

TUNGSTEN EXPERT TALKS ABOUT ORES

Colonel Kennan Describes Find on Pony Gulch

HIGH GRADE SCHEELITE

Coeur d'Alene Ore Commands Premium-Field for Prospecting

COLONEL CHESTER T. Kennan came up from Spokane Tuesday and went at once to Pony gulch where he recently made an important discovery of tungsten. So many inaccurate statements have been made regarding this "find" that Colonel Kennan, who is an expert on ores of tungsten and their manner of occurrence, was asked to make a statement regarding it and tungsten ores in general. Colonel Kennan said:

Tungsten Unknown to Miners.
"Tungsten ore scarcely came into commercial importance until about the year 1900; and although the tungsten mineral, scheelite, was encountered in quantity in all the gold veins of the north side which were mined to any extent, the gold miners did not recognize it, did not know what it was, in fact, but called it 'heavy spar' and considered it an abundant nuisance, as it frequently 'scraped' their amalgam plates, carrying off the quicksilver, amalgam, gold and all along with the tailings into the creek, thereby causing large losses in gold milling. All the mills in the district were seriously hampered in their operations by scheelite, 'scraping' the plates, this showing conclusively that scheelite is widely distributed in the gold veins of the north side.

Scheelite in Golden Chest.
"The mine muckers took pains to 'cob out' some of the coarse pieces of scheelite and throw them in the waste stopes; but as scheelite occurs right in the gold ore, it was hard to separate it by hand picking, as most often the pieces containing scheelite would also be rich in gold. Yet at several of the mines, notably at the Golden Chest, after the rise in the price of scheelite, the old dumps and stopes were partially worked over and long-ago discarded scheelite picked up and shipped to market. The Golden Chest shipped about \$100,000 worth thus obtained. A rich zone of scheelite occurred in the 'Klondike Shoot,' about 900 feet long, of this mine from which it is estimated that at present prices about \$1,000,000 worth of scheelite was mined and wasted by the early operators. This shoot was also rich in gold. But the curious fact is here noted that the scheelite itself does not carry gold, the gold being in the quartz and associated iron minerals.

Tungsten Minerals.
"Scheelite is the richest and most valuable mineral of tungsten. When pure it runs 80.6 tungstic trioxide, and the scheelite from the Coeur d'Alene district is the purest and freest from deleterious substances yet found. A premium of \$10 per unit has been paid over current prices for this scheelite on account of its extreme purity.

Occurrence.
"There are four commercial minerals of tungsten—scheelite, ferberite, huenite and wolframite. The three latter are termed the dark minerals of tungsten, containing iron and manganese in varying amounts and ranging in color from dark reddish brown to black; while scheelite, 'the light colored tungsten mineral,' is a calcium tungstate and may be any light color, even snow white, but it is most usually found cream color, as in the Coeur d'Alene.

Good Field for Prospecting.
"The Coeur d'Alene district has never been prospected for tungsten minerals, all the scheelite so far found having been encountered incidentally in gold mines and in the gold veins and gold placers, except in two instances: About two years ago a contact scheelite vein or zone was found along an igneous dike on the Mother lode property on Prichard creek, and a few weeks ago I had men prospect for a scheelite vein which I believed crossed Pony gulch and found it. This is also a contact vein in quartz and quartzite, lying between slate and quartzite, with several igneous dikes running nearby and parallel to it. It appears to dip at an angle of about 45 degrees southwesterly and strikes north about 20 degrees west. This vein was uncovered in the creek bottom and has been stripped for about 30 feet in length. At the north end of the stripping the vein appears about four feet wide and at the south end about 10 feet wide. The scheelite, in accordance with its typical or native manner of distribution, is irregularly distributed through the gangue in specks, grains, chunks, seams and veinlets. On account of its irregular distribution it is quite impossible to estimate by sight the percentage of scheelite carried, and it is likewise impossible to arrive at an accurate estimate by 'hand sampling' and assaying the hand samples. Often a piece of the ore which exhibits to the eye no scheelite on the outside, when crushed and 'panned' yields a good string of scheelite, showing that the scheelite was on the inside of the gangue rock or 'matrix'. When the scheelite thus permeates the gangue rock of the vein, it is a good indication of richness in the ore. On the other hand, should it only appear in the cracks, then there is not likely to be so much scheelite in the vein. It is so heavy it can be 'panned' in a gold pan the same as gold. I believe 10 per cent by weight of scheelite in this vein as far as it has been stripped would be a guess not far out of the way. At present prices 1 per cent in a vein of this size would pay handsomely. As a comparison easily understood, each 1 per cent of scheelite in this vein is worth about 30 times as much as if it were lead, 'galena,' instead of scheelite. Much scheelite was encountered in placer mining in Pony gulch.

