MINING THE WORLD'S RICHEST ORE

FRANK G. CARPENTER DESCRIBES ALASKA'S VAST BEDS OF COPPER

CORDOVA, Alaska.—Cordova is the copper center of Alaska. It is the terminus of the Copper River and Northwestern railroad, which winds its way up the Copper River valley and taps the great copper deposits that lie on the southern slopes of the Wrangell range. The ore now coming down to the port is from only two or three mines belonging to the Morgan-Guggenheim syndicate, but the copper belt is over 70 miles long and 20 miles wide. It is one of the most extensive and richest of the copper areas of the world. More than 400 copper locations have already been made and the wealth of the deposit is such that Alaska may become as noted for its copper as it is for gold today. The first trainload of ore that came down to this port contained metal to the value of more than $500,000, and that now on the wharves here is worth from $12,000 to $15,000 a carload. The ore is brought down in sacks as big as an ordinary pillow and of the weight of an average man. Each sack contains from 150 to 200 pounds of ore carrying $28 worth of copper. There are 600 sacks to the car, so that each carload is worth almost $17,000.

The copper of the Kennicott mines is so pure that it can be dug from the earth, turned into metal and put on the market at a cost of about 5 cents a pound. In these days, when copper is worth from 20 cents upward, you can see that every pound means at least 15 cents profit. The average ores now being mined are above 20 per cent pure, and a large part of them carry as high as 72 per cent of copper. To show what this means, the copper ores of Arizona yield about 5 per cent, those of Montana about 3 and those of Michigan less than 1 per cent. Do you wonder that these copper mines pay? I am told that they will yield something like $6,000,000 in dividends this year.

The copper output of Alaska is rapidly increasing. Its value last year was five times as great as during the year preceding, and was only two and one-half million dollars less than the total product of gold. In 1914 about 21,000,000 pounds of copper was mined and its value was less than $3,000,000. In 1915 the output was over 80,000,000 pounds and its value was more than $14,000,000. The copper product will be even greater this year.

So far we have taken out of Alaska about $80 worth of gold for every dollar's worth of copper. But our gold mining began 36 years ago and our copper mining not until 1901. Today the prospecting for copper may be said to be at its beginning. There are extensive deposits of this metal on the other side of the Wrangell Mountains and large working mines on some of the Alaskan islands. Seven mines are now being developed in the Ketchikan district of the islands of the Alexander Archipelago, and there are four mines on Prince William Sound. A number of copper locations have been made on the Kenai Peninsula, not far from the railroad, and on the south side of Turnagain Arm native copper has been sluiced down by the hydraulic miners. The copper of Prince of Wales Island carries considerable amounts of gold and silver, and the same is true of that of the Chitina district.

The word Chitina is of Indian origin. It is composed of two words, "chiti," meaning copper, and "na," meaning river. We know that native copper was used by the Copper River Indians before white men entered the territory. Spear and arrows heads of that metal made by them have been found in the sluice boxes of the miners, and ceremonial knives of copper are even now employed by the natives for cutting the salmon caught at the beginning of the season.

The Russians had discovered that copper existed in Alaska long before they sold the territory to us. They had nuggets of copper and small household utensils beaten out of the metal. They found no large deposits, however, and it was not until 33 or more years after we had taken possession of the territory that there was any hope that the copper would be of great value. It was in 1899 that prospectors on their way from Prince William Sound to the Klondike learned about the Copper River region, and the same year the Geological Survey reported a similar copper belt on the northern side of the Wrangell Mountains, about 200 miles in a straight line from Fairbanks.

The most important discovery of copper in Alaska, and, indeed, one of the most important mining discoveries of the world, was that of the Kennicott mines, which have since been bought by the Morgan-Guggenheim syndicate and which are now yielding more than 60,000,000 pounds of pure copper a year. These deposits were discovered by two miners who were prospecting about Kennicott Mountain in the year 1900, and the property was then investigated by Stephen A. Birch, a young mining engineer, who brought it to the attention of the capitalists and organized the development projects which have made it one of the greatest copper mines in the world.

