

THE BIG SMELTER AT TRAIL

WHAT IS BEING DONE AT PRESENT IN THE REDUCTION OF ORE.

The Capacity of the Works and the Rate Treatment—The Question of Water Supply.

A representative of the Miner visited the Trail smelter yesterday and was shown over the works by one of the officials in charge. This institution is one of which the people of this country have every reason to be proud. Since its construction by Mr. F. Aug. Heinze, at a time when that gentleman displayed his confidence in the country in a way which probably did more than anything else to bring capital into this district, the establishment has been very largely added to meet the demands of an immensely increased development of the properties in this camp. It is without question that in all the facilities for the treatment of ore, whether of our silver-lead or our gold-copper properties, the Trail smelter is in a most fortunate and unique position. It has command of a thoroughly satisfactory water supply, and it would be a matter of very questionable policy on the part of any of the interests in this camp to attempt to limit its operation by cutting off the facility it at present possesses for the reduction of the ores of our whole district. While the lead mines in the Boundary country are building and already in operation are being enlarged the works at Trail are keeping pace with the rapid advances made in the other districts. As the Trail works now stand, they are the largest lead-copper works in Canada, and if enlargements continue as they have in the past there is every reason to believe that Trail will become the great smelting and refining centre of the Kootenays.

The works at Trail are actually smelting about 800 tons of ore per day, which is between 200 and 300 tons in excess of the present ore receipts; but, when the War Eagle shipments begin, it is hoped that there will be sufficient ore to keep the works in full operation. There are three copper furnaces in blast and Boundary ores, and one lead blast furnace which is running on Boundary and Sloan lead ores. Two more large lead blast furnaces are nearing completion. The lead roasting plant for these furnaces is already completed, and consists of six Breckner roasters, and ten large hand coalers.

The entrance of the Trail and Nelson works into the lead ore market secured for the lead ore mines a change in the method of payment for the lead in ore, by which the miners received from \$5 to \$8 per ton more for their lead in 1900 than they did during 1899. There has always been a misapprehension as to the rates charged by the Trail works for the smelting of Rossland ores, and it has been repeatedly intimated that the Trail smelter charges \$4.50 per ton, as made by Mr. Burrell, and \$1.50 better than the standard rate made by the Trail works of \$6 per ton. On the general run of Rossland ores, which contain from 1.3 to 1.5 per cent wet copper, this is not true, for the reason that while the Trail rate is \$1.50 per ton less for freight and treatment, yet the Trail works have always paid \$1.75 more than the Trail rate for the copper contents of the Rossland ores. On the same basis that Northport has paid for copper in the past the Trail rate is equivalent to about \$4.25 per ton for freight and treatment.

A large and very important factor in the Trail works is the extensive water supply system. When the works were first purchased from F. A. Heinze there were included within them all of Mr. Heinze's water rights to Trail, Rock, Stoney, Murphy, Sullivan, China and Blueberry creeks. All of the water from Trail, Stoney and Rock creeks was brought to the smelter by Mr. Heinze some years before his sale of the works. Since that time the capacity of the works has been practically tripled, and it has therefore been found necessary to bring the water of Murphy creek into the general water supply to save the values.

The handling of this large quantity of material, which often runs up to 1,200 tons per day at Trail, has given new life to the town. The merchants find trade daily improving, and business generally is in a healthy condition. The question of incorporation is being discussed, and if carried through will make Trail one of the best towns in the Kootenays. The electric light system and water works are already superior to many larger towns, and if the money now being collected for taxes were expended in the town itself, many other improvements would result.

PYRITIC SMELTING.

A Process Which is Now Coming into Favor.

Engineering and Mining Journal by S. E. Bretherton. Pyritic smelting is the utilization of sulphides as both flux and fuel, the metallic bases, excepting copper, uniting with the silica to form a slag, and the copper acting as a collecting agent to gather the precious metals into a copper matte, the sulphur uniting with the oxygen of the blast to generate heat, just as the carbon from fuel does. Some of the first questions asked by articles contemplating the erection of a matting furnace for the reduction of a great variety of ore—especially if it is to be a custom plant—are:

- 1. Can as high a percentage of the values, gold and silver, be saved with copper as with lead?
2. Can the ore be smelted as cheaply as with lead?
3. Can as many tons of ore be put into one ton of shipping product as in lead smelting?
4. Can copper matte be sold as readily as lead bullion?
5. Can as refractory ore be smelted as in lead smelting?
6. Can as cheap a slag be made?
7. Will the ore require more preliminary crushing and roasting?
8. Will a plant of the same capacity cost more than if the ore is to be smelted in a lead furnace?
9. Is the matting process as suitable for as many different characters of ore?
10. Will the copper matting process cost

more or less than smelting ore with lead for a saving agent?