Lower Court Reversed.
The supreme court has handed down an important decision in the case of the Tyson Creek Railroad company against the Empire Mill company and William Connelly, of Harrison. It was a condemnation action for right of way and damages in which the eminent domain law of the state was involved. The case was tried before Judge Flynn in Benewah county and the trial occupied more than two weeks. The Empire Mill company and Connelly were dissatisfied with the decision and appealed to the supreme court, which reversed the lower court, finding in favor of the Empire Mill company and Connelly. The railroad right of way runs through valuable timber and placer mining property. Chas. L. Heitman and C. W. Beale, of Wallace, were attorneys for the Empire Mill company and Connelly, and the Tyson Railroad company was represented by McNaughton, Whitla and Potts, of Coeur d'Alene.

HELP SALVATION ARMY HELP OUR BOYS IN FRANCE WIN THE WAR.

The Salvation Army does not ask much assistance from the people of Shoshone county in carrying on the war work of the organization, but it is just as essential as the larger subscriptions that have been given for similar work by other bodies. Just as the Salvation Army occupies a unique place and performs a most useful service in peace, so it is rendering service necessary for our soldiers in war that is not duplicated by any other organization. If you believe the work of the Y. M. C. A., the K. C. and similar organizations is necessary for the welfare of our army, then you must believe in the work of the Salvation Army, for it is engaged in the same service, but, as in civil life, it reaches a class not effectively reached by any other organization. There should be quick and generous response to the appeal for the Salvation Army.

in gold mines and in the gold veins and gold placers, except in two instances: About two years ago a contact scheelite vein or zone was found along an igneous dike on the Mother lode property on Prichard creek, and a few weeks ago I had men prospect for a scheelite vein which I believed crossed Pony gulch and found it. This is also a contact vein in quartz and quartzite, lying between slate and quartzite, with several igneous dikes running nearby and parallel to it. It appears to dip at an angle of about 45 degrees southwesterly and strikes north about 20 degrees west. This vein was uncovered in the creek bottom and has been stripped for about 30 feet in length. At the north end of the stripping the vein appears about four feet wide and at the south end about 10 feet wide. The scheelite, in accordance with its typical or native manner of distribution, is irregularly distributed through the gangue in specks, grains, chunks, seams and veinlets. On account of its irregular distribution it is quite impossible to estimate by sight the percentage of scheelite carried, and it is likewise impossible to arrive at an accurate estimate by 'hand sampling' and assaying the hand samples. Often a piece of the ore which exhibits to the eye no scheelite on the outside, when crushed and 'panned' yields a good string of scheelite, showing that the scheelite was on the inside of the gangue rock or 'matrix'. When the scheelite thus permeates the gangue rock of the vein, it is a good indication of richness in the ore. On the other hand, should it only appear in the cracks, then there is not likely to be so much scheelite in the vein. It is so heavy it can be 'panned' in a gold pan the same as gold. I believe 10 per cent by weight of scheelite in this vein as far as it has been stripped would be a guess not far out of the way. At present prices 1 per cent in a vein of this size would pay handsomely. As a comparison easily understood, each 1 per cent of scheelite in this vein is worth about 30 times as much as if it were lead, 'galena,' instead of scheelite. Much scheelite was encountered in placer mining in Pony gulch.

Gold Pays for Mining.
"A peculiar and important advantage we have in the Coeur d'Alene, where the tungsten occurs in gold veins, is that the gold veins are 'good pay' veins for the gold alone, and the scheelite, as a byproduct, can therefore be produced practically free of cost. No other known tungsten district, at low prices, can compete with this kind of tungsten mining. The scheelite being in the gold ore is necessarily recovered by concentration in the gold mill. When this district gets into full operation, it is bound to become one of the most stable and permanent producers of tungsten."

LOWER COURT REVERSED. Condemnation Case Appealed to Supreme Court From Benewah.

