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It may confidently be expected that the larger market for Alberta coal which has resulted from the scarcity of American coal will be held after the war. At present the freight rates prevent Alberta coal from being sold cheaply in Manitoba; but it is reasonable to expect that some adjustment will be made when conditions permit. In the meantime, Canadians will become acquainted with the fact that Alberta coal has not been utilized to the extent that it should.

During the month of May a technical clerk was temporarily required in the Topographical Surveys Branch of the Department of the Interior at a salary at the rate of \$1,300 per annum, and it is stated that "applications will be considered from graduates in Applied Science, honor mathematics, or physics, of some recognized university." Qualified draughtsmen, competent to perform engineering and architectural work are offered \$125 per month. By way of contrast, a "motion-picture camera man" required by the Department of Trade and Commerce is to be given an initial salary of \$2,400 per annum, and a law clerk to an initial salary of \$2,100.

BREAKING THE GERMAN METAL TRUST.

The announcement that the Alien Enemy Property Custodian of the United States has taken over the German metal firms of L. Vogelstein & Co., and Beer, Sondheimer & Co., Inc., may be taken as an indication that the German metal trust is going to fare badly in America in the future. The Germans had, when war broke out, a very strong hold on the metal markets of the world and they displayed considerable ability in keeping control during the war. The impression here has been that the British and Canadian Governments have not handled the metal business in a way to excite much admiration. Our Australian friends showed some time ago that they intended to free themselves of German control of metals and now that the United States authorities have taken action, we may reasonably expect that the governments of all the countries allied against Germany will seriously consider plans for completely breaking the German control of metals. By united action of the allies, the Germans should for all time be prevented from obtaining a controlling interest in the metal business in any country but their own.

Of special interest to Canadians is the announcement concerning Beer, Sondheimer & Co., Inc., successors to the American branch of a German firm which at the opening of the war was agent for the Minerals Separation Company. The behavior of this firm has been such that it would be difficult to consider it other than a dangerous enemy. Naturally the Minerals Separation corporations which were associated with Beer, Sondheimer & Co., have been also under a cloud of suspicion. Up to date, however, there has been no disclosure of evidence which would indicate that the Minerals Separation American Corporation is controlled by Germans and so long as the Alien Enemy Property Custodian of the United States is satisfied we can only assume that the Minerals Separation companies are in safe hands. The question of the status of the American corporation is one that has no doubt received the attention of the American authorities. Some time ago we asked that an explanation be given of the connection between Beer, Sondheimer & Co., and the Minerals Separation companies. The replies have been more or less satisfactory insofar as they showed that the Governments interested were cognizant of the facts and were satisfied. These replies have, however, not removed the suspicion that some Government officers are too easily satisfied and it is a pleasure to note that the American government, which has at its command the services of many leaders of the metal industry, is now exterminating vermin at a rapid rate. There has been a great deal of damage done by these German metal firms in all the countries fighting against Germany. The peculiar behavior of British and Canadian

governments in this matter must have pleased the Germans. We have, however, always had confidence that the leaders in the American metal industry would make short work of the enemy interests when the time came and we now look for more revelations and eventually international action to prevent the Germans from ever again gaining control of the trade in metals.

THE GOLD PROBLEM.

The high cost of production has now made the mining of gold at a profit almost impossible. What is to be done? Is gold needed? Why not close down the gold mines and put the employees at other work? Is it of any advantage to Canada to mine gold when the cost is so high and the selling price remains fixed? Is gold production necessary for the purposes of trade during the war? If gold is needed how can it be obtained? If the government recognizes that gold is necessary, what steps can be taken to encourage production?

The problem of maintaining credit without gold is a Canadian problem and also a world problem. It must be considered from many points of view. Some think that we could get along without more gold for a few years, so long as the attention of everyone is directed solely to the prosecution of war against Germany. Others believe it to be vitally important that production of gold should not be curtailed.

If everyone is willing to assume that there is sufficient gold available there probably will be. Even if some should be unwilling to believe that the gold exists, they will probably not make great demand for their gold during the war. The shipment of gold from place to place to balance credits would be scarcely necessary if such faith existed. It may even be viewed as a confession of lack of faith, unless gold is really essential for the prosecution of the war.