Question No. 1 can be answered positively by stating that the writer—who has been in the lead smelting business twelve years, and the copper smelting business five years as superintendent and metallurgist in both cases—found that after introducing his large heated matting settling arrangement there was no loss of gold, slightly over 1 per cent loss of silver, and an immense gain in copper over dry assay, and only a slight loss from the wet assay. This was done at a custom plant which is still running, where the ore was all purchased, sampled by the regular custom and assaying method, and assayed. The concentration was from 3 to 15 tons into one ton of 60 to 65 per cent copper matte, first operation.

2. If the ore contains sufficient sulphur to act as fuel, and hot blast is used, the ore can be smelted for less than half the regular cost of lead smelting; in fact, for about the preliminary roasting and roasting alone costs lead smelting.

3. As 12 per cent lead is about the minimum amount which can be used in lead smelting and do the work, 8 tons into 1 is about the best concentration; and in copper smelting 1 or 2 per cent copper in the ore can be the minimum amount and do good work, and the concentration is that much greater.

4. There is a greater demand at the present time for copper than for lead.

5. On account of the more rapid smelting of the charges in the blast furnace, greater heat and more silicious slag, as a rule, more zinc can be smelted without trouble when matting than when lead smelting.

6. On account of being able to force more silica and zinc into the slag, it costs less for flux.

7. As there is no preliminary roasting required, if hot blast is used, nothing but an ordinary coarse crusher is required for the largest lumps.

8. A 200-ton plant where all the ore would have to be roasted—unless roasted in heaps, and then there is the capital tied up for months in the ore—if hot blast is used so as to dispense with fine crushing and roasting, can be built for about one-third the regular cost.

9. On account of being able to make a greater variety of slag without danger of serious losses, when copper matting, it is suitable for greater variety of ore, excepting one rich in lead, which should go to a regular lead furnace. The question comes up, What ore is suitable for pyritic smelting, or, in other words, what call for matting? The ore should contain sufficient sulphur to make the desired matte necessary for clean work in the first operation, using fuel. Then, as the sulphur is in excess of the amount required to form the matte, the percentage of fuel can and should be reduced in the blast furnace, so that the oxygen from the blast will unite with the sulphur and not carbon. Quite often, in my experience, after using hot blast, when the matte got over 65 per cent copper, too rich for clean work, the foreman would add either more coke or more sulphide ore, to reduce the grade of the matte. I found mixtures—the lime usually has to be added—of 3 per cent iron, 8 to 13 per cent alumina, 10 to 36 per cent silica, 10 to 30 per cent sulphur the safest limits. The ordinary ore may carry a very high per cent of zinc, alumina, or sulphur, but the percentages are reduced by the time the ore is fluxed; that is, by the excess of oxygen properly neutralized with silica. Of course, too much zinc is objectionable, but it can be utilized to better advantage as a base in copper smelting than in lead smelting; in fact, zinc-blende seems to give less trouble in a blast furnace with hot blast than when roasting in a reverberatory furnace, as it requires less heat to liberate its sulphur than when roasting ordinary pyrites; and it must be with hot blast that the oxygen, not having to unite with fuel, has a better chance to combine with the sulphur where such an intense heat exists as in the blast furnace. Of course, at times, when it is necessary copper as low as 1 per cent iron, 8 to 13 per cent alumina, 10 to 36 per cent silica, and some metallic bases. Some metallurgists claim that no copper is necessary, and an iron matte will save the values, and mixtures containing much less iron and more silica can be smelted to better advantage than those I have named; but it will make these notes too long, to go into the question of the different combinations of each base with silica, and when each should be added or reduced on account of the specific gravity of the proper slag to be made for matting purposes.

