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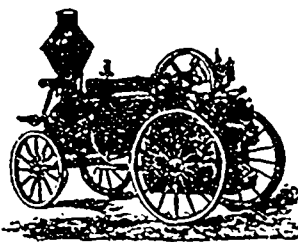
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MINING.

THE EL CALLAO MINE, VENEZUELA.

Written for the Engineering and Mining Journal by Barry Searle.

The greater portion of Venezuela that lies south of the Orinoco River is of Plutonic or metamorphic origin, principally composed of granite, syenite and gneiss, with many belts and dykes of diorite, in which quartz ledges abound, nearly all carrying more or less free gold and a very small percentage of sulphurets. Of this wide territory, which embraces an area of some 50,000 sq. miles, the mineral resources are practically unknown, excepting in a small mining camp at the head of the Yuruari River, in the old Yuruari Territory (now State of Bolivar, annexed in 1891), where since 1866 gold mining has been carried on systematically. These workings represent the entire gold mining industry of Venezuela up to the present time, they having produced over \$42,000,000, more than one half of which came from the famous El Callao mine. This mine has been worked continuously since 1866, when two Spaniards while hunting upon the right bank of the Yuruari River discovered the outcrop. Soon a small company was formed, composed of 10 shares, and an effort made to work the vein in a crude way. This succeeded for a short time, but reaching a point where machinery was indispensable, the shares became depressed, and were sold for a song, one being exchanged for a demijohn of rum. Soon Senor Luccioni and other prominent men in Venezuela became interested, and got control, when the usual process of reconstruction, introducing machinery, etc., was carried out. The first five stamps being put up in 1871, in time to crush 315 tons of rock, which yielded 6 25 oz. per ton.

To the end of 1874 they had milled 9,632 tons, yielding 4 38 oz. per ton. Up to this time the mine did not pay expenses of working and improvements made, but in 1875 an additional 15 stamps were started, and in the year 11,859 tons of rock, yielding 2.63 oz. a ton, were crushed. Out of this were paid 20 dividends upon the capital stock of 32,200 shares, amounting to \$128,800: from this time it has prospered as few gold mines have. The stock was put upon the London Stock Exchange, and many fortunes were made by the lucky ones that got in on "the ground floor," as shares went to nearly four times their par value, and paid dividends up to the end of 1886 amounting to \$9,138,360; in 1886 alone paying \$2,202,480 on 2-3 the gross yield. This was its greatest achievement as a dividend producer, which, evidently, to this time had been the foremost consideration, as they had practically exhausted the rich pay shoot, having followed it from the surface downward, carrying about 600 ft. on the strike of lode, which was here N. W., and S. E., and dipping to the S. W., on an angle of about 35 deg. There was mined an area of 54,025 sq. metres, producing 309,786 tons of quartz, yielding 1,092,055 35-100 oz. of gold (Eng. standard, .916 2-3) an average of 3.52 oz. per ton.

In 1885 connection had been made with a vertical shaft (No. 6), which cut the lode at a vertical depth of 207 metres, and at a very promising point, showing an 8 to 10-foot vein carrying heavy gold. This gave much encouragement, but with all the past success and future promise, the mine beyond this shaft disappointed all concerned, for the vein, instead of continuing downwards as anticipated, suddenly took an upward course on an angle of about 10 deg. This, together with the fact that the vein was very much contracted, and of a much lower grade than on the east side, prepared the management for what was to follow, and stimulated them to vigorous efforts in the endeavor to continue the output of gold and the distribution of dividends.

They pursued a liberal system of exploration in the hope of developing equally rich rock as they had mined, but in this they were never successful; however, in 1887 they succeeded in paying \$296,240 in dividends on 1.1-z. rock, having reduced the expenses per ton from \$40 in 1883 to \$13 84 in 1887. This saving was partly through the improvements in machinery, and partly in the more economical management. Since 1887 the mine has been striving hard to pay expenses, and for three years succeeded in paying \$231,840 on 0.9-oz. rock.

Explorations had been pushed in every direction, which for the four years ending with 1890 had cost over one half million dollars, and represented over 3½ miles of drifting, cross-cutting and sinking. The No. 6 vertical shaft had been sunk 110 metres below the main filon (making a total depth of 340 metres), and explorations from this shaft were carried in every direction without developing any pay rock. The drifting on the main filon exposed only low-grade rock on a pinched vein of fair average, but had demonstrated that the lode was of a basin shape. The outlook in the history of this mine was never so dark; there was not sufficient pay rock in sight to keep the 60-stamp mill running, and it became necessary to discontinue the exploration work in the bottom of the mine, and practically on the main filon. All expenses were reduced as much as possible, and the greatest economy and energy exercised throughout the year of 1891, bringing the cost per ton to \$10, running on 0.6-oz. rock. This is considered by all those who know the difficulties to contend with, as excellent results, and justly gives the Supt., Mr. Geo. E. Webber, Jr., great credit for the successful manner in which he has handled the mine at such a critical time. What the future may bring forth in this mine remains to be seen. The gold is unevenly distributed in the lode, which is very pockety, always opening out, most opportunely, into rich rock, in some condemned portion of the mine.

I do not look for any great reduction in the cost per ton unless the mining interests are consolidated, which must eventually be done; none of the companies are now making any money for their shareholders, and I believe all will favor a proposition now under consideration, i. e., to consolidate under one management a number of the best properties, build a narrow-gauge railroad to carry all the rocks to El Callao, when a 200 or 300-stamp mill can reduce it at a much less cost than can ever be done in small mills.