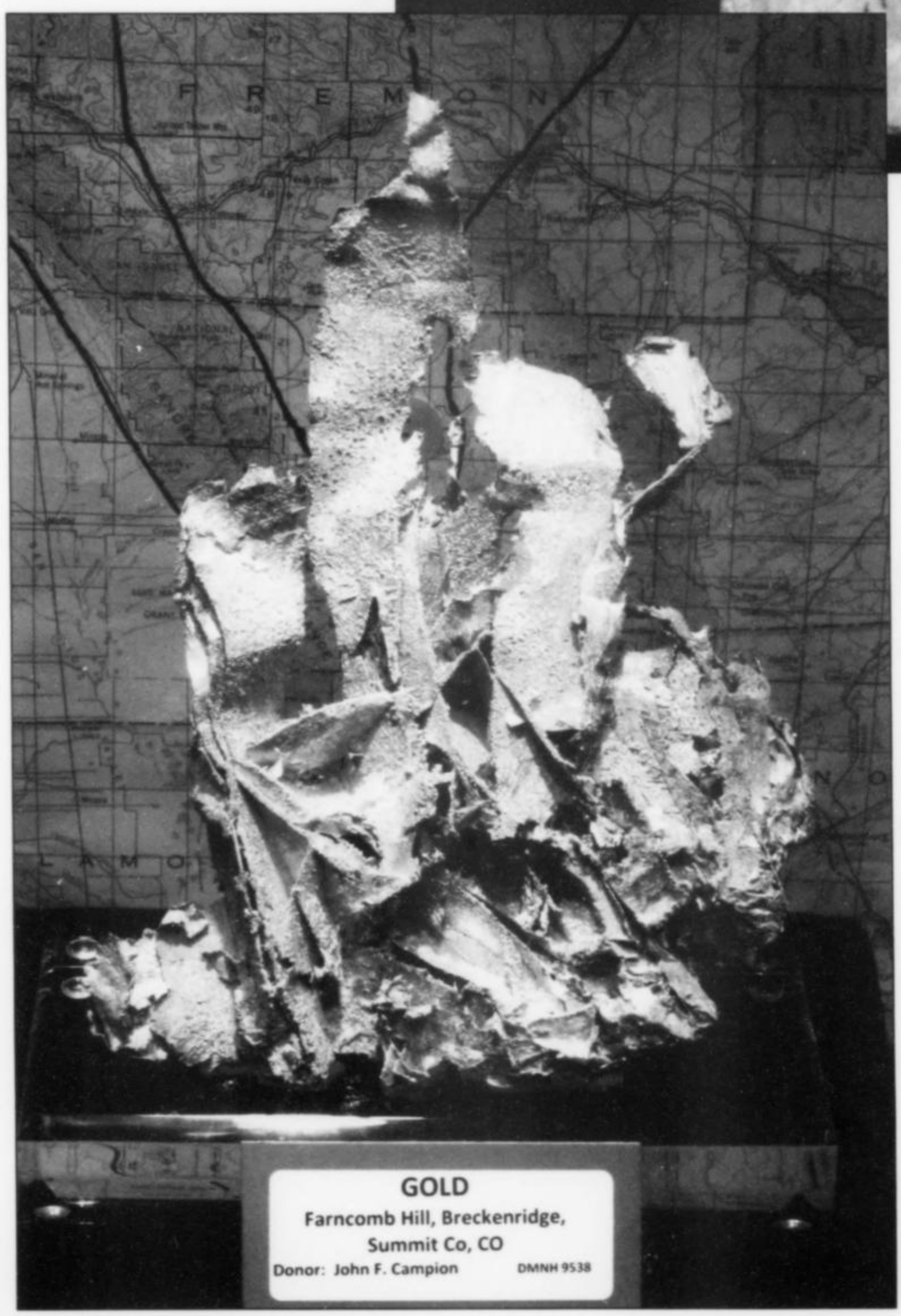


Figure 16. **Gold, 20 cm, from Farncomb Hill, Breckenridge, Colorado. John F. Campion collection, now in the Denver Museum of Nature and Science; Wendell Wilson photo.**

totally covered with a busy, glittering crust of crude gold wires and tiny crystals.

Elsewhere at the Main Show, the *Mad Mutha Mine* (P.O. Box 66, Paradise Valley, NV 89426) offered 15 nice thumbnails from the same surprising Idaho find, with microcrystallized gold thickly covering quartz; these pieces ran $200 to $800. Also with *Mad Mutha* were about 20 specimens, thumbnail-size up to 6 cm across, showing whitish-gold-colored, feathery and "herringbone" aggregates of microcrystals of what is probably the Au-Ag alloy called **electrum** (not a species name). This past summer a persistent fellow with a metal detector exploring an old mine adit near Manhattan, Nevada found a single large rock which yielded these pretty pieces.

Speaking of Nevada, a couple of other new, if modest, discoveries in that state debuted in Denver this year. Within the past five years the abandoned workings of the old Mobile mine in the Goodsprings district, Clark County, have yielded small, fairly nice **wulfenite** specimens, and about 25 small miniature-size examples were on hand in the Holiday Inn room of *Great Basin Minerals* (www .greatbasinminerals.com). Opaque, thin-tabular, butterscotch-orange crystals of wulfenite to 2 cm are scattered on a weathered gray limestone, with microcrystals of calcite and adamite. In another Holiday Inn room, Adam Larson of *Adam's Minerals* (www .adamsminerals.com) presented some nice **barite** specimens he has recently found at a new locality which he calls the Cougar mine #2, in Nye County, Nevada. This is a small prospect pit penetrating a near-surface system of hydrothermal barite veins in white limestone; from it comes barite (no associated species have yet been found), as sharp, blocky to tabular, pale yellow-orange crystals reaching 5 cm. The crystals are not highly lustrous and are at best translucent, but Adam's cabinet-size clusters and thumbnail-size loose single crystals are quite attractive.

A recent discovery of jumbo **amethyst and smoky quartz** crystals at Diamond Hill, near Antreville, Abbeville County, South Carolina was featured prominently at the Main Show: a showcase put in by the Colburn Earth Science Museum of Asheville, North Carolina was devoted to the find, and Chester Karwoski of *Oconee Minerals* (1040 Sweet Gum Way, Watkinsville, GA 30677) had a wall case full of specimens for sale. In April 2008, eight mineral collectors, including the property owner, used a backhoe to dig in an area of saprolitic rocks—profoundly decomposed granite and pegmatite—where small, pale purple amethyst crystals had been gathered by locals for decades. An extensive network of veins and pockets just below the surface produced sharp, nearly equant amethyst crystals to 15 cm in diameter, typically with milky white cores and translucent, deep purple or medium-smoky outer zones and terminations. *Oconee Minerals* had many loose crystals and loose clusters of two or three crystals, as well as boulder-size matrix specimens showing piled-up amethyst crystals on druses of milky quartz forming thin crusts on the punky rock. There is a general resemblance to numerous other amethyst finds in the Appalachian Piedmont regions of Dixie. Although the amethyst crystals lack the high luster and total gemminess of the best from Jacksons Crossroads, Georgia, they are impressive for size alone, and also for sharpness and general aesthetic quality; they were selling well.

One of the hits of the 2008 Tucson Show was the plenteous supply of **wulfenite** specimens found last December on level 6 of the San Juan Poniente *lugar* of the Ojuela mine, Mapimí, Durango, Mexico (see the Tucson Show report in May–June 2008). As you may recall, the *new* Ojuela wulfenite crystals seen in Tucson are, unlike most of the older known ones, dipyramidal and elongated, i.e., spiky, coming almost to points, though they rest on the familiar dark brown "limonite" gossan matrix of the Ojuela mine. At Denver this time we had our horizons widened by generous numbers of *new-new* wulfenite specimens, found only weeks before the show in the same area of the mine. By "generous numbers" I mean that Rob Lavinsky of *Arkenstone* had about 20 flats of these specimens, with matrix pieces from thumbnail size to 25 cm across. By *new-new* I mean that the wulfenite crystals are simple, flat-topped tetragonal prisms with a length-to-width ratio of around 2:1, although there is also a minority of the spiky dipyramids. The very sharp, silkily lustrous, butterscotch-orange wulfenite crystals from the *new-new* find reach 2 cm, and occur scattered thickly on the dark brown rusty matrix. A few of the matrix pieces show areas of botryoidal green mimetite (as before) and of pearly white calcite microcrystals (as *not* before).

Another happy byproduct of renewed ore exploitation in parts of the Ojuela mine is a small surge of beautiful, apple-green **copper-rich adamite**, in sharp crystals to 1 cm or so, and in coxcomb-shaped aggregates of such crystals, on "limonite" gossan. I mentioned this new material in my last online what's-new report. At the Main Show in Denver there were about 50 fine thumbnails and small miniatures of green adamite from Ojuela with Marcus Origlieri of *Mineral Zone* (www.mineralzone.com). Might as well mention too that Marcus had just two loose, thumbnail-size, utterly colorless and transparent, altogether remarkable crystals of **nifontovite** from Charcas, San Luis Potosí. This discovery, dating to early 2008, was mentioned online as well, and now the news is that most of the loose nifontovite crystals from Charcas have passed from Marcus to Rob Lavinsky, on whose *Arkenstone* website they may be admired (and, if you reserve sufficient funds for super-rare, beautiful minerals, purchased).

By now you will have seen our fifth special Mexico issue (November-December 2008), and checked out the account there of the Milpillas mine, Cananea district, Sonora, Mexico—lately the talk of the mineral world for its outstanding **azurite** and pseudomorphous **malachite** specimens. Milpillas mine azurite and malachite now are fairly abundant on the mineral market (don't get complacent: it won't last), and the best place to pick up "your" piece might well be *Evan Jones Minerals* (evanabbottjones@gmail.com). In his booth at the Main Show in Denver, Evan had *hundreds* of striking Milpillas azurite thumbnails and miniatures, and malachite specimens in thumbnail to full-cabinet size. In his specimens one could see a great diversity of azurite crystal habits, and pseudomorphism in all stages from faintly incipient to complete; some crystal groups are blue but show faintest velvety sheens of malachite alteration which can't be more than a few microns thick.

In the March-April 2006 ("Llallagua") issue of this magazine, Jaroslav Hyršl and Alfredo Petrov informed us that now, as in earlier and better times at the famous Siglo XX mine, Llallagua, Bolivia, many fine mineral specimens have emerged from the Contacto Vein (so-called because it crosses a contact between the ore-hosting igneous stock and sedimentary country rocks). Thus proving true to itself, the Contacto Vein in March 2008 gave up a few dozen excellent specimens of **monazite**, with sharp twinned crystals to 1 cm (though most are under 5 mm) strewn liberally over beds of thin-prismatic quartz crystals. Monazite has long been known from the Siglo XX mine; Hyršl and Petrov report that its crystals "often appear pale pink in daylight and deeper pink under tungsten bulbs, but greenish gray to white under fluorescent lighting, an effect caused by a significant content of neodymium." In Denver, visitors to the Main Show booth of Brian and Brett Kosnar of *Mineral Classics* (www.Minclassics.com) could see exactly these color-change effects in the monazite crystals from the new lot. Specimens in the Kosnars' two flats consisted of platy matrix pieces from 4 to 15 cm across, all studded with lustrous monazite twins. I'd say that these are significant representatives of the species, and with Classic status to boot.

Figure 17. **Rhodonite crystals to about 7 cm, from Conselheiro Lafaiette, Minas Gerais, Brazil. Rob Lavinsky specimens; Wendell Wilson photo.**

Count on Luis Menezes (lmenezesminerals@uol.com.br) to show you what's new from Brazil, just about any time you see him. This time out, in Luis' room in the Holiday Inn there was an impressive shelf-full of beautiful **epidote** from an occurrence discovered in August 2008 at an unspecified type of deposit at Dom Gaspar in the state of Bahia. Sharp, sleek, striated, medium-lustrous epidote crystals from 3 to 10 cm are loosely attached in clusters, or are available singly; some of the crystals are blocky or tabular but most are elongated, and all are quite clearly twinned, with prominent twinning notches on their ends, and thus these specimens are reminiscent of many from Prince of Wales Island, Alaska. No other species are visible on any of the epidote specimens that Luis had in Denver, but he says that other specimens now stored back home show large bladed crystals of actinolite clinging onto their sides. Is this a skarn deposit? Or perhaps an Alpine-type cleft occurrence? Luis will soon go to Bahia to investigate.

Smaller and less splashy but fully as intriguing are a few loose, thumbnail-size **anatase** crystals which Luis brought in from an April 2008 find in the Contrato district, Itamarandiba (near Diamantina), Minas Gerais. The lustrous anatase crystals are fat, equant dipyramids with large basal pinacoid terminations, calling to mind the well known blue-black Norwegian crystals, except that these are a very dark brown and look jet-black under most lighting conditions. For anatase the crystals reach considerable sizes: the largest individuals are around 1.5 × 1.5 cm. Some specimens are parallel clusters of two to five such individuals, making for fine small miniatures.

A final Brazilian development is the apparent quantum jump in the quality of the **rhodonite** specimens now reaching the market from the Mn-rich skarn deposit at Conselheiro Lafaiette, Minas Gerais. This material has been known for at least 40 years, and since the mid-2000s it has been getting more promising (see the Tucson Show report in May–June 2006, and the picture there of Mike Bergmann's exceptional Brazilian rhodonite), but the best of the specimens which came to Denver in 2008 with Rob Lavinsky of *Arkenstone* and Daniel Trinchillo of *Fine Minerals International* transcend—obliterate—previous standards. In both of these dealerships' booths at the Main Show one could see partially gemmy, vibrantly rose-red, lustrous, sharp-edged, tabular rhodonite crystals to 7 cm attached in platy clusters ranging between 3.5 and 8 cm across. All are without matrix or any traces of associated species. There is at least one cleaved rhodonite surface on each specimen; still, someone is doing a fantastic job of freeing these beautiful crystal groups from their enclosing skarn material. According to Rob, the super-specimens have trickled out over the past six months or so, and between the two dealerships there are fewer than 20 of them. In both places, not surprisingly, it's strictly P.O.R. ("price on request").

The tour makes just one stop in Europe, and that not for material exactly "new"—but who can resist a shelf full of brilliant, gemmy **smoky quartz** crystals and crystal clusters from Val Giuv, Tujetsch (formerly Val Tavetsch), Canton Graubünden, Switzerland? Marshall Koval of *Silver Scepter Minerals* maintains good connections with certain Swiss *Strahlers,* thanks to whom, most years in Denver, he's able to offer smoky quartz specimens from Val Giuv and/or **hematite** specimens from classic Cavradi, Graubünden. This year, in his customary booth at the Main Show, Marshall had even better than usual specimens of both the quartz and the hematite, both lots having been gathered during the summers of 2006 and 2007 by Theodosi (called "Dosi") Venzin, a patriarch and acknowledged master Alpine *Strahler*. And over in the Holiday Inn, François Lietard (francois.lietard@wanadoo.fr) had yet more specimens, almost as fine, of the smoky quartz—it appears that Dosi has been outdoing himself recently in Val Giuv, the little 4-km valley which runs from Piz Giuv down to join the Upper Rhône near the village of Reuras. The quartz crystals are stout, medium to dark smoky, extremely lustrous, and totally gemmy, with individual prisms reaching 10 cm long,

Figure 18. **Graphite crystals with minor diopside, 3.2 cm, from the Merelani Hills, Arusha, Tanzania. Daniel Trinchillo specimen; Wendell Wilson photo.**

Figure 19. (left) **Diopside crystal, 4.4 cm, from the Merelani Hills, Arusha, Tanzania. Daniel Trinchillo specimen; Wendell Wilson photo.**

Figure 20. (below) **Diopside crystals to 5.7 cm on graphite crystals, from the Merelani Hills, Arusha, Tanzania. Daniel Trinchillo specimen; Wendell Wilson photo.**