The first heat required is for heating the air blast up to the temperature when oxygen will combine with either the carbon of the coke or the sulphur contained in pyrites; then the necessary heat for melting ores and fluxes so that they will combine to form the proper silicates for fluid and clean slag is produced by the oxidizing of the fuel added to the charge by the free oxygen contained in the blast. If cold blast is used, any free oxygen going in with it is required to oxidize the extra fuel required to heat the blast, thus leaving none for the sulphur. If more cold blast is used so as to get still more free oxygen, it drives the heat still further away from the tuyere openings into the furnace and reduces the smelting area of the furnace in that proportion, driving the heat higher up in the furnace, burning the fuel and smelting the ore so near the top of the furnace that any metals volatilized have no chance to get caught. It keeps the fuel burning so high above the tuyeres that it leaves very little for the blast to encounter as it enters, unless a large quantity has been used, and the furnace cooled by the heat of the furnace from the tuyere openings, and encounters the hot material without fuel mixed with it to generate the heat, a crustified furnace is soon the result, starting at the tuyere nozzle and reducing the capacity of the furnace until it closes it. This is the result when too much cold blast is used, or too little fuel is used, with too much blast. By the use of the hot blast this trouble is greatly increased, and the hotter the blast the better it is, up to a point where all the remaining heat necessary for smelting can be produced by the combination of the oxygen in the blast with easily oxidized elements in the ore, such as sulphur, arsenic, etc. When these elements are not in a sufficient quantity to produce by oxidation the balance of the

heat without making too high a concentration; that is, when there is not enough sulphur to make matte for the regular clean working of the furnace; then sufficient fuel should be used in order to save the necessary sulphur for making a proper grade of matte. With a hot blast, a cool top, and careful feeding, a more uniform grade of matte is made than it has ever been possible by the use of the cold blast. At the same time, there is less loss of precious metals by volatilization.

The advantages of a hot blast over a cold blast are in the improved chemical conditions, economy of fuel, and the faster capacity of the furnace. Where the blast is heated without any expense, every degree of heat so obtained is a saving of a percentage of coke needed for fuel in the working of the furnace. As a matter of fact, the saving goes beyond that point, because the cold blast chills the charge at the point of contact in the furnace from each one of the tuyeres, thus reducing the efficiency of the coke furnished, and imposing an increased demand on it.

The chilling action reduces the capacity of the furnace in proportion to the area occupied by the chilled portions, and near the nozzle of each tuyere will be found a large surface of the charge chilled below the fusing point by the action of the cold blast, which with hot blast would be kept active. This proposition cuts a material figure, so that the use of the hot blast in that direction alone is a decided advantage. As a matter of fact, it has been found in the practical working of furnaces on a large scale that it is advantageous to heat the blast by separate tuyeres, where the expense for fuel in operating the furnace was more than double the saving of the fuel in the furnace charge. It was found that the increased capacity of the furnace, and the improved chemical conditions which resulted in bringing about a more thorough fusion of the ore, more than compensated for the extra cost of the fuel to heat the air. This having been demonstrated on a large scale, one can see how much advantage it will be in the cost of operating any furnace if the air can be heated automatically without cost. Realizing the field for the improvement in that direction several inventions have been brought out to accomplish that end. Most of these have been patented, and the heat escaping from the furnace, by means of coils of pipe at some distance from the feed floor of the furnace. Where a furnace is properly fed and properly operated so as to prevent volatilization of the precious metals there should be very little heat above the feed floor, so that to utilize the invention it is necessary to have the furnace fed with fuel through the entire charge of the furnace igniting the free atoms of sulphur and the coke on the top of the charge. This causes a heavy loss of volatilization where the ore contains any tellurides, lead, or other volatile substances, and destroys a great portion of the fuel heat before the charge enters the furnace. In other cases, attempts have been made to use the waste heat escaping from the slag, but this has been taken in such a way that the fumes from the slag were driven back into the furnace again, furnishing an impure blast with a great portion of the free oxygen already removed.

The object of my researches has been to secure a hot blast, which would furnish the air heated to a sufficient degree of heat to prevent chilling, at the same time increasing the capacity of the furnace and minimizing the use of fuel; and to accomplish this without any additional cost for operation. This I have been able to do by what is known as the Bretherton hot blast apparatus. In having this apparatus I have kept in mind the principal features required for its successful operation, doing away with the back pressure on the blowers so that the volume of air would not be minimized; taking the heat from the escaping heat of the hot slag by building an oven around the fore-bases properly neutralized with silica, through it for the escaping fumes of the slag; and augmenting the heat acquired in that manner somewhat by using a set of air jackets above the water jackets around the furnace, the air having a continuous passage from the blower to the tuyeres. In this way I have been able to keep the top of the furnace cool, so as to prevent volatilization.

