

# THE YELLOW METAL

HOW AND WHERE GOLD IS DISCOVERED.

Curious Forms in Which It is Found—Rich Deposits Scattered Everywhere—Great Hoards in India—Big Nuggets.

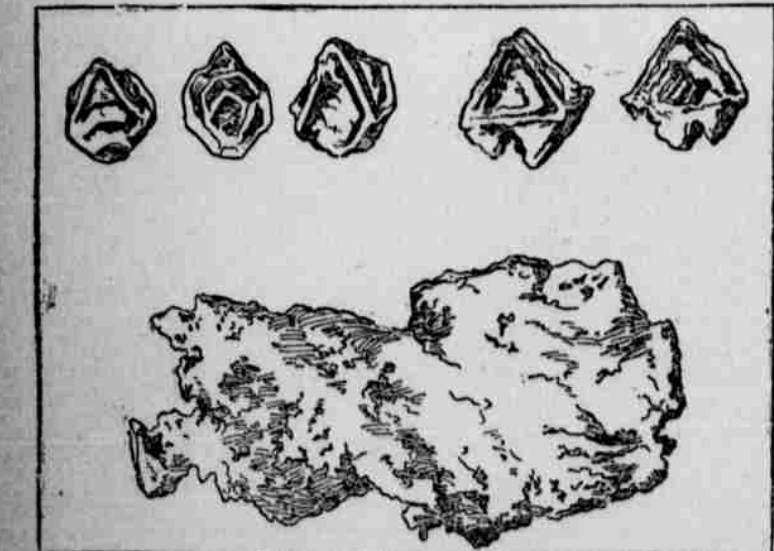
I AM surprised at the stories I daily hear as to the new developments of our gold territory. writes Frank G. Carpenter in the Chicago Times-Herald. Old districts are being reexplored, and judging from the results it is safe to say that the best of our mining regions have not as yet been touched. The 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 to-day at intervals all along the western part of our hemisphere from the Yukon River even to Patagonia.

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



CALIFORNIA'S BIG NUGGET. (Weight 195 pounds. Worth \$43,000.)

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.



GOLD CRYSTALS (ACTUAL SIZE) AND NUGGET OF SHEET GOLD (FULL SIZE) FOUND IN CALIFORNIA.

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 \$4000 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 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 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 to-day 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 of the Yukon River mines. The fact that there is a gold placer is 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 come a long distance. If coarse it is thought the lead is not far off. Some of the first mining of California was of gold scales which measured less than 1-16th 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 fine 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 \$1000 upward. In 1855 a nugget of gold was discovered in Sierra County, Cal., worth \$10,000, and in 1859 a mass of quartz and gold was picked up in Tuolumne County which was worth \$30,000. Outside of California some of the largest lumps of gold in the United States have come from the South. North Carolina has produced three nuggets ranging in size from thirteen and a half pounds to thirty-seven 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 information 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 he would have rather expected to find gold in the fens of Scotland than in the Rand District of South Africa. 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 half 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 2500 feet, and that it exists in all probabilities

to a depth of 3000 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 3000 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. To-day 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 5000 white men and 30,000 blacks. Wages are low, and everything is done on the largest and most economical scale.

New mines are being discovered in different parts of Australia, and a recent report to our director of the mint states that the gold fields there have hardly been scratched. Some of the best mines of to-day are in West Australia, in a district where there is little water. In the Coolgardie gold region, for instance, water sometimes brings as much as twenty-five cents a gallon, as there are no great quantities of water within 300 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 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



MOSS GOLD FROM OREGON. (Actual size.)

by forcing water over the mountains from a stream on the other side. The parties who own the waterworks have a fortune in them. Water, in fact, costs so much in Mercur that the mills using it do not allow the steam to escape, but run it off into pipes up the mountain. As the steam strikes the cold pipe it condenses and flows back so that it can be used again.

An enormous amount of gold of the world is looked up in India. During a visit to that country a few years ago I found that gold had gone out of circulation. The people seemed miserably poor, but they had quantities of jewelry. Girls dressed in cotton often wore gold and silver bracelets and anklets, and many a barefooted girl had gold rings and gold bells on her toes. For ages the East Indians have been oppressed. They have not dared to loan their money for fear they would lose it, and they have preferred to put it into ornaments. This custom prevails to-day, even though there is now under the English security of property. Among the chief hoarders are the Indian rajahs, who wear the most expensive of jewelry. I saw many gold rings set with precious stones worth \$1000 and upward, and I found gold chains for sale everywhere.

