Mexican Opal

by

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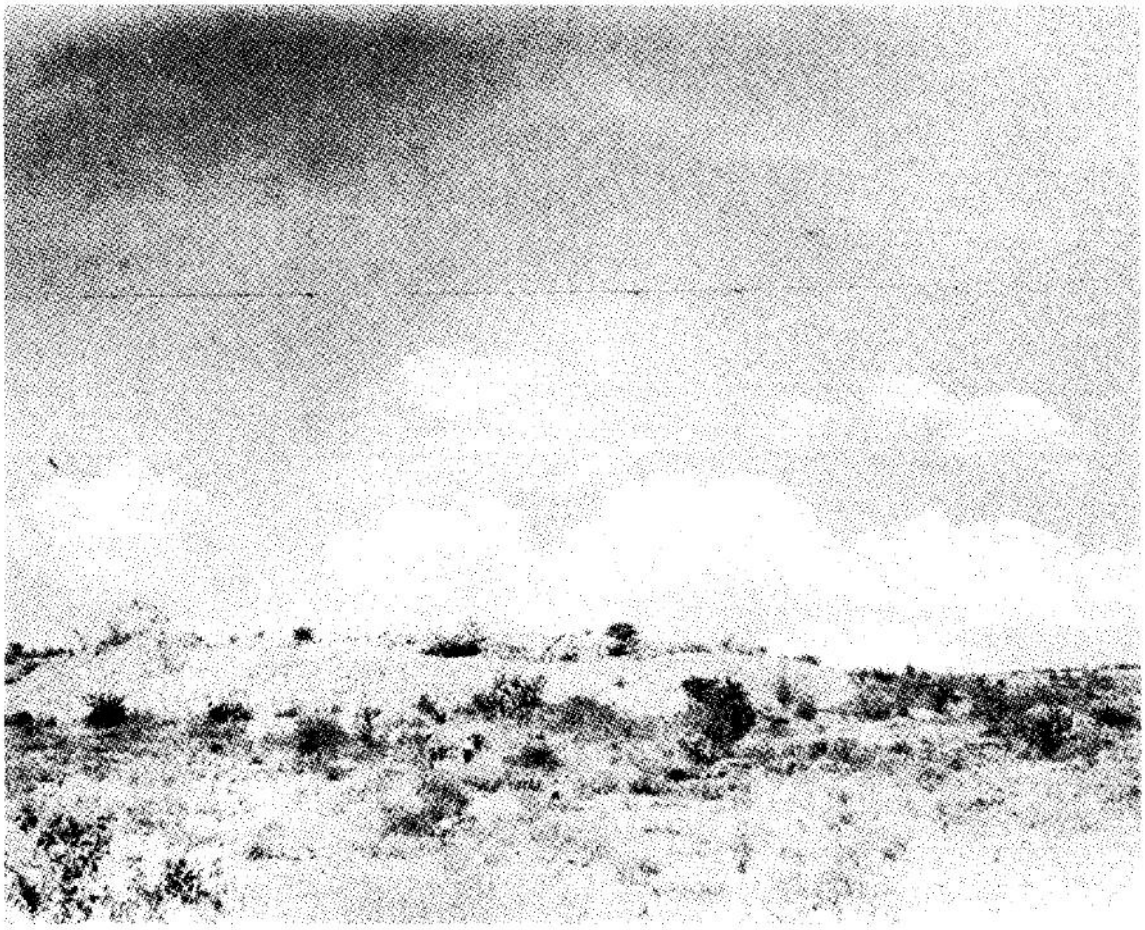
ALTHOUGH the Mexican opal has been an object of trade for more than one hundred years, there exists much confusion and many misconceptions about this interesting gem. Despite the showing of this stone at some of the early expositions, its market in the United States appears to have always been limited. There has been a wide diversity of opinion regarding the merits of this stone. Burnham *(Precious Stones in Nature, Art and Literature,* 1886) said of it: "The fire opal, the most resplendent of all the different kinds of this wonderful gem, is found in the greatest perfection in porphyry at Zimapan." On the other hand Castellani *(Gems. Notes and Abstracts)* is of the opinion that "The common opal is of very little value; the Mexican red is of less; the Oriental is very much esteemed."

