

IT IS upon the mines of the Republic of Colombia that the markets of the world depend for their supply of the precious stone of the beryl variety known as the "emerald." From this country the most valuable single emerald of modern times was obtained, now forming one of the gems of the collection of the duke of Devonshire. This is a perfect hexagonal crystal, weighing 8 ounces and 18 pennyweights, 2 inches in length, and measuring across its three diameters $2\frac{1}{2}$, 2 15 and $1\frac{1}{2}$ inches. Another fine specimen, in the Hope cabinet, weighs 6 ounces, while larger but less valuable stones are in various royal jewel caskets.

The old name of emerald, a development of the Greek verb meaning "to shine," is the origin of the present designation of the emerald. Its Spanish name, esmeralda, forming the connecting link. There can be no doubt that many ancient writers confounded, under the general classification smaragdus, several distinct minerals of green color, such as true emerald, green jasper, malachite, chrysochloa, green fluor spar, etc.



SHAFT TO MEMORY OF INDIANS

Monument Erected as Tribute to Pottawattemies Unveiled Near Plymouth, Ind.

Plymouth, Ind.—The seventy-first anniversary of the removal of Chief Menominee and his band of 859 Pottawattemies from Marshall county, Indiana, was marked by the unveiling of the first monument ever erected to an Indian through state or federal appropriation.

The shaft is at Twin Lakes, five miles from Plymouth, and is in memory to the aborigines that once held the Hoosier hunting grounds. The ceremonies were witnessed by hundreds. The granite was unveiled by Miss Julia Quakno Pokagon of Hartford, Mich., a granddaughter of the famous Pottawattemie chief, Pokagon, who died not long ago.

The monument to the memory of the Pottawattemie Indians is the result of consistent work on the part



Pottawattemie Monument.

of Daniel McDonald of Plymouth, who, as a member of the Indiana legislature in 1907, secured an appropriation of \$2,500 for the purpose.

The site is one of the beauty spots of nature. It is near where the old Indian chapel was built, under the direction of Father Baden, in which Menominee and his band, who had embraced Christianity, worshipped for many years. The monument was cut from Vermont granite. The pedestal is ten feet high, surmounted by the statue of an Indian seven feet high, in native costume. It is near the center of the Menominee reservation.

The story which leads up to the monument's erection is briefly told. In 1832 a treaty was made with some Indian chiefs by which they ceded their lands to the United States for \$14,000 and agreed to remove to Indian Territory within two years. Menominee refused to sign this treaty or release his land to the government. When the Indians who had signed the treaty were ready to remove another attempt was made to get the Menominee lands.

A council was called at Twin Lakes and after considerable discussion Col. Pepper, the Indian agent, told Chief Menominee that he would have to release his lands and remove peacefully or be forcibly evicted. Then Menominee arose, drew his blanket around him and with dignity and eloquence that would have done honor to famous Chief Logan, rebuked the white man for usurping the country. The council adjourned without result.

Later the Indians were accused of molesting the white men. They were surrounded by the military and forcibly evicted. It was a sad scene. The village was wrecked. Mass was sung in the little chapel by Father Baden, the first Catholic priest ordained in Indiana.

On September 4, 1838, the procession started south. Many Indians fell ill. The soldiers were unsuccessful and finally withdrew in favor of the priest. Father Baden fulfilled his mission and his journey, but on his return he died. His body now lies at Notre Dame.

The Wolf in Sheep's Clothing.

A wolf, clothing himself in the skin of a sheep, and getting in among the flock, by this means took the opportunity to devour many of them. At last the shepherd discovered him and cunningly fastened a rope about his neck, tied him up to a tree which stood hard by. Some other shepherds happening to pass that way and observing what he was about, drew near and expressed their admiration at it. "What!" says one of them, "brother, do you make hanging of a sheep?" "No," replied the other, "but I make hanging of a wolf whenever I catch him, though in the habit and garb of a sheep." Then he showed them their mistake and they applauded the justice of the execution.—Aesop (seventh century B. C.)

Make Good Husbands.

