Here’s the complete translation in English:

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The Marble of Macael: A Report by Margaret von Schiller

Our backs were against the wall. A bit of daylight peeked through the poorly maintained roof. Pin-up calendars hang on the walls, and in the middle of the cabin, there's a long, dusty white marble table. In the shade, on the cool floor, sits a clay water pitcher. We’re waiting for an explosion. A ‘minor’ one, as assured by the quarry manager. He blocked access to the explosion-prone area with his old blue truck and invited us into this cabin. Juan, in his forties, with deep blue eyes, is beaming under his shaded straw hat: “Here we carry out explosions several times a day to uncover the marble. It’s often many meters below the surface, and first, we have to clear away tons of rubble and debris." "And how do you know what quality lies beneath?" "Only the quarry owner knows, from his father, and his father knew from his own father, as he helped bring water to the hills with donkeys. Day after day, he listened to the experiences of the ancients with the mountains.”

The quality, color, and usefulness of the marble cannot simply be determined by looking at the chosen mountain. This requires traditional knowledge, meticulous observation of significant traces and lines, the so-called veins or fine cracks in the rock—and a bit of luck! Not only does this type of metamorphic gemstone, formed from tiny fused hard crystals, play a crucial role in mining, but also the underground movement it undergoes. The rock, which may have grown diagonally within the mountain, essentially determines the method of extraction and the machinery used to cut, drill, or blast the marble.

Suddenly, there was a loud explosion. I squinted through the partially open door and saw a squadron of small stones sweeping horizontally over us. The muffled sound of the blast still shook the earth, and a slight tinkling was heard in the air. In echo to the falling rock masses, smaller stones also began to slide down the opposite slopes, with faint noises responding from all directions. A cloud of dust rose and then slowly settled over the quarry.

The Marble Region of Macael is located in the heart of a charming province in southern Spain: Almería. From the southern coast heading north, the road behind Tabernas climbs to Senes. The barren lunar landscape surrounding Tabernas transforms into gentle hills with sparse vegetation. Nearby is Europe’s largest solar energy research center. The dry climate of the highlands has led to jojoba and pistachio plantations in recent years.

But that’s still halfway to Macael. The road winds from valley to valley. Small, quiet villages make you fear the road leads nowhere except to more deserted areas. The landscape is beautiful and constantly changing in appearance. On the hills to the right and left are fields of young almond and olive trees. Terrace fields from past generations climb to the tops of heights that are too arduous for farmers today. On this July day, the sun shines intensely from above, leaving you disoriented by the endless curves. After

more than an hour, mountains appear, clearly altered by human hands, with rubble indicating the extraction of natural rock.

The Macael Region, along with the surrounding areas of Media Almanzora and Murcial, spans a total of 800 km². Its marble provides stable employment for many people and politically represents an important sector of the Andalusian economy. In collaboration with the Junta of Andalusia, substantial investments must be made to increase the potential of these mountains to last for the coming centuries. The Administrative Society manages the interests of marble entrepreneurs to meet growing demand. Long-time marble specialists are traditional craftsmen for whom the techniques of all production phases have become second nature. But they are slowly realizing the importance of investments beyond machinery, such as in training young workers, contemporary marble design, and establishing commercial connections with strong foreign markets, prestige, and a robust infrastructure.

The term ‘marble’ has a wide range of uses in the natural stone industry. “A rock that can be polished and shines!” But even unpolished travertine and granite are considered marble in some languages. This is likely due to the similar method of open-pit mining. The classic ornamental marble, as seen here in Macael, is a primary metamorphic rock with a 95 percent calcite content in small homogeneous crystals. Depending on its origin, the high calcium content breaks down into minerals that give marble its colors and patterns. The whiter the marble, the higher its calcite content. This allows smaller marble debris to be recycled and ground into powder. This crushed powder is sold to the chemical industry, for example, for paints or medicines. “If your stomach hurts, take a pinch of marble powder” is a folk remedy. But when it comes to health, the hardest enemy in the mountains is the extreme climate ‘under open skies.’ Young workers tend to migrate to the processing industry and related areas, replaced in quarries by state-of-the-art machines from Italy, Germany, and Portugal.

