When we see the sparkle of a beautiful gemstone, the thought of where it came from doesn’t usually enter our minds. A recent tour of emerald mines in Colombia, however, gives new meaning to the term “mine to market”. CYNTHIA UNNINAYAR descends into the bowels of the earth to gaze at nature’s wonders in all their raw glory.
Before the day had dawned over Colombia’s capital city, we set out on a six-hour trip from Bogota to the town of Chivor in the eastern part of Boyacá province, the first stop on our trek to three of Colombia’s most famous emerald mines.

**From legend to reality**

Many gemstones are steeped in history, but few have the aura of adventure and intrigue of Colombia’s emeralds. Even the legend of their origin is mysterious. It seems that the god Ares created two humans, Fura and Tena, to populate the Earth. In order to retain their eternal youth, they had to remain faithful to each other. Alas, Fura strayed, so their immortality was taken away. After they died, Ares turned them into two cliffs, and in their depths, Fura’s tears turned into emeralds.

Today, guardians of Colombia’s emerald zone, the Fura and Tena cliffs rise 840 and 500m respectively above the Rio Mineria valley, 30km north of the famed Muzo mine, the nation’s largest. As time went by, Fura’s tears were not the only ones shed in Colombia’s turbulent emerald saga.

The green stones mined in Colombia have been used for trade and adornment throughout Central and South America since pre-Columbian times, dating back to 500 AD. When the Spanish Conquistadores arrived in the early 16th century, they coveted the green gems. Enslaving the Muzo Indians, the Spaniards forced them to work the mines of Chivor and Muzo. Following Colombia’s independence from Spain in 1810, the new government took ownership of the mines around 1871, granting mineral rights to various companies. A new era of lawless disorder followed.

**The Emerald Wars**

Violence and rivalries seemed to plague the emerald industry for decades until, in 1973, the government closed the mines. In 1976, private consortia entered the scene, but the free-for-all continued. In the mid-1980s, an all-out war ensued between rival groups. Dubbed the “Emerald Wars,” they claimed thousands of lives.

In 1991, the Catholic Church brokered a peace that was dominated by the so-called “Emerald Czar” Victor Carranza.
From an impoverished childhood, he became the most powerful figure on the emerald scene. His ascendancy was not, however, a romantic rags-to-riches tale, but a story of power struggles, violence, and death.

Today, times are dramatically different in Colombia, and its story continues along with our tour of the mines.

**A bit of geology**

Most of the emerald deposits are found on the eastern ridge of the Andes Mountains that run northeast-southwest through Colombia. The three main mining areas are Chivor, located in the eastern part of Boyacá Department, and Muzo and Cosquez in the western section.

Colombian emeralds are different from other emeralds, in that they are the only ones in the world to be associated with sedimentary rock rather than igneous rock. The tectonic movements that created the Andes Mountains forced the elements beryllium, chromium and vanadium, which give the gem its green colour, into liquid and gaseous states that moved into cracks in the surrounding sedimentary material. They eventually cooled and crystallised in veins with hydrothermal brine, which washed out the iron and other impurities. Often associated with quartz, pyrite, calcite and other minerals, the deposits of this vein-type ore are estimated to have been formed 40 to 65 million years ago. The sedimentary layers are heavily faulted and folded, and are mostly black shales and argillites.

**Chivor**

After six hours, we arrive at the small town of Chivor. At an elevation of 2,300m, the weather is comfortably cool.

The first Spanish mine can be traced to the Chivor district back in 1537. The beautiful green stones, however, were stained with the red blood of the Indian slaves, who died by the thousands. When word got back to Pope Clement X about these atrocities, he pressured King Charles II to close the mine. Around 1675, it was sealed, abandoned and overtaken by vegetation. It remained lost for 220 years, with the only clue to its existence a Spanish inscription: *The mines of Chivor are situated on the point of a ridge from which the Llanos (vast grassy plains) of the Orinoco can be seen.*

In 1896, guided by this description, Pacho Restrepo crisscrossed the steep mountain terrain in eastern Boyacá, where he finally found the lost mine. But, unable to make it pay off, he was forced to sell.

The mine is about 45 minutes from the town at the end of a narrow bumpy dirt road. After suiting up in rubber boots, hardhat, headlamp, gloves, black shirt,
and facemask, we follow our guide into the main tunnel. Water draining through the mountains fills the floor, and during the 1.7km walk, we slosh through several centimetres of water. Ventilation tubes run along the ceiling of the low narrow tunnel, but there are no lights. We follow one another single-file in the dark, with only our headlamps lighting the way.

The shale walls are wet and powdery. Merely touching them leaves thick black powder on our gloves. The tunnel follows veins of calcite, some containing quartz and pyrite. Stalactite-like formations hang from the ceiling and from ventilation hoses, made of calcium salts deposited by the dripping water.