Sir David Barbour estimated the amount of the gold hoarded in India during the half century previous to 1885 at \$650,000,000. This was the accumulation of only fifty years. He estimated that \$800,000,000 worth of silver was hoarded in this time, and states that nearly all of the gold and silver which came into India in return for its exports was thus kept. The Hindoo buys little from other countries. He lives on rice or coarse grains. A cotton rag in most cases forms his clothing. All the money he gets he keeps, and if this hoarding is to continue it is certain that a great part of the gold will eventually be absorbed by the East Indians. The English have realized this for a long time. They have attempted to remedy it, but in vain. About ten years ago they tried to get the hoarded gold and silver into circulation by offering high rates of interest for money, but the natives would not respond. There are about 300,000 native bankers in India, who lend to the peasant, but the most of their business is done in kind, the money lender advancing so much grain with the understanding that he shall receive so much back when the crop is harvested.

Another gold hoard was discovered not long ago upon the death of the maharajah of Barwan. This was opened up on the death of the maharajah. It consisted of seven rooms filled with gold and silver and precious stones. Three of the rooms were locked and the doors bricked up. One room, forty-eight feet long, fourteen feet wide and thirteen feet high, was filled with gold plates and cups, gold and silver ornaments and precious stones. In nearly all of the rooms, vaults, were found containing money, and in one vault there were 10,000 gold mohurs. All of the vaults were so protected that it was not possible for the Government to find out exactly how much they held, and even the exact number of the vaults is not known. This treasure is now in the hands of the maharajah's descendants.

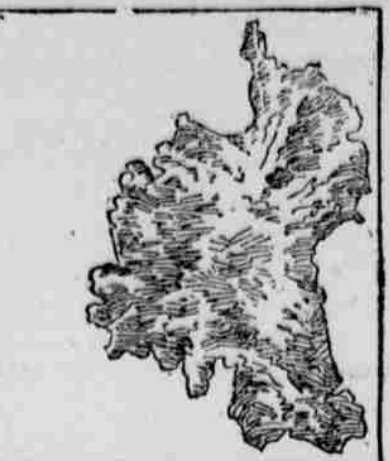
There is undoubtedly a vast amount of gold in China. There are mines in different parts of the empire, and a great deal of gold is brought down every year from Siberia. It comes to Peking and, and is there melted down into small bars of about the size of the little cakes known as lady fingers. It is almost pure, often running over



PLACER GOLD FROM THE BLACK HILLS.

twenty karats in fineness. It is cast in this small shape in order that it may be hoarded and easily passed from hand to hand. The officials, who in many cases make fortunes out of their offices, buy these gold bars and secrete them. They do not dare to put their money into the

banks, for fear that their brother officials may discover their wealth and confiscate it. The result is that such gold bars will bring two per cent. more in Peking than they will in Shanghai. There are said to be more than 100 places in China where gold is found. In Mongolia there are a number of mines, and in the southwestern part of the empire there



A CALIFORNIA NUGGET. (Actual size.)

are gold workings which are 100 feet deep.

A great part of the gold of both Japan and China comes from Korea. The Korean mines are said to be very rich. Korea is mountainous, and nearly all of its mountains contain minerals. During my visit to the country eight years ago our American minister told me that he believed the gold product amounted to \$3,000,000 a year. General Clarence Greathouse, the American foreign adviser to the king, described the mines as very valuable, and foreign merchants showed me quills of gold dust and little nuggets which had been brought to them by the people. So far nearly all of the gold gotten out of Korea has come from placer washings. There are few quartz mines, but these are worked in the crudest of ways. The loose rock is pried out with picks or crowbars. When such means fail a fire is built upon the rock, and when it is hot water is thrown upon it to crack it. After the ore is gotten out it is crushed between two stones, the under stone being flat and the upper one somewhat round, so that it can be rolled backward and forward over the ore, crushing it. After it is crushed the metal is saved by hand panning. No pumps are used, and blasting powder and dynamite are practically unknown. There is no quicksilver to gather the gold, and in all probability the most of it goes to waste. The mines are the property of the king, but those who work them undoubtedly steal a greater part of the product. A number of foreigners are now trying to get possession of the mines, and within a few years they will probably be owned by English, Americans and Russians.

