RHAPSODY IN PURPLE

A Journey Upriver

CYNTHIA R. MARCUSSON • CYNTHIA RENÉE CO.

The sun sets on another day in life's great adventure. The ash from a large wildfire only enhanced the sunset's vividness.

JOURNAL ENTRY, 26 AUGUST '94

The night? A primal and rhythmic serenade of croaking amphibians and insects. Morning is marked by an oscillating chorus of turkeys, roosters, assorted chicks and songbirds. Anxious or confused, some roosters started their crowing at midnight, perhaps eager to demonstrate their hardworking status for the mine owner's visit. Embraced by the tranquility, I feel protected under the dusty mosquito-net canopy. The late night before, I met Otto, a gregarious John Wayne de Sur America of Bolivian/German descent. Even though I don't speak his language, his humor translates itself through his effective and animated body gestures. Six eggs lie simply beside a bowl on the wooden table. With practiced theatrics, Otto cracks the first open to a look of mock astonishment and horror. Whew! A rotten egg with a black yolk and a smell to match. "Look at the conditions we must work under," I see him say to his close friend, Ramiro. Smiles crack with the eggs. Later, Otto spoke so passionately about Carolina, but I couldn't tell if she was a woman or a mountain. . . . Turns out Carolina is a mine.

Fashion, for the first time,

is about individual choices and expressing one's uniqueness.

I believe colored gemstones are the strongest jewelry medium through which to express individuality and passion for life. Come explore with me the many intricacies of colored gemstones: how to look at them, how they are cut and, in this case, where they come from. What does it take to get them from the earth and onto our bodies? Through a combination of lucky circumstances, I ended up visiting the Anahí Ametrine Mine in Bolivia

Cynthia R. Marcusson

this past August. I'd like to share with you this remarkable trip as a launching point for our exploration of the world of colored gemstones.

THIS IS A STORY OF PASSION AND CREATION.

Of the earth's private passion plays and how they are brought public. Of a man's turning a rocky ridge into a premier gem mine. Of gemstone artists' passionate creation of gem landscapes full of light and wonder.

The gem amethyst, with its grape-jelly color, is revered by all connoisseurs of jewelry and natural wonders. Amethyst is actually a member of the quartz mineral family. The gem world calls purple quartz "amethyst," while golden quartz is known as "citrine." There is one place in the world where regal amethyst and sunny citrine occur together. We call this beautiful and unusual multicolored gem "ametrine," and it is found in the Anahí Mine in Bolivia.

Find a map of South America and put your finger at the point where Bolivia, Brazil and Paraguay touch. This is the land of the Anahí. The land that Ramiro Rivero trekked over six years ago trying to locate the gem claim he had purchased on paper. Formerly overseeing the South American operations of an international metal trading firm, Ramiro set off across a jungle full of wildcats, with map in hand and sleeping in hammocks, until he finally found the ridge that now is site of the Anahí. Until that time, he had only seen it on paper.

The story goes that ametrine was first introduced to Europeans during the 1600s through a Spanish conquistador's gifts intended to impress his queen. The ametrine mine came to the conquistador as a dowry from his marriage to a native princess named Anahí of the Ayoreos tribe. Ametrine literally stayed underground, except for sporadic outings, until the late 1970s, when demand for gemstones provoked the curiosity of gem dealers and miners, who began tentatively to explore the area.

With its reintroduction to the international market in the 1970s, ametrine received a reception worthy of the beautiful and unusual gem it is. Not long after, due to the political sensitivity surrounding its provenance and export and to a scientific discovery, ametrine became the victim of the international gem market's rumor mill. A number of factors collaborated to allow false rumors to spread.

Bolivia's Anahí Mine is the one place in the world where purple amethyst and golden citrine occur together in one beautiful and unusual gem, called "ametrine." Gems from Brazil Imports.