During my stay at Cordova I met Mr. Birch. He is the vice-president and manager of the Kennecott properties, and is thoroughly acquainted with their history and present condition. I asked him to tell me the story of the discovery. He replied:

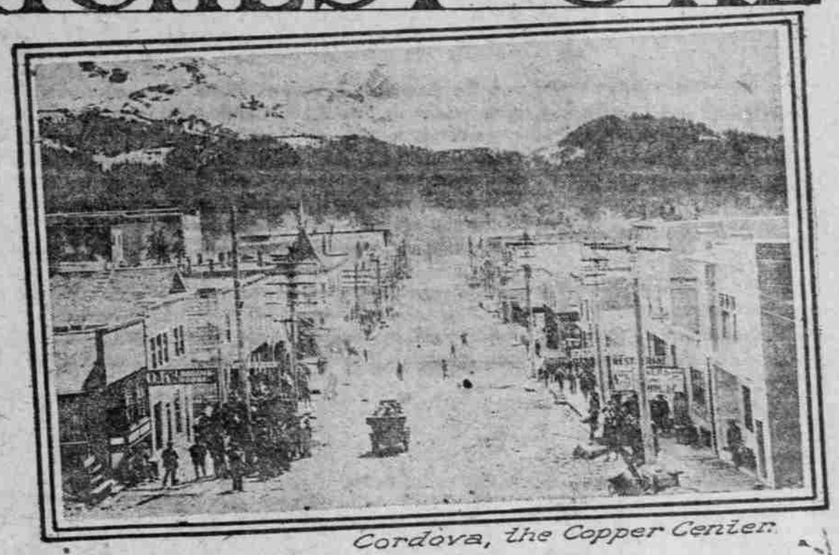
"It began with the rush to the Klondike, and the mining excitement that followed it. There were then prospectors moving about here and there over Alaska, and 11 of these men had made an agreement to investigate certain sections and to divide share and share alike what they found. The men went in pairs, and drew lots to see which section of the country they should take. The district of the Upper Chitina River was drawn by Clarence Warner and Jack Smith. It was they who discovered the mines.

"Both Warner and Smith were old prospectors, and Jack Smith for years had tramped over the mountains of Arizona. He was commonly known as the 'Arizona Centipede.' I suppose the name came from the miles he had traveled. Warner and Smith had been working throughout the Summer of 1900. They had gone carefully over the country, but had found nothing and were about to leave in despair. They had only a few days of grub to go up that stream and prospect the land between Kennecott Glacier and Nikolas creek, named after Chief Nikolai. They had gone only three miles when Warner sprained his ankle on one of the rocks. He sat down to rest, and he and Smith ate their lunch. As they did so, Smith observed a large green patch in the rocks on the side of the mountain and called Warner's attention to it. He said it looked strange and that they ought to go up and see just what it was. Warner replied that Smith might go if he would, he did not intend to climb up there to look at a blanked sheep pasture. He thought the green patch was grass and that it was one of the feeding grounds of the mountain sheep that are often found on the hills of this part of Alaska."

"This objection of Warner discouraged Smith, and he was about to give up. He then went down to the creek to get some water for himself and Warner and saw in the bed of the stream a piece of float or chip of mineral-bearing rock. He picked it out and took it back to Warner. They studied it together and broke it in two. The first fracture had a silvery look, and they thought it was silver. They then went down to the creek to find more of the float. It increased as they walked up the stream, and gradually led them to the spot which they had thought was the sheep pasture. It proved to be the outcroppings of an enormous deposit of copper ore, and of the richest copper mines ever discovered.

"Now the first thing a prospector does after making a strike is to select a name for his find." Mr. Birch is still speaking. "The question was what they should call the new mine. Old Jack Smith, who was ahead of Warner, and first saw the possibilities, turned to his partner and said: 'By G——d, Warner, she's a bonanza.' To which Warner replied: 'Well, Jack that's a good name for her. We'll call her the Bonanza Mine.' The find proved to be a bonanza, and up to 1915, after only 4½ years' operation, she had already yielded over $8,000,000 in dividends, and she is now earning at the rate of more than $6,000,000 per annum. No one knows the actual extent of the deposit, and it is safe to say that she will be paying dividends for generations to come."

Loading Bonanza Ore at Cordova. This Ship Took on $800,000 Worth of Copper.



Cordova, the Copper Center.

"Tell me something of how the mine was developed," said I.

"After Warner and Smith had located the claim they came out to Valdez, where they met the rest of their party. They discussed the situation and decided that they had not enough money to develop the mine themselves, and that it would be best to sell it. I was at Valdez at the time, looking for such properties on behalf of myself and certain capitalists of New York City. They told me about their discovery, and showed me the specimens of ore. It was then too late to go to the interior, but I agreed to make an examination of the property the following Spring if they would give me an option upon it. To this they agreed.