The first and most important item to consider when heating the air blast is that it in no way interferes with the regular working of the blower, as all calculations as to the amount of blast on the former course, and a deep tunneling, together with a large ventilating plant operated by water power. This main tunnel is now in 1,700 feet and is seven feet by nine feet in the clear. The records of the work show that the actual driftage was over 100 feet per month, an excellent performance under the circumstances, while the highest driftage in any one month was 192 feet. Last summer a shaft was also started from the lowest of the previous tunnels and this has been sunk 220 feet on the vein by the aid of a compressor that runs the drills. Two lode has been opened up at two stations, No. 5, that is Nos. 6 and 7, 100 and 200 feet respectively below No. 5. A raise has now been started from the main tunnel to connect with No. 7. This will be 185 feet long and No. 8 station will be located half way up the raise. The lode has been proved at Nos. 6 and 7, and ore is being extracted at the present time. The vein in the lower level will then be vigorously explored. All ore from the upper levels will be handled through the main tunnel, thus expediting the work and reducing the cost of mining.

The Queen Bess is situated in the same mineral belt as the Payne and Idaho mines which are located respectively due north and south of the Queen Bess. Both the Payne and Idaho are now driving deep tunnels. In fact most of the big Sloan mines are looking for the lode level, and the present indications their efforts will be crowned with success. The Queen Bess vein carries, besides the high grade silver lead ore, a considerable quantity of carbonates which are now in demand at the smelters and can be treated at a very low rate, but the smelter rates now prevailing mean a loss of \$2.24 per silver-lead product net about 800 and the carbonate \$23, but the cost of mining is somewhat heavy and transportation be a serious item, in view of which a line will be put up, a tramway which will be put up should the mine open up well with depth.

The company has recently bonded the Silverite group of claims on the Sandon side of the mountain, the belief being that the future deep levels will be driven from that side of the property, as the ore

loss or demoralized; 4. It involves loss to the government; 5. It tends to displace and demoralize the currency system, which is at present safe, stable and peculiarly adapted to the needs of our commerce; 6. It opens the door to that inculcable mischief, free coinage of silver. The idea, however, is that Canadian gold shall be minted into sovereigns, which need not necessarily become current in Canada, but will benefit the currency by obtaining the trade of the miners owning gold.—B. C. Review.

BONDING A MINE.

Answer to an Enquirer From Pinckneyville, Illinois.

In answer to an enquirer from Pinckneyville, Ill., sent the meaning of the bonding of a mine as to the effect it has upon the shareholder, the following reply has been elicited from one of the leading stockholders and mining men of this city. He says that the stockholder is altogether dependent upon the rate at which the bond has been made and the price at which his shares were originally bought. Any bond of the nature referred to must be ratified by the majority (two-thirds) of the stockholders. This would pay interest on the promoters of the mine with their pooled stock and the amount of the stock issued, which is voted by the secretary of the company are in a position, especially with the help of one or more of the chief stockholders to constitute a two-thirds majority at the requisite meeting and subsequent ratification two weeks later, and so control the deal. Upon the nature of the deal depends the interest of the original shareholders.

Supposing the property in question to be a million-dollar company in one dollar shares, 500,000 of which were treasury and which remain 100,000 unissued. It will be apparent that around the board will be controlled 600,000 shares and an additional 70,000 held by proxy will put the board in a position to put any deal through which they care to. If the bond has been sold at \$50,000, it has been sold at a rate of 5 cents a share. The original shareholder has bought on the market, at the price of the company at a higher rate, than this will be the difference. If at a lower rate he will be just so much the gainer.

THE QUEEN BESS.

One of the Most Promising Properties in the Slovan District.

The year and century just fairly commenced undoubtedly has great things in store for the mining district of which Nelson is the commercial centre, and no property is likely to see more marked advance than the Queen Bess mine, operated from this city. Within the next two or three months the culmination of a comprehensive programme of development will be reached and the property will probably assume a position among the most extensive and richest producing in the Slovan.

The Queen Bess mine is situated in the heart of the Slovan, its shipping point being Alamo Siding. It also has the distinction of being one of the two or three mining properties worked by English capital in the Slovan. The property was opened up just over three years ago and was operated by the Sloan Development & Agency company. Some eighteen months ago the management passed into the hands of the Duncan Mines, Limited, the former owners retaining a large interest. A subsidiary company, the Queen Bess Proprietary company, Limited, was formed to swing the property.