Until 1989 the Anahí deposit, located within an area deemed a Bolivian state fiscal reserve, was closed to private mining. Putting the fox in charge of the henhouse, the Bolivian government established a military outpost in the area to prevent illicit mining. Bypassing the constitution, Brazilian miners established relationships with the local military, paying illegal fees and/or splitting the yield of gems extracted in return for permission to mine the ametrine. Along with the Bolivian government's restrictions against mining in the Anahí area, the Brazilian government imposed strict import restrictions making it impossible for Bolivian gemstones to enter Brazil legally. Brazil is a major base for gem commerce and has an extremely gem-rich geography. The way around the importation problem was to smuggle the Bolivian ametrine into Brazil and register it with the Brazilian authorities as being mined in Brazil. Protecting their golden goose, gem dealers spread conflicting stories about the mine location, allowing them to continue trading ametrine in Brazil.

In 1981 Dr. Kurt Nassau, who experiments in gem coloration and synthesis, discovered how to produce ametrine artificially in the laboratory through combinations of irradiation and heat treatment. However, the artificial ametrine resulting from this complicated and expensive process is not commercially available and is gemologically distinguishable from the Anahí's natural ametrine. Like the children's game of telephone where wild rumors are amplified and quickly spread, rumors questioning the authenticity of ametrine went forth and multiplied—rumors fueled by the vagueness of the mine location combined with the successful laboratory manufacture of ametrine. As a result, ametrine again stayed underground until most recent years.

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In 1989 Bolivia made changes in its constitution and mining laws, legalizing mining in the fiscal reserves. Bolivian Ramiro Rivero acquired the ametrine mine claim, formally named the mine "Anahí," honoring the Ayroean princess, and founded *Minerales y Metales del Oriente* (M&M) to develop the organized trading of ametrine. Coincident with the changes in Bolivian law was the lifting of the Brazilian ban on the importation of uncut gems.

The Anahí Mine, besides being the world's only producer of ametrine, is also the largest producer of amethyst. In fact, because of its greater abundance and higher value, amethyst is the principal gem produced by the Anahí. Generally, Anahí amethyst is recognized by its pure violet-purple color, devoid of the brownish or yellowish secondary tones seen in amethyst from other South American mines. Citrine, though a beautiful gemstone, usually results from the heating of low-grade amethyst, causing a permanent golden color. Citrine from the Anahí mine occurs naturally in the golden color seen in the jewelry pictured.

Boating up the Rio Paraguay to the Anahí Mine is not a short trip, but it is an idyllic one. From cushions laid out on the Corpus Christi's flat deck, I watch the exotic and beautiful world of the Pantanal unfurl with the ship's flag.

Presently, ametrine is a gem whose relatively low price is not reflective of its beauty and rarity. Gemstone prices are determined like that of most other commodities: by supply and demand. Short supply and high demand equal high price; short supply and moderate demand equal a lesser price, even for something that may be rarer and/or of finer quality. Since there is no centralized mining cartel (such as De Beers in the case of diamonds) controlling the supply of colored gemstones, prices are an accurate reflection of availability and demand. The past lack of public awareness has kept the price of ametrine at lower levels. As with other colored gemstones, price will increase as awareness spurs demand.