"I then went to New York and interested Messrs. H. O. Havemeyer, James H. Ralph and Norman Schultz to the extent that they agreed to put up enough money for preliminary examinations and work sufficient to show what the property was. That was in 1901. I then came to Alaska and did the work. I found the deposit all that had been claimed and far more than I had hoped. I secured a new option, agreeing to pay $100,000 to each of the 11 members of the prospecting party, or $1,100,000 in all. To make this option perfectly valid I had to secure the signatures of the 11 prospectors and all who were interested with them. Some of the men had been grub-staked by others, so that the money had to be divided among 32 claimants, each of whom had to agree to the deal. These men were scattered over the United States, even to the Philippine Islands. Most of them I had to interview personally before securing their signatures.

"In the meantime a lawsuit was begun by parties who claimed they had grubstaked Jack Smith and Clarence Warner and that half of the mine belonged to them. That suit was tried at Valdez, Alaska, before Judge Wickersham, who is now territorial delegate to Congress. He is also the righteous judge described in Rex Beach's novel, 'The Spoilers.' Among the lawyers for the plaintiff were a United States Senator and a member of our House of Representatives at Washington. The suit was decided in our favor. It was then appealed to the Court of Appeals at San Francisco, and again we won. It was thereupon appealed to the United States Supreme Court at Washington, and we were once more victorious.

"The final decision was not rendered until five years after the discovery and it was only then that we could proceed to develop the property. At that time the options were taken up and the property came into the possession of Messrs. Ralph, Schultz, Havemeyer and myself. We in turn interested J. P. Morgan & Co., and the Messrs. Guggenheim, who formed the Alaska Syndicate. This syndicate purchased a 40 per cent interest in the mine and agreed to build the railroad to open it. The same syndicate afterward purchased the remaining 60 per cent of the stock.

"What did they have to pay for the property?" I asked.

"The Bonanza mine, including the railway, cost the Alaskan Syndicate approximately $25,000,000," replied Mr. Birch.

"Did they get the worth of their money?"

"I should say so. They have already received more than $15,000,000 in dividends. Up to 1915 they had been paid over $8,000,000, and their receipts last year were more than $7,000,00."

"What is the market value of the property?"

"It is more than $50,000,000."

"Were you able to do anything with the mine, Mr. Birch, before the railroad was built?"

"Not as to the exportation of the ore, but we were able to take in men and machinery and so develop the mine that we could deliver ore as soon as the railroad was done. Our mining machinery had to be hauled a distance of 200 miles over the mountains, and that at a cost of about $300 a ton, or of more than 15 cents a pound. We carried some of it in sledges over the snow from Valdez. We had also to open up the property, sink shafts and drive tunnels, as well as to make other arrangements for raising the ore. All this was accomplished by the time the railroad was completed, in 1911. The result was that we had a good traffic from the start. Our first trainload contained more than a half million dollars' worth of ore that was 70 per cent copper, and from that time on the traffic of the road has increased."

"Are there other valuable deposits of copepr in the vicinity of the Bonanza?"

"Yes, we have opened up the Jumbo mine, nearby, which is a large producer and there are many other copper prospects in the same region not belonging to us which will be producers in the near future. The Chitina copper belt is approximately 70 miles long and 20 miles wide and more than 40 locations have already been made. Many of these are in process of development, and some of them will soon be producing. If the region could have cheap transporation and if coal were available for the reduction of the ores at Cordova there would be a largely increased output in the near future.

"From what you say, Mr. Birch, it would seem that the Morgan-Guggenheim syndicate does not own all the copper of Alaska."

"It certainly does not," replied Mr. Birch. "Its Alaska holdings are practically confined to those at Kennecott and on the Island of Latouche. As I have told you, it has cost in the neighborhood of twenty-five million dollars to buy and develop the Kenecott properties. The Latouche properties are being handled in the most modern way. The policy which the Government has pursued has retarded the development of the copper in this section by the prevention of the opening of the coal fields and the failure to furnish the transportation so much needed."

"What is the future of Alaska as regards copper?"

"It bids fair to be one of the largest copper-producing countries of the world. The product is now close to 100,000,000 pounds per annum, and this is almost one-twelfth of the total production of the United States. Nevertheless, it is only five years since copper has been turned out here in any appreciable quantity."