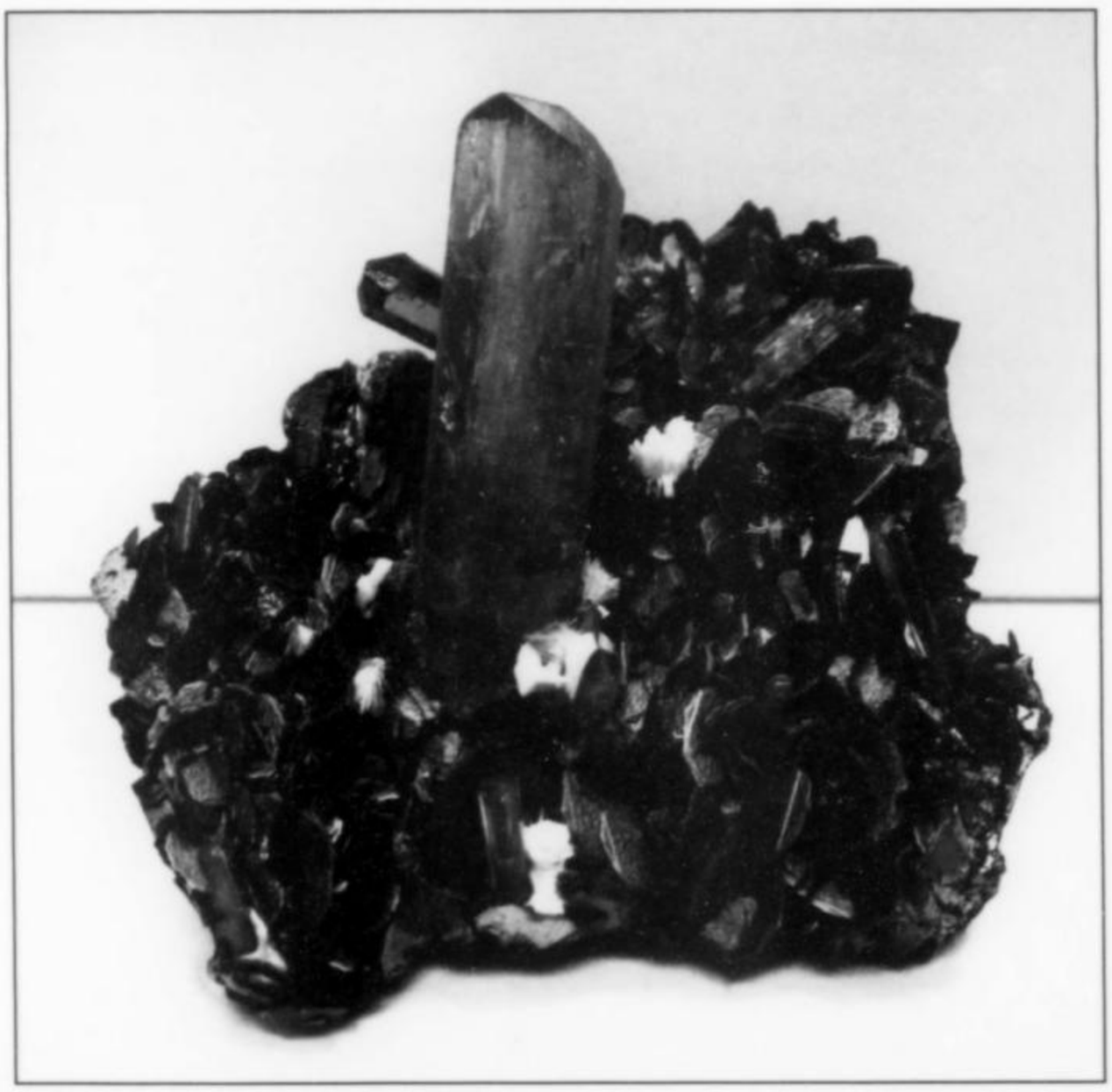


Figure 21. **Diopside on graphite with apatite-(CaF), 5.7 cm, from the Merelani Hills, Arusha, Tanzania. Daniel Trinchillo specimen; Wendell Wilson photo.**

Figure 23. **Apatite-(CaF), 3.5 cm, from the Merelani Hills, Arusha, Tanzania. Daniel Trinchillo specimen; Wendell Wilson photo.**

Figure 22. **Apatite-(CaF), 3 cm, from the Merelani Hills, Arusha, Tanzania. Daniel Trinchillo specimen; Wendell Wilson photo.**

although most measure between 3 and 6 cm. There are loose single crystals, groups of two or three crystals, and (best of all) seven fine gwindels, one of which is "closed" and measures 3 × 4 cm. A 3 × 6 × 12-cm smoky gwindel looks much like the one pictured on the cover of March–April 2007. And yes, Marshal Koval's Cavradi hematite thumbnails and miniatures are excellent too.

French dealer Alain Martaud (alain.martaud@wanadoo.fr) shared a Holiday Inn room with *Pala International*, and scattered amidst other good stuff on Alain's segments of glass shelving were about 12 fine thumbnails and miniatures of **cerussite** from the old M'Fouati mine, Mindouli region, Republic of the Congo (formerly French Congo), a locality known best for its large quartz-coated wulfenite crystals. Said to be part of an old stash from 25 years ago, Alain's specimens are sixling twins and single prisms, to 3.5 cm, of sharp, lustrous cerussite, either as loose groups or on a crumbly gray matrix. Some of the cerussite crystals are pale brown and transparent while others are darkened to brownish gray by inclusions of fine-grained galena.

In my opinion this show's greatest Stars of Africa are the contents of a pocket of beautiful crystals of **chromium-rich diopside** opened in December 2007 in the Merelani mine, Arusha, Tanzania (note, however: a few crystals from what seems the same occurrence, as mentioned in my online report of March 13, 2008, are assigned to the "Karo mine, Merelani Hills"). Here we're talking about mirror-faced, highly lustrous, well-terminated, prismatic crystals of chromium-rich diopside which are bright grass-green and at least partially gemmy within, ranging in length from 1 to 6 cm. According to Daniel Trinchillo, about 50 top-quality chromium-rich diopside crystals came from the pocket, plus, of course, hundreds of lesser ones. Daniel had most of the best in his *Fine Minerals International* booth at the Main Show in Denver. And that's not all. The same pocket yielded pale blue and utterly gem-clear, thumbnail crystals of **apatite-(CaF)**, plus shards and microcrystals of more blue apatite. Nor is *that* all: Daniel had just a few matrix specimens wherein the diopside crystals rise from beds of very sharp, very thin, well individualized, hexagonal crystals of **graphite** to 5 mm; the crystals are satiny black and are the best crystal examples of graphite that I have ever seen. This peculiar pocket assemblage also includes microcrystals of white chabazite.

Douglas ("Doug") Coulter is an amiable Texan who organizes mineral-collecting safaris to Namibia and, when not thus engaged, partners with Colin Corser in operating a dealership called *Geodite Minerals/Exotic Stone* (doug@geodite.com). In his Main Show stand in Denver this year, Doug showed me a single specimen—out of just

five so far collected by a friend of his—of **biotite** from a prospect in the Namib Desert somewhere due east of Swakopmund. For a lowly mica, the specimen is very handsome, displaying sharp black biotite "books" to 4 cm across half embedded in pale salmon-colored cleavage fragments of feldspar. More such specimens, Doug says, may reasonably be expected.

But when it comes to southern African minerals, paths later followed by others have long since been blazed by Charles ("Charlie") Key, once a major dealer in Tsumeb specimens and now back in the game after suffering a near-fatal heart attack two years ago at the Tucson Show. Lately Charlie has been supervising specimen-prospecting in South Africa's famed Wessels manganese mine, with some impressive results which Rob Lavinsky of *The Arkenstone* had in his booth at Denver: a single flat (so far) of what are surely the finest specimens of the manganese silicate **braunite** ever found in the Wessels mine or, for that matter, anywhere. Brilliant black, sharp braunite crystals to 1 cm form solid seam linings in massive braunite, and form exquisite, thumbnail-size floater groups. The braunite crystals are equant, composed about equally of prism and pyramid faces. Charlie has also passed on to Rob a few specimens showing *gemmy* crystals of **dioptase** from a new find somewhere in the Kaokoveld region of northwestern Namibia. The dioptase crystals reach 3 cm, most are doubly terminated, and a few have richly dark green transparent areas; they line vugs in a dioptase-infused, "limonite"-stained white matrix material.

Let me leave Africa, finally, on a continuing wave of green (my favorite color). In the last online what's-new I sent advanced word

Figure 24. **Fluorite, 6 cm, from Riemvasmaak region, northern Cape Province, South Africa. Collector's Edge Minerals specimen; Richard Jackson photo.**

of the gorgeous "neon"-green **fluorite** specimens pouring now from a desolate field of near-surface pegmatite veins in the Riemvasmaak region of northern Cape Province, South Africa. At both the hotel and Main shows in Denver, *Collector's Edge*, which is supervising collecting at Riemvasmaak, put a couple of hundred of these great fluorite specimens up on the shelves, and it was a seductive show, especially if you like *large* specimens, for a few of the fluorite groups on quartz matrix reach 35 cm across. The octahedral crystals of fluorite reach 6 cm on edge, the larger ones being generally a bit frosted and thus opaque to faintly translucent, while the smaller crystals are transparent, in pale green, and beautifully sharp. Rob Lavinsky also had about a dozen of the larger Riemvasmaak fluorite specimens. Work continues, and thus we have a new locality for truly world-class fluorite to keep our eyes on.

In last year's Denver report (November–December 2007) I mentioned that Ivo Szegeny of the Czech dealership KARP (www.karp.cz) had obtained some pretty miniatures of **azurite** from the Akche-Spasskiy mine, Dzhezkazgan, Kazakhstan. Such specimens are with him still, but this year Ivo had in addition some very attractive **malachite** from an unspecified copper mine in the northern part of the Dzhezkazgan district. Miniatures of this material show lustrous, richly green, spherical aggregates of malachite on a matrix of fine-grained, tan-colored sandstone. The spheres, reaching 4 cm in diameter, are composed of tiny lamellar malachite crystals arrayed in long curving lines, imparting an ocean-wave look to the surfaces of the spheres. We have long been used to seeing outstanding specimens of native metals and metallic sulfides from Dzhezkazgan; these are now not so common as they once were, but perhaps we are moving into an era of interesting secondary copper species from the Dzhezkazgan district, where copper mining is still going strong.

In his room in the Holiday Inn, François Lietard (francois.lietard@wanadoo.fr) put out a spiffy little flat of colorful thumbnails of **apatite-(CaF)**—the species known until very lately as fluorapatite. The crystals, reaching 1.5 cm, are sharp, lustrous hexagonal prisms, some terminated simply with basal pinacoids, some showing high-angle pyramid faces and smaller pinacoids. They are various hues of purple, and either rest on massive white feldspar matrix or form floater groups. Many of these little apatite specimens could pass for superb old-timers from Maine, except of course that the low-three-figure prices François was asking would be impossible-seeming bargains if indeed the specimens were from, say, the Pulsifer quarry; instead, they are from a recent find at the Sorrey mine, Darra-i-Pech, Kunar Province, Afghanistan.

Completely different-looking **apatite-(CaF)** specimens are now emerging from an unspecified site in the Khash district, Badakhshan, Afghanistan. Dudley Blauwet of *Mountain Minerals International* had a single specimen representing the find in his display case at the Main Show, and I came on a handful of others in the Holiday Inn room of the Texas-based dealership *Rocksaholics L.L.C.* (www.rocksaholics.com). The color of this apatite-(CaF) is a soft grayish blue; the crystals, which reach 2 cm, are simple, very thin hexagonal tablets; a commonly associated species is elbaite, as color-zoned green-black crystals to a few millimeters. All but one of the specimens of this material seen in Denver are rosette-shaped parallel aggregates of the very thin tabular apatite crystals, but one elegant thumbnail (now mine; *mine*!) shows a single delicate, six-sided, wafer-like crystal of blue apatite with a jumble of elbaite crystals at one corner.

In his booth at the Main Show, Dudley Blauwet also had a recent find of **fluorite**, also from somewhere in the Khash district, represented by about 20 specimens. The fluorite crystals are slightly rough-surfaced but lustrous and transparent, and there are two general habits. More common are simple, colorless cubes to 3.5 cm with fuzzy, spectral-looking green and pink zones in their cores; Dudley's specimens of this "simple" Khash fluorite are loose individual crystals and clusters. But the same occurrence yielded other fluorite crystals of extremely complex form—perhaps elongated twinned dodecahedrons—with faintly frosty surfaces, also colorless with fuzzy pastel patches within; of this type Dudley had floater singles to 6 cm in diameter.

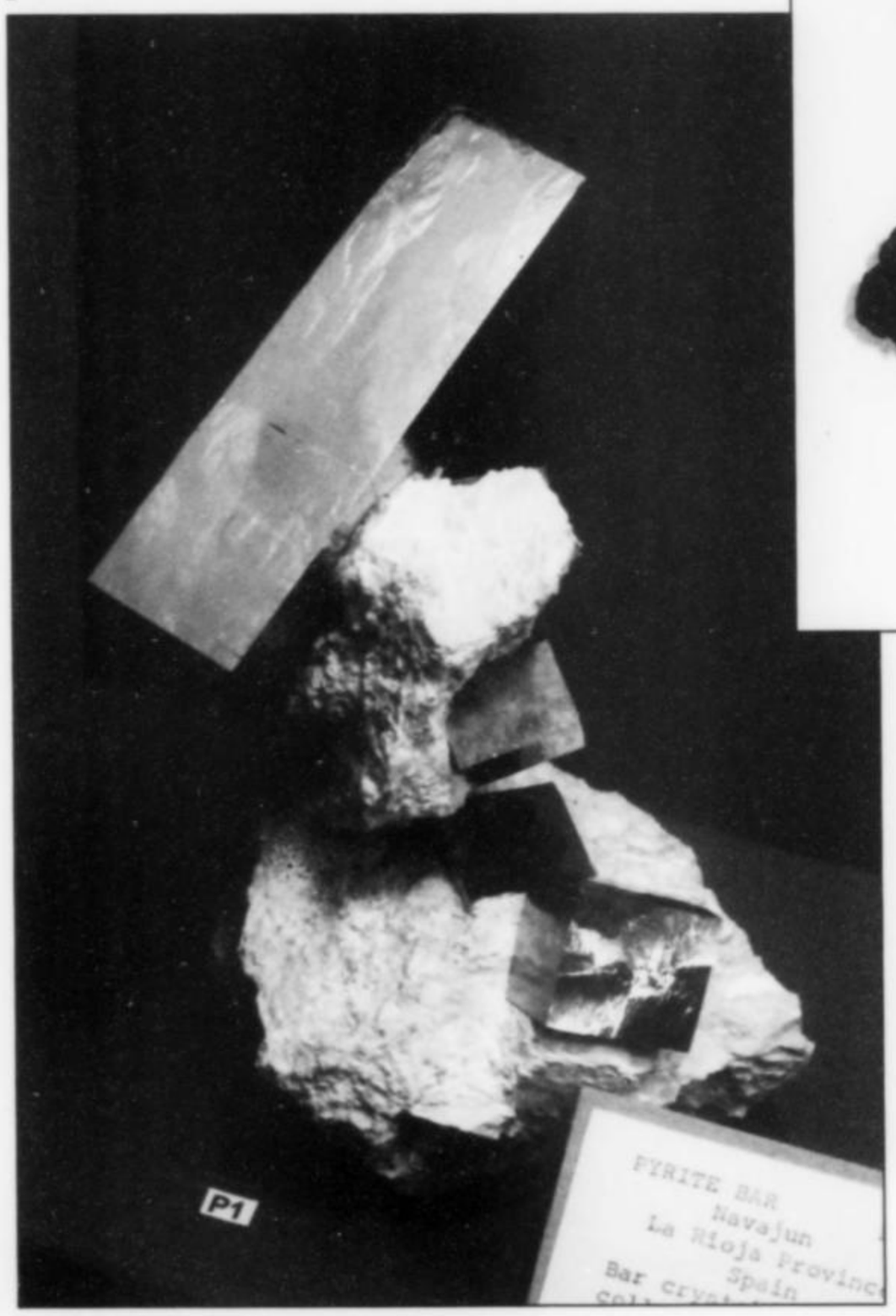
I cannot leave Dudley's domain without mentioning also the new find of gemmy orange **scheelite** crystals at Foljo, near Apaligun,

Braldu Valley, Northern Areas, Pakistan. Two kilograms of loose crystals were found in May–June 2008, and by the time of the Denver Show, Dudley had already sold all but three of the crystals, which are sharp, medium-orange, almost totally gemmy pseudo-octahedrons to 3 cm on edge. Arguably more beautiful still are Dudley's new **zircon** crystals from a recent discovery at Harchoo, near Astor, Diamar district, Northern Areas. The super-sharp tetragonal prisms with low-angle pyramids reach 2.5 cm, are highly lustrous, and boast an intense dark orange-red color, with small gemmy areas in a few cases. Dudley had numerous thumbnails and small miniatures in which the vibrant zircon crystals are about half embedded in black biotite schist, for a nice color contrast.

Great have been the wonders (especially in recent years) of the Mogok gem district in central Burma (Myanmar). This time, the district's most interesting marketed items were loose crystals of **petalite** found in spring 2008 and represented by a couple of flats in the keeping of Ivo Szegeny of KARP (see above under Kazakhstan azurite and malachite). The Li-Al silicate petalite is not uncommon in massive form but quite rare in euhedral crystals. Some of the KARP petalites may set a new standard, as they are transparent, colorless to slightly smoky, fairly sharp-edged partial crystals to 5 cm, and there are even a few matrix specimens showing the petalite crystals resting on chalky white, weathered feldspar. KARP also had several dozen loose petalite crystals which are more intensely etched and thus have highly irregular forms, but which are much more lustrous and hence more attractive—like gleaming fragments of pebbled glass with flat but chewed-looking sides—from 1.5 to 4 cm. The locality for the petalite specimens is given out as Khetchel

Figure 25. **Covellite crystal cluster, 20 cm, Summitville district, Rio Grande County, Colorado. Colorado School of Mines collection; Wendell Wilson photo.**

Figure 26. **Distorted pyrite crystal on matrix, about 16 cm, from Navajun, La Rioja province, Spain. Wendell Wilson photo.**



(a village), near Malo (another village), near Momeik (a town), Mogok district. This may be another way of denoting the "Kat Chay mine," often cited as the source of the wonderful drill-bit-twinned **phenakite** crystals lately in circulation; I infer this because Ivo also has specimens showing the distinctive phenakite twins resting on what appears to be the same white, weathered feldspar matrix as that which hosts the petalites.

