

big interest. It takes a great deal of money to stock new farms of this size, but their profits are proportionately great. It is impossible to work them without money, and I hear of rich farmers who by the present financial conditions are anxious to borrow money at high rates of interest. One case is that of a man who owns at least \$1,000,000 worth of uncumbered real estate. He wants a loan of \$200,000 on it and will pay 10 per cent interest. He cannot get the money of the banks, for they are overloaded with real property, and at this writing he expects to place the loan with one of the big insurance companies of New York. The banks here get 10 and 11 per cent for money and charge commissions in addition for making loans.

I had a talk last night with Captain William S. Wilson, an American who has lived out here for the past fifty years, on the chances for American capital in Chile. Captain Wilson comes of one of the old families of Washington and Baltimore. He is now over seventy years of age and has retired, but he has in his day been one of the noted sea captains of the Pacific. He was thirteen when he ran away from Georgetown college to go to sea, and at twenty-three years of age, in 1849, he was in command of the ship *Rome* of Baltimore. He joined our navy during the Mexican war. In 1849 he came to Chile as commander of the clipper bark *Bella Vista*, built in Baltimore, and for years had charge of this and other American vessels on this coast. Later on he became an officer of the Chilean navy, took part in the war with Peru and was also a naval commander in Chile's war with Spain. He has also been connected with some of the biggest coal mines of this country as manager, and although he is not now in active business he is well posted on all things Chilean. Said he: "Chile is poor in money only. The resources of the country are great and the chances just now for safe and profitable investments are many. What our capitalists, who are after such things, should do, is to invest a few hundred dollars in steamship tickets and come out here and look into the field. They should bring engineers with them and thus be able to tell just what the different properties are worth. Take, for instance, this town of Concepcion. It contains 40,000 people, and is one of the best cities in Chile. It is only eight miles from Talcahuano, a town of 10,000 on the best harbor south of San Francisco. It has a naval dry dock and five lines of European steamers call regularly there. We have here a horse railroad, which is now paying 4 per cent dividends on its capital of \$250,000 Chilean, or about \$80,000 gold. This road is for sale. It can, I believe, be bought for the par value of its capital stock, and the system if made an electric one would pay enormous dividends. It has now ten miles of track, and the city will grant charters for extensions to the other streets and a branch could be built to Talcahuano. We are, you know, here in the center of the great coal regions of Chile. The screenings of the mines can be used for generating the electricity, and these cost here only 35 cents of your money a ton.

"There is also a chance for a steam railroad near here," continued the old sea captain. "The government and people are anxious to have one built from Penco on the coast fifteen miles to Tome and thence north to connect with the government line at Parral. This would be over 100 miles in all, and would pay well, as the route goes through a rich country. The government would probably guarantee 4½ per cent on the cost of construction. At least that is what they have offered an English company

upon the plans which have already been made for the road.

"I think there is a lot of money to be made in Chilean mines," Captain Wilson went on. "Some of our best copper mines are idle for lack of money to work them. The ore is in sight, but there is no money to get it out. The nitrate fields are spotted with English companies who have put over \$100,000,000 into them and have taken vast fortunes out. They will tell you they are losing money today, but their stock has been watered again and again. The coal deposits about here are very valuable, and only a small part of them are being worked. They extend for about a hundred miles on the edge of the sea, the beds sloping down under the water. The Cousino fortune of millions was made out of the mines at Lota about twenty-five miles from Concepcion, and those of Coronel near by, which are now being worked several miles under the ocean, are very valuable. Twenty miles away on Aranco bay there is a coal property that I was once asked to manage. One million dollars had been spent upon it, and 1,000 men were at work. I saw at once that the work was going the wrong way, and that the seam went down under the sea, instead of into the land. I stopped the works at once, and upon the investigations of the engineers the works were closed for lack of money, the company becoming bankrupt. That mine could now be bought for \$20,000 in gold, and \$100,000 put into working it would produce, I believe, \$1,000,000. I was once the manager of the big Puchoco coal mines, which are of the same character, and which could produce 200,000 tons of coal a year. They are situated on Coronel bay, and were at the time I had charge the property of Baltimore men. I took out 110,000 tons of coal throughout an enormous profit, running coal the first year, and we made as high at times as 50 per cent a year. This coal region is, you know, practically the only one on the west coast of South America, and all of the ships must coal here. I know there are a number of good properties of this kind. All that the capitalist needs to do is to bring his experts out here and investigate. They can tell from these other submarine mines just what the cost will be and the probable profits."