Further on in our conversation I asked Mr. Birch to tell me about the copper deposits on the Island of Latouche, in Prince William Sound. This island is not far from Seward. It has rich copper lodes, but the ore is of an entirely diferent character from that of the Bonanza and Jumbo. The latter mines have a chalcocite ore which carries from 12 to 70 percent of pure copper. The ore is so rich in comparison with that of ordinary mines that 850 tons of it will yield more of the pure metal than 30,000 tons of copper ore mined on our western highlands.

The Latouche mines are low-grade producers. Their ore is a chalcopyrite which averages about 3 per cent copper. It is quaried from the hillsides overlooking the water, and is treated by the flotation process. The Beatson mine on Latouche Island, Mr. Birch tells me is now producing from ten to twelve million pounds of copper per annum, and its output will be increased within the near future.

The story of the discovery of the Latouche copper mine is quite as interesting as that of the Bonanza. The tale was told me by an old prospector at Seward. Said he:

"The Latouche mine was the result of a mess of bad clams. A number of miners were sailing along the shores of Latouche Island when they found a clam bed and stopped and dug up enough for a meal. They cooked the clams, but before eating them found that they were deadly poisonous on account of the copperas in them. One of the men suggested that the coperas must come from copper deposits nearby and that they had better stop and prospect the rocks. They did so, and the result was the discovery of these great deposits of low-grade copper ore, which lie almost on the edge of the sea. The miners decided to develop the property for themselves, but the ore contained such a small prcentage of copper that they could not make it pay. They kept on mining, however, with the idea that the deposits were so large that they ought to sell the property at a big price.

"In the meantime one of the miners, named Beatson, announced that he was disgusted and was going outside for the Winter. He took some of the ore with him and went to New York, where he induced a rich relative to advance him $30,000 to purchase the mine, with the understanding that he, Beatson, was to retain his own share.

"Beatson then came back to Latouche," continued the prospector, "but before he did so he changed his money into 20 yellow bank notes of $1000 each and sewed them inside the lining of his mackinaw. When he came to the mine it was with a sad face. He said that capital was tight and the public not prone to invest. He kept on preaching hard times and at last cast such a gloom over the camp that the others of the party decided to sell if they could get any kind of a price for the mine. They were in this mood when Beatson asked them to make a fixed price, and they finally agreed on a few thousand dollars. Just how much I don't know, but it was less than the $30,000 Beatson had in his coat. At any rate, before showing the money Beatson asked: "Are you men sure you would take that price if I could find the money?" The miners replied: "Yes." He then asked them to put their offer in writing. They thought he was bluffing and did so. He thereupon ripped open his coat and handed out the sum in $1000 bank notes. The men were scared stiff. The yellow bills looked good. They took them and the mine became his.

"Mr. Beatson then began to develop the property with the expectation of selling it. He opened up more of the mine and showed the extent of the deposits. He got one company to make an option for a considerable sum. They drove a shaft into the hill, but happened to strike between the ore vein, that was forked, and found nothing. The option expired and Beatson finally sold the mine to the Alaska Syndicate, which is now operating it. I have not learned what the price was, but I am told that it was high enough to drop Mr. Beatson into 'Easy street' and to remove the necessity of his ever working thereafter."

Kennicott Mill at Bonanza. These Mines Will Pay a Dividend of $6,000,000 This Year.

FOR THE YOUNG PEOPLE

STORY OF THE GOGGLE EYE

HE was a young trout, a little boy fish, you know, who lived with his brothers and sisters, in a still, shallow pool, among the twisted roots of a big gum tree that grew in the edge of the water.

He was only about as long as your middle finger, and, when he swam up near the surface where the sunlight was, one could see right straight through him, just like he wasn't there at all.

That's being transparent, you know. If you could havev gotten him between yourself and the sun, you could have counted his little ribs, about a thousand of them, I suppose, and you could have seen his little heart beating merrily away, and even the tiny mellow bug he had for breakfast was as plainly seen as the clock on the mantel.

But then, Goggle Eye was a generous little fellow, and didn't mind a bit letting people see what he had.

Goggle Eye never ventured very far away from the shelter of the black roots of the gum trees, but he liked to hide there and watch the water people go by, and it seemed to him that some of them were always going up or down the stream.