"You supply us with the machines, and we’ll provide you with the most beautiful white marble." That’s the policy that should apply to everyone,” the manager tells us. Here, winter is icy and shaded, while summer’s sun shines mercilessly. Constant air currents rush between the rocks, raising fine, light dust.

When an elderly man moved to Madrid at the turn of the century, he bequeathed, among other things, a quarry to his two daughters, Ana and Marisol. It has since been named ‘Anasol,’ and its marble is still quarried today. Each quarry’s name connects it with its history and becomes a registered trademark. High up in the Sierra Filabres is an enormous, hard-to-reach marble. Due to its characteristics, it’s called the Australia Quarry. The Rio Quarry, at whose base the dusty valley meets a fertile green bed, is known for its rich, bright white marble. In addition to mining, two entrepreneurs have also set up facilities for direct marble processing. This saves the costly transportation down to the valley. Seen from above, this Rio valley looks like an enormous playground for older children. Trucks, excavators, cranes, large saws, water tanks, and loud noises often make for an exhausting lifelong ‘game’ for these workers.

Macael marble seems more unknown today than ever. Excavations have shown settlements here since the Stone Age. Clearly carved Roman inscriptions have been found on Macael marble. Roman records indicate that marble was mined in the area until the 3rd century AD. For the naive observer of a steep wall in a deep quarry, this

seems an impossible feat. How could these people, without machines, extract a piece of marble to build a five-meter-high column? Another miracle of humanity. Skillfully placing dry wooden wedges in the fine cracks of the marble and soaking them slowly with water, they would separate the stone in large areas. The blocks were loaded onto ox-drawn carts using rollers and brought down the valley in several stages. The oxen had to be replaced frequently to prevent them from being crushed by the monstrous weight. Back then, moving each piece took far more time than today.

Today, cutting a 2-meter deep and 10-meter-long section with precision machinery takes 12 full hours. Previously, it would have taken many more weeks.

When the Moors arrived in Spain, they found new, exciting uses for Macael marble. Their architects made fantastic use of this homogeneous material. Walls, columns, windows, and arches were delicately decorated, immortalized for all who visit the legendary Court of the Lions in Granada's Alhambra. From 700 to 1500 AD, Al-Andalus systematically extracted marble, which appears in all their famous monuments. In 1752, art historian Guillermo Bowles described it in a major work for Carlos III, mentioning the palace's grandest pavilion, now a sad ruin near Córdoba: the Medina Azahara. Bowles describes a structure supported by marble columns adorned with aquatic motifs, covered in rubies and pearls, with gold capitals and semi-transparent marble walls. In the center, a porphyry fountain filled with mercury reflected sunlight onto the walls, dazzling all present. The Caliph used it to intimidate his slaves, agitating the mercury to produce sudden flashes of light resembling fire. "And there, too, the Caliph admired his sweet slave's beauty…"

After the Moors were expelled, Spain's Catholic Monarchs left the quarries to the local council, which manages them to this day. Quarries are leased for free, and the extracted stone is weighed on a truck at a customs-like office at Macael's entrance, where a percentage is paid according to the weight and value of stones weighing up to 30 tons. Special billing regulations surely apply, or there would be a traffic jam at the scales discreetly installed at Macael's entrance.

In the Sierra quarry, rubble is constantly cleared with large excavators. Trucks with comfortably chubby drivers await their next load. Notified by hand signals amid the noise of compressors, pneumatic hammers, and high-speed saws that sound like sirens, the manager commands constant attention from his employees, given the risks hidden in this work. Fully loaded dump trucks move slowly along dusty paths toward the landfill. This process, too, requires thoughtful organization to prevent valuable marble from falling on other marble that would need to be cleaned again. The landscape has remained unchanged for centuries, and reforestation is a delicate issue here. Before the workers arrive in Land Rover convoys each morning, the valley resembles an open grave, with no sign of life or plant growth. Only stones, stones, stones, and dust lifted into the air by strong winds, drifting horizontally over the land.

The development of mechanical mining since 1940 is incredible, considering that until then, the same labor-intensive methods had been used for centuries.