A Vietnamese locality for loose, gemmy, yellow-orange crystals of **heliodor beryl** may be in the offing; there were single examples and a few very small lots of these crystals scattered about the Holiday Inn show, but the best I noted were two sharp hexagonal prisms with simple pinacoid terminations, 4 and 10 cm long, in the *Pala International* room. Bill Larson of *Pala* pointed to some faint color-zoning in the larger crystal which he took as suggesting that the heliodor in this case is probably *not* heat-treated aquamarine. These

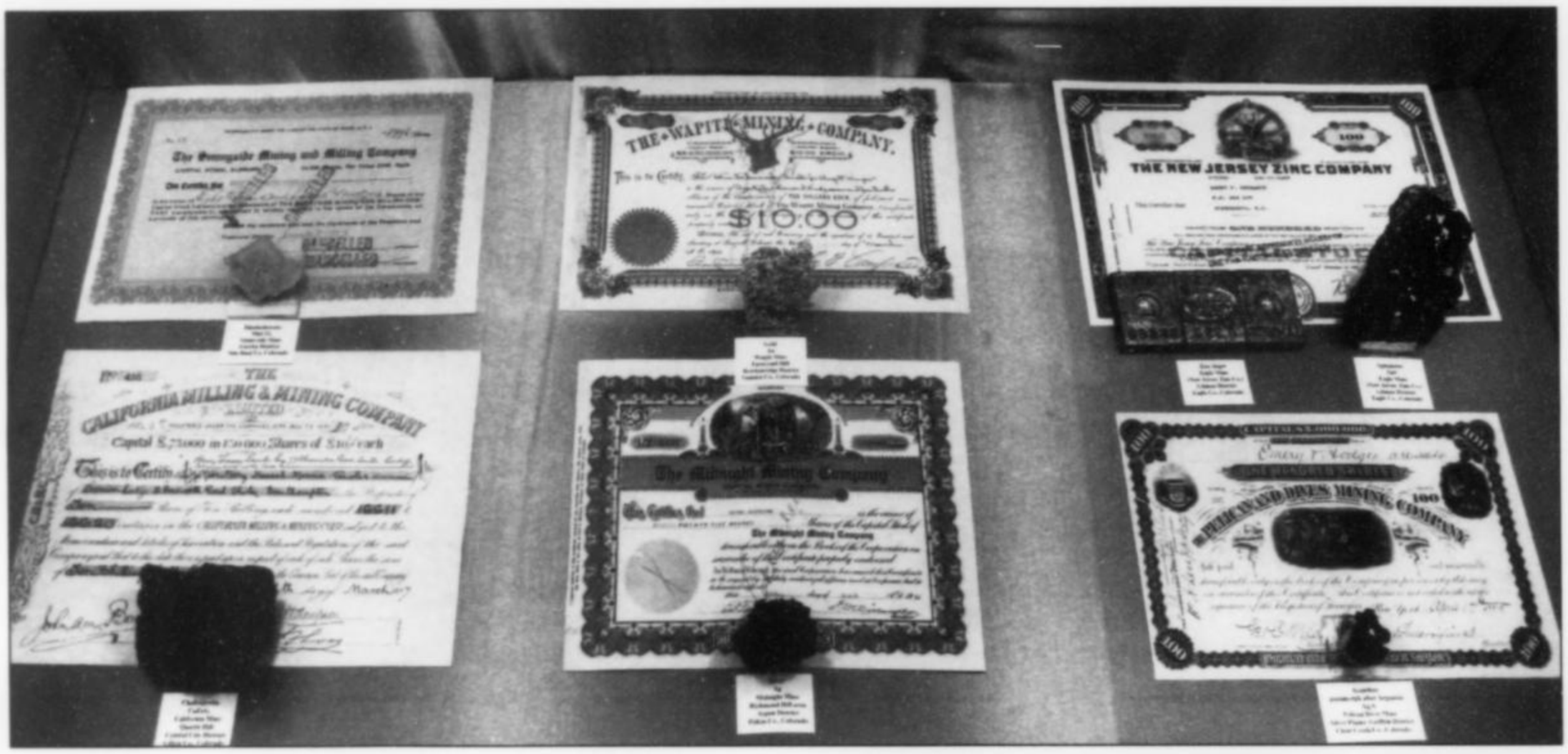


Figure 27. **An exhibit of old mining stock certificates accompanied by mineral specimens from the same mines. Ed Raines collection; Wendell Wilson photo.**

new gem crystals are very pretty; what we would like now are more precise locality data than so far given—no handler, not even Bill, could be more specific than "Ninh Thaun Province, Vietnam."

There was, for a change, little new from China this time out. Looking around optimistically for a fresh lot of those fine scorodite specimens from Hezhou, Guangxi Zhuang Autonomous Region (see the online "what's new" report of May 23, 2008), I was disappointed to find none such, although it should be noted that Marcus Origlieri of *Mineral Zone* still has a few excellent thumbnails from the original find; the very best of these, with sharp crystals to 1.5 cm, are priced just south of $1000. No, the present world tour will conclude instead in Japan, with some winning specimens of **andradite** and **Japan-law twinned quartz** that were on view in the "International Room" of the Main Show, having been brought there by Takeda Kozo of *Takeda Mineral Specimens Co., Ltd.* (www.takeda-mineral.com). Dodecahedral, red-brown, distinctively iridescent crystals of a nearly pure end-member andradite, known familiarly as "rainbow garnets," are dug by collectors in a hillside outcrop of a skarn deposit, parts of which were once mined for magnetite, at Kitadako, Nara Prefecture. Specimens are sometimes labeled with the name of the old mine, the Kouse mine, or with the designation "Gyojagaeri Mountain." Single loose crystals, exceptionally to 2.5 cm, and small crystal clusters seldom make it out of Japan, which indeed is a shame for the rest of us since the iridescent schiller just under the surfaces of the faces makes these crystals quite pretty, and (unfortunately) lends them lapidary interest as well. In Denver, Mr. Kozo offered a nice lot, collected three years ago, consisting of many single 1-cm andradite crystals, about 30 clusters of thumbnail size, and three larger clusters to 5 cm. Also of interest at this dealership were 15 thumbnail and small-miniature specimens of Japan-law-twinned quartz from the classic locality of Narushima, with thin, sharp, petite, colorless and transparent quartz "wings" to 3 cm, some alone, some standing amidst an underbrush of conventional quartz prisms. These specimens, Mr. Kozo said, were gathered several years ago, the locality now being hopelessly closed to collecting.

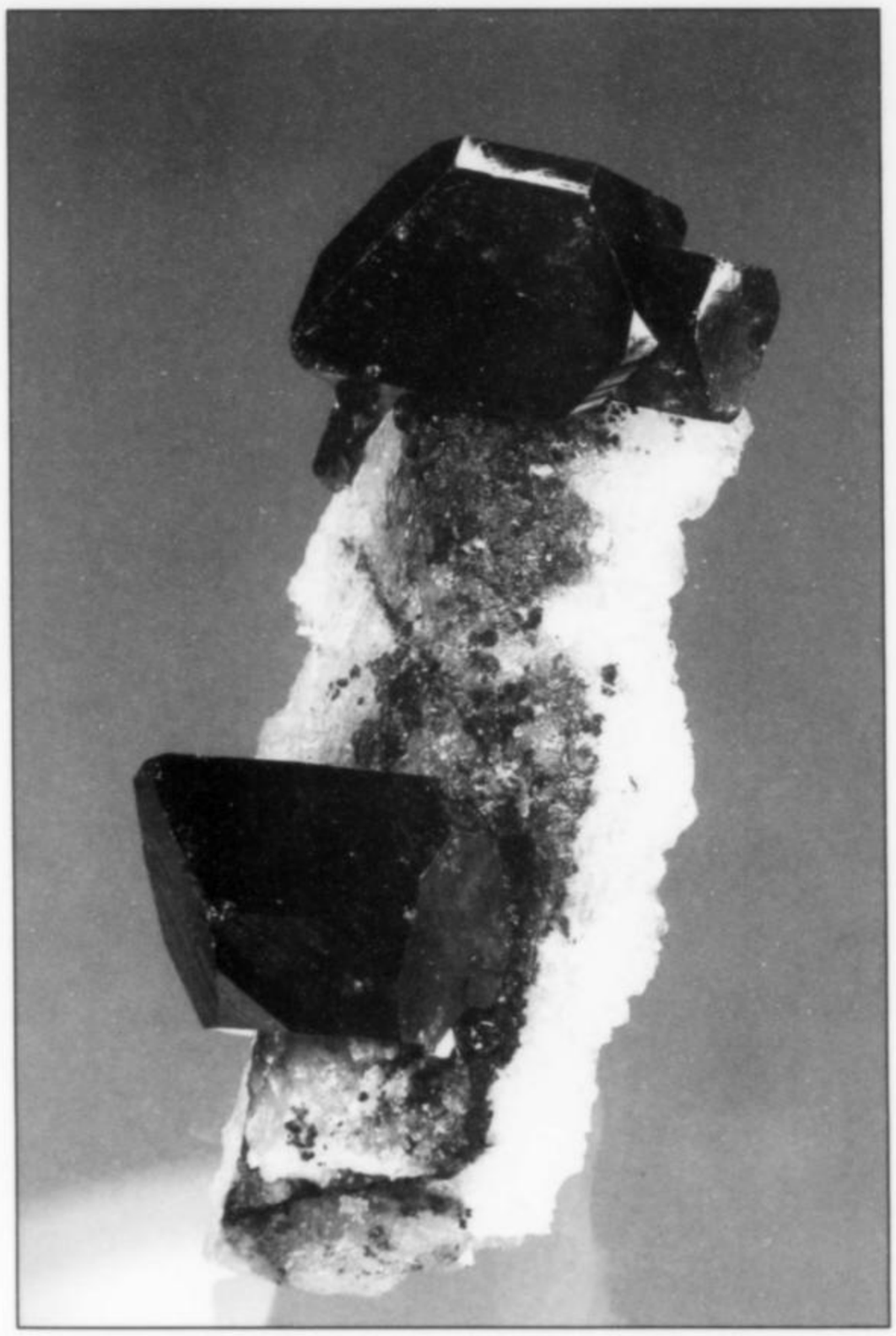


Figure 28. **Scorodite, 6 cm, from the El Cobré mine, Concepción del Oro, Zacatecas, Mexico. Collector's Edge specimen, now in the Scott Rudolph collection; Richard Jackson photo.**

To announce the general "Colorado" show theme to incoming Denver Show visitors, a wide case which faced the turnstile entrance at the Main Show held 27 great—and some very famous—specimens from the magnificent Colorado collection of Bryan Lees. One good

Figure 29. **The two exhibit cases of the Scott Rudolph collection (now incorporating the Keith Proctor collection). Wendell Wilson photos.**

gape at the "rabbit ears" matrix aquamarine from Mount Antero, the huge leaf gold from the Wapiti mine group, three fabulous Sweet Home mine rhodochrosites, and *the* Bulldog mine wire silver specimen (an upward-striving nest of curved wires on a 6.5-cm matrix of quartz and acanthite), sufficed to send gawkers down the long rows of other display cases in properly receptive moods. Many fine cases were devoted to individual Colorado mineral localities and to subtopics like Colorado rhodochrosite (David L. Roter, Tom Hughes), self-collected Colorado specimens (Tim Hillston), self-collected Pikes Peak minerals (Ray and Eloise Berry), Pikes Peak amazonite and smoky quartz specimens self-collected between 1999 and 2005 (Joe, Scott and Tim Dorris), and notable Colorado species found *elsewhere* in the world (American Museum of Natural History). Further general-Colorado cases were contributed by the Field Museum in Chicago, the Denver Museum of Nature and Science (with the famous Groundhog mine specimen showing a thick gold wire in rusty brown matrix), the University of Wollongong, the Australian Museum, and the Colorado School of Mines. This last institution's case contained my candidate for most-downright-amazing specimen from Colorado: an extraordinary 20 × 20-cm mass of covellite crystals from Summitville, the sharp, hexagonal, dull blue-black crystals measuring uniformly about 2.5 cm *thick* and 4 cm wide.

From the Keith Proctor/Scott Rudolph collection (yes, Mr. Rudolph has purchased the Proctor collection entire, with Keith retained as advisor) came two wide, spectacular cases of world-class specimens such as Keith has laid out at major show venues before, thus thoroughly spoiling us gawkers. Likewise, the MAD group (Mineralogical Association of Dallas) offered as usual a case of killers from members' collections, and this time a similar donor case was also put in by a newer organization called HAMS (Houston Area Mineral Society). Irv Brown showed a small number of very exceptional pieces, plus a beautiful intarsia box made of gem tourmaline and malachite slices. And I and my fellow thumbnail collectors are always delighted when Ralph Clark puts in a case of his best; at this show we saw 30 of Ralph's most incredibly fine thumbnails, and maybe if I mention particularly his Swiss anatase, Montana veszelyite, Australian chalcocite, Chilean proustite and South African rhodochrosite, he will someday trade me one of them for my very best Herkimer diamond . . . who knows??

The minerals of Pakistan and Afghanistan had major presences in a case by Bill and Carol Smith and in two cases containing

some special (including some very recently discovered) things from the private collection of Dudley Blauwet. "Miscellaneous" cases (somehow the word seems too weak for the quality of the displays) included epidote from Prince of Wales Island, Alaska (Rice Northwest Museum); the Kovdor Massif, Russia (Russian Museum); minerals of Indiana (Cincinnati Museum Center); minerals of Monte Somma, Italy (National Museum of Scotland); Tsumeb minerals (Bill Severance); uses and geological origins of olivine (Mineral Museum of Bonn, Germany); the New Almaden "quicksilver" mine, California's *first* mine (California State Mining and Mineral Museum); and, of course, many more.

All in all, it was an outstanding edition of the Denver Show—let's do it again next year.

The HQLP Report

[High Quality, Low Price]

Twenty-five years ago, for the January-February issue of the *Mineralogical Record*, Wendell Wilson composed a genial editorial which he entitled "Mineralogie sans Argent"—mineralogy without money—in which he addressed much good general advice to serious mineral collectors working with limited funds. Today when we think of *mineralogie* and of *argent* together, we're likely to be despairing over the steeply climbing prices for many top-level specimens. But the outlook isn't nearly as gloomy for sophisticated but money-challenged collectors as many people think. There are actually a great many very fine, modestly priced specimens available on today's market—and they are not hard to find if you know where and how to look.

Accordingly, this new sub-column is about the search for *high-quality* mineral specimens at low, affordable prices, and is addressed to collectors who can't afford more than a couple of hundred dollars or less for a specimen. This is, in fact, my own personal price range for specimens: I've been finding and buying good minerals cheaply all my life, and having a great time at it, and I hope these notes will show readers that they can do the same. If it is well-received, this sub-column may become a regular or semi-regular feature in the future.

It happens that the 2008 Denver Show was especially fertile ground for the low-budget mineral collector, with significant but inexpensive specimens all over the scene. A collector could take home a good haul for not too much money if he could transcend snobbery while applying open-mindedness, a basic knowledge of specimen mineralogy, and good aesthetic instincts. Below is a short list of examples of fine things that could be purchased at Denver in 2008 for $200 or less—the list would be longer if it were not for the fact that it was compiled hastily, near the end of the show, when it struck Wendell Wilson and me that this would be a very good time to launch this feature. Thus, the dealers explicitly credited here are far from the only ones who offered excellent low-priced specimens. Most of these dealers do not often get mentioned in our show reports, and it is a pleasure to acknowledge just a few of them here—with more to come in later reports.

Fine specimens of English **fluorite** are beautiful, always desirable "classics." At Denver, Don Edwards of *Tideswell Dale Rock Shop* (Commercial Rd., Tideswell, Buxton, Derbyshire, U.K.) had clusters of lovely, transparent, orange-yellow, sharp cubes of fluorite to 3 cm on edge from the Hilton mine, priced at under $100 for a fine miniature. Then there are the fabulous (and fabulously fluorescent) sea-green fluorite specimens now being mined by Cal Graeber and his associates at the Rogerley mine, Weardale, Durham: excellent smaller specimens of this material are fairly widely available around the market for under $150.

In the main body of this report, above, I mentioned that Evan Jones (evanabbottjones@gmail.com) had hundreds of first-rate specimens of the new Milpillas mine, Sonora, Mexico azurite and pseudomorphous malachite, from thumbnail to cabinet size; I'll now add that most of the thumbnails could be had from Evan for under $100.

