

## MISCELLANEOUS. NEWS

Written for this Paper.

## QUEER FACTS ABOUT GOLD.

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MET here the chief American agent of the cyanide process for reducing gold. The process is patented, and the agents of the Scotch firm who own the patents are now to be found in all the gold regions of the world putting up mills. The American agent told me that he had recently contracted for mills in Montana and Nevada, and that a number were going up in Utah, Colorado and Arizona. In Juab county, Utah, the old dumps of gold mines are now being worked over by means of cyanide, and the same is to be done with many of the abandoned gold mines of Mexico. I am surprised at stories I daily hear as to the new developments of our gold territory. The old districts are being reprospected, and from the results it is safe to say that the best of our mining regions have not as yet been touched. The great mountain chain running from Alaska to Nicaragua seems to be an almost unbroken mineral bed. Gold and silver are found in the continuation of the chain in South America, and miners are working today at intervals all along the western part of our hemisphere from the Yukon river even to Patagonia.

The most of the gold which has made the world rich in the past has come from nuggets and from veins so large that you could see them. The flood of the precious metals which is now beginning to deluge the earth comes from infinitesimal particles, so scattered through the rock that not a gleam nor a glint of them can be detected by the naked eye. According to some scientists this gold has been deposited in the rock in the form of gas. Ages ago, say they, there was an eruption in the bowels of the earth, at which time this gas mixed with gold rushed up through the vertical fissures with great force and soaked its way into the porous rock in which the gold is now being found. It was by this means that the little bits of gold were dropped throughout the rock, the precious particles being so small that they could not be detected. Many of the old miners had no idea of their existence, and their extraction now is only possible by means of the cyanide process. There is plenty of gold in salt water. Scientists say that gold is generally diffused in the waters of the ocean, and one eminent chemist states that the sea water of the British coast contains one grain of gold to every ton of water. The proportion is much larger in the Great Salt Lake, and the man who can invent a cheap process of getting out such gold will have a fortune.

Few people have any idea of the queer forms in which gold is found. Dame Nature is the most wonderful of jewelers, and she has decorated the bosom of old Mother Earth with gold in

a thousand different shapes. I saw a box of gold nuggets and crystals taken from the Little Johnnie mine near Leadville. Many of them would have made beautiful brooches without redecoration. Some appeared frosted, and others had been torn from the rock in the form of sheets and plates. A great deal of Gold is found in crystals. Not long ago there was brought to the Philadelphia mint four thousand dollars' worth of Australian gold. It was made up of little gold crystals, ranging in size from that of a marrowfat pea to that of the head of a pin. Gold is also found in cubes and eight sided crystals are common. Some of the gold nuggets from the California mines are shaped like moss. The Little Johnnie has produced a great deal of wire gold. I have seen bits of rock from Cripple Creek upon which when subjected to an intense heat the gold would bubble out and stand up like little gold pin heads upon the dark stone. Gold in its natural state is usually mixed with silver. The new Utah gold deposits are associated with arsenic. In the Mercur mine you find the yellow ore in connection with quicksilver, and in South America it is sometimes mixed with bismuth.

I have spent some time watching the placer miners in different parts of the west. Placer mining was the chief source of gold production in the days of 1849. It is still carried on, but the output is much less than in the past. The chief placer mines of today are in Siberia, where the earth has sometimes to be dug up in a frozen state and melted before the gold can be extracted. This is the case in some parts of the Yukon river mines. The fact that there is a gold placer is an evidence that there is gold-bearing rock near by, and miners pretend to tell from the character of the gold of the placer as to the nearness of the gold bearing rock from which it comes. If the gold dust is very fine it is supposed to have been carried a long distance. If coarse, it is thought that the lead is not far off. Some of the first mining of California was of gold scales which measured less than 1/16 of an inch in length and one millimeter in diameter.

Placer miners usually find their biggest nuggets in streams where the boulders are large. Where the streams are fine gravel the gold is generally small and scaly. The biggest nugget ever discovered in this country was taken out of a mine at Carson Hill, in Calaveras county, California. It weighed 195 pounds and was worth more than \$43,000. A number of other large nuggets were found in this same region, ranging in value from \$1,000 upward. In 1855 a nugget of gold was discovered in Sierra county, California, worth \$10,000, and in 1850 a mass of quartz and gold was picked up in Tuolumne county which was worth \$30,000. Outside of California some of the biggest lumps of gold discovered in the United States have come from the south. North Carolina has produced three nuggets ranging in size from 13 1/2 pounds to 37 pounds, and in Georgia a number of big nuggets have been discovered, the largest of which weighed 737 pennyweights.

Through the mining engineers whom I have met here in the west and infor-

mation which has recently come to the director of the mint at Washington, I am able to give some facts as to the mines of Africa which are making such a change in the gold product of the world. These gold mines are a surprise to geologists. One famous man said that he would have rather expected to find gold in the fens of Scotland than in the Rand district of South Africa. Mr. William Weston, a leading mining engineer of Cripple Creek, and a graduate of the royal school of mines of London, tells me that he believes that the South African gold deposits originally consisted of the bed of a great lake, which, having been dried up and solidified, was by the action of the elements so heaved up that it stood half on end. The upper part of this great gold deposit is now being mined, but as the region is further developed the miners will have to go deeper and deeper into the earth and the cost will be much greater. As it is, the prospects of an enormous quantity of gold from South Africa are excellent. Hamilton Smith, who is perhaps one of the best mining engineers of the world, and who was here not long ago as the agent for the Rothschilds to look up their American investments, estimates that the Rand gold district of Africa will produce a billion and a quarter dollars' worth of gold. He says that gold has been found there as far down in the earth as 2,500 feet, and that it exists in all probability to a depth of 6,000 feet. Much of the mining will have to be done at this depth, and according to his estimate it would take about \$3,000,000 to equip a mine working at a depth of 3,000 feet. He expects the product of the African mines to exceed \$60,000,000 a year by the close of the century, and he believes that they will be profitable for years to come. Today all of the African mines must be economically managed in order for them to pay dividends. A great part of the gold has to go back into the mine in the shape of machinery and labor, and up to the present only about one-fifth of the gold gotten out has been clear profit. There are now employed in this African gold district 5,000 white men and 30,000 blacks. Wages are low and everything is done on the largest and most economical scale.

A number of new cyanide mills are being put up in Australia. I am told that new mines are being discovered in different parts of that country, and a recent report to our director of the mint states that the Australian gold fields have hardly been scratched. Some of the best mines of today are in West Australia, in a district where there is little water. In the Coolgardie gold region, for instance, water sometimes brings as high as 25 cents a gallon, as there are no great quantities of water within three hundred miles of the gold fields. There is a great gold reef in this district. It was discovered by two young men, who found a forty five ounce nugget sticking out of a mountain of quartz. They took a bag of nuggets off of a single claim and came back to their camp loaded with gold. The Mercur mining district, south of Salt Lake, is also affected by the lack of water, but this has been remedied by forcing water over the mountains from a stream on the other side. The parties who own the water works have a fortune in them. Water, in fact, costs so much in Mercur that the mills using it do not allow the