Countess Carle Dentiel Di Frasso, who was Miss Georgiana Wilde, and formerly lived in St. Louis, says that foreigners are much kinder to their wives than the Americans. Her husband works as hard as any American man, she says, having his business and being a member of parliament. And yet he finds time to come home for luncheon and see his wife several times during the day. The distances in Italy, she says, are just as great as in New York, and an American business man would never think of going home to luncheon. A European man in politics depends upon his wife's aid to further his aims, and when in business he reasons that two heads are better than one, and is willing to concede that his wife's intelligence is equal to his own. This mental intimacy, she says, makes the marriage of American girls and foreigners, as a general thing, very pleasant, and is the reason for fewer divorces abroad than in this country.

were obtained in the barren district of Atacama and worked by the native lapidaries with a marvelous skill. In the Manka valley of Peru the Indians appear to have paid divine homage to a magnificent emerald of the size of an ostrich egg, which they named the Goddess of Emeralds. As these gems were reputed to be peculiarly acceptable to the goddess, offerings of great beauty and value were frequent, and many costly stones, some possibly from the adjacent Colombian territories, fell into the hands of the Spaniards.

Ecuador also contributed its share of emeralds to the spoils of the invader and the town Esmeraldas is supposed to have obtained its name from the precious stones found so

among the most valuable properties within the Republic of Colombia. At the time of the Spanish conquest the Muzo and other deposits were exploited in a primitive manner by the Indians, and since that period the stones from Colombian mines have been unequalled in richness of color and brilliancy.

The mines of the republic occur in groups, each covering a considerable area and consisting of several veins or deposits. All are situated within the radius of a comparatively small number of miles, at altitudes between 2,000 and 7,000 feet above sea



DIAGRAM SHOWING EMERALD MINES OF COLOMBIA

level, amidst the precipitous heights of the eastern cordillera of the Andes. They are all within 100 miles of Bogota, the capital of Colombia, the district being reached by a journey from the capital of two hours by rail and two or three days on mule back.

The Muzo group is the only one that has been worked in recent years, but complete data as to the quality and value of the emeralds mined are not issued to the public. The output has varied considerably from year to year as lessees have been more or less fortunate in striking productive veins. Estimates of production vary from 326,600 carats per annum to 768,936 carats. At the latter figures the annual valuation of the stones mined would be about \$900,000. A French company at one time holding the lease of the mines is reported to have worked for 14 months without finding a stone and then to have obtained enough emeralds in a comparatively short space of time to pay the rental for the full term of the lease.

The Muzo mines are about 75 miles north of Bogota, in the state of Boyaca, and extend over an area of about 140,000 acres, of which only about 50 acres have been exploited in the last 25 years. Their general appearance resembles an inactive volcanic crater in the sides of which the emeralds are found.

Close by is the Cosquez group, though at a somewhat greater elevation, covering an area of nearly 5,000 acres. It is from these mines that the Spaniards obtained many of their gems.

The Cuincha mines are about 6 miles east southeast from the Muzo group.

The Somondoco or Chivor group consists of five separate mines, about 80 miles east northeast of Bogota, situated at an elevation of 6,500 feet above sea level. At the time of the conquest, the group was being worked by the Indians, and the Spaniards continued the work, but in the subsequent struggles their location, as in the case of the Cosquez group, was lost.

The Muzo mines were first made known to the Spaniards through Capt. Juan Penagon, and the first scientific examination made in 1764 by Jose Antonio de Vallegas y Avedano, who rediscovered the large vein that had disappeared and arranged for its exploitation. Prior to this, however, Francisco Tobar Alvarado worked the mines and presented the king of Spain with a necklace containing 25 stones valued at that time at \$10,000. Organized work in the mines was carried on under control of the Spanish government until 1793, when they were rented at public auction.



WASHING DEBRIS FOR EMERALDS IN COLOMBIA

The true emeralds of the ancients are said to have been obtained from the workings of Mount Zabarah, in upper Egypt, although the reopening of the mines in the nineteenth century by Mehemet Ali did not prove commercially profitable. In this district was probably mined the jewel adorning the breastplate of Aaron, described in Mosaic writings and forming part, possibly, of the spoils carried from Egypt by the departing Israelites. Of Egyptian or Ethiopian origin is, undoubtedly, also, the remarkable emerald in the papal tiara, one inch in length and $1\frac{1}{2}$ inches deep, and which formed part of the pontifical treasure prior to the discovery of America and the subsequent appearance of Peruvian gems in Europe.