The miner has been a shipper from the start and has paid at least two dividends. For the last eighteen months, however, the policy of the management has been to expend the whole proceeds in development with a view of reaping enhanced benefits later, a policy which is rarely adopted. When the new management took hold it was found that the ore in the upper levels would be exhausted in the course of a year and a half and it became necessary to devise a large scheme of development or to face the closing down of the mine. The directors determined to follow the former course, and a deep tunnel was commenced in September last. Since then only enough ore has been taken from the upper levels month by month to defray the cost of exploration work.

The mouth of the tunnel is situated 400 feet lower down the hill than the fifth or previous lower tunnel. A three-drill circuit plan was put in to facilitate driving, together with a large ventilating plant operated by water power. This main tunnel is now in 1,700 feet and is seven feet by nine feet in the clear. The records of the work show that the actual driftage was over 100 feet per month, an excellent performance under the circumstances, while the highest driftage in any one month was 192 feet. Last summer a shaft was also started from the lowest of the previous tunnels and this has been sunk 220 feet on the vein by the aid of a compressor that runs the drills. Two lode has been opened up at two stations, No. 5, that is Nos. 6 and 7, 100 and 200 feet respectively below No. 5. A raise has now been started from the main tunnel to connect with No. 7. This will be 185 feet long and No. 8 station will be located half way up the raise. The lode has been proved at Nos. 6 and 7, and ore is being extracted at the present time. The vein in the lower level will then be vigorously explored. All ore from the upper levels will be handled through the main tunnel, thus expediting the work and reducing the cost of mining.

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chutes seem to dip in that direction. E. R. Woakes, consulting engineer for the Duncan Mines, Limited, is the local manager of the property, while W. G. Scott is mine superintendent. Mr. Scott has held the superintendency for the past two years and has been connected with the Queen Bess almost ever since the property was first opened up.—Nelson Miner.

NEWS FROM KIMBERLEY.

The Freight Trouble—Work on the Mines, Etc.

Kimberley, Jan. 24.—Kimberley, like most of the western mining towns, is being disturbed by the prevailing epidemic which has been diagnosed as "freight rates" and as a result the North Star Mining company have been shipping steadily all along, with the exception of a few days when they stopped shipping on account of repairs at the mine. It is understood that a fresh contract has been arranged between this company and the smelter people, the terms of which are exceedingly more favorable than the old expired contract.

The freight charges on ore from this town alone, when the North Star and Sullivan mines were both shipping amounted to from \$25,000 to \$30,000 per month, this, of course, is now diminished to less than half. This would pay interest on a pretty nice little capital which would build half a dozen smelters, sites for which this section of East Kootenay abounds in water power ad lib., lime in abundance and dry ones in plenty, only needing a little expenditure to make transportation easier, when their deposits will be brought to the front.

Almost adjoining the North Star Mining company's property Charles Theiss of Spokane has been working upon a property known as the Dean and Allove, on which he has a bond. This work has been going on all winter, and has been conducted principally by means of the diamond drill under the operation of Messrs. Boyle Bros., of Spokane. Work has temporarily stopped on these properties, as account of the extreme cold, it being found impossible to make satisfactory progress with the drill as directly anything occurred to create a pause in the operations, everything froze up. Mr. Theiss, before leaving, stated that he was extremely satisfied with the discoveries he had made and expects to resume operations as soon as the weather moderates, as he has the greatest faith in the property.

The coming season will see a great deal of mining done on the Sullivan hill near Kimberley, as apart from the Sullivan mine, a group of claims adjoining this property has just been bonded to the New Gold Fields of British Columbia, for the consideration of \$15,000, and negotiations are now being made for acquiring several other groups in the immediate vicinity of this property, by the same corporation, terms of which are not yet known, but the figures are said to be large.

COAL LAND.

Rich Field With Many Tons of Fuel in Sight.

U. F. Law has returned to Vancouver from the Nicola Valley, and had some interesting news to give of that part of the province. Mr. Law said that the next city of British Columbia will undoubtedly be located in the Nicola Valley. He had just bonded, for the Gooderham-Blackstock company, 4,900 acres of coal lands in Nicola Valley for \$100,000, and believes that he has 100,000,000 tons of coal in sight. The coal lands were reported upon very favorably by Dr. Dawson in 1868, and thirty years ago coal was hauled from the valley to 150-Mile House for blacksmithing purposes.