The poor reputation of the Mexican opal is probably due, in large part, to the oft repeated statement that it is an unstable stone, quick to dry out and crack. This statement, made in all textbooks on gemstones, is so similar in all its expressions, that one suspects that it has passed down from one "authority" to another without critical examination. My own experience with Mexican opals has been quite the contrary. I have found only one stone which, within a few weeks after mining, showed any appreciable change. This stone, almost transparent in body quality, became slightly milky, thereby diminishing its fire. Hundreds of others show no cracking or deterioration in quality after many years in museum cases and drawers. Rather than being an unstable stone, I would say it is the most stable of the opals.

Perhaps, too, the poor reputation of the Mexican gem results from the widespread distribution of inferior stones, material without fire, or very little of it, leading to the impression that the Mexican opal is a dull and lifeless gem. Fine quality stones are rare and no great numbers are available, even on the Mexican market.

I believe that the connoisseur, who knows the finest examples of Mexican opal, will agree with me that they are not only unsurpassed in beauty, but are unique in character. There is, of course, a difference of opinion as to which variety is the best.

The American trade has shown a distinct preference for the fire opal, the orangy or red-colored stone of translucent body, with abundant interior fire of red and green spangles. There are some dealers who will state, categorically, that this is the only kind that will sell. The *lechosos,* or milk opals, are too similar to Hungarian opals to command much attention. The *azules,* almost transparent with a blue opalescence, and vivid flecks of burning red and cooling green, is a stone of entrancing beauty. In this writer's opinion the *lluviznandos* (you-vees-nahn-does) *(lluviznar*—to sprinkle with rain) is the opal that exceeds all other opals in beauty because of its distinctive and lively pattern of colors. In the high plateau of Mexico



• Esmeralda Opal Mine near Queretaro, Mexico.

there are frequently very local showers during the rainy season. When the sun shines through such a slanting shower each rain droplet reflects its individual minute rainbow, as a shaft of moving color. The *lluviznandos* have this character. Shafts of color, sometimes minute, sometimes bold, penetrate an almost transparent body of bluish or faint topaz opalescence with each movement of the stone.

The Mexican opal, except for the *lechesos*, differs from the better known Australian opal and the now rare Hungarian opal in the limpidity of its body. Only in the *lechesos* does one find the mosaiclike pattern at the surface of a dense white stone. In the more characteristic stones the colors move through an almost limpid body giving the play of colors a movement not shown by other types of opal.

The Queretaro opal, the only Mexican opal available today, is characterized by its particularly vivid red and green reflections. It is unusually rich in a hyacinthine red, while the green has the shade and quality of quetzal feathers. Orange and yellow flashes are less commonly conspicuous.The rare blue is a deep gentian or metallic blue. In general, the colors of the Mexican opal are more varied in a single stone than in other types.

The body of the stone may vary from a clear, almost glassy transparency to dense white opacity. Commonest is a translucent, almost transparent, stone with a pale bluish "water in milk" opalescence or a faint wine yellow color. This may grade to a "thin" milky white, usually with a concomitant loss of fire. The fire opals range from wine yellow, through topaz yellow, resin yellow,

orangy brown to cherry red. There are also dark gray to black opals. The fire may be in broad spangles, small flecks, even pin points of color, or in the shafts of light of the *lluviznandos*.

Naturally black opals, with fire, have been reported. The black opals that are occasionally offered now at low prices are impure white stones that have been carefully heated, a process that turns these impure stones black in color. These heated stones are very brittle and can be broken in two easily between the fingers. This heat treatment has been referred to in some of the earliest accounts of the Mexican opal fields, many years before the Australian black opal was known.