Also mentioned above are the wonderful miniatures of highly lustrous, totally gemmy **smoky quartz** crystals just brought in from Val Giuv, Switzerland. Marshal Koval of *Silver Scepter Minerals* (see above) would let you have one of these beauties for between $50 and $150.

Ronnie McKenzie (mckenzie@global.co.za) offers superb, gleaming black thumbnails of **hematite** from the N'Chwaning mine, South Africa, showing barrel-shaped, mirror-faced crystals to 1 cm, for $20–$50.

Rick Kennedy of *Earth's Treasures* (www.earthstreas.com) brought to Denver an excellent lot of **neptunite** from the famous Benitoite Gem mine, San Benito County, California. The thumbnail and small-miniature specimens show lustrous, well terminated, jet-black neptunite crystals to 2 cm, half embedded in massive white natrolite, the prices for these nifty items all clustering around $100.

Older collectors remember how, before about 1990, Chinese cinnabar crystals were outrageous rarities of which fantasy-dreams were made. Now, Chinese and Western dealers offer them regularly at—face it—crazily varying prices. Excellent cinnabar in a variety of crystal habits may yet be spotted within the price range of the modestly funded collector: e.g. Jutao Feng (www.nicemineral.com) had fine specimens at Denver, including one 5-cm matrix piece with perfect, screaming red, twinned rhombohedrons of cinnabar to 1 cm, for $60. This dealership also offers Chinese fluorite, calcite, arsenopyrite, sphalerite, stibnite etc., as superb specimens to cabinet size, all for $150 or less.

At *Prospector's Choice Minerals* (call Ron Anderson in Littleton, CO at 303-790-9280), one could find lightly attached spheres of transparent, colorless crystals of **creedite** from the Navidad mine, Durango, Mexico, in specimens measuring to 12 cm in diameter, for $50. The same dealership also has some of the finest matrix miniatures I've ever seen of **pyrite** from Logroño, northern Spain, with undamaged, razor-sharp cubes to 3 cm on edge, for around $20.

Large cabinet-size specimens showing stout, juicy-looking, transparent golden yellow **calcite** crystals, and equally fine **galena** specimens, from the Viburnum Trend mines, Missouri, were available at Denver for under $100 from Gary Darpel's *Amazing Rocks and Minerals* (www.amazingrocksandminerals.com). Here too, at similar prices, were some rare old specimens of the unique **"pyrite bars"** of the Buick mine, in the Viburnum Trend, with complete, lustrous, individual bars to 10 cm.

GEOdyssey LLC (www.geodyssey-rocks.com) offered excellent miniature and small cabinet-size specimens of **fluorite** from Naica, Mexico; **celestine** from Madagascar; and **heulandite** and **mordenite** from the Rat's Nest claim, Idaho; as well as delicate, dazzling thumbnails of pale blue and pale yellow **barite** from Huarihuayin, Huanuco, Peru—all for $75 to $100.

Numerous dealers at this show, as at nearly all major shows these days, had superb specimens of (oh, let's see) Veracruz, Mexico **amethyst**; Moroccan **vanadinite** and **cerussite**; Pikes Peak, Colorado **microcline** (and even **topaz**); **apophyllite, stilbite, calcite, scolecite**, etc. from the Deccan Plateau basalts of India; **calcite, fluorite** and **sphalerite** from Tennessee's Elmwood mines (now beginning production again); Canutillos mine, Bolivia **vivianite**; and many more lovely things, for well under $200. One-of-a-kind serendipity-specimens being in some ways the most fun of all to acquire, I'll conclude by mentioning that at the stand of David M.

Figure 30. **One of the show halls occupied by the Munich Show in the enormous Munich convention complex. Tom Moore photo.**

Crawford (dmcxls@charter.net) I picked up a superb thumbnail-size cluster of pyritohedral **pyrite** from the great classic locality of Elba, Italy, for exactly six dollars.

At the *Mineralogical Record* we welcome feedback of all kinds, and will *particularly* welcome it on this topic. After all, the presence at several recent big shows of exhibits with titles like "Specimens Purchased at Tucson for Less Than $100" indicates that we have here a topic of widespread interest, especially in these financially trying and troubling times when our specimen budgets may be somewhat curtailed. Take heart! The low-budget connoisseur can have great fun in today's mineral market. And with that, so long at last from Denver 2008.

Munich Show 2008

by Thomas Moore

[October 31–November 2]

Attending the Munich Show in 2008, I once again had a crazily busy, foot-weary, nostalgia-steeped, altogether fine time in *am grossten Dorf Deutschlands*—"Germany's biggest village," as some like to call it. The term refers affectionately to Munich's laid-back livableness, including Bavarian country comforts such as the meaty cuisine and (of course) world-class beer. Perhaps we may also hear in it a boast about Munich's excellent *U-Bahn* (subway) system, wherein even the longest commutes can feel almost effortless. The *Pension* where I stayed this year was two blocks south of the *Marienplatz*, the great gray cobbled space in the city's center which, if you ask me, is among the most beautiful urban spots in the world. There, atop a central column, the gilded statue of Mary from which the *Platz* takes its name leans benignly, in flowing gold, over the crowds; the northern perimeter is formed by the tremendous, mottled-gray, neo-baroque expanse of the *Neues Rathaus* (New City Hall); on the east side a stark medieval watchtower harbors a toy museum; and on all sides there are souvenir shops, restaurants, department and luxury stores, and cheery gaggles of umbrellas over the tables of outdoor cafés.

On my morning walk from the *Pension*, after scarfing a *Mettwurst* or two or a piece of fresh fruit from the food stands of the *Viktualienmarkt*, I'd come suddenly onto the gray vastness of the *Marienplatz*, where street-sweepers plied (but few others did, at this early hour), and clouds of conformist pigeons rose slantwise against the sky. From the *U-Bahn* station at the foot of the *Rathaus* I could begin my half-hour ride out to *Messestadt Ost*—last stop on the line—with each station bringing me thrillingly closer to a full day of mineral-ogling in cavernous *Halle 4, 5* and *6*.

Earlier Munich reports, of course, have stressed the greatness of the show itself: intensely concentrated in time and space, international to the max, and brimming with mineralogical surprises, lavish displays, the odd Mystical Crystal Happening, and an ever-humming *Biergarten*. For all this, who would not willingly sacrifice Halloween, plus a few closing days of an interminable presidential election campaign, back in the U.S.?

That election campaign had plenty of people talking throughout the *Halle*, but an even more upfront concern, of course, was the world-economic situation, in all its new scariness. Some high-end dealers could be heard complaining of slow business here and at home, and although crowds were thick on the floor they seemed wholly dominated by curiosity seekers, schoolchildren on group tours, or hunters for lapidary or jewelry knick-knacks. I was surprised to see several European mineral dealers offering large swaths of their stock at half-price; this is a highly unusual practice in Europe, and certainly signals economic uneasiness. The corollary good news is that specimen prices in general seemed unchanged from, or even slightly lower than, last year's, although they could vary wildly between otherwise comparable dealer stocks.

Munich has always been a good show for bargain hunting, especially for European minerals old and new, and here I underline the encouraging (I hope) words in the preceding 2008 Denver Show report directed to finance-challenged mineral collectors. Munich hosts so many small and/or part-time dealers who offer low-price serendipities that I haven't tried to list separate examples, but they could be found everywhere. You are no bona fide bargain-hunter if you don't check out the many *Strahlers* just down from their Alpine summer collecting seasons, or the shy Swiss and Austrian collectors who cull their specimen drawers once a year and bring

to Munich things like, say, the fine thumbnail of arsenopyrite from the St. Gotthard Tunnel, Switzerland, which I picked up for 20 euros (≈ $25).

"Species" collectors and/or micromounters will find many dealers serving their needs in Munich. "Locality" specimens (like that Swiss arsenopyrite) are highly respected, and in most cases accurately documented, and German minerals both old and new, and in every price range, are plentiful. Naturally enough, most European dealers of the sorts just named do not come to American shows (though rare-minerals man Gunnar Färber does make it to Denver and Tucson). You must come to Germany if you're to see firsthand the intriguing stocks of dealers such as Christian Rewitzer (mentioned in the 2007 Munich report), or of old-classics specialists Manfred Baumstark (Geppertstr. 20, D-77815 Bühl/Baden) or Siegbert Zecha (Windecker Pfad 1, D-61137 Schöneck). The classic German specimen which I found most remarkable among the many at Herr Zecha's stand is a 6-cm mass of phosphophyllite crystals from Hagendorf-Süd, Bavaria, sporting sharp, individual, pale green crystals to 1 cm.

To kick off the what's-new tour in *der Vaterland*—fine and distinctive **fluorite** specimens are still sporadically being found in old mine workings near Frohnau, in the Annaberg mining district of the central Erzgebirge, Upper Saxony. Both Marcus Grossmann (www.The-Mineral-Web.com) and Jürgen Tron (www.tron-xx.de) had large cabinet-size Annaberg fluorite specimens, and Marcus said that about 40 such specimens had been gathered just this past spring. Sharp, translucent to transparent fluorite cubes to 4 cm on edge, color-zoned orange and dark purple, form tightly intergrown, platy clusters to 30 cm across, with tiny pyrite crystals in preferential sprinklings on some of the fluorite faces. Jürgen Tron's Annaberg fluorites, while of similar size and also of recent provenance, show instead rounded, compound fluorite crystals to 3 cm which are transparent and (in good backlighting) beautifully dark green/dark purple.

Botallackite, a rare copper chloride trimorphous with atacamite and paratacamite, was named for the Botallack mine, Cornwall, England, where the first specimens were found in 1865. Far and away the world's best botallackite specimens, though, are those found by Michael Merry in March and April 2007 on a rocky beach below the old, ruined Cligga Head mine, near the village of Perranzabuloe, Cornwall. At this unusual site, low spring tides had revealed thick encrustations of lustrous, electric blue-green, acicular crystals of botallackite, with individuals to 5 mm, on rock fragments in pools of seawater. Of about 20 flats of specimens

Figure 31. **Botallackite crystals on matrix, 3.7 cm, from Cligga Head, Perranzabuloe, St. Agnes, Cornwall, England. Collected in April 2007; John Veevaert specimen and photo.**

Figure 32. **Gypsum crystal clusters from Rosignano, Livorno, Tuscany, Italy. Collezione Mineralogica specimens; Tom Moore photo.**

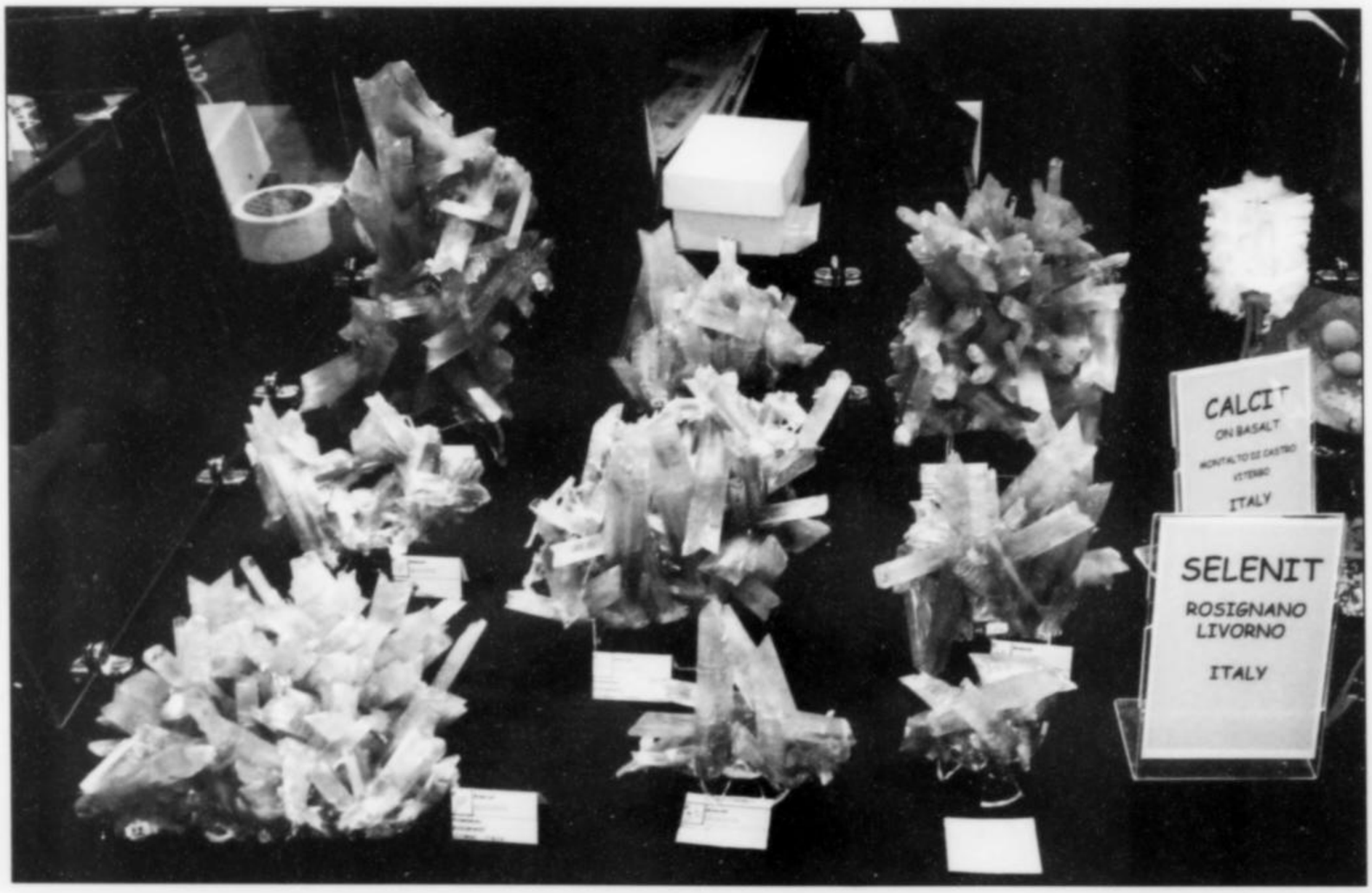


Figure 33. **Rammelsbergite, 7 cm, from the Bouis Massen Ni-Co mine, Bou Azzer, Morocco. Pierre Clavel specimen; John Veevaert photo.**

originally collected, only 15 pieces or so were left in the stocks of British dealer Simon Hildred by the time he made it to Munich this year (www.Simonhildredfineminerals.com). These are rounded matrix pieces, to 12 cm diameter, richly covered with shining botallackite "needle" crystals—super specimens of a super-rare mineral, and quite pretty to behold.

Alfredo Petrov, rare-minerals dealer and sort-of-Bolivian *bon vivant*, had a surprise from Spain. Excellent specimens of **datolite** have been coming for about 10 years, Alfredo says, from a road-metal quarry near the village of Erretigotti, Vizcaya (this is the Basque country of northernmost Spain), and the specimens have been circulating at Spanish mineral shows but have not been marketed internationally until now. Highly lustrous, mirror-faced, partially transparent, very pale green tabular datolite crystals to 3.5 cm are intergrown on gray diabase matrix. In Munich, Alfredo had ten pieces averaging about 5 cm across and two splendid 12-cm examples of the material, easily equaling the best of the old datolites from northern New Jersey (which these resemble, except for the lack of associated zeolites or calcite).

Vietti Corrado (www.viettiminerals.it) of *Collezione Mineralogica* was pleased to be offering the best of about 100 large **gypsum** specimens discovered last year in a tunnel support excavation for a canal near Rosignano, Livorno, Tuscany, Italy. These are flaring clusters, to 25 cm across, of colorless to milky white to palest gray-brown gypsum prisms, all prominently fishtail-twinned at their ends. The crystal groups all have smoothly curved bottoms, betraying the fact that the gypsum grew by slow sublimation from gases passing over the manmade tunnel walls.

One of the best bargains was brought to Munich by Dr. Alexander Dikov of the Bulgarian dealership of *Intergeoresource Ltd.* (www.intergeoresource.com). The Mogila mine, in the Madan mining district, Rhodope Mountains, southern Bulgaria, closed commercially in 1989, but in October 2008 some former miners broke into a fantasy-pocket loaded with brilliant pyrite, galena and sphalerite crystals; Dr. Dikov had gorgeous specimens of all three sulfides in a wide range of sizes. Jet-black **sphalerite** crystals to 3 cm rest among hedgehog-aggregates of "needle" quartz; **galena** is present as clusters of blazing metallic gray cuboctahedrons to 2 cm, as well as duller, corroded and partially skeletal crystals. Mogila mine **pyrite** was on hand in the form of several flats of superlative thumbnail and miniature-size specimens which went, amazingly, for only 3, 4 and 5 euros each. Some of the pyrite crystals are simple, lightly striated pyritohedrons, while others are distorted and show complex morphology, but all are brilliantly lustrous: these little specimens would grace anyone's suite of worldwide pyrites.