## CHAMPION WOOLMAKER.

Dearest, Biggest and Woollest Ram on Earth Just Sold for \$8400.

Behold a fine likeness of the most distinguished member of one of the most useful families in the world. He is the champion Merino ram President, and was recently bought in Sydney, New South Wales, for the enormous price of \$8400. This is believed to be the largest price ever paid



CHAMPION RAM OF THE WORLD.

for a ram. His championship is therefore an honor, which he claims from the whole world. If any American ram has any claims to make let him step forward and state them.

In size and in quantity and quality of wool he surpasses any ram now before the public. His horns are also remarkable for size and symmetry, and would make a fine household ornament, but his owner hopes that it will be long before they suffer that fate, for the ram should have many years of activity before him.

It is not easy to decide which of the many species of domestic animals is the most valuable to man, but it is not difficult to make out a good case for the sheep. We have many substitutes for the flesh of the ox, but the wool of the sheep seems almost indispensable. The world would be very uncomfortable if it had to go in cotton, and that is the only other clothing material which the majority of men can afford.

We should therefore gaze with deep respect upon this magnificent ram and the abundant coat which envelops him. Shorn of this once a year he will supply hundreds of human beings with warm and comfortable clothing. From his wool will be woven the coats which cover the backs of statesmen, of dandies and horny-handed sons of toil, and also the more intimate garments which lie next to the skin and preserve them from the deadly cold. He will also have a part in furnishing bloomers to the new woman.

Not only will he personally yield all his wool, but he has already founded a large family of sheep who will compete with him in usefulness. Rams never fail to do their duty in this respect.

Leprosy first appeared on the Hawaiian Islands in 1834. To-day there are about 1300 lepers there, of whom 500 are women.

# LIFE IN ICELAND.

Wonders of the Frozen Island in the North Atlantic.

Its People Are Hardy, Independent, and Very Intelligent.

Iceland belies its chilly name every now and then. For years its lava flows gave it an equatorial reputation, and now its earthquakes are performing a like service. The Danish colonies are an extremely independent class, and no cry for help has come from them, although the damage by the September shocks may be estimated at several million dollars.

The farms destroyed number well over 200, and few buildings of Reykjavik, the capital of this Ultima Thule of the ancients, escaped some injury. But these Icelanders, while they don't mind the ordinary earthquakes, have a rare respect for such as shook them up in September. In fact, it is years since the little country has had anything to equal it, but as for outside aid it would take a series of such earthquakes to bring them to seek it.

They are peculiarly hardy and exceedingly intelligent. In fact, education is with them of such importance that where distances make it impossible for children to attend school the "mountain is brought to Mohammed"—in other words, the school, or rather the itinerant teacher, comes to them. Almost every parish, if it is any distance from the coast towns, has a traveling pedagogue, who, as a rule, simply directs the educational work in each household, lays out the course of study, and leaves the actual work of hearing lessons and of elucidating problems to the parents.

It is a rare treat to go into the home of one of these Iceland farmer families and during the long winter evening watch the educational work as it progresses. The parish priest—Icelanders have been Lutherans since 1540—may perhaps be on his monthly visit, and this means not alone consolation for the soul, but a rigid examination of the younger ones in their studies. At the age of 14 comes the final examination, and no child can be confirmed until this has been passed.

Education for the farming classes ends at this point; but for the ambitions there are the high schools in various parts of the country, the School of Philosophy and Languages at Reykjavik, and for many there is the university at Copenhagen, for no inconsiderable proportion of the high school pupils end up their curriculum of studies in the Danish capital.

When they return they become the leaders in the political contests which are always stirring up this liberty-loving nation. Nominally, Iceland is a dependency of Denmark, but since 1874, when their Constitution was restored to them, they have been enjoying almost absolute freedom of political action. The Althing, or Iceland Parliament, meets every other year, and of the entire membership of thirty-six, only six are named by the King. These six comprise just one-half of the upper House, while the twenty-four members of the lower House are elected directly by the people. The Landsþing, or Governor, is named for life by the King of Denmark, but only upon the recommendation of the Althing. His power does not extend to the veto, for a majority vote of both Houses makes a measure a law, unless, of course, it be a matter involving a change in the Constitution, when the King's veto is effective.