The supreme court has handed down an important decision in the case of the Tyson Creek Railroad company against the Empire Mill company and William Connelly, of Harrison. It was a condemnation action for right of way and damages in which the eminent domain law of the state was involved. The case was tried before Judge Flynn in Benewah county and the trial occupied more than two weeks. The Empire Mill company and Connelly were dissatisfied with the decision and appealed to the supreme court, which reversed the lower court, finding in favor of the Empire Mill company and Connelly. The railroad right of way runs through valuable timber and placer mining property. Chas. L. Heitman and C. W. Beale, of Wallace, were attorneys for the Empire Mill company and Connelly, and the Tyson Railroad company was represented by McNaughton, Whitla and Potts, of Coeur d'Alene.

START INTERSTATE- CALLAHAN AUGUST 1

Mine in Fine Shape for Immediate Production

MORE MILL CAPACITY

Tailings Dump Will Net the Company Over a Million ---Overcome Loss

THE ADDITIONS and changes being made in the Interstate-Callahan mill are rapidly nearing completion, and C. W. Newton, superintendent of the mine, stated this week that everything would be in readiness for a general resumption of mine production before the first of August. Prior to the suspension to permit the changes in the mill the company had experienced no trouble on account of labor shortage and Mr. Newton does not anticipate any serious delay in getting a full quota of men when the mine resumes production on or before the first. In fact he is now receiving numerous applications from former employees to return to work. Instead of seeking work in other mines of the district when laid off, many Interstate-Callahan employees went to the harvest fields of the northwest, while many others sought employment in the shipyards of the coast. The first will return when the harvest is over, and many of the second have found that the high wage scale on the coast has its drawbacks in the form of excessive living costs and who will soon be found back on the Interstate-Callahan payroll. In fact when one considers the present wage scale in the Coeur d'Alene district in connection with the favorable working conditions, cost of board and lodging facilities, it may well be doubted whether the men who are disposed to leave for new fields through the attraction of higher wages succeed in improving their condition.

Mine in Fine Condition.
During the period of suspension of production the Interstate-Callahan company has taken advantage of the situation to push development work. Eighty men have been employed in the mine extending drifts on the lower levels, making connecting raises and putting in chutes to accommodate new stopes. The lowest level is now 1050 feet below the working tunnel, or No. 4, and the amount of ore actually blocked out is now perhaps greater than at any time in the history of the mine. So thoroughly have the development plans been carried out Mr. Newton states that within one hour after the order is given the mine is in position to begin maximum production.

Money in Tailings.
While the mill has been closed down the flotation plant has been running on the big accumulation of tailings, estimated at 250,000 tons. In his report to the stockholders President Percival estimated that these tailings would run 12 per cent zinc and that with a 90 per cent recovery the tailings should produce 60,000 tons of concentrates assaying 46 per cent zinc. On this basis with zinc at 7 cents per pound, the price at the time the report was made, it was estimated that the company would clean up \$1,000,000 through the treatment of these tailings. The results have shown that President Percival was conservative in his estimates. Mr. Newton is authority for the statement that the tailings run 15 per cent zinc and that the recovery is above 90 per cent, and that the concentrates average 49 per cent. In addition to these higher figures, the price of zinc has advanced and the company is probably receiving 1 cent per pound more than the price when the president made his report. Last month the company shipped 3200 tons of concentrates the product of these tailings, and shipments are now going forward at the rate of 100 tons per day or better. The cost of handling these tailings is almost nominal. They are conveyed to the flotation plant by a drag-line operated by one man, ground in ball mills operated by one man, and thence pass through the flotation cells which require only one man.

Increase Milling Capacity.
The flotation plant was completed only a few months ago and is meeting every expectation. Many changes are being made in the original mill, old machinery being replaced by new and improved patterns. However the most important addition is on the table floor, where new tables have been added, the purpose to be attained being to make a more perfect separation of the zinc and lead. The loss of lead has been considerable hereto-

BIG CREEK COMPANY INCREASE SHIPMENT

Adopts an Original Method of Treating Its Ore

CRUSHER AND HAND JIGS

Clean Shipping Product--Fine Ore Showing and Great Possibilities

IT WAS along in January when the Big Creek Mining company struck the vein which was the objective of a crosscut which had been run in round figures 2400 feet, and it is significant of the accuracy of the survey and of the regularity of the vein that it was encountered within 10 feet of the distance estimated by the engineer. The splendid body of ore disclosed at the point of intersection proved the continuation downward of the ore shoot which had been rich and productive on the tunnel level 560 feet above and which showed the same character of ore on the level 540 feet above that. Thus the strike in the lower tunnel, or No. 3, proved a continuous ore shoot for a depth of 1200 feet, and the amount of ore that had been removed from those upper levels, although representing many thousands of dollars, is small compared with the large area that has now been practically established by this lower opening. This does not take into consideration the possibilities of deeper development. While the matter of another tunnel is still several years in the future and is not being considered at this time by the management, it is nevertheless interesting to observe that at least 600 additional depth may be gained before the question of sinking comes up for consideration. These facts taken in connection with the steady enlargement of the ore bodies while maintaining their high values as depth is attained, afford material for pleasant contemplation to Big Creek shareholders.