During the war there have been extraordinary movements of gold among the allied countries. The banks are evidently committed to this habit. If it should be found possible to avoid such shipments between allied countries during the balance of the war we may expect a return to old habits as soon as the war is over.

After the war there is to be a readjustment period, the character of which nobody can foretell. If it proves similar to the period following the outbreak of war there will be so much uncertainty in business that confidence in others, in the value of securities of many kinds, and in the future of business enterprises will be disturbed. The value of commodities and labor will fall, but the price of gold will remain stationary. At that time it will obviously be greatly to the advantage of Canada to have large reserves of gold. It is well to remember that in order to build up a supply of gold we must do a lot of work at the mines. Gold deposits do not pay on demand. We cannot leave the mines idle now and expect them to produce large quantities of gold when it is needed most. Moreover, it costs

a lot of money and labor to keep a mine in condition for operation even when not producing an ounce of metal. Gold should be recovered as soon as possible after it is discovered. Gold deposits are of little value to the country so long as they stand unworked. Where labor and capital have brought a mine to the producing stage it is in the general interest that production should continue steadily at capacity until the deposit is worked out.

If it is admitted that a large gold reserve in Canada is worth striving for, it should not be impossible to extend assistance to gold mining companies by paying a bonus on gold produced during the war. That gold is necessary during the war has been pointed out by competent authorities; but the necessity seems to be that the allies, and not Canada particularly, need it. The encouragement of gold production during the war for war purposes should therefore come from international action, Canada falling in line with the larger producing countries. Our governments have to consider also what should be done to utilize Canadian resources to maintain Canada's credit after the war. This is also a matter which cannot be postponed until after the war, for if gold is wanted then much of it must be mined now.

While a bonus system would be necessary in order to permit the profitable working of some of our gold mines, it is probable that a fairly large production could be profitably made without a bonus if the labor supply were improved. At present the efficiency of the workers is very low and to this cause the managers of the chief producers attribute largely their inability to operate satisfactorily. Given the choice of a bonus or a force of efficient miners, few managers would hesitate to take the latter.

UTILIZING WESTERN COAL.

One result of the shortage of coal in many parts of Canada has been the direction of attention to the coal resources of the Western Provinces. Good bituminous coal in very large quantities occurs in Alberta and British Columbia; but it has nevertheless been customary to import both bituminous and anthracite coal to supply the West. It has been difficult to make consumers realize in the heat of summer that there will be a shortage of American coal next winter. Last summer the output in Alberta was necessarily small. About two months ago the Provincial Government started an advertising campaign, advising people to stock their coal early. Good results are now being obtained from this campaign and sufficient orders have been received to warrant running the mines at capacity. To-day Alberta coal mines are shipping to Manitoba 2,000 tons per day as compared with 200 tons per day a year ago. In the Drumheller district the production in June was 93,000 tons as compared with 31,397 tons in June last year.

Nodulizing Flotation Concentrates

In the latter part of 1917 there were carried out near Princeton, in Similkameen district of British Columbia, by Mr. R. M. Draper, of Southboro, Massachusetts, U.S.A., formerly with the U.S. Metals Refining Co. at Chrome, New Jersey, some experiments for the Canada Copper Corporation in nodulizing copper concentrate from a preliminary small concentration plant the company had for some time been using in testing methods for the concentration of copper ore from its mines on Copper Mountain, at which much exploratory and development work had been in progress for several years.

This company now owns and operates mining properties in Boundary and Similkameen districts, and copper smelting works at Greenwood in the former district, previously owned and worked by the British Columbia Copper Co. Much of the commercial ore in the company's largest mine, the Mother Lode in the neighborhood of Greenwood, having been exhausted, mining operations have for some time past been largely concentrated at the Copper Mountain mines, at which about 12,000,000 tons of copper ore is estimated to have been practically proved to occur, with a reasonable prospect of considerably more being developed, when much more work shall have been done on the large group of mineral claims in the locality owned by the company.

