

During my recent visit to Cleveland and Chicago I could not help but notice that when they introduced me as being from our mines at Magdalena there followed a sort of dazed blank look which seemed to indicate a wonder as to just what a mine was and what one did with it if he had one. At Cleveland I was seized upon, as have many others before me, and was not released until I promised to furnish bail in the form of an article for The Chameleon describing our activities here at Magdalena.

In the 107th Psalm we read, "They that go down to the sea in ships, that do business in great waters: these see the works of the Lord and his wonders in the depths of the earth." If we change that verse to read, "They that go down into the earth in mines, that do business in the bowels of the earth, _____" the rest of the quotation is as applicable to the mining business as to the seafaring business, for we do, indeed, see these wonders.

The Bible, however, has little to say of mining, although we know from other writings that mining was a well developed industry 4000 B.C. We do, however, find abundant references to smelting and to accumulations of gold and silver in the Bible. The book of Job has a passage which contains the only reference to mining found in the Bible: "As for the earth, out of it cometh bread; and under it is turned up as it were fire. The stones of it are the place of sapphires and it hath dust of gold. There is a path which no fowl knoweth, and which the vulture's eye hath not seen; the lion's whelps have not trodden it, nor hath the fierce lion passed by it." Anyone who has ever seen the tunnels of our modern mines will appreciate the accuracy of this description of the place which even the king of beasts avoid. (Ask John Weber, he knows).

The miner's claim that mining is the most ancient of all industry has been strengthened by the unearthing at Cissbury, in England, in the flint mines, of the remains of wild animals, which indicates that mining was an advanced art before agriculture began. Eighty of their deer-horn picks were found not so long ago in the tunnels of the flint mines at Brandon, England. The skeleton of one of these early miners was found in a flint mine in Belgium lying beneath a fall of rock from the roof of his tunnel, with a deer-horn pick still clasped in his hands. This mining for flints began in western Europe about 10,000 years ago.

The first metal mining was done by the Egyptians in the copper mines of the Sinai peninsula nearly 6000 years ago and on the walls are the inscriptions of the early miners, much as today the miner of Magdalena writes upon the limestone walls of the stopes or draws pictures with soot from his carbide lamp.

About sixteen years ago a young man named Sydney Stevens turned up in Magdalena with a new thing which he applied to the first successful treatment of the ores of our mines down there. Sledding had been hard. We could mine the ore but we could not get it into shape so that it could be used or sold. Steve did a thing he called Flotation. It had been discovered that under certain conditions oil had an affinity for metals as opposed to the gangue, or dirt of the ore. In other words, the valuable mineral could be separated from the dirt or waste by the use of oil in the presence of water and air making bubbles. Under the proper conditions the oil clung to the metal, floating it to

the top of the vessel so that it could be skimmed off while the dirt sank to the bottom.

What actually happens is that a grade of ore containing from 15 to 20% of zinc and lead is so concentrated by the taking out of worthless material that in place of five tons of low grade ore we now have one ton of high grade ore, effecting a tremendous saving in freight and in smelting cost.

We have been operating such a concentrating plant for a good many years now, but recently there have been further inventions which permit still greater recovery of metal, or to put it the other way, a still greater removal of waste material from the ore as it comes from the mines. And during the past year we have rebuilt our mill so that it now represents the very last word in modern metallurgical practice. Our plant is now complete and in operation and the results are very satisfactory.

Briefly stated, the operations at the mine and mill at Magdalena are as follows: First, the ore is blasted loose. It is then loaded by miners into small cars drawn by horses which take it through the underground workings and it is hoisted by engine to the surface. There are approximately fourteen miles of underground tunnels in these mines. After the ore reaches the surface it is carried by an aerial tramway a mile down the side of the mountain to the mill. Here it is ground finely in the mills to thoroughly separate the mineral from the dirt. This powdered ore then goes through the oil flotation process which Sydney Stevens first applied so successfully which floats out the lead and the zinc. The refuse is pumped out to the dumps. Some of the ore is shipped to our smelter at Coffeyville, Kansas, and the balance is sold to other smelting companies for the manufacture of metallic zinc. At our smelter the ore is turned into zinc and lead pigments and shipped to our various paint factories where it is ground into paint.

Getting back to the miner, himself. What sort of a chap is he? The miner reads from the rocks the history of their creation, their present position and composition, and from this he can get an idea of former times. He finds evidence that the sea once covered Magdalena, for myriads of shell fish laid down layer upon layer of their lime shells to form the immense beds of limestone rock which exist there today.

Then came titanic volcanic upheavals which lifted up these limestone beds and formed the beautiful Magdalena ~~exposed~~ mountains. With the cooling off of these rocks cracks and crevices were formed. Surface water ran in to these cracks and as they percolated down through absorbed acids and also became hot so that these waters dissolved minerals from the rocks they passed. These solutions carried vast deposits of precious metals with them which were deposited far down in veins and pockets in the very bowels of the earth.

The miner indeed sees the wonders of the works of the Lord. But he is a most practical man. He must find the ore and make the mine pay. Mining is a hazardous occupation although not as bad as it is often represented to be. The miner grows accustomed to handling and to considering vast weights

and masses. He learns how to make use of the forces of nature. to protect himself with timbers and with piled rock. His occupation, more than any other, calls for the quick and ready use of the mind, alert to ward off danger and equally alert to turn the forces of nature to his use.

Therefore the miner is apt to be more confident of himself, quicker witted, quicker to decide matters and to be more independent than other men.

With the exception of agriculture, mining is the one business which may alone be said to be entirely creative in that it is pursued without taking anything away from the other fellow. The miner recovers the precious ore from the ground, thereby adding to the wealth of the world, whereas the banker, grocer, doctor and even our good enemies in the General Accounting Dept. must be supported by the rest of the community.