Finally, the tunnels diverge and one leads to an active face containing emeralds. The miners use hand picks to carefully remove the calcite without damaging the gems. The Chivor area produces emeralds that are bluish-green compared to the deep green stones found in Muzo.

After our visit, the mine owner, Uvaldo Montenegro, invites us to have lunch at his compound with his miners. Under the watchful eye of armed guards, we are shown samples of emeralds and other minerals.

**Cunas**

The next morning, we leave early for an 11-hour ride to the western part of Boyacá. Seemingly endless hours are spent on deeply rutted roads zigzagging among the steep mountains and deep valleys that are blanketed by lush rainforest. The air goes from warm to hot as we descend to 900m.
We arrive at a large circular shaft, where an elevator takes us down to another level. Torrents of water surprise us in a secondary tunnel, giving pause as to what might happen if the pumps should fail. Despite the cool water at our feet and dripping on our heads, the mineshaft is like a sauna, with temperatures reaching 40°C. A few metres more is the active face, being worked by a small crew under the watchful eye of a closed-circuit camera. Once the emeralds are removed from the vein, the supervisor places them in a plastic bag that is locked in a pouch. At the end of the shift, he takes it to the surface.

Muzo

The next morning we head for the famed Muzo mine, elevation 800m. A lot of ink has been spent writing about the storied past of this mine and its former owner, Victor Carranza. In a way, the story of Muzo is representative of the changes that are occurring in Colombia. At one point, this powerful emerald baron controlled more than 40% of emerald production, including the 500-year-old Muzo mine, which his company Tecminas obtained in 1977.

As we drove into this area, we saw the remnants of entire mountains that have been sliced away by bulldozers, as miners sought the elusive green gems in open-pit mining. Water seeps into the mine from the rock above, sometimes creating torrents on the mine floor. © Anthony Brooke

Emeralds discovered in the active face of the Cunas mine. © Anthony Brooke

Our destination is the high-producing Cunas mine in the Maripí province, near Muzo. During our walk through an 800m tunnel, we come to a section with no forced air ventilation. “Hurry through this area,” we are told, to avoid breathing too much of the built-up carbon dioxide. It makes one wonder about the early miners who did not have the luxury of clean air pumped in.
mines. Today, to protect the environment, all mining must be underground.

In 2009, with emerald production falling, Carranza realised the need to modernise the mine. He sold half to a US-based investment company, which formed Minería Texas Colombia (MTC), to exploit the mine. As he neared death in 2013 from cancer, Carranza knew that without his power to protect the mining interests of his family, they would be in danger, so he also sold the remaining 50% of Muzo to MTC.

Thanks to MTC’s injection of capital and technology in 2009, mine production has been modernised. Workers are given fair wages and social benefits. Safety and security measures have been strengthened. MTC also conducts social initiatives to help the local communities. It has even set up a cutting and grading facility in Bogotá, thus ensuring transparency of its emeralds from mine to market. MTC has big plans for the mine, and is doing a major launch at BaselWorld 2016 to introduce its new MUZO brand.
In Muzo, our initial walk through long ventilated tunnels leads to an impressively large central shaft, Clavada, which descends 286m into the Earth. The elevator takes us down 140m to another tunnel, where calcite veins run along the black shale walls.”

The face of MTC is its director Charles Burgess. He is the liaison between the mine and the investment group in Texas. But his task is not an easy one. While violence has diminished, Muzo has been attacked twice in the past two years. Old ways and rivalries don’t disappear easily.

Armed guards watch our caravan of 4x4s as we enter the Muzo mine area (46,000ha). Rows of curled barbed wire surround the immediate entrances to the mines. Security is taken so seriously that we are not allowed to take our cameras into the mine. In Muzo, our initial walk through long ventilated tunnels leads to an impressively large central shaft, Clavada, which descends 286m into the Earth. The elevator takes us down 140m to another tunnel, where calcite veins run along the black shale walls. At one point, we come to a steep 10m shaft that we must climb straight down—with difficulty—on a ladder fashioned from rebar. In the gallery below are more veins, culminating in a face that seemed to be mined out.

About this same time, the government of Colombia saw the need to transform its mining sector, which had been mostly run by non-regulated companies. The government let it be known to large foreign players that they were welcome. “Colombia is open for business,” declared Dr. Santiago Angel, president of the Asociación Colombiana de Minería during the First Emerald Symposium in Bogotá recently.

After lunch with the miners, we head back to Bogotá, about 100km away, with most of the way on small rocky roads. The trip has been enjoyable and informative, a wonderful way to learn about Colombia’s enviable emeralds.