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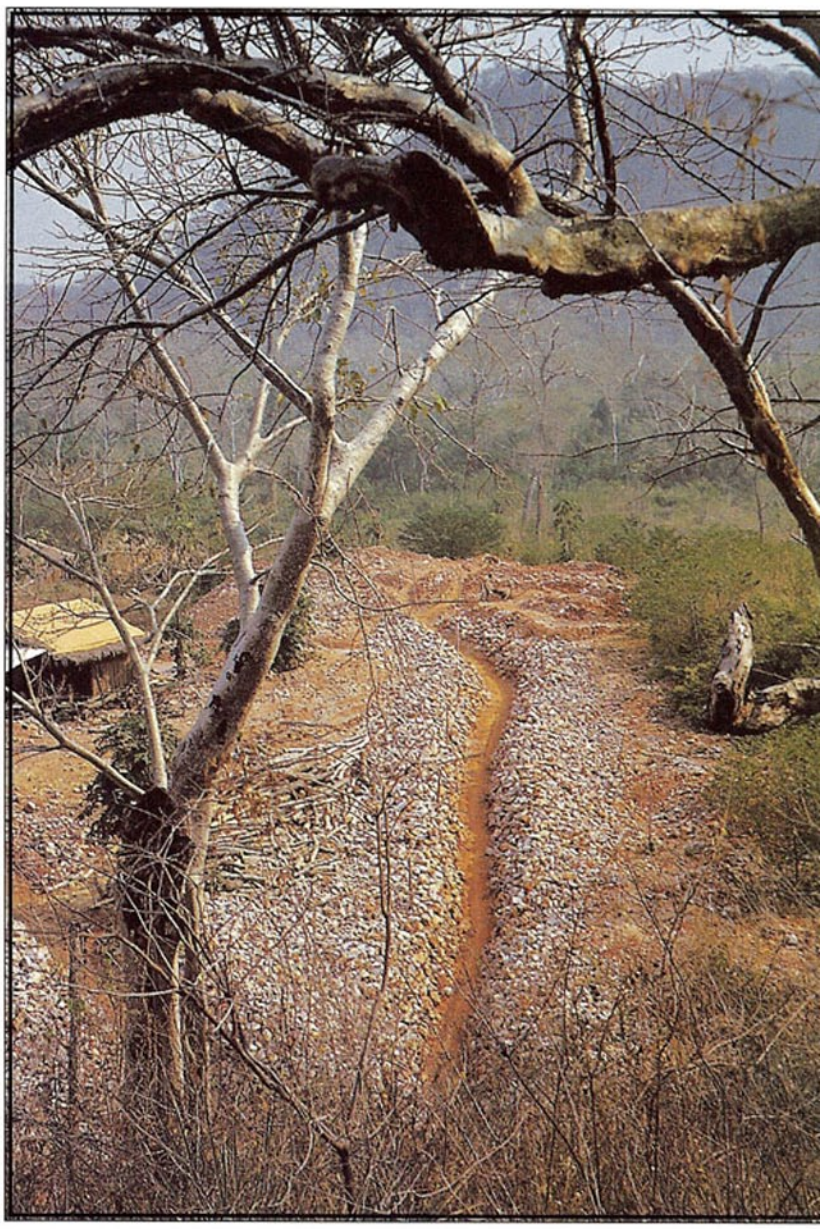
Boating up the Rio Paraguay to the Anahí is not a short trip, but it is an idyllic one. From cushions laid out on the Corpus Christi's *flat deck, I watch the exotic and beautiful world of the Pantanal unfurl with the ship's flag. I think of the* Corpus Christi *moving upriver: bow cutting open a path, the wake opening, water parting then reuniting. I feel a calmness, a solidity, a strength that surprises me.*

The area we travel through is called the "Pantanal." Stretching across western Brazil and portions of Bolivia and Paraguay, the Pantanal has been called the East Africa of the Western Hemisphere, as it is home to the greatest concentration of wildlife on the continent. The torrential rains of winter turn the Pantanal into a vast inland sea; summer's tropical sun reduces it to a grassy savannah laced with marshes teeming with wildlife. Although eclipsed by the Amazon rainforest's greater media coverage, the Pantanal region is actually Brazil's greatest natural resource. What the Amazon is to flora, the Pantanal is to fauna.

Corpus Christi isn't just a religious holiday; it's also a boat and an anniversary. On the holiday of Corpus Christi last year, the company plane carrying Ramiro and seven of his staff members crashed in the jungle during a return trip from



the Anahí. The pilot's skill is credited for their all having survived. Still, they had to spend two nights in the jungle before being found. The boat we traveled upriver on was named the *Corpus Christi*, commemorating this unforgettable event.

We left for the seven-hour boat ride up the Rio Paraguay by early afternoon. The thick haze from a huge fire to the

west hung with us, promising a sunset of glory. My feeling was one of deep and quiet joy. I was so stunned to be actually participating in my own private *Mutual of Omaha's Wild Kingdom*.