According to longtime Moroccan minerals merchant Horst Burkard (Dornheckenstr. 20, D-53227 Bonn, Germany), there is hope, after all, for major improvement in the **proustite** specimens which have been trickling for several years now from the famous Imiter silver mine near Ouarzazate, Morocco. Up to now the available specimens have been clusters of red and lustrous but small proustite crystals. Although individual crystals in a new lot of specimens offered by Horst still are small (to 2 mm or so), they are of a brighter red, and look somehow much more promising for the future: the proustite occurs as solid druse coverages over gray acanthite, and very nice matrix thumbnails and miniatures could be had in Munich for 40 to 120 euros.

A year ago I described a fine lot of newly collected **siderite** specimens from the Iouriren gold mine, Tata, Morocco, which had been brought to Munich by French prospector Pierre Clavel (minepro@wanadoo.fr). This year Pierre offered a few leftover Moroccan siderites, still very fine, as well as intriguing specimens of two exotic species, newly dug in the famous Bou Azzer cobalt-mining district (here you might want to revisit the special "Bou Azzer" issue of the *Mineralogical Record*: September–October 2007). First, Pierre had a couple of flats of massive löllingite matrix pieces, from 3 to 10 cm across, with abundant open seams and vugs lined by microcrystals and fuzzy mammillary coatings of yellow-orange **karibibite**. These specimens of the very rare iron arsenate do not match for beauty the ones pictured on page 379–381 of the Bou Azzer issue, but they are among the extremely few specimens of karibibite (above micromount-size) that we are likely ever to see for sale. They were found in September 2008 in the Oumlil open cut, just east of Aghbar. Pierre also had a handful of specimens, all around 7 cm across, of an even more offbeat Bou Azzer item. Dull metallic gray reniform coatings of **rammelsbergite** (named for the ancient Rammelsberg mine in the German Harz) cover matrix plates of massive rammelsbergite. In general this nickel arsenide hardly

exists at all in visible crystals, so what is remarkable about these specimens is that each gray globule is a curving aggregate of very thin, leafy rammelsbergite crystals in tight parallel growth. A dozen or so such specimens were taken in June 2008 from the underground Bouis Massen Ni-Co mine in the Bou Azzer district.

Although the superb, large (often *very* large) crystals of **andradite-grossular** from the Diakon Arrondissement, Kayes, Mali, have long been fairly familiar, it's good to occasionally rest one's glance briefly on especially remarkable examples from this remote West African skarn occurrence. In Munich, Laurent Gautron of *3G Environnement* (3genvt@wanadoo.fr) had perfect, sharp, lustrous, loose dodecahedral crystals of "grandite" (as some have nicknamed the compositionally zoned mixture of grossular and andradite) reaching 5 cm in diameter, including some complexly mottled yellow-brown crystals, and including also a few of the odd "window" specimens that appear rarely on the market. These are dodecahedrons which are brownish green and lustrous on each diamond-shaped face, but with all edges between the faces precisely marked by bands of tan-colored clay to resemble mullioned windows of green framed by brown. And clinging to some of Laurent's garnets is an association I'd never seen before: sharp, fat, dull green books of **clinochlore** to 3 cm.

I noticed the garnets at *3G Environnement* only after I'd been stopping there for a while. What initially halted me in my tracks was a row of about 10 thumbnail-size floater groups of **rutile**, most of them extremely fine, which emerged about two years ago, Laurent Gautron says, from a prospect near Kipushi, Shaba (Katanga), Congo. The prospect goes by the name "Kinyamfuma" or is near a tiny village of that name; there is no really reliable information on hand. Anyway, the thumbnails consist of highly lustrous, striated, red-brown rutile prisms to 2 cm comprising classically shaped cyclic and "elbow" twins; some of the specimens display some earthy brown spots, presumably of the soil they once floated in, but this doesn't mar the general aesthetic impression, which is a high-order one indeed. Think of the best of the old rutiles from Parksburg, Pennsylvania, then sharpen all edges and heighten the luster fivefold or so, and you'll have the idea (Laurent had the same idea: he was asking 360 euros for the best thumbnail of the lot).

Andreas Palfi of *Namibia Minerals* (pha@mweb.com.na) was patient with me as I shuffled interrogatively through his many flats of interesting minerals from Namibia. Here there was nothing really dramatic, but there *were* two flats of loose, pale blue, singly terminated, partially gemmy crystals of **jeremejevite** from a new strike (January 2008) on the Ameib 60 Farm, Erongo Mountains, a locality whose jeremejevite crystals were first discovered in March 2001 (see the article by Wilson, Johnston and Swoboda in the July-August 2002 *Mineralogical Record*). The crystals in Andreas' hoard are mostly of small-thumbnail size, but the largest reaches 3 cm, and some show peculiar coatings of blue-green microcrystals of elbaite near their tips. At *Namibia Minerals* there was also a flat of crumbly brown limonitic matrix chunks all studded with sharp, lustrous, single red-brown **rutile** crystals to 1 cm. These are from a place called Khomas, and they have appeared (as inferior specimens) at earlier shows. Andreas also had nice little specimens of **tuperssuatsiaite** from the Aris Phonolite; lovely deep green Erongo Mountains **fluorite** across a range of sizes; a couple of the elusive **grossular** crystals from Marienflüss, and many other Namibia goodies.

Coming now to South Africa, we come also to one of the really major what's-news of this show, which had everybody buzzing and had some elite dealers vying for specimen lots (Bryan Lees of *Collector's Edge* vied most successfully, and will have been offering fine pieces from the find by the time you read this). The locality is the famous N'Chwaning II mine, Kalahari Manganese Field, Northern

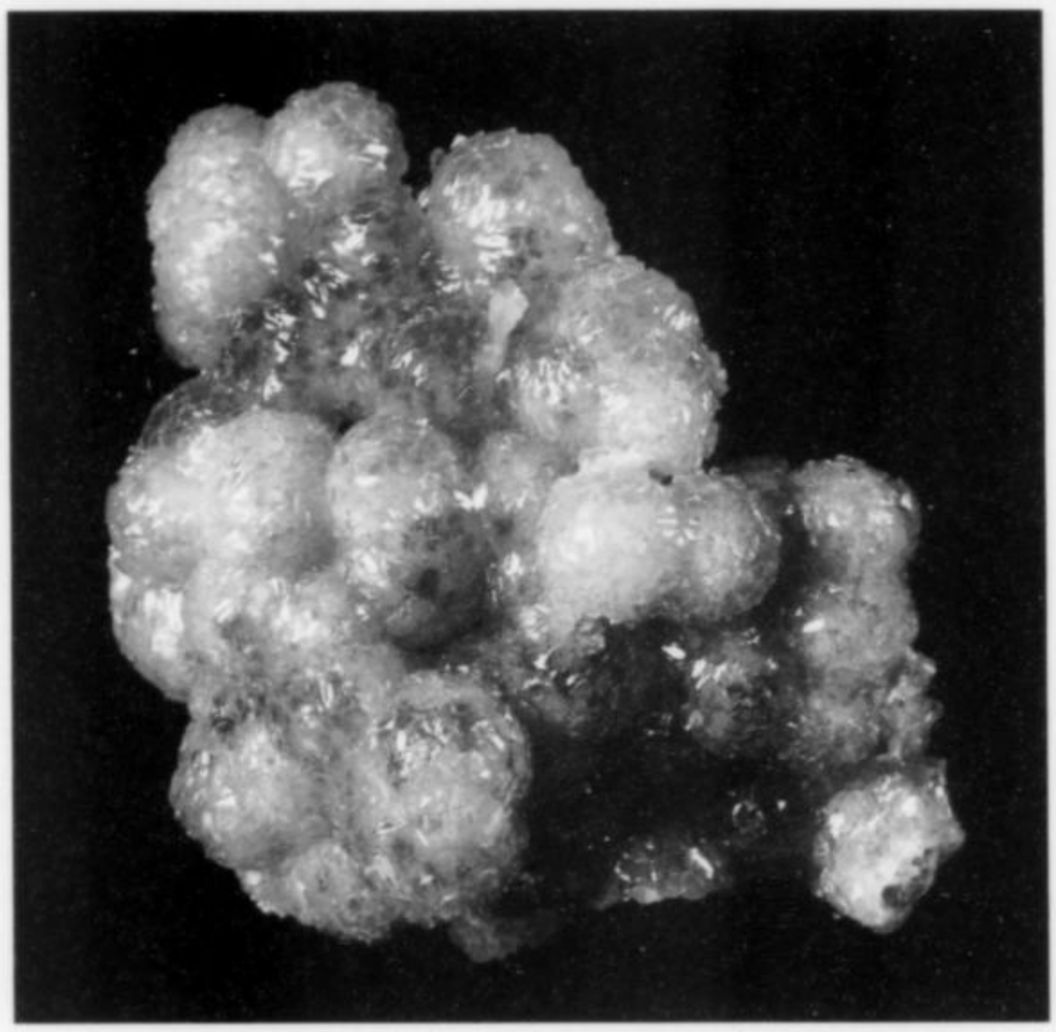


Figure 34. **Olmiite, 8.2 cm, N'Chwaning II mine, Kalahari manganese field, South Africa. Paul Balayer specimen; Bruce Cairncross photo.**

Figure 35. **Olmiite, 4.6 cm, N'Chwaning II mine, Kalahari manganese field, South Africa. Paul Balayer specimen; Bruce Cairncross photo.**

Cape Province, South Africa, and the species is **olmiite**. At any time much before the *Mineralogical Record*'s September-October 2008 issue, with its report by Pagano, Guastoni and Pezzotta on species-determinative work conducted in Italy in 2007, this material would have gone by the name "poldervaartite"; however, the work has shown that nearly all specimens of "poldervaartite" (yes, including those from the great bonanza of 2001 in N'Chwaning II) are in fact olmiite. The new specimens were recently taken out by Paul Balayer of *Kalahari Mineral Venture* (palomu@africa.com)–the same expert French specimen-prospector who brought

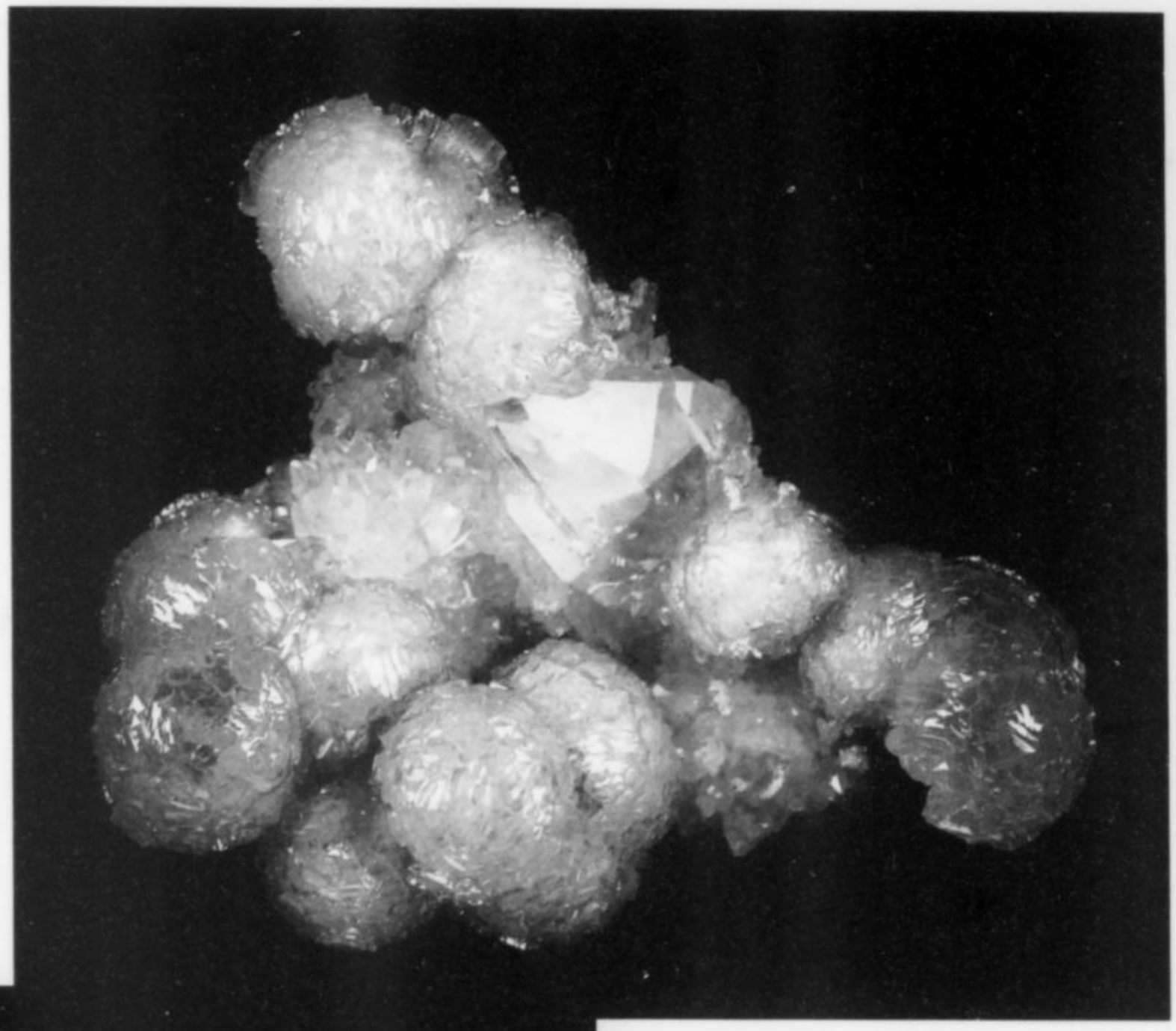


Figure 36. **Olmiite and calcite, 4.8 cm, N'Chwaning II mine, Kalahari manganese field, South Africa. Paul Balayer specimen; Bruce Cairncross photo.**

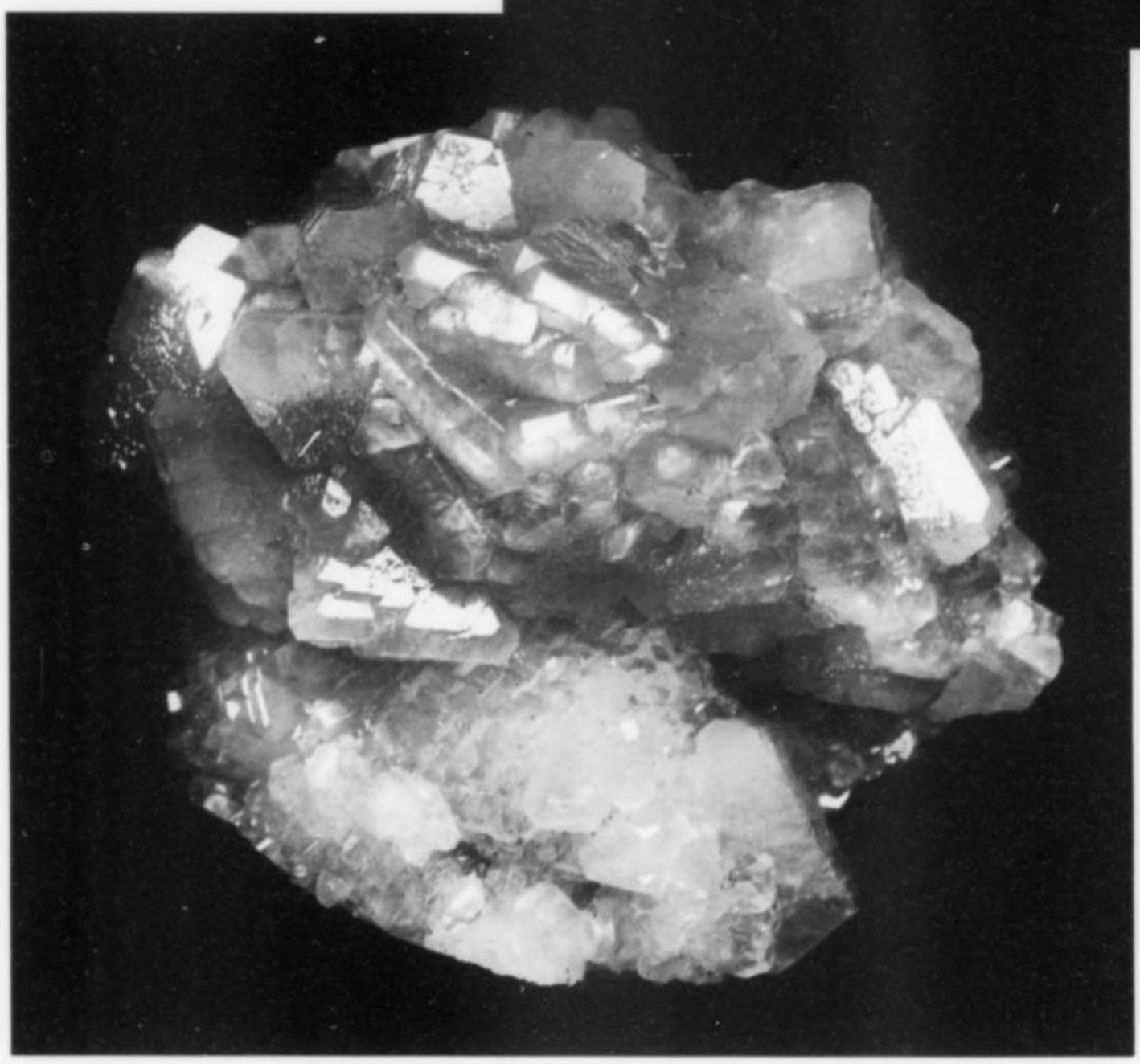


Figure 37. **Celestine on calcite, 7.2 cm, N'Chwaning II mine, Kalahari manganese field, South Africa. Paul Balayer specimen; Bruce Cairncross photo.**

the world-class N'Chwaning mine shigaite specimens to Munich in 2006 (see the March-April 2007 issue).