Because of the transparent nature of the stone and the interior fire, a high cabochon is the most appropriate cut, rather than the flat ovals such as one frequently sees in other opals. Large stones are not common, and cabochons an inch in diameter would be considered large stones among Mexican opals. The fire opals without fire but of good topaz yellow or orange color are sometimes faceted, usually step-cut. They are soft and brittle, and except for interesting nuances in color have nothing to commend them.

The prices asked for Mexican opals are usually much lower than those asked for Australian stones of equal or comparable merit. Most of the best quality stones find their way to dealers in Mexico City. Weston's Curio Shop, on Avenida Madero, often has fine stones to offer. Prices in Mexico City are double those of Queretaro, where the stones are cut. Before the war, German and particularly Japanese buyers visited Queretaro and often purchased good stones. Fine stones found their way into the United States only haphazardly. Prices in Queretaro varied enormously according to quality. Polished opal, without fire, could be purchased for as little as five cents; fine large pieces of best quality would fetch several hundred dollars. It has been reported that as early as 1890 some stones sold for as much as $3,000. Bargaining is the rule in trading with the lapidaries, but a concession of 20 per cent was hard to obtain. Purchasers are sometimes invited to a "sight" at five o'clock, when the evening light shows the stones to best advantage. A small table, covered with a black velvet cloth, and covered with a selection of fine opals is something to admire under these conditions.

Opal vendors meet all trains at the Queretaro railroad station. Junk opal and imitations are freely offered, but never good stones. Initial prices are high, but drop rapidly as departure time approaches, until, at the "all-aboard" signal no reasonable offer is refused. Since cherry red stones, even without fire, are in good demand, considerable automobile taillight glass changes hands at the stations. Another good sales item is a glass "replica" in which two pieces are joined together by an iridescent film. Many station dealers have added "amethyst" and "aquamarine" to their stock in trade .

To find good opal one accompanies a station merchant to his home where the fine stones are held for the regular buyers. In order to inspect a reasonably good assortment it is necessary to arrange a sight a month or two in advance in order to give the lapidary an opportunity to accumulate sufficient stones for a fair showing. Today it is difficult, even under these arrangements, to find an outstanding stone. Some fine gems can sometimes be found at Tequisquiapan, a supply point for the Carbonera Mine, and perhaps occasionally at San Juan del Rio, a town on the Queretaro-Ixmiquilpan highway. Almost all the rough, however, finds its way to Queretaro, where it is cut, polished and marketed.

The Queretaro opal was first discovered by a servant of the Hacienda Esperanza in 1855, but there was no production until 1870 when Don Jose Maria Siurob of Queretaro located the Santa Maria Iris Mine. The fine stones secured during the next few years stimulated considerable activity. Many spots were in operation at one time or another, but within the last few years only the Carbonera Mine, not far from San Juan del Rio, and accessible

• Opal cutters at work in the patio of their home, Queretaro, Mexico.

most easily for Tequisquiapan, has been in operation.

Perhaps most famous of the opal mines is the Santa Maria Iris Mine, on the Hacienda Esmeralda. The mine is a wide opencast on a low rhyolite ridge, lying immediately by the side of the Queretaro-Cadereyta road. The broken rock on the mine dump shows abundant "pinta" or spots of precious opal. This mine was the largest and richest of the area, and produced a wide variety of opal of superior quality.