I was entranced by the improbability of nature's color combinations. Purple, red and gold fought for attention in one blazing scene. The Pantanal combines colors we would normally only see in skiwear, providing a visual fiesta under the hazy skies. Trees offering nosegays of magenta lined the riverbanks. Flowering spikes of chrome yellow mingled with gently colored lilac blooms closer to the water level. The stillness of the flora was punctuated by the darting movements of lime green Monk parakeets and more loudly colored macaws. One of the largest flying birds in the Western Hemisphere is the Jabiru stork. Brilliantly white and dramatic in their long elegant poses, here they were flying over the river and gathering in small flocks to pluck their meals of fish, snakes and frogs from the river. Occasionally, we would pass fisherman, often three to a wooden dugout canoe, and farmhouses (*fazendas*) on stilts. A pack of five *capybaras* (a kind of a big webbed-foot guinea pig) swam by the boat.

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Clockwise from far left: Overlooking the Anahí Mine workings. Mining gems isn't a matter of blasting dynamite and pulling out the loot. It's a gamble involving pouring money into the rocks and hoping for a payoff. • One of the most pervasive features of the ametrine-filled rock cavities is the thick red clay which coats everything. Here are the ametrine crystals before being extracted from the host rock. • This was painted on a Bolivian boat. I really like this slide as I feel it foretells adventure! • Corpus Christi isn't just a religious holiday, it's also a boat. Returning downstream on the Corpus Christi, *I welcomed the breeze blowing through my soul, leaving a part of it to roam the shores of the Rio Paraguay. • After each day's workshift, the gems are cleaned, sorted into first and second grades and bagged for transport to Santa Cruz.*

Photos by Cynthia R. Marcusson.

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Reclining on cushions on the boat's covered deck, I watched the light change as the sun cycled through the most tremendous shades of *padparadsha* (What's *padparadsha*?...that's another article). The sun dipped, same as it ever has; but to me, everything was different.

Aiming the floodlight on the water after dark, I saw pairs of what looked to be glowing red golf balls. These were the reflecting eyes of caimans lying partially submerged in the river. These waters are also home to piranha, a carnivorous fish, which I found pretty tasty in soup.

Finally—but too soon for me—we arrived at Largo Mandiore, marking our crossing into Bolivia. Transferring to a Land Cruiser at the ship's dock, it was another two hours to reach the Anahí Mine over the seventeen-mile ragged ribbon of jungle road. Night birds swooped and armadillos scurried in front of the headlights. Testifying to the jungle's impenetrable nature, Otto, one of the two mine foremen, spent twenty-two days walking the seventeen-mile distance when setting the road's route. Otto is a rugged individual who (rumor has it) previously worked in Colombia building landing strips for drug lords.

A suite of ametrines carved by award-winning cutter Michael M. Dyber. Left: 29.30 cts. Center: 31.70 cts. Right: 27.15 carats. Photo by Larry Croes.

For me, the seven-hour boat ride and jarring two-hour jaunt over rough roads is a unique and enjoyable experience. But to think that these are the conditions under which one must operate and build a mining business is sobering. Besides the expense, I'm sure those long treks get tedious.

JOURNAL ENTRY, 26 AUGUST '94

I walked outside for the first time in daylight and saw amethyst pieces covering the ground. "My God! Where the streets are paved with amethyst," I fancied. Less lyrically, I was in a dumping/sorting area.... I felt so at home with the rocks. I can read them, travel inside them—feeling the violence of their birth, knowing their permanence and transience. I tap into them and into the planet's core.

About eighty men live and work at the Anahí. The recent installation of a parabolic antenna testifies to a passion for soccer. Work shifts had to be structured around the World Cup. Besides the television and guest rooms, there are many other dormitories and buildings for warehousing, sorting, blacksmithing, cooking and bathing. The heated shower is impressive. The buildings are wooden with screened and netted windows. A generator provides electricity for the housing and the mine. It is the most beautiful mine I have ever seen, constructed with obvious foresight, pride and care.

The mining of the Anahí is done in underground tunnels and shafts. Since gemstones aren't deposited in the rock in regular intervals, the tunnels which follow the gems are irregular in direction and shape. Mining gemstones, or any mineral, isn't a matter of blasting dynamite and pulling out the loot. It's a gamble involving pouring money into the rocks and hoping for a payoff. Sometimes you win, other times you lose. But the rocks will give you signs: one can read them, question them and become permanently entranced by their riddles.