The huge emerald used by Nero, in keeping with the belief of the times as a corrective for his poor vision; the engraved emerald set in gold presented by Ptolemy to Lucullus on his landing at Alexandria; the robes worn by Cleopatra and other famous beauties of the past, whose embroideries were interspersed with emeralds; and the exquisitely graven seals of antique workmanship on view in museums and private collections all prove the esteem in which the jewel was held. Ornaments of emerald have been unearthed in Theban tombs and excavated from Pompeii and Herculaneum, and in all ages the stone has been classed among the rarest of gems.

Various virtues were ascribed to it by ancient traditions; it was regarded as beneficial to the eyes; effective against evil spirits; and in the east it is still accredited with talismanic and medicinal qualities.

Immense emeralds are mentioned by ancient authors, but they were doubtless either less precious stones or glasslike imitations. Such was the colossal statue of Serapis; also an obelisk in the temple of Jupiter, 60 feet high and 6 feet broad.

The oriental emerald is not, however, like the western emerald, a silicate of alumina and glaucina. It is more valuable and is a green, transparent variety of corundum, and therefore nearly pure alumina, differing from the sapphire only in color.

Peruvian emeralds were famed from the time Pizarro sent the first specimens to Europe among his spoils of conquest. Many

abundantly there. Among the Aztec treasures of Mexico were emeralds as fine as those of the Peruvian Incas, and it is reported that Cortez was offered 40,000 ducats for one of these stones by some Genoese merchants. The Mexican gems were exquisitely cut, and it is from this source that the magnificent emeralds now forming part of the royal collection at Madrid were supposedly procured. The term "Spanish emerald," as applied to a very high-grade stone, might quite appropriately be altered to "American" emerald.

Sections so far apart as Siberia, India, Salzburg in Austria, Australia, Norway, Brazil, Ireland, and parts of the United States yield certain returns from emerald exploitations, but it is from the Muzo and Cosquez deposits near Bogota, in Colombia, that the gems of greatest beauty and perfection are obtained.

The exploitation of Colombian emeralds is under the control of the government, and the celebrated mines at Muzo, or Muzza, have recently been leased to an English syndicate which agrees to sell at least \$1,250,000 worth of stones each year for 20 years, the lease in the original call for bids being valued at \$360,000 annually. The sales are to be under government inspection, and competition is practically impossible by reason of legislation forbidding the sale of uncut stones and by the imposition of taxes on privately exploited mines.

The value of emeralds depends first, upon deepness of color; second, upon brilliancy; third, upon freedom from flaws; and fourth, upon size. While reckoned inferior only to the diamond and ruby, it does not, like them, increase in value in proportion to the cube of its weight.

One feature of emerald mining which adds greatly to the value of the gem is that flawless stones are seldom found in any considerable size. For an exceptionally fine variety of six carats the price of \$5,000 has been paid, but stones of such character are rare. By Heudant the value of emeralds of fine color and free from flaws is given as follows: Four grains, 100 to 120 francs; 8 grains, 240 francs;

15 grains, 1,500 francs; and he cites one fine stone of 24 grains which was sold for 2,400 francs.

The emerald is transparent or translucent, being brittle and comparatively soft when freshly mined, but becomes much harder on exposure to air. The gem is cut on a copper wheel with emery and polished on a tin wheel with rotten stone. In a good stone the surface must be perfectly straight and smooth, the form usually given being that of a square table with the edges replaced, the lower surface being cut into facets parallel to the sides.

The Colombian gems exhibit to the highest degree the qualities of color, brilliancy, flawlessness, and size characteristic of the best emeralds, and the Muzo district is at present the principal source of supply. The matrix in which they are embedded overlies a great precipice of black shale or slate. This black rock contains few stones. They are found for the most part in white calcite running in veins through the slate, some being embedded in the matrix, and others lying in pockets.

Under great heat and pressure, due, no doubt to further and subsequent volcanic action, these minerals in the fissures or veins have crystallized in different shapes and forms according to the various minerals contained in any particular vein or fissure. Under favorable circumstances, the most beautiful emeralds of a deep green color have been found in these small veins, the tint being due to the presence of chrome in sufficient quantities. In other veins, the emeralds found are of a light green color, owing to the absence of sufficient chrome. Again, in other veins, where no chrome is present, the crystals are pure white or colored red or yellow by oxide of iron. Many of the crystals are pure silica, and others have various minerals combined with silica.

The emerald mines are unquestionably



EMERALD BEARING DEBRIS