Before bonding the lands they secured the report of Mr. Burrell, the expert who gave his opinion on the Crow's Nest Pass fields, and who is the coal expert for the Amalgamated Copper Company of New York. Mr. Burrell told Mr. Law in conversation that the coal measures of Nicola Valley, as far as they had been developed, were the most promising he had ever seen in his wide experience. The coal extends for five miles square and has been tested successfully, where not outcropping at a depth of 600 feet with diamond drills. The vein is about 5 1/2 feet wide. Mr. Burrell reported that as soon as a railway could be got in there, the mines would be capable of shipping from 1,000 to 2,000 tons a day.

Behind the coal fields is a mountain of iron running from 55 to 65 per cent pure metal, while there are vast quantities of lime in the country; and the ranges even now, without railway facilities, contain magnificent droves of cattle, the Douglas Cattle Company alone having 20,000 head. With 200 or 300 cars of coal running out of Couleze daily, Mr. Law thought a city must spring into existence. The coal lands secured were, as follows: Gilbert Blair's ranch of 300 acres, level land with coal outcropping and the river running alongside, bonded for \$20,000; Green & Warnock, 3,500 acres, bonded for \$75,000; and S. Tingler's 1,000 acres bonded for \$5,000.

When the Gooderham-Blackstock syndicate received Mr. Burrell's report, they decided that a railway should be built into the country at once. They offered the V. V. & E. people \$100,000 for their charter, without restrictions—\$65,000 for the British Columbia promoters and \$35,000 for McKenzie & Mann, who had a hold on the charter. The British Columbia promoters were willing; McKenzie & Mann were not. They bought out the British Columbia holders themselves for \$65,000, and McKenzie & Mann are now actually the V. V. & E. of the Great Northern, simply offering to make connections over the road when built. Should a Dominion and Provincial bonus be secured, it is said the V. V. & E. railway will be built at once.

In the meantime the C. P. R. have suddenly decided to take advantage of an old charter and push their road through the country, and a line is now being surveyed by them. Mr. Law states that there cannot be two railways, for they would have to cross; but now that the C. P. R. and V. V. & E. are anxious to get into the country, his principals will step aside, in any event to enable them to open up the vast coal fields of the Nicola valley, which contain enough high-class bituminous coal to last for one hundred years.—Colonist.

Mr. Burrell of the Nursery, Grand Forks, can supply you with first-class strawberry and raspberry plants.

BRADSTREET'S REPORT.

Bradstreet's report of total number of mercantile failures in the Dominion of Canada, with assets and liabilities for seven years: Canada and Newfoundland.—Number of failures: 1900, 1,336; 1899, 1,305; 1898, 1,470; 1897, 1,927; 1896, 2,235; 1895, 1,926; 1894, 1,873. Actual Assets—1900, \$4,246,152; 1899, \$4,623,558; 1898, \$4,194,927; 1897, \$5,224,597; 1896, \$6,783,257; 1895, \$6,239,177; 1894, \$11,844,832.

General Liabilities—1900, \$10,789,189; 1899, \$11,115,291; 1898, \$9,825,554; \$13,210,379; 1896, \$16,360,576; 1895, \$15,509,509; 1894, \$23,685,283.

Table with columns: Province and Territories, No. of Failures, Assets, Liabilities. Rows include Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Is., Newfound., Newfoundland, British Columbia, Total Canada, Newfoundland, N. P. & M., etc.

An Old Horse Renews His Youth.

Dayton, O., Dec. 15.—"Old Buck" is an ex-patrol horse that was supposed to have outlived his usefulness. At the recent sale of patrol horses C. A. Cushman, a local merchant, purchased the animal. Since then the horse has been doing duty pulling a delivery wagon.

Today, while passing the Main street engine house, the fire alarm sounded and "Old Buck" rejuvenated and filled with fire and ginger, leaped off at a terrific speed. The flight over the principal streets was the wildest ever made by horse and wagon. Collisions with street cars were averted by the merest chance and the louder the driver yelled to pedestrians to keep out of the path of danger, the faster "Old Buck" flew. It was a mad run, and a veritable gauntlet of teeth, street cars and hook and ladder and hose wagons was run before the old "boss" petered out.

"Buck" traveled several miles, and would have continued an unparalled run but for a collision with a fence at the foot of Warren street. Driver Charles Horner, unacquainted with the history of the horse, was paralyzed by its unexplained activity and was powerless.—Cincinnati Enquirer.