The Anahí is operated under the direction of a mining engineer, who maintains a three-dimensional representation of the mine workings, mineralization patterns and rock structure. The purpose of the model is to understand and recognize the patterns involved in gem mineralization, then use those patterns as an exploration aid in predicting where to dig for gems. Geology is a journey in time; through understanding the present, the riddles of the past and future can be unlocked.

Because rock is a good insulator, it is not as hot in the mine as you might imagine. The uncomfortableness has more to do with air circulation, which is poor owing to the tunnels' labyrinthine nature. Outside air is pumped into the tunnels, resulting in much better air circulation and quality than in the North American tourmaline mine where I spent a lot of time.

Most of the ametrine is extracted using hand tools, drilling and blasting being employed only in hard-rock areas to avoid destroying the gemmy crystals. The ametrine crystals are found in irregular clay-filled cavities within the host rock. One of the most pervasive features of the ametrine-filled cavities is the ubiquitous thick, red clay which coats everything. Due to this red clay coating, the ametrine crystals look like prisms of red clay. Non-gemmy rock pieces are removed from the mine in wheelbarrows. Being "wheelbarrow man" is not an enviable position, as it involves pushing/pulling about 100 loads of rock through the hot, steep tunnels every day. After

each day's shift, the gem material is cleaned, sorted into first and second grades and bagged. While the top-grade material is flown into M&M's home office in Santa Cruz every other day, the second grade stays at the mine site until a buyer is found for the twelve- to fifteen-ton lots and is then shipped to Santa Cruz on a twenty-five-hour boat trip.

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Inside the Esperanza, Ramiro translated one of the worker's questions to me: "Are you married?" "Oh, brother," I exclaimed internally, "Why here, covered with mud and dripping with sweat?" Apparently, the workers were not accustomed to women negotiating rope ladders or keeping up on hillside traverses. I don't understand the reasoning, but somehow such abilities aren't associated with a married status. Fat, barefoot and pregnant, on the other hand...

Ramiro, Otto and I hike up the hillside to see the Carolina, a new area of the mine named after Otto's granddaughter. The Carolina is uphill from the workings of the main mine, called the "Esperanza" (Hope). Though the Carolina is now producing, it has yet to match the hefty production of the Esperanza. So far, the total current workings of the Anahí Mine occupy about 1,150 feet of the 2.5-mile claim along the ridge. There is a friendly competition between Otto, who oversees the Carolina, and Rene, Esperanza's foreman. The two foremen gather and direct their own workers, and are paid based on production, which they then apportion among their teams. Workers make about double what they would if working in the city, and with pay geared to production, they have hope and goals. For every two months at the mine site, they are given about two weeks at home. Saturday is the day they talk with their families by radio. M&M provides direct mine support services such as food, water, hard-rock drillers, etc.

Entering the Esperanza tunnel, I am greeted by a clay and amethyst deity named "Tio." Tio has amethyst crystal points for eyes and as shoulder and chest decorations. The workers say Tio is the real owner of the mine, and they attempt to appease him with cigarettes, lemons, and Otto's near-combustive alcohol concoctions.

Night birds swooped and armadillos scurried in front of the headlights. Testifying to the jungle's impenetrable nature.

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The staff at Aaron Faber Gallery of New York finds ametrine aesthetically and intellectually fascinating. Here are two of their pieces featuring ametrines cut by Bernd Munsteiner, diamonds, eighteen-karat yellow gold and platinum.

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Inside the mine, we all wear hard hats. Taking me for a lady, Ramiro is adamant about my wearing the large and cumbersome gloves to protect my daintily manicured fingertips. I am tempted to do a Groucho Marx imitation but am afraid it wouldn't be unique enough—everybody's probably done it while walking bent over along the stretches of tunnel.

The maze of tunnels is really quite elaborate, almost a real-life Chutes and Ladders game. On a metal rope ladder, we climb down about forty-five feet of vertical shaft. This same shaft is used for a winch to pull up the buckets of gem material. The crystals are large, up to eighteen inches long, well formed and covered with red clay. We rub off the clay and hold the crystals to the light, noting their color variations.