Provide Shipping Facilities.
The ore where first encountered in No. 3 was galena, but drifting soon disclosed gray copper as well, much of both ores being of shipping grade. Ore taken out in the drifts alone soon made a large accumulation on the dump, and a building was erected for sorting it for shipment. The plan first adopted was to dump the ore over a grizzly, the coarse chunks being hand sorted and the lead and gray copper being separated. The finer stuff that passed through the grizzly was then hand jigged, the lead and gray copper products of this process being also separated for shipment. It was found, however, that this method was too slow to handle the increased production after the stopes were opened and G. Scott Anderson, manager of the company, was confronted with the problem of devising means to meet the situation without incurring the expense of building a mill. In this he was greatly assisted by the practical knowledge and experience of Chas. K. Moffitt, superintendent of the mine, and through their combined efforts the Big Creek company now has a plant which, while not entitled to the dignity of being called a mill, does nevertheless turn out a milling product and will result in greatly increasing shipments.

Crusher and Hand Jigs.
Excavation was made beneath the ore sorting building which added another story to the building, and the lower story was extended to give a total floor space of 20 x 75 feet. On this floor there are three hand jigs in operation and the fourth one is nearly completed. In the ore sorting room a Blake crusher has been installed at the foot of the grizzly with a short platform between. The crusher is driven by an electric motor. As the ore is dumped on the grizzly the finer ore goes through to the jig floor. The man who feeds the crusher takes the ore down and into the crusher, picking out all chunks of clean ore that come to his notice and also chunks of waste, similar to the sorting belt process. This is all the sorting that is done now, all the ore passing through the crusher and dropping to the jig floor below.

The jigs are under the personal supervision of G. T. Hutsell, a hand jig expert, who for many years has been successful in recovering the values in the tailings of Canyon creek. The ore, and it is believed that this will be largely overcome by more perfect table concentration. The changes in the mill, in addition to reducing the losses, will increase the capacity about 100 tons, making it 600.

RED CROSS DANCE SATURDAY EVENINGS AT HOWARTH HALL.

Beginning next Saturday evening a dance will be given at Howarth hall under the auspices of Shoshone Chapter of the Red Cross. Red Cross ladies will manage the floor and the receipts will go into the treasury of the local chapter. For these dances the Brown-Fisher orchestra, with a patriotic generosity that has never failed to respond to the call of the Red Cross, will donate the music. Howarth hall is the most delightful dancing pavilion in the state of Idaho, and the purpose for which these dances are given is one that appeals to all red blooded Americans. If you dance you cannot spend an evening more pleasantly nor help a nobler cause than by visiting Howarth hall Saturday evening. The Red Cross needs the money and you need the relaxation which these dances provide.

shipping product turned out by the jig depends upon the quality of the ore, but at the present time with three jigs running one shift the output, including the ore taken out at the crusher, is about eight tons. The mine will soon be in shape to increase the output, when two shifts and possibly three will be put on jigs.

The jig water contains considerable slime and this is conveyed to a settling tank 12 x 14, divided into two compartments, the use of which adds considerable revenue which would otherwise be lost. A separate dump is made of the tailings from the jigs, with the view to possibly reworking them when the company has a mill with facilities for fine grinding. An examination of them indicates that there is not much value left in them.

How Ore is Hauled.
The ore in sacks is hauled to the foot of the hill on wagons with broad iron wheels and built on a narrower gauge than the standard road wagons. Two tons are hauled on the wagon and about half a ton on a drag behind which serves as a brake. The loading platform at the foot of the hill is about a mile and a half from the railroad at Shont spur, where the ore is transferred to the cars. The value of the shipments, according to smelter returns, averages \$115 per ton. Mr. Anderson states that he expects to be able to ship at the rate of three carloads every 10 days. The company is now employing about 25 men and the boarding and bunk house is being enlarged to accommodate a force of 40 or 50.

NATIONAL GETS BENEFIT OF NEW COPPER PRICE

COMPANY MAKES RECORD SHIPMENTS IN JUNE--BIG SURPLUS IN TREASURY.