The two large pockets which yielded the 250 or so new specimens of olmiite are situated about a kilometer away from the zone which gave up thousands of "poldervaartite" specimens in 2001; however, the new olmiites are distinctly different from the old "poldervaartites." Olmiite from the new occurrence takes the form of crisp, sparkling spheres of microcrystals, the spheres ranging in diameter between a few millimeters and almost tennis-ball size. Some specimens are single floater spheres while others are floater bunches of loosely attached spheres, like bunches of grapes without the interconnecting stems. The color of the olmiite is a winsome peach-orange to salmon-pink, and the luster is high; some of the larger spheres are translucent, and glow a brilliant pink-orange when backlit. Paul

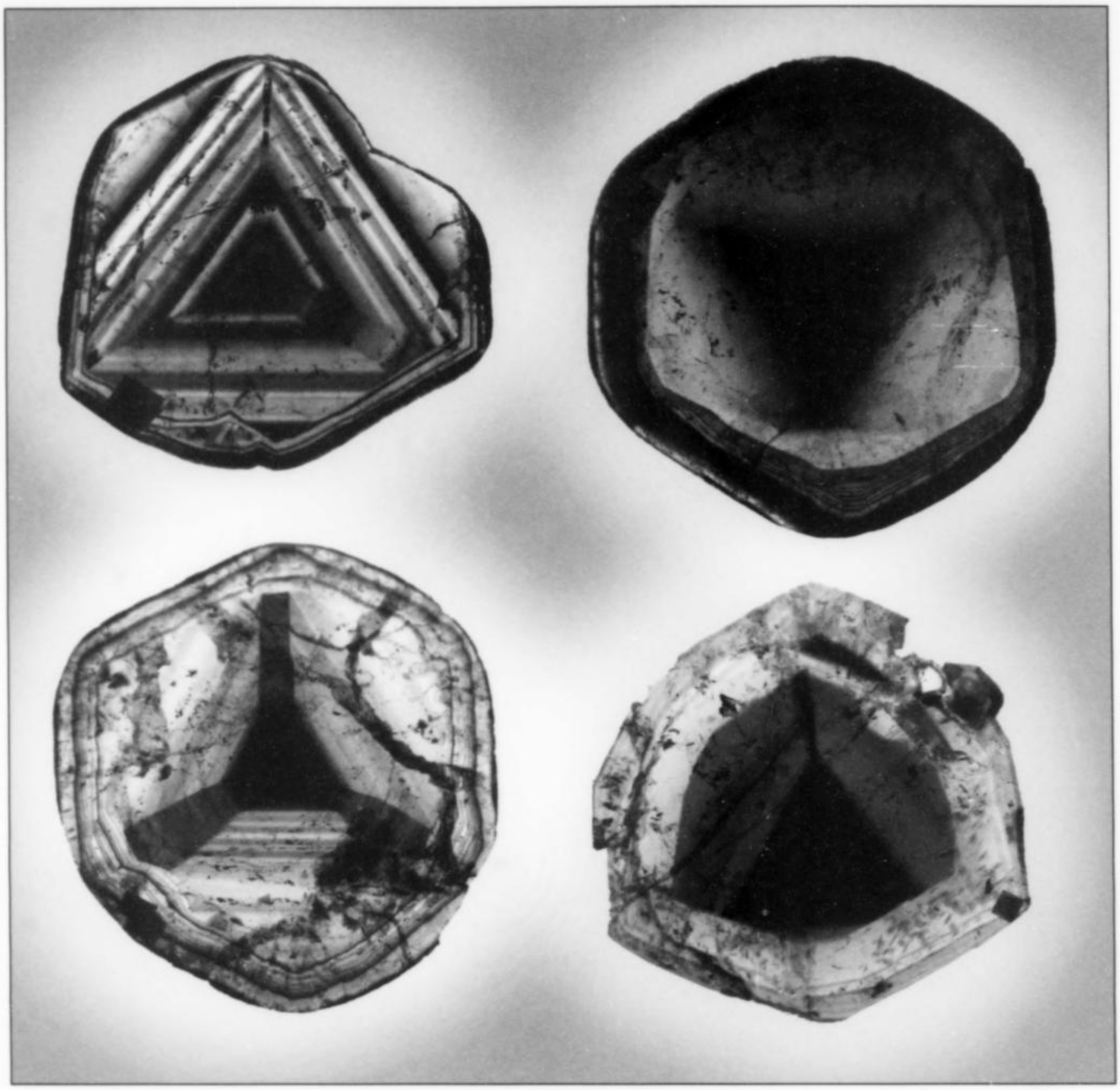


Figure 38. **Liddicoatite crystal slices to 8.3 cm, from (upper left, upper right and lower left) a rice field at Alakamisy, and (lower right) Camp Robin, Ambositra, both in Fianarantsoa province, Madagascar. Laurent Thomas/John Veevaert specimens; Veevaert photo.**

Balayer (assisted by the University of Johannesburg's Prof. Bruce Cairncross and Desmond Sacco, Chairman of the Associated Ore and Metals Corporation, the mining company in charge of the N'Chwaning II mine) was selling a large shelf-full of these very attractive items, in sizes ranging from thumbnail to small cabinet. And on the shelf's margins there reposed, as well, some exceptional specimens of **celestine**, also newly dug by Paul in the N'Chwaning II mine. Unlike the silky, washed-out, bluish and rather mundane-looking celestine specimens formerly known from the locality, the new specimens are clusters of lustrous, blocky, pale to medium blue, translucent crystals to 2 cm, many resting on druses of pinkish calcite which rest in turn on dark matrix. About 30 fine celestine specimens came from the pocket, and about 10 of them, in sizes averaging 6 cm across, were on hand in Munich. Not represented at this show, but lovingly described to me by Paul, were specimens from the same pocket zone which show excellent crystal development of olmiite, ettringite, manganite and a few other species.

Among the surprises at Tucson in February were about ten superb floater crystals of **brookite** which Laurent Thomas had found in December 2007 in an Alpine-type cleft near the village of Fitampito, near the larger town of Ikalamavony, Fianarantsoa Province, Madagascar—see relevant paragraph and photograph on p. 241 of the May–June 2008 issue. Of course, Laurent showed up in Munich; in fact, in his *Polychrom Minerals* booth (www.polychromfrance.com) he offered the weary pedestrian such amenities as soft chairs, good red wine, conversation, and (oh yes) another look at those brookites. Since the last Tucson Show, Laurent has found just a few more brookite crystals in the same digging—he had precisely 13 in Munich, ranging from 1.5 to 3 cm—but no major new pockets have opened up, and now that the work has gone to a depth of 17 meters without significant new finds he's thinking of giving up soon. These are truly handsome and classy brookite crystals, even though none have matrix: they are sharp, sleekly lustrous, and translucent in dark red-brown, with the further distinctions of being quite thick (for brookite) and occasionally sporting black bipyramidal anatase crystals of a few millimeters on their faces. Laurent's price range was a pretty civilized 80 to 180 euros.

Abruptly changing the subject (and continent), it is worth noting that the Munich 2008 show was notably strong in fine minerals from Peru. Jaroslav Hyršl's article in March–April 2008 brought the small,

inactive Palomo mine, in Huancavelica Department, to our attention, chiefly noting the very nice realgar specimens found there in 2006. Jaroslav mentioned **chalcopyrite** from Palomo only as unattractive crystals coated by gray tetrahedrite, and mentioned **siderite** not at all, but we need now to put the locality on our radar screens for these two species in "combination" pieces which are quite impressive. About 200 miniature and small cabinet-size specimens were taken in May 2008 from a large pocket in the Palomo mine; they show sharp pseudo-cubic siderite crystals to 2 cm lightly resting on masses of lustrous, somewhat skeletal, highly iridescent chalcopyrite crystals with individuals to 1 cm. The siderite crystals are greenish to yellowish brown and translucent, the chalcopyrite shows bright preening-peacock colors, and greenish prismatic **apatite-(CaF)** crystals to 1 cm may be seen on a few of the pieces. About a dozen such specimens were being offered in Munich by Teodocio Ramos Cabrera of *Ramos Minerals* (ramosminerals@latinmail.com).

Also with Señor Ramos was a flat of very nice **stibnite** specimens which had been found in March 2008 in the Palomo mine.

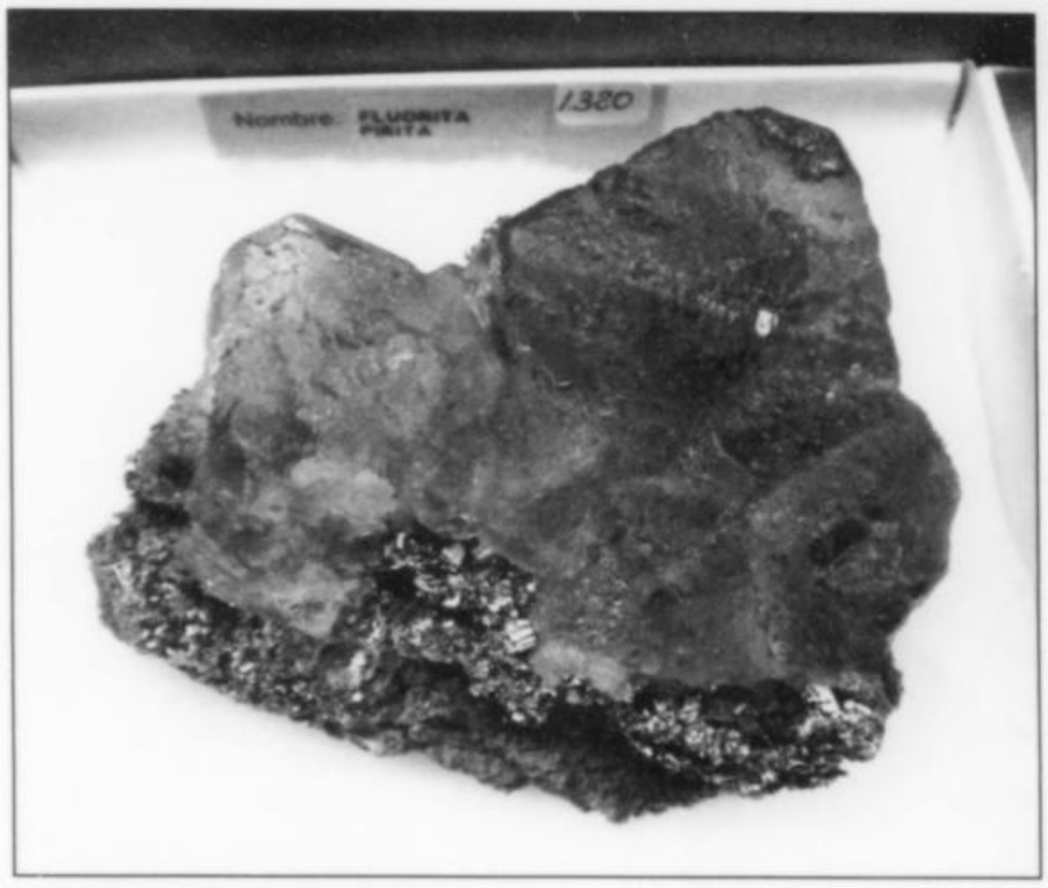


Figure 39. **Fluorite on pyrite, 6 cm, from the Huanzala mine, Dos de Mayo Province, Huanuco Department, Peru. Miguel Fernandez Burillo specimen; John Veevaert photo.**

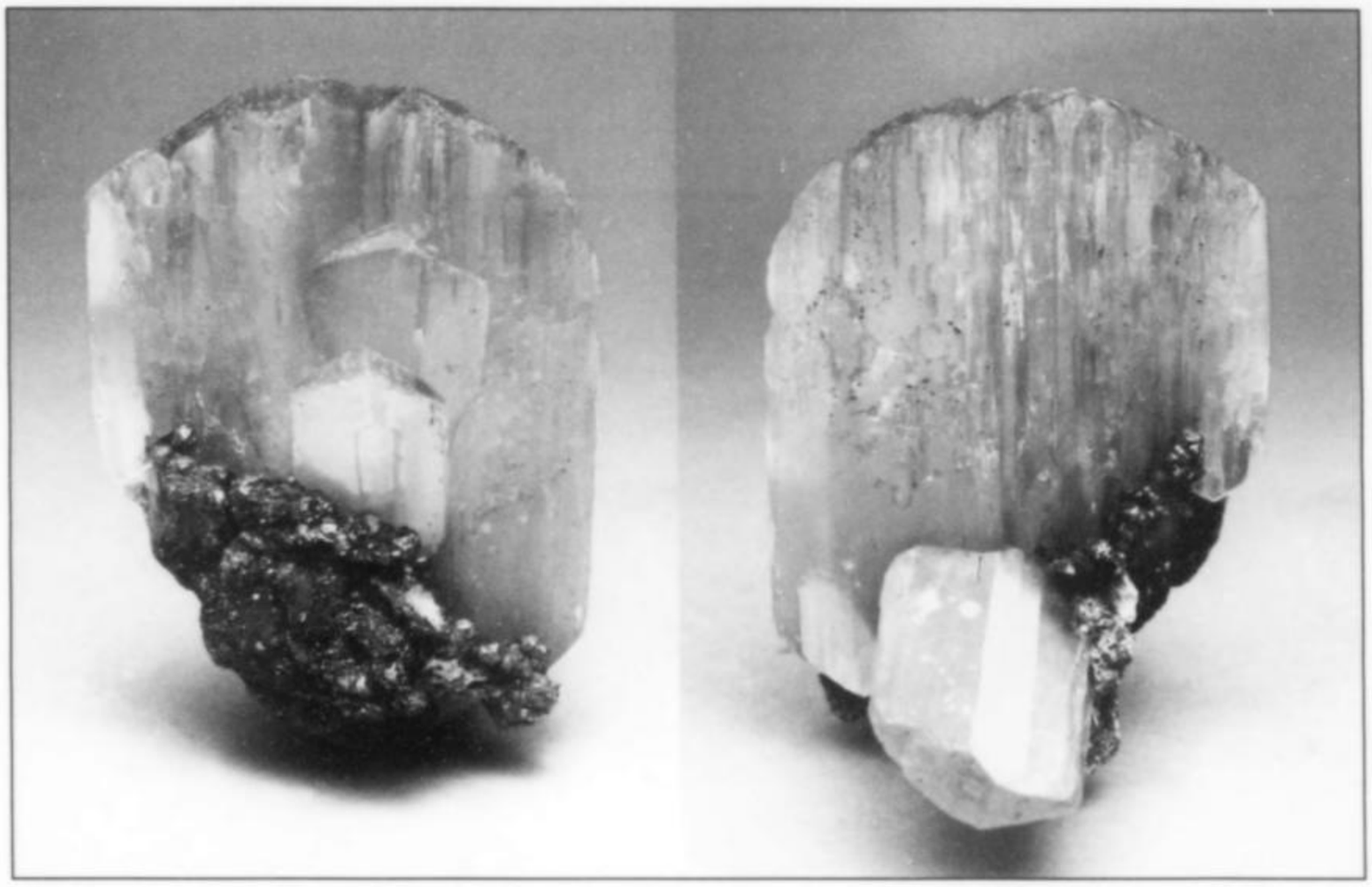


Figure 40. **Valentinite crystal (two views), 4 cm, from Tatasí mine, San Vicente, Chichas Sur, Potosi, Bolivia. Jordi Fabre specimen and photo.**

Of small-miniature size to about 15 cm across, the specimens show "brushes" of highly lustrous metallic gray, acicular crystals to 3 cm, the brushes loosely attached to form aggregates lacking matrix or any visible associated species. In most cases the tips of the brushes have curved surfaces where (it appears) individual stibnite needles have fused, giving the specimens, along their tops, a sort of shiningly crumpled look which is not at all unattractive (just "different").