There's a whole lot of sweating going on here. It is very hot and humid inside. To combat weariness, the workers fill their cheeks with coca leaves combined with salt, giving them the look of baseball players. We pause for refreshment. I choose the Brazilian soft drink, *Guarana;* the men drink beer. I am startled when Rene suddenly spits his first drink of beer. This is not just any ol' spitting, but one steeped in tradition: the first sip goes as a gift to the Goddess of the Mine, assuring abundant production. Dubiously, I brace myself against any further gifts offered to mine goddesses.

Upper left: Michael M. Dyber recently won first place in an international competition, the 1994 German Award for Jewelry and Precious Stones. His award-winning entry was a 55.65-carat Bolivian ametrine. "The extra dimension created within the stone appears where it isn't expected. An illusion is created because of careful finishing. This work illustrates my signature technique, the 'Dyber Optic Dish.' My recent work is characterized by a soft silhouette embracing reflective images and optical illusions." His winning entry will be on European tour for the remainder of 1994 and most of 1995. Left: 85-carat ametrine carved by award-winning carver Michael M. Dyber in a pendant also designed by Dyber. Eighteen-karat yellow gold. 0.32 carats of diamonds. Right: 37.70-carat ametrine carved by Michael M. Dyber. Photo by Robert Weldon.

JOURNAL ENTRY, 30 AUGUST '94, AIRPORT: CORUMBA, BRAZIL

My sanctuary has been invaded. For an hour or so, I had been savoring the tranquillity, along with a playful breeze. Cascades of birdcalls interrupted the quiet periodically—I like that. Then came a horde of youths headed for camp—at least that's my interpretation of the scenario, based on their matching T-shirts and repetitive recitation of irritating songs, but perhaps this signifies a completely different ritual in Brazil. I'm enjoying my seat in the airport café, writing postcards and replaying mental images of my memorable time at the Anahí. The cafe color scheme is red, yellow and black, which gives me a comforting sense of familiarity. These are the colors of American hotdog stands, and I spend a lot of time in hotdog stands. . .

Everything has an end? Maybe, maybe not. Maybe not an end, but a return. And, it became time to return. On the deck of the *Corpus Christi* returning downstream, I welcomed the breeze blowing through my soul, leaving a part of it to roam the shores of the Rio Paraguay.

Inside the mine, we all wear hard hats. Taking me for a lady, Ramiro is adamant about my wearing the large and cumbersome gloves to protect my daintily manicured fingertips.

And what happens to the ametrine after it leaves the shores of the Rio Paraguay? In September of 1994, gem sculptor Michael Dyber was awarded first prize with his 55.65-carat Anahí Ametrine in the world's most prestigious gem-cutting competition, the German Award for Jewelry and Precious Stones. Dyber's achievement is especially significant in that he is the only American ever to win a major award in the competition's twenty-five-year history. In addition, his pendant featuring a 262.72-carat ametrine carving won first prize in the over-$10,000 category of this year's American Gem Trade Association's Spectrum Award competition. All in all, 1994 has been a big year for Dyber.

Sherris Cotter Shank's 87.32-carat Ametrine Gemscape won first place in the Creative Cut Division of the same association's 1994 Cutting Edge Awards. The highly regarded international periodical *Gems and Gemology* devoted its Spring 1994 cover to ametrine and included a feature article.

While still a clerk at the Swiss Patent Office, young Albert Einstein mused,"What would it be like to ride on a beam of light?" The closest we're likely to get to learning the answer can come from viewing some of the ametrines cut with new techniques. There is a renaissance occurring in the field of gemstone cutting, which is called "lapidary." Lapidary artists are pioneering new techniques which allow them to play with the gem's internal reflections. When we marvel at a gemstone, we are not just saying, "Oh, isn't this gem beautiful?" What we are really saying is, "Look at what this gem does with light!" The excitement generated by witnessing the light being captured in a multicolored gemstone such as ametrine is timeless.