It was a good thing for him he had such a fine place where he could lie, and see, and not be seen, as some of the creatures that swam by had awful, big mouths, and looked awfully hungry, too.

Goggle Eye never ventured very far away from the shelter of the black roots of the gum tree.

There was a big old catfish, all slimy and slick, who would come sneaking along, looking for something to eat—and he ate little fishes, too.

His wicked little eyes were just like two shining amber beads, and he had two long, wavy strings, sticking out from the front part of his face, where mustaches grow; and, when he opened his mouth, it looked all big and dark, like the entrance to a tunnel! And then, he had two stiff, needle-like things standing out from his shoulders, like the sharpest spears. They were the things he fought with when anybody made him mad. When the other water people saw him come sliding along they all tried to look very smiling, like they were glad to see him, but they always gave him plenty of room, and got so far out of his way that their tails stuck in the mud of the banks.

Queer how folks always get so polite when a big fellow, like the catfish, comes along, isn't it?

But, some of the fish that swam past, were very beautiful, and Goggle Eye just loved to watch them and wonder if he would ever grow to be as big and shiny as they were.

Now, there was the perch family, who lived where the creamy pond lilies floated, and where their big, round leaves lay flat on the water, they seemed to be real nice people, too. They were certainly mighty nice to look at—so thin and flat, and with such beautiful, well-kept fins and scales.

Goggle Eye didn't know how their backs looked, as they were always above him in the water, but they surely did have lovely stomachs, just the color or oranges, lemons and things.

Sometimes, when he was watching them, one would suddenly disappear, going out of sight, right up towards the world of air and sunshine!

It was a funny habit, and Goggle Eye couldn't understand it at all.

It was like this: Something would drop down from above, and when the something got still enough to be seen it was just a long, pink worm, all tangled up on a black, curved wire arrangement, with just a teeny, sharp point, sticking out.

Then the biggest one of the Perch children would jump for the wriggling worm, swallow it with one gulp and then, with a wild flourish of his tail, disappear right straight up in that horrid air, where fish can't breath, to do any good.

When he was gone and the water had become still and clear, the other little Perch children would look at each other and say: "Now, that's funny! We'll have to ask mother about that."

But of all the water people the funniest one was the big, lazy old bullfrog, who was always as happy as the day was long, and who swam with two long green and yellow splotched legs, instead of with fins, like everybody else did.

This jolly old fellow did not live all the time in the water, but sometimes he would crawl out on the bank and actually get perfectly dry.

Now, if Goggle Eye was ever so unfortunate as to get perfectly dry, he would most certainly die—and there wouldn't be any Goggle Eye any more.

The hardest work that Goggle Eye had to do was to go to sleep.

Now, you know, all little fishes and big fishes, too, as to that matter, don't have any eyelids to pull down over their eyes and make everything good and dark when the sand man comes. No matter how sleepy they get they just can't shut their eyes, but must sleep with them wide open. And they must see all sorts of things to interest and keep them awake, though they try ever so hard to keep from seeing.

There was a big old catfish, all slimy and slick.

The reason for this queer state of things is they must watch out all the time, even when they are fast asleep, for fear some big fish, or eel, or turtle, might come along and gobble them up and they would never know it if their eyes were shut.

Now, how would you little folks like to have to keep your big eyes open when bedtime comes, when you are tucked warm under the blankets and the lights are turned low and everything is so still and quiet? I just don't believe you could do it. Do you?

Our Puzzle Corner

ARITHMETICAL PUZZLERS.

Boys and girls always like to have a few choice artithmetical puzzlers to spring on their friends when they meet together. Here are a few staple ones. Ask them:

If a room with eight corners had a cat in each corner, seven cats before each cat and a cat on each cat's tail, what would be the whole number of cats?

Answer—Eight cats.

* * *

Take 50 add a 0, add 5, add the first of eight, and the total is the sum of human happiness.

Answer—Love.

* * *

Make four straight lines and then add five straight lines and have ten for the result.

Answer—1111—TEN.

Prove that one taken from 19 leaves 20.

Answer—Take the 1 from XIX and we have XX.

Show that the half of 11 is 6.

Answer—XI; divide in the middle and the upper is VI.

Truancy has been reduced to a minimum in the schools of Los Angeles by means of the telephone. As soon as a child's absence is noted his parents are called up and asked the reason.

DOT PUZZLE.

See if you can complete this picture and show what these children are doing by connecting the dots in the order in which they are numbered.