The addition of 2 1/2 cents to the price of copper as announced by the government, effective July 1, means an additional profit to the National Copper Mining company of about \$10,000 on all shipments during the past four months. Under the terms of shipment, final settlement is not made until four months after the ore has been received by the smelter and the price paid is based on the quotation for copper on the date of settlement. All shipments from the National for the period of 120 days prior to July 1 will be paid for at the new rate of 26 cents per pound. The new rate is fixed until August 15. In the meantime the war industries board will meet again on August 7 to give further consideration to the price of copper and it is not improbable that the metal will receive another advance, as strong pressure is being brought to bear on the government in behalf of the smaller producers for a further increase.

National Shipments.
During the month of June the National shipped 13 carloads of concentrates, this being the highest record made by the company. In May 12 carloads were shipped. The tonnage of the two months was about the same. National concentrates average about 15 per cent copper and 40 ounces of silver, and the value of a carload prior to the advance in the price of copper was in the neighborhood of \$3,500.

The force in the mine has been considerably increased, made necessary by the new work that has been undertaken to which reference was made last week. It is understood that the company now has in cash on hand and money due on ore shipped an aggregate of about \$75,000, and is free from debt. This with the amount of ore available in the mine, the new work that is starting on the 1500 level, and the advance in the price of copper, combine to give a bright outlook to the property.

OPERATORS ADVANCE WAGES OF EMPLOYEES

Miners Will Now Receive \$5.25 a Day

ACTION VOLUNTARY

Been Under Consideration for Several Weeks---4000 Benefited

YESTERDAY THE announcement was made on behalf of the mine operators of the Coeur d'Alene district that the wages of all employees would be advanced 50 cents per day, making the wages for miners and other underground men \$5.25 per day. The increase applies to all employees in and about the mines and mills and the clerical forces, and also includes shift bosses, foremen and superintendents. The new scale becomes operative on the date it was announced, July 10.

Voluntary Action.
Like all former increases in the wages of employees, the advance was voluntary on the part of the operators in recognition of the fact that the men are entitled to more pay as an offset to the steadily increasing cost of living. The matter has been under consideration for several weeks by the managers of the various companies and numerous conferences have been held as a means of arriving at an agreement for uniform action. The action was not the result of wage advances in Butte or other mining centers, for it had been practically agreed upon weeks before and the announcement only awaited agreement upon the amount of the increase.

About 4000 Men Benefitted.
The wages in the Coeur d'Alene district were first advanced in February, 1916, by the adoption of a sliding scale which provided for a maximum increase of \$1 per shift when the price of lead is \$6.50 per 100 pounds or more. This scale was further increased to provide for another 25 cents raise when lead is over \$7.50, making the wage \$4.75. This rate was soon reached, and although the price of lead until recently was for months below \$7.50, wages were not reduced to correspond. And it is significant of the friendly attitude of the companies that the present advance is made without regard to the sliding scale. When the sliding scale was first adopted it was estimated that the number of men affected was about 5000. Since that time for various causes due to the war, the number of employees has been greatly reduced, all the mines being short of men, and it is now estimated that the number of men affected by the increase is between 3500 and 4000.

ST. JOE PLACERS. Wallace Men Will Work Ground During Remainder of Summer.

Frank Rose and Alex Livingston left on the Missoula train Tuesday morning for the St. Joe basin, where Mr. Rose has a tract of placer ground to which he will give his attention the remainder of the summer. Mr. Livingston is an experienced placer miner and they expect to be able to make better than wages working the ground in a limited way. The ground was located many years ago by Peter Sherlock, one of the earliest of the pioneer prospectors who is known locally as "Peter the Hermit." It was from him that Mr. Rose acquired the ground, which is reputed to be of great prospective value, but will require considerable capital to place it on a profit earning basis.

ST. LAWRENCE.

Two four horse teams are now engaged in hauling ore from the St. Lawrence mine to Saltese. About four tons are hauled at a trip and the teams make one round trip a day. The showing of ore in the lower tunnel continues very satisfactory and when the ground under the rich ore shoot above is reached there is every reason to expect the same big body of ore. This tunnel is about 200 feet below the original workings and will be the main outlet when connection is made above. A compressor driven by gasoline is being installed and is expected to be in operation this week.

Thomson Here.

Francis A. Thomson, dean of the Idaho school of mines, arrived in the city yesterday evening and will remain in the district for several days on business connected with the mining school.