Ametrines are typically faceted in the rectangular emerald cut. The nature of this cutting style allows us to see the sharpest delineation between the purple and gold colors, but it does not give a lot of brilliance. Sometimes checkerboard patterns are added to the tops of the rectangular cuts to increase reflection. The result of cutting in this style reminds me of light skipping over the top of a lake. Ametrine is also beautiful when carved, often into flowers and other natural objects, or in cubes and spheres which can be enjoyed as natural art objects.

Sherris Cotter Shank calls her fluid and undulating forms "Gemscapes." Sherris sculpts and carves gemstones playing with what she describes as "the sense of movement that light and form can create. A gemstone's reflective qualities and rich color are ideal for creating soft flowing forms that dance with light."

Ametrine's color patterns twist and swirl like incense wafting into the air. One of the things Sherris likes about ametrine is that she can use the color patterns as an inspiration for carving. Her Cutting Edge award-winner actually had five colors: red and violet amethyst, yellow and orange citrine, plus a peachy color emanating from the undercuts she placed on the gem's bottom. She forms most of her ametrine with a flat back and a carved domed top having incisions cut along the color delineations to emphasize their differences. "Why cut a bicolored gem and not emphasize it?" she questions. Her award-winning collection of handcrafted gems is now being introduced at The Robert Bentley Co., a New York-based gallery for lapidary art.

In the lapidary designs of artist Michael M. Dyber of Ledge Studio in Rumney, New Hampshire, I see orbiting moons and planets and bubbles upwelling from the deep. Specializing in optical effects, his designs have a distinctive feature known as the "Dyber optic dish." The dish is a carved depression strategically cut in the gem's underside to compress or enlarge optically the designs he has cut into the gem.

Dyber first began using ametrine five or six years ago. At that time, many people told him, "Don't bother with it, Michael—it's been altered, enhanced." But he fell in love with the colors immediately. Initially, his revolutionary first pieces were a bit difficult to sell due to the untrue rumors of its synthetic origin. He didn't care, he just wanted to work with ametrine, and the more he did, the more he realized the gem's artistic possibilities. It became "a material I could really shine with." People started falling in line when they saw the natural ametrine cut artistically.

"Ametrine has a lot of things other gems don't have," explains Dyber. "It gives the creative lapidary the opportunity to orient the rough to their creative sense. If you like to cut half violet and half yellow, you can. You can turn the rough and get the colors to bleed together, effecting an artist's color palette of earth tones. With proper orientation, you can get a beautiful peach tone or change the tonality from violet to yellow to everything in between. Another nice thing is that

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it comes in larger sizes and is in plentiful supply."

"Personally," Dyber declares, "I believe ametrine will continue to grow in popularity and be accepted as a world-class gemstone. People are tired of sameness; they want to make a statement: 'This piece of jewelry shows my good taste and sense in art.' "

Aaron Faber Gallery of New York, finds ametrine aesthetically and intellectually fascinating. Her customers are intrigued by the gem's two colors, often asking, "What gem is with that amethyst?" They assume the gem is assembled, and this represents a conversational point from which to help the customer branch out and introduce them to other types of col-

Everything has an end? Maybe, maybe not. Maybe not an end, but a return.

Gem bounty from the Anahí Mine, fashioned with the new techniques being developed by lapidary artists who play with gemstones and light. Carved ametrine and black onyx by Steve Walters, fancy patterned ametrine, amethyst and citrine from Brazil Imports.

Lapidary artist Steve Walters uses techniques with ametrine that allow him to "kick light back and forth inside the gem so you have all these colors amplifying each other." This doesn't happen in traditional rectangular or cabochon cuts. Steve likes the layering of an opposed bar or checkerboard on top of a rectangular-shaped faceted ametrine and is partial to natural motif carvings such as fish, flowers and animals. "The bicolored motifs are natural, and you get that in nature."

Carolyn DePrince, gallery assistant/staff gemologist of

ored gemstones. It helps broaden their customers' horizons and provides them with a wearable conversational piece.

JOURNAL ENTRY, 31 AUGUST '94

Why not reach? Why not dream? I think of T. E. Lawrence: "All men dream, but not equally. Those who dream by night in the dusty recesses of their minds wake in the day to find that it was vanity; but the dreamers of the day are dangerous men, for they may act their dreams with open eyes, to make it possible." **JQ**