Glasgow Exposition.

The buildings for the Glasgow Exposition are now nearly completed. They occupy a site that is almost in the heart of the city, about 73 acres being enclosed in the exposition grounds. The buildings, including the fine art gallery, cover about 20 acres of this space. The art gallery will be a permanent building. It was built in the early '70s out of the surplus left from the proceeds of the international exposition which Glasgow held in 1888. The other buildings are of a temporary nature and are colored in white and gold on the outside. On the eastern side is the grand hall, in which all the ceremonials will take place, and the musical and other entertainments. The chief building will be exclusively devoted to exhibits. Its feature is a great gilt dome, which rises high amid the lofty towers. It is 220 feet in height, 80 feet in diameter and 240 feet in circumference. The internal decoration is appropriate. Above each of the four great arches are groups of female figures, representing industry, commerce and art. A number of scientific conventions will be held in Glasgow during the exposition, among them being the annual meeting of the British Association, Institute of Mechanical Engineers, Society of Engineers and Shipbuilders, Institute of Naval Architects, International Engineering Congress, Royal Institute of British Architects, International Association for the Advancement of Science, Arts and Education. The 45th anniversary of the foundation of the University of Glasgow will also be celebrated during the exposition.

Inebriate Poultry.

Wild excitement and consternation were introduced last week by a practical joker in a poultry show at Wilkesbarre, Pa. During the absence of the attendants the ducks were fed with corn soaked in whiskey. They were soon intoxicated, and promptly began a furious combat. All the fowls in the neighborhood of the drunken ducks were excited by the uproar, and it seemed that the show would have to end. Bruno seltzer was used with the duck's drinking water and they finally became peaceable.

20 YEARS OF VILE CATARRH. Wonderful Testimony to the Curative Powers of Dr. Agnew's Catarrhal Powder. Charles O. Brown, journalist, of Duluth, Minn., writes: "I have been a sufferer from throat and nasal catarrh for 20 years, during which time my head has been stuffed up, and my condition truly miserable. Within 15 minutes after using Dr. Agnew's Catarrhal Powder I obtained relief. Three bottles have almost if not entirely cured me." 50 cents.—Sold by Goodere Bros.

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Smelter—Ore Sh

Notes.

The block at the recent been at this i the of the Le Roi group reach the tonnage through the Trail smelter War Eagle and O settled, which is causes standing in output. It will, even under the, be mines are shipping tons a year, and a cannot stand narrowly circumscribed by the year begins to ap seem to be the s back of the sm accommodation of this has been about 600 feet of up before cars of the present only timbers have been mander is indefinitely railway officials a tion, but one wa the track after a neighborhood. The E miles below North pered the work of the present outloo theless, that before can get down to a of February will h

On the other ha agement is improv way so that when this will not p in the way of inc work done so far has been very en little doubt but th 600 tons per week

The output for this year, and a tons, the record for September. The p ping up to the ave the last six month only average 600. The Le Roi No. 2 keep the bins clea Velvet has shipped an dit is a material put, though, of co ping will increase get better. The W rather largely, wh than real, as two are included.

Appended is a list the past week and

- Le Roi No. 2
Central Star
War Eagle
Iron Mask
Le Roi No. 2
Velvet
Giant
I.X.L.
Spitzer

Total
Rossland Bonanza retained E. J. Bonanza secretary of the B went out there to the developments of had shown up. In Miner reporter last said: "Since work Bonanza company a new retaining occu 120-foot. I had n since the face wa The managing dire has paid two visit then, but apart fr the directors and a oa was the news time to time by E. Baulo, who is also and principal mpany. The sampl ced from him, ar here in town, sho \$94 per ton. This good that I was d giving the property of it. It is made a point that I had t took samples from of the tunnel ever 75-foot station t and I also sampd which was in 120 ran all the way u of the six being \$52 sent 35 feet of an there has been tak the dump 75 tons will go not less th ore shoot, however, only averaged betw the ton. The tunn the rate of 18 inch of two men, whic foot of tunnel betw \$4.86, we are layin about \$50 worth of a wagon road buil Western railway, a miles on an easy g to be in a position

Centre Star.—The ment to be reported mine to having occu The shipments are uniformly from the end level, with th which is come upo of the fifth level. I War Eagle.—The War Eagle on the wayward, the headw ore the ore bins, to down last summer, completion. There