More Peruvian desiderata of recent date were offered by Luis Miguel Fernández Burillo (Urb. Pinar Canal, 24, 50720 Zaragoza, Spain). At different times in 2008, former miners employed by Luis came upon fine and beautiful things in the old Mundo Nuevo tungsten mine, Santiago de Chuco Province, La Liberdad Department (for some background see p. 31 of July–August 1997: the "Peru Issue"). In June the major discovery was **tetrahedrite** as loose platy groups to 12 cm showing brilliant black metallic tetrahedral crystals to 3.5 cm on edge; some of the crystal faces are lightly striated, and some are faintly curved, but the overall effect is of sharp, simple, sizable, pristine crystals and clusters. In September, the Mundo Nuevo mine gave up dazzling **hübnerite** specimens showing razor-sharp, opaque black, bladed crystals to 2.5 cm in flashing jumbles amid sprays of colorless to milky thin-prismatic quartz crystals in clusters to 10 cm across. Also in September, **pyrite** came out as brilliant, stepped cubes to 3 cm, nesting in rounded groups of lustrous quartz crystals.

Then there is the Huanzala mine, Dos de Mayo Province, Huanuco Department, where, besides many excellent specimens of metallic species, **fluorite** was found in wonderful gemmy pink octahedral crystals associated with pyrite and galena in 1980–1981 (see the cover picture of the "Peru Issue"). Luis Burillo reports that in July 2008, a single pocket located quite near the site of the earlier discovery produced about 60 specimens showing transparent pink fluorite octahedrons (with faint green cores, like the old ones), with individuals to 10 cm. Before you get too excited I'll add that the new specimens are not nearly as spectacular as the old ones, as the pink fluorite is not very lustrous—but the crystals *are* transparent, and some of them are compound, with prominent "stepping," and a few have dull gray galena crystals to 2 cm clinging onto their sides. Specimens from the new find which were brought to Munich by Luis measure between 6 and 12 cm across.

I cannot resist presenting one final image from South America. The specimen is one of those one-of-a-kind wonders that linger in

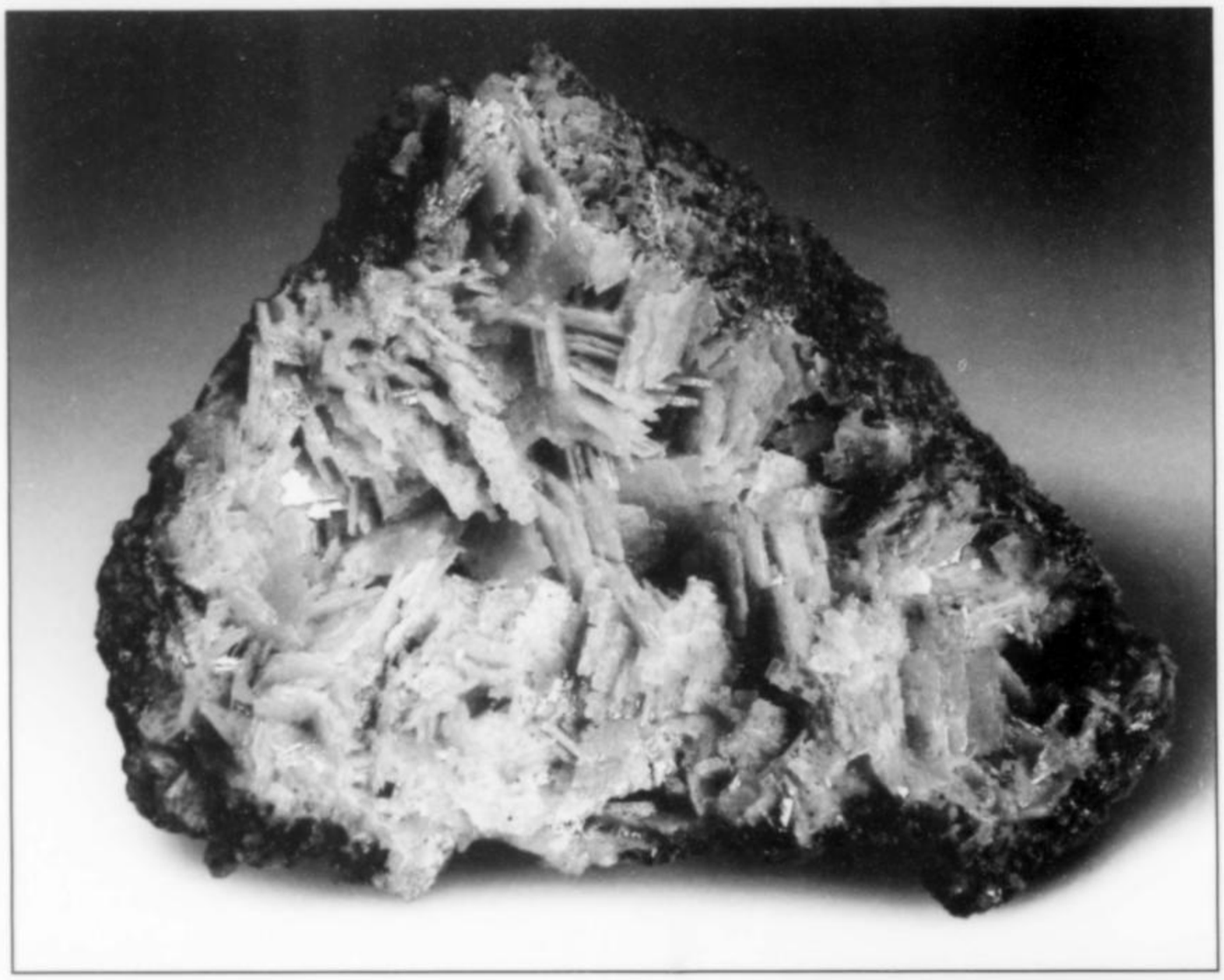


Figure 41. **Wulfenite, 8.2 cm, from the Ahmad Abad mine, Yazd Province, Iran. Gobin specimen; Veevaert specimen and photo.**

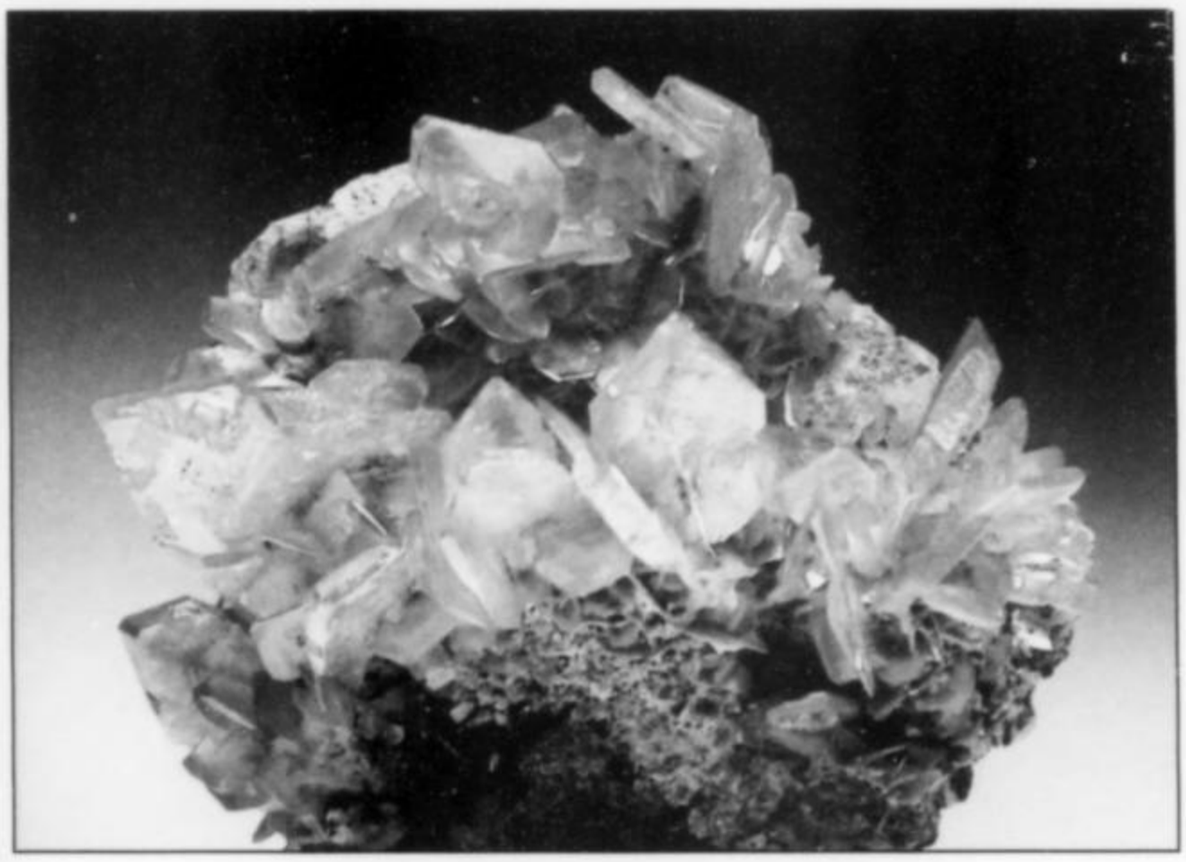


Figure 42. **Wulfenite, 3.2 cm, from the Ahmad Abad mine, Yazd Province, Iran. Gobin specimen; Veevaert specimen and photo.**

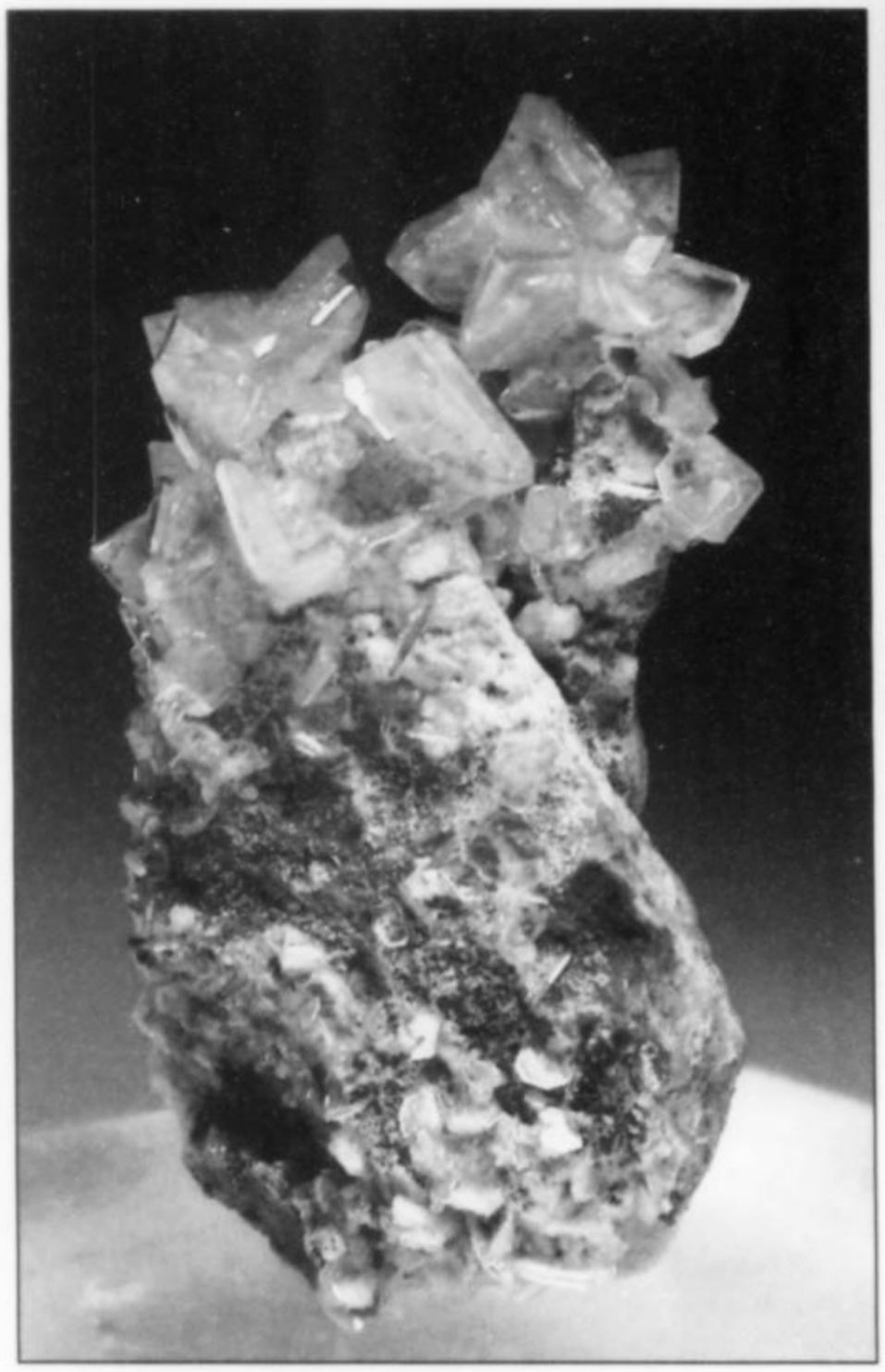


Figure 43. **Wulfenite, 3.8 cm, from the Ahmad Abad mine, Yazd Province, Iran. Gobin specimen; Veevaert specimen and photo.**

memory after a major show. Typically such things are not for sale at thinkable prices, they aren't representative of any big lots of new pieces, and often they are not even "new" . . . yet they are wholly remarkable, and for a long time they haunt, and instruct, the mind. All right—hidden away in a little white box at the stand of Jordi Fabre (www.fabreminerals.com) was a specimen of **valentinite**, mined sometime around 1988 in the Tatasí mine, San Vicente, Chichas Sur, Potosí, Bolivia. The major crystal measures 4 cm, and there's an equally sharp sidecar crystal: this *must* be among the finest extant specimens of the rare antimony oxide. Jordi did not sell the piece in Munich; on the last day of the show he was packing it up to take to a show in Spain. Enjoy the picture.

Some good news—for a change—has come out of Iran, and the brothers Brice and Christophe Gobin (www.mineralsweb.com) came to Munich just to tell everybody about it (and maybe sell a few specimens too). Iranian minerals have been heard of but rarely during the last 50 years. In the early 1960s Pierre Bariand, then

curator of the Sorbonne collection, led a party to some old lead-zinc mines near the town of Anarak, Esfahan Province, where nice specimens of red wulfenite and other species could be collected. In 2000 a German group dug a couple of hundred excellent cerussite specimens in the Nakhlak mine near Anarak, some of which were marketed at the 2001 Tucson Show (see May–June 2001). But that has been about it, this long time passing, for Iranian minerals. According to the Gobins, however, nice wulfenite, cerussite, calcite, hemimorphite, linarite and gypsum specimens have been trickling out of several mostly inactive mines in central Iran for the last three years, and in Munich a number of these appeared in good-if-not-great examples which, of course, offer promise for the future. The **wulfenite** specimens, though they are all from the same place—the Ahmad Abad mine, Yazd Province—are of widely varying aspect. Most of the wulfenite crystals are sharp and lustrous, their colors ranging through vivid red-orange, medium orange, beige and cream-white, and their shapes from simple tabular "window panes" through much thicker tetragonal tablets with prominent beveling by pyramid faces. The Gobins' thumbnail-size wulfenite specimens are straightforward groups of crystals, either loose or on matrix, with individuals seldom more than 1 cm on edge: some, with lustrous orange crystals, evoke the Rowley mine, while others, with red-orange crystals, seem castaways from the Red Cloud. Miniature and small-cabinet-size wulfenite specimens are quite few, but there are some enormous matrix pieces—to a meter across—with leafy to blocky, yellow to orange wulfenite crystals in dense sheaf-like aggregates over white massive calcite or aragonite.

The Gobins' new **cerussite** specimens are reticulated "snowflakes" from the Nakhlak mine, clearly from the same occurrence as those marketed around 2001. The new **hemimorphite, calcite** and **linarite** all come from the Galeh Zari mine. The Gobins say this locality lies in "Khoran" Province but Google says that there's no such thing; perhaps the mine is in Khorasan Province, east of Yazd. There were only two hemimorphite specimens on hand in Munich, but they are very fine: respectively 15 and 18 cm across, with lustrous white, Ojuela-like crystal sheaves to 2.5 cm rising from a gossan matrix. Calcite from the locality forms clean, pretty, compound "dogtooth" crystals composed of scalenohedrons in parallel growth, pale orange and translucent and reaching 5 cm; matrix specimens reach 10 cm. Linarite is present—in specimens seen in Munich—only as bright blue smears and lamellae and small areas of microcrystals on matrix. Finally, the Gobins' **gypsum** specimens, from the Changi mine, Yazd Province, are clusters of typical transparent colorless bladed crystals to 4 cm, devoid of associations. Quite a spread! These curious and novel Iranian offerings kept people trafficking in and out of the Gobins' booth throughout this Munich Show.

