de Hora, Manuel Herrera. **The Gold Placers of Antioquia, Republic of Colombia, South America.** Bulletin American Institute of Mining Engineers. July 1913. p. 1197.

Colombia is the least known and least developed of the South American republics, it is far and away the richest mineral country of them all." This to American investors is extremely interesting, as the country is the most accessible of all the South American republics from the United States.

Almost all of the gold shipped by the Spaniards from Madre de Dios, now Colon, came from Colombia, and statistics from the Mint at Medellin, the capital of the Department of Antioquia, go to show that the total production of the precious metals of Colombia, dating from the Spanish conquest in the fifteenth century to the present time, aggregates the enormous total of \$700,000,000. Of this amount, nearly 70 per cent, represents gold obtained from the placers of the Republic, more than one-half of which came from the Department of Antioquia, the balance being divided between the placers of the Choco and the rest of the Republic. The remaining 30 per cent, of the \$700,000,000 represents the silver and gold obtained from the quartz mines, the silver greatly predominating.

A glance at the map of Colombia shows the territory somewhat in the shape of an outspread human left hand extended palm downwards on the paper, with the wrist adjoining the Republic of Ecuador, the bones of the hand, fingers, and thumb representing the divisions of the great Andean mountain chain known as the Cordilleras of Colombia. The first finger represents the Eastern Cordillera, with the thumb as the extension to the Nevada de Santa Maria, forming the boundary between the republics of Colombia and Venezuela. The middle finger represents the Central Cordillera, between which and the Eastern Cordillera lies the valley of the Magdalena. The third finger represents the Western Cordillera, between which and the Central Cordillera lies the valley of the Cauca, with its numerous tributaries, the most important from the miner's point of view being the Nechi, with its tributary, the Porce. The little finger of the hand represents the range of coast, hills on the Pacific slope, between which and the Western Cordillera is situated the district known as the Choco, containing the valleys of the San Juan and Atrato rivers. This district is mainly celebrated for its richness in platinum as well as gold; but the unhealthiness of its climate, and the difficulty of working the deposits owing to the dry seasons and the torrential rains during the wet seasons, make it anything but an ideal place for the investment of capital, although it is very rich in precious metals.

In my opinion, there is no part of the world so favorable for investment and so attractive from the gold miner's point of view as the Department of Antioquia. That portion of Colombia is undoubtedly the most mountainous and broken portion of the Republic, and while it is almost impossible to find a mother lode—that is to say, a true fissure vein;—the whole country rock is more or less enriched with the precious metal; which as denudation goes on is gradually being concentrated in the innumerable creeks and rivers which intersect the mountain chains in all directions. A glance at the sketch map which accompanies this paper, Fig. 1, will make my meaning plain to any one. Most of the gold recovered has traveled very short distances, the reason being that during the rainy seasons, of which there are two per annum, the rocks of the country, consisting mainly of granites and schists with occasional sandstones, become thoroughly saturated on the surface with moisture; the rainy season passes; the tropical sun

comes out; the rocks dry up and pulverize, and aerial denudation sets in; the light particles blow away, leaving the heavy particles, mainly the precious metals and gravels, to be washed down the hillsides into the streams during the next rainy season.

Most of the river beds contain gravels of a depth of from 10 to 30 ft., carrying gold values from the surface dowuwards. These gravels generally average from 5 to 15 and even 20 cents per cubic yard until the last 2 or 3 ft. immediately above the bed rock is reached, when the values rise from \$1 to as high as \$5 and even \$10 per cubic yard. Of course, what I call the pay streak varies in thickness and values, but a fair average thickness is from 2 to 3 ft,, and a fair average value from \$1.50 to \$2 per cubic yard.

Hydraulic mining in Colombia is practically a thing of the past, not so much because there are any restrictions or laws against it as that the old Spaniards, with their abundance of slave labor, practically worked out all the available ground, with dump for tailings. It is true that there are a few Americans making good money by hydraulicking by using elevators, but even ground suitable for elevators is very scarce. The future of the enormous placer deposits of Antioquia lies in dredging. It is a dredgeman's paradise. The gold is

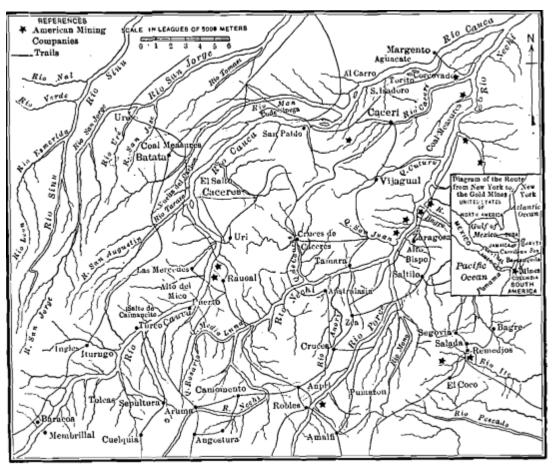


FIG. 1.—MAP OF THE NECHI, PORCE, AND CAUCA GOLD REGIONS, DEPARTMENT OF ANTIOQUIA, COLOMBIA.

neither rusty nor float, but is invariably of the kind known as "shot," small, with an absence of large nuggets, easily recoverable, and, more important, averaging from 930 to 950 fine. The gravels are not tight; there is very little clay; they disintegrate easily and are characterized by an absence of large boulders. Most important of all, owing to the friable or disintegrating nature of the country rock, the bed rock on which the gravels rest is so soft and rotten that the lips of the buckets cut it like cheese; consequently there is no loss attached to the recovery of the pay streak. Another point that militates in favor of the dredgeman is that, owing to the magnificent distribution of water courses, there are no sudden rises or wash-outs during the rainy season; consequently the dredge is never in peril. There is an abundance of wood on almost every claim for mining and fuel purposes. Labor is cheap and good when, properly handled by men who speak the language and know the country.

The Colombian mining law is the most liberal in the world, and the simple payment of 20 years' dues in advance on each claim secures a title in perpetuity equal to a United States patent, but obtained without representation work or any of the irksome preliminaries required by the United States Land Office; and all for a sum averaging between \$500 and \$600 for a claim covering in area a league of 5,000 m., roughly equal to 3 miles.

Lastly, as to the climate; in my opinion, there is no danger to North Americans or Europeans who are healthy by nature and lead a clean life. Yellow fever has been unheard of for years. It is true that there is a certain amount of malaria; for that matter, so there is in New Jersey and of a more malignant form; but any one taking the precaution to sleep under a mosquito bar runs very little risk of infection. In my opinion, the reason why people from the Northern countries do not keep well in the tropics is that they are given to leading too easy and too luxurious a life, trusting to their native servants to do everything for them.