But in its literary life Iceland in many respects even surpasses its so-called mother country. Its scholars have transplanted the classics of all nations into their own vernacular. Magazines and daily and weekly newspapers have excellent circulations, and Iceland's libraries are becoming exceedingly massive.

To the eye of the traveler Iceland presents many features of interest. While it borders on the Arctic Circle, the Gulf Stream gives its coast a mild temperature, but in the interior there is little possibility for varied industry. The low-growing grass makes the raising of ponies and sheep remunerative. In fact Iceland exports 5,000 head of ponies annually, and over half a million sheep. Six million pounds of cod fish and 7,000 pounds of eider-down exported last year give a fair idea of the industries of the country. Vegetables and grain which can ripen quick make up the only planted crops, for the summers, though warm, are very short. In fact, almost all the breadstuffs used are imported. So is the wood, for trees are a rarity there.

In the neighborhood of Deltifoss, Iceland's Niagara, the traveler finds himself in constant wonderment at the

terrible power of the glacier streams, which, by the way, invariably force the student of natural history to change his route. But at such times the hardy nature of the Iceland pony pulls one out of many a difficulty. The traveled routes are lost in this flood, and the pony, with unerring accuracy, finds the shallowest way to the land. Bridges are now, however, being constructed over many of these streams, making the travel much easier than a few years back. In fact, the two great iron bridges over the Oelfus and Thjors rivers are marvels of engineering and makes passage to the majestic Solfjand cataract very easy.

Now, too, one finds Government employes busied everywhere in building roads through the lava beds, and this will, make easily accessible the famous Iceland geysers, now infrequently visited by travelers, because of the hard, rocky roadway. In fact, it is strange that this work has only just been begun, for it is bound to make Iceland a much traveled country for summer tourists. Not alone will it make the famous geysers of the Haukadalr accessible, but the entire country round about Mount Hecol, with its innumerable craters, and the famous plateau of Thingvalla, with its magnificent lake and its wealth of historical connections. —St. Louis Globe-Democrat.

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## Straightening a Chimney.

The straightening of a chimney stack at a brick and tile works located at Earnest, Penn., was recently accomplished in a novel manner. The stack is one hundred and twenty-two feet high, eleven feet square at the base, tapering somewhat at the top, and weighs four hundred tons. The walls are thirty-six inches thick. The top was found to be leaning forty-five inches from the vertical line. To right the chimney, ten and a half inches of brickwork was removed from the foundation on three sides. As the bricks were removed, square blocks of wood were inserted, one after another until three sides of the structure rested on the block. Between the blocks substantial brick piers six inches high were built, leaving a space four and one-half inches between the top of the piers and the bottom of the undermined brickwork. The blocks were then set on fire and kept burning evenly. If one burned faster than the others, the fire on that particular block was checked, so that all were made to burn uniformly, and as the blocks were reduced to ashes, the stack slowly righted. As the top gradually swung back through the forty-five inch small fissures appeared near the base. In every groove a steel wedge was driven to maintain the weight of the walls. The entire work consumed one day, and the reduction of the wooden blocks to ashes required one hour. —Electrical Review.

## A Friendly Critic.

The poetic young man was talking about autumn. "See how the leaves fall trembling to the ground," he repeated, softly. "That's something of your own, isn't it?" remarked the person with a calloused nature. "Yes. Is it not a sad, impressive thought?" "I don't know that I can appreciate it," was the reply. "It sounds like poetry, though." "Do you really think so?" "Yes. It jukety-jinks along in first-rate style. But I don't see anything impressive about it." "Doesn't it appeal to your imagination?" "Not much. I don't see how it's worth the trouble it takes to write it down. The public didn't have to wait for you to be born to find out that autumn leaves fall to the ground. That's the way they always fall. If you'll go out sometime and find them falling straight up or sideways, you can write a piece about it that'll leave Sir Isaac Newton a back number, and make a hit with any editor in the country. And you won't have to put it in poetry, either." —Washington Star.

## Meteorite Showers.

Every year the earth passes into what is known as the meteoric belt. This modern exhibition is believed to be due to the earth's crossing a belt made up of minute bodies, the precise character of which has not been ascertained. The earth goes into this path about the 12th or 13th of November. These orbits are supposed to intersect during November, 1899, or November, 1900. It is believed that the belt is about one hundred thousand miles wide, but as the earth passes through it in an oblique direction, only about four or five hours are occupied in the flight.