There was little from the rest of Asia to note this time, though I do like the looks of some new **calcite/stibnite** specimens which were scattered about the stocks of some of the many Chinese dealers in *Halle 4*. Reportedly found about a year ago at Dachang, Guizhou Province, China, the specimens are loose, bright, stalk-like crystals of stibnite to several centimeters impaling, or at least hosting, transparent pale to medium yellow-orange, discoidal calcite crystals. And Shafiee Muhammad of *Hammad Gems* (shafiee7@tahoo.com) unwrapped and proudly showed me all three of the monster crystals of **väyrynenite** which, he said, were found last September somewhere near Shengus, Northern Areas, Pakistan. Incomplete and rough-surfaced, and surficially spotted with white calcite, these crystals are nevertheless mostly gemmy inside, with a lovely peach/maroon color, and each is nearly 3 cm long.

The survey concludes with some specimens of **zircon** found in spring 2008, reportedly at a place called Goricourt, Astor Valley, Gilgit district, Northern Areas, Pakistan. From Denver I reported on

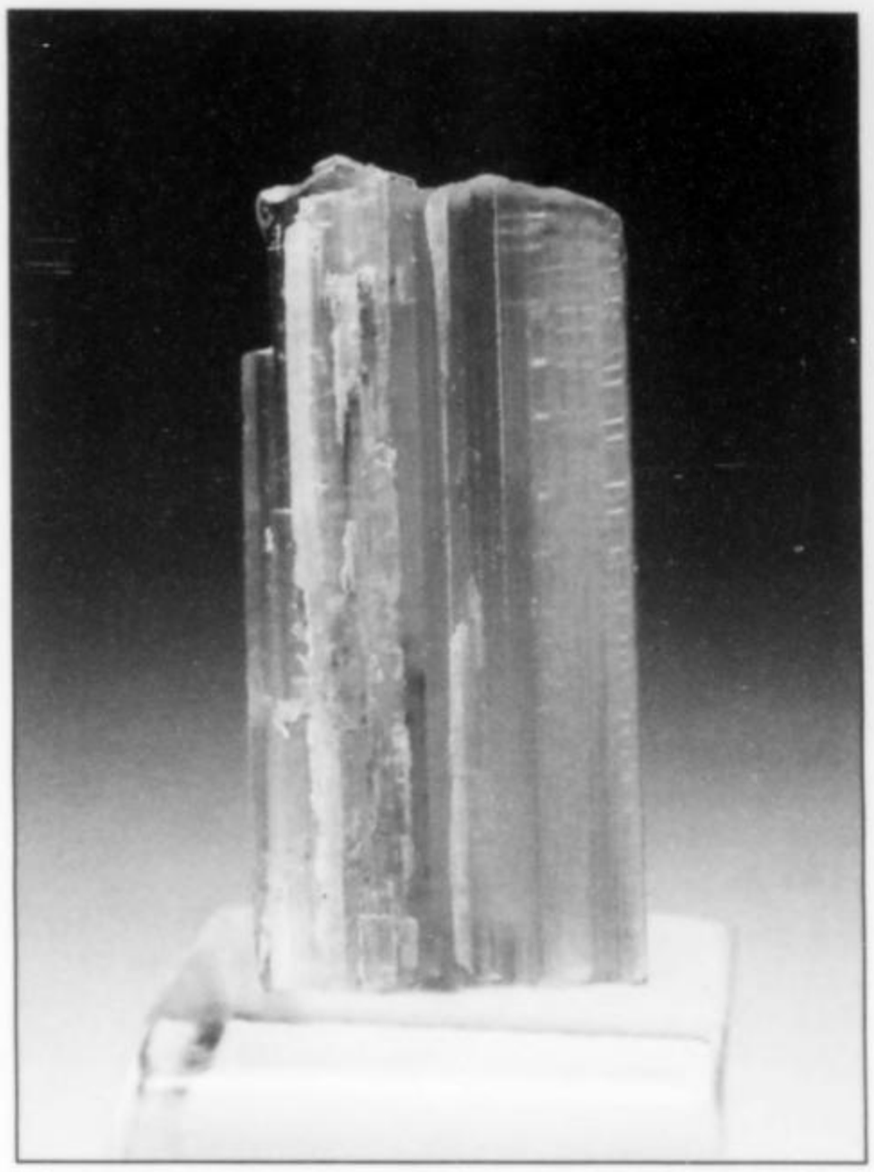


Figure 44. **Väyrynenite, 2.8 cm, from near Shengus, Northern Areas, Pakistan. Shafiee Muhammad specimen; John Veevaert specimen and photo.**

some specimens in Dudley Blauwet's stock which are probably from the same occurrence (though Dudley gave different locality data); however, a few thumbnails and miniatures brought to Munich by François Lietard (François.Lietard@wanadoo.fr) outclass the earlier ones (sorry, Dudley), and indeed they are some of the best zircons from anywhere I've ever seen. The crystals are vibrant orange-red, semi-gemmy, short tetragonal prisms with large pyramid faces, reaching 2.5 cm. They are lustrous, sharp and screamingly colorful, and they are found half-embedded in a black-and-tan mixture of massive biotite and feldspar. Most of the specimens François offered in Munich are thumbnails, and in most of these, sad to say, damage shows here and there on the zircon crystals, but in one outstanding miniature a fat, bright red, undamaged zircon crystal measuring 2 cm sits up just right on matrix.

Each year at the Munich Show there is a hierarchy of display themes, the predominant one taking over a mazelike space inside a large walled mini-museum enclosure, with pertinent art on the walls, in the center of *Halle 6*. Display cases of different sizes and types, both inset and freestanding, hold remarkable objects, and thick crowds pack into the maze more or less at all times. In fact, it is never easy to get very close for very long to what's in these cases, for the crowds are eager and pushy and lighting is dim. Nor does one especially relish the looks of security men who can't say, offhand, why an obvious foreigner should be standing still in the middle of everything, scribbling furiously on a yellow pad. But despite these difficulties I was dazzled by the displays related to this year's main theme, which was AUSTRALIA.

I especially liked the device of putting display specimens, mineral and otherwise, on beds of black-painted gravel in little trays, in groups of three to six pieces per tray, then simply laying the trays flat on platforms inside the cases. The black gravel made an interesting yet non-intrusive "matrix" for all sorts of fabulous things, from nuggets of fire opal to elaborate jewelry pieces to wonderful

specimens of (for example) green mimetite from the Elura mine, crocoite from Tasmania, and dozens of species from Broken Hill.

At various places within the Australia enclosure one could see opal, opalized wood, opalized fossils, and opal jewelry; there were non-opalized fossils, some of them the size of my desk, and thunder eggs, agates and pearls; there was a display of Argyle mine diamonds, and there were Australian mining and cultural artifacts of diverse kinds. But more along *our* lines were dozens of giant, superlative crocoites from Tasmania put in by Olivier Szentessy, Saint-Jean de Tholomé, and the current Adelaide mine proprietor, Adam Wright. There were very extensive representations from the Broken Hill collections of Milton Lavers and Rod Sielecki, and I still cherish images of certain specimens of copper, rhodonite, pyromorphite, anglesite, smithsonite, cerussite . . . even of Sielecki's miniature-size matrix specimen of iodargyrite, showing euhedral, bright yellow crystals. "Historic" Australian minerals from Broken Hill and elsewhere were shown by the National Museums of Scotland; among these was a jaw-dropping 12-cm group of gold crystals found in the 19th century in Ballarat, Victoria. Separately, there was the Australian Gold Alcove, with some super specimens from the Natural History Museum in Vienna, and replicas of the "Welcome" and "Welcome Stranger" nuggets, 68.96 and 72.04 kilograms, found in Victoria in 1858 and 1869, respectively.

Next, having been inflamed by all of that Australian gold, one could proceed to "Gold der Alpen"—the #2 show theme, presented in the center of *Halle 4* in another mazelike but roomy enclosure. Exhibits fashioned by the Natural History Museums of Torino and Milano and by the *Bündner Naturmuseum* of Chur, Switzerland, taught us how good, and how beautiful, gold from the Alps can occasionally be. Special emphasis was given to the great mossy specimens found at Brusson, Aosta, Italy in the mid-1980s, mid-1990s and mid-2000s, and to a recent bonanza in the Surselva region of Switzerland. Relics of gold mining in the Alps during the Celtic Bronze Age, the Roman period, and modern times from the 15th century onwards, were on display, and there were extraordinary Alpine gold specimens from the collection of Franco Chianale, publicly shown for the first time in Munich in 2008. Michael Wachtler is to be commended for his assembly and coordination of 64 pages of text and fine photos on the Alpine Gold theme in the show catalog.

In the same display area, local museums in Italy, Austria, Switzerland, Norway and Sweden had put in cases meant to contribute to people's thinking about "*Urlaubsziel Museum—Museen in Europa*" (European museums which could be vacation goals). And, as usual, plenty of small display cases ran around the outside of the enclosure in *Halle 4*, with 35 private collectors having worked up displays on topics including (the list is an alphabetized, random, sample) Minerals of France (Eric Asselborn), Classics from Germany (Karl-Heinz Hohenlüchter), Fluorite and Calcite from Elmwood (Robert Hölzl), Alpine Quartz (Manfred Link), Agates From Morocco (Mehedi Joachim Pfeiffer), Minerals of Schemnitz, Slovakia (Prof. Dr. Ladislav Turecky), Dioptase, Malachite and Shattuckite from Namibia (Paul and Antoine Weghorn), and Minerals of Turkey (Christa Zechner).

An Indonesian "petrified forest," a "wellness island," a small auditorium with a schedule of lectures mostly on "metaphysical" topics, a gold panning set-up for children, and of course that *Biergarten*, pretty much complete the survey of *Münchner Mineralientage 2008*. If you didn't show up this year, well, then, OK, how about *next* year?

The Friends of Mineralogy, Inc.

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GOALS OF THE ORGANIZATION

- To preserve and protect mineral specimens for education and research
- To promote the preservation of valuable specimen localities and mining deposits.
- To encourage the collection of minerals for their research and educational value.
- To advance programs of mineral study and the educational activities of amateur groups.
- To promote the dissemination of information about minerals, mineral localities, collections and mineral studies.

FRIENDS OF MINERALOGY 2007 AWARDS

Best Article 2007, *The Mineralogical Record*, "Famous Mineral Localities: Bou Azzer, Morocco," v.38, n. 5 p. 338; G. Favreau, J.E. Dietrich, N. Meisser, J. Brugger, L. Ait Hadddouch and L. Maacha.

Best Article 2007, *Rocks & Minerals,* "Greenockite and Associated Uranium-Vanadium Minerals from the Huron River Uranium Prospect, Baraga County, Michigan," v. 82, n. 4, p. 298; S.M. Carlson, G.W. Robinson, M.J. Elder, J.A. Jaszczcak, and T.J. Bornhorst. (This was a tough call because there were so many fine articles to choose from.)

Best Article 2007, *extraLapis English*, (No. 10 – Opal, p. 14)—WERNER LIEBER AWARD, "Rainbows, Harlequins and Pins Afire: Play of Color in Opal"; M. Weibel.

Best Educational Case, TGMS, 2008—Individual, Dr, Georg Gebhard, "Silver"—A very clever and artistic presentation of siiver oxidation (the moon waning) and chemical combinations.

Best Educational Case, TGMS, 2008—Institutional, Gemological Institute of America (GIA) and Geo-Literary Society—"George F. Kunz and his contribution to the gem and mineral literature of North America"

In conjunction with the Best Article awards, FM presented a check for $200 to each of the magazines, *The Mineralogical Record, Rocks & Minerals, and extraLapis English.*

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Mineralogical Record

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Jan.-Feb. issue	Oct. 15
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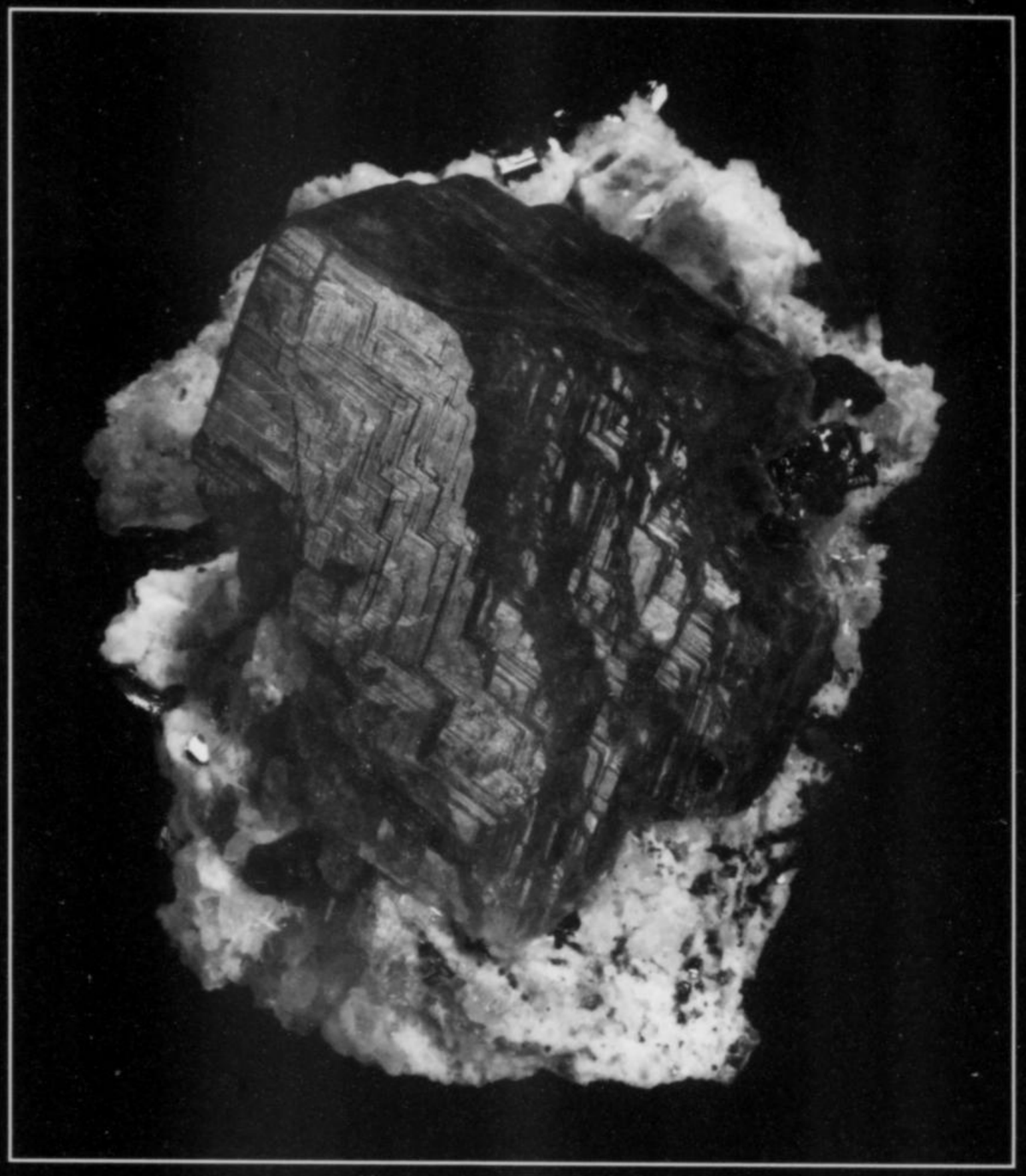

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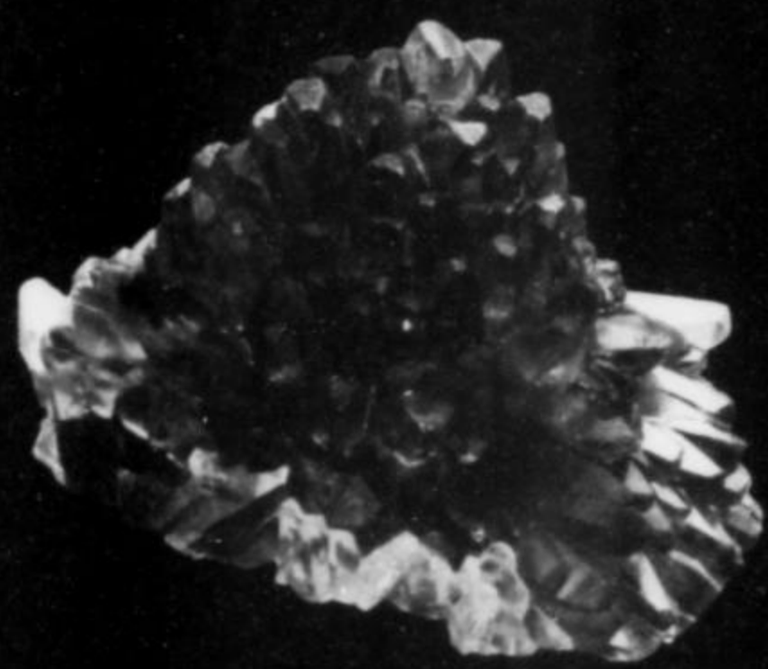
The long-continued concentration of vision on an object tends to produce a partial paralysis of certain functions of the brain.

– George F. Kunz
The Curious Lore of Precious Stones, 1915



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