These coal mines of Chile are exceedingly interesting. They are far different from any mines we have in the United States, and in some respects are far more difficult to work. The seam of coal, which is at its best about five thick, begins at the shore and runs down under the waters of the Pacific ocean. The rock above it is slate and shale, so compact that the water does not drip through. The tunnels are so clean that you could walk through them in a dress suit without danger of getting dirty. They are worked with the latest machinery, and during my visit to them I had several experiences which it is hard to realize could take place in Chile. Think, for instance, of riding on an electric trolley coal train through a tunnel over a mile long under the Pacific ocean at a speed of twenty miles an hour. Imagine mines lighted by electricity forming a catacomb of corridors and chambers under the waves. Realize that just above you great steamships are floating and that the coal which is being taken out of this bed of the Pacific is being loaded into them. Picture sooty miners, half naked, blasting out the coal and loading the cars, and follow the train carrying twenty-seven tons of black diamonds to the shaft, where a mighty steam engine lifts four of them at one time to the surface, and you have some idea of what is going on at the Lota coal mine. These mines are now producing 1,000 tons of coal a

day and 750 miners are employed within them. They pay a profit running high into the hundreds of thousands of dollars a year and are as carefully managed as any of the great coal properties of our country. I asked as to the pay of the miners and was told that they receive from 90 cents to \$1 Chilean, or from 31 to 35 cents of our money. I wonder what our Pennsylvania miners would think of that. The Chileans, however, have their houses rent free and coal is furnished them at cost price.

These mines were opened by Don Matias Cousino in 1855 and they formed the foundation of the Cousino fortune, of which you have read in the stories published about the late Madame Cousino, the so-called richest woman in the world. Her income from the mines and factories at Lota is said to have been a million dollars a year. If so she spent the most of it, for the estate now that she is dead, though still large, is many millions short of the amount at which it has generally been estimated. The Senor Cousino, who was her husband must have been a man of great ability. He owned copper mines, silver mines and big estates, and he established here a copper smelting works to which the ore from the Cousino mine is carried in the steamers belonging to the estate. Under him the town of Lota, which now contains about 14,000 people, grew up, and in the different Cousino works are now employed. On a mountainous little peninsula, above the coal bed and just opposite the smelter, is Madame Cousino's famous park and palace of Lota. It is one of the most beautiful parks of the world and a fortune has been spent in making it so. It is even more beautiful than her estate of Morai, which I visited from Santiago, and is full of wonders of landscape gardening and picturesque effects of land and sea.

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ENGRAVING.

Engraving dates back almost as far as authentic history. There is mention of engraving as early as Exodus xxxv. in the Bible, and this relates to a period about 1491 B. C. This engraving was the recording of words and images on stone, wood and metal. The period when engraved plates or blocks were first printed from is involved in deep obscurity. The Greeks are said by Herodotus to have prepared maps on metallic plates (500 B. C.) which might have served for furnishing copies by impression, but it is not probable they were used for that purpose. The Chinese are said by Du Halde to have practiced this art as early as 1120 B. C., and some suppose that from them the art was transferred to Europe. It is first mentioned as having been practiced by an Italian by the name of Cunio, who executed wood engravings in 1285, and who probably received the art from the Venetians. A degree of magistracy of Venice of 1441 has been brought to light in which it is stated that the art of painting cards had fallen into decay, for they were now imported, printed on cloth or paper.

Playing cards were in use in 1275, and in order to produce them more rapidly it is probable engraved plates were used from which to print them. It thus seems probable that printing from engraved plates came into active use in the fifteenth century. It became a fixed art in Germany, the artists being known as Briefmalers and also as Formschneller, or figure cutters. They applied their art to higher purposes, cutting ideal figures on wood and other