Mineralogical literature mentions a number of localities in Mexico as yielding opal. Principal of the early recorded places is Zimapan, state of Hidalgo. Today one cannot find an opal in Zimapan, nor is there any knowledge of any nearby productive place. Since Zimapan is on the principal tourist road to Mexico, it is more than likely that any nearby source would be diligently exploited. It is not unlikely that the source of early Zimapan opals was part of the region that now supplies Queretaro with rough material, the change being induced by the arrival of the railroad to Queretaro. This opal-bearing area occupies a zone of low rhyolite hills that extends from the vicinity of San Juan del Rio to Colon, in the state of Queretaro. The city of Queretaro is the trade center for this area. The rhyolite in which the opals are found is a rather soft reddish or flesh-colored rock disposed in an accumulation of rather thin lava flows. In many places this rhyolite shows an abundance of lithophysal or irregular steam cavities and it is in these cavities that the opal occurs as a later silica filling. Sometimes the opal does not completely fill the cavity but

forms a loose concretionary mass resembling a dried prune or almond in shape. If such a nodule should show much fire, a gem of the highest quality results. Usually the opal is well attached to the rhyolite, in which case the matrix must be chipped away. Masses as large as a hen's egg have been reported but they are very rare. Certainly a mass as large as a pigeon's egg would be considered an excellent find. Much material recovered is, of course, worthless, or nearly so. High quality opal is extremely rare.

The opal mines are worked as open quarries. The rock may be broken down by dynamite, or black powder, and then stacked in a pile to be broken and sorted later under the supervision of an overseer. The rock is broken into a two-inch size or less in order to explore all reasonable possibilities. Usually the cavities of the lithophysal rhyolite are completely filled with opal, intimately joined to the rock. Sometimes the opal occurs as loose nodules in the cavities. Such nuggets may produce the finest opal, for they remain undamaged by breaking away the matrix. On the other hand they sometimes fracture upon grinding. I have seen such loose nodules as large as a pullet's egg.

About once a week, when the mines are in operation, the rough stones are taken to Queretaro and sold to the cutters. Cutting is a home industry, the master of the house, sometimes aided by a son, being the sole gem-worker. The cutters fashion the stones on foot-operated grindstones, shaping them to a symmetrical cabochon. The stone is then further prepared on sandpaper disks of increasing fineness on a hand-operated wheel and the stone finally polished on a soft rough leather or chamois lap.

Other Mexican localities have been mentioned but now yield no gem production. In fact, opal occurrences in these localities are generally unknown to the inhabitants of the places today. Opal of the finest quality was reported as occurring near Huitzuco, Guerrero, once a famous quicksilver mining town. The opal was described as having rich red and green fire. A particularly rare and beautiful form had a dark bluish gray, almost black, body illuminated by intense red reflections. Topaz yellow and pale reddish opal with red, green and yellow reflections was said to occur in a feldspar porphyry near San Nicolas del Oro, a small gold placer mining district in a remote corner of the same state. I have seen a specimen of milk opal with good fire at Coacoyula that came from nearby highly silicified rhyolites, but no commercial supply was evident.

Good opal has been reported as occurring in the Barranca de Tepezala, in the Cerro de las Fajas, Hildago; Tlaxiaco, Oaxaca, and Sierra de Mezquital, San Luis Potosi; all in rhyolitic rocks. Very large masses of pale salmon-colored common opal, very clean, pure and fractureless, has been found near Sisoquichic, in the Sierra de Tarahumare, in western Chihuahua.

The Mexican opal was known to the early Aztecs. Sahagun in his *Historia general de las Cosas de Nueva Espana* described the stone known to the Aztecs as *quetzalitzlepyollotli* as a "stone which appears to have many colors, and varies with the direction of the light; it is precious by reason of variety of its colors with the light." Specimens have been recovered from ancient tombs, and examples of the stone are to be found in the collections of the National Museum of Mexico. None found so far are important for size and quality. Occasionally an opal is offered on the market with the fantastic claim that it was once the possession of Montezuma. The invoices of precious objects sent by Cortez to the Emperor Charles do not list any such stones, although numerous objects of jade and turquois were included.

The Mexican opal certainly deserves a far wider acceptance in the trade than it now receives. In order to assure a steadier supply to support a wider market, higher prices are necessary to encourage the miner to search for and mine this very desirable stone. And much higher prices for this top quality stone are, in this writer's opinion, certainly warranted by the unsurpassed loveliness of this unique gem.