In passing, it may be mentioned that the company's smelting plant at Greenwood is modern in design and equipment and is likely to be used in smelting ore and concentrate from its Copper Mountain mines. In a published paper, descriptive of this plant, Mr. Frederic K. Brunton, formerly superintendent of the works, stated that it "is of special interest to metallurgists for several reasons. It was successfully smelting in blast-furnaces the lowest-grade copper ore of all plants in America. In order to do so, it had to run at very high efficiency, which necessarily required a large tonnage per square foot of hearth area, together with the minimum amount of labor and other costs. The furnaces smelted daily 2,250 tons of ore (6.62 tons per sq. ft. of hearth area), carrying 0.85 per cent. of copper, at a smelting cost of \$1.18 a ton. The entire plant required 130 men to operate it and keep up repairs, showing a labor efficiency of about 17.5 tons per man per day." Of the three blast-furnaces, two are 51 by 360 in. and one 51 by 240 in. at the tuyeres, making the total smelting capacity 2,400 tons a day.

The process of nodulizing concentrates is carried out by passing the material through a revolving kiln, the while subjecting it to sufficient heat to cause the fine particles to roll up and adhere together in a ball; at the same time care must be taken not to make the temperature in the kiln hot enough to melt the concentrates.

While nodulizing is no longer an experiment with oil as fuel, the process having been introduced at Chrome five or six years ago, and since used on a commercial scale, it is believed to be quite an experiment on flotation concentrate, using coal-dust as fuel, certainly so far as known in the North-west.

The position was that, while the Canada Copper Corporation had satisfied itself as to the adaptability of the flotation process for the concentration of ores from its Copper Mountain mines, which ores have been estimated to have an average assay value of 1.74 per

cent. copper, the problem of how best to make the fine flotation concentrate suitable for charging into the blast-furnace had not been solved. Hence the experimental work on nodulizing conducted near Princeton last year by Mr. Draper for the company.

It happens that there is at East Princeton, distant about twelve miles from the Copper Mountain mines, a cement-manufacturing plant that had for some time been inoperative, so, notwithstanding that the cement rotary kiln available there is of present standard size and larger than had been found suitable for nodulizing at Chrome, it was used by Mr. Draper in carrying out his experiments there. The dimensions of this kiln are: length 125 ft., and inside measurement 7 ft. It is about 25 ft. longer than need be for the nodulizing work for which it has been used. Despite this disadvantage, however, very successful results were achieved by Mr. Draper; the nodulized product being material of a character suitable for reduction in the blast-furnace, with about 82 per cent. of its sulphur content retained, which is an important consideration in a country where the percentage of sulphur in the ores available for smelting is generally already too low.

It was estimated that a 100-ft. rotary kiln would nodulize from 100 to 125 tons of flotation concentrate in 24 hours. At East Princeton both mine run and slack coal is obtainable from a nearby coal-mine, while included in the equipment of the local cement works is all the plant requisite for drying and pulverizing the coal, which, after having been pulverized, is fed into a hopper, from which it runs into a blast-pipe and is blown thence into the kiln. Electricity is generated at the cement works for other uses, so that the comparatively small amount of power required for operating the kiln is obtainable at small cost, while the charge for labor in attending to the kiln and, as well, for repairs to it, is quite small.

It may be added that, while quite successful results were obtained in nodulizing flotation concentrate from both the Copper Mountain plant and another mill at Highland Valley, in Ashcroft mining division of British Columbia, experiments made with table concentrate, also at East Princeton, were not so successful.

Results of Previous Work.

For the information of those not already familiar with the results previously achieved in nodulizing both blast-furnace flue dust and fine sulphide concentrates, the following excerpts have been made from a paper by Mr. Lawrence Addicks, of Douglas, Arizona, presented at the Salt Lake, Utah, meeting of the American Institute of Mining Engineers in August, 1914 (see Trans. A.I.M.E., Vol. XLIX., 1914, pp. 500-6), in which an account is given of what had then been done to solve a problem arising from the "constantly increasing piles of unsmelted blast-furnace flue dust," that at the smeltery connected with the Chrome, New Jersey, refinery of the U.S. Metals Refining Co., had proved embarrassing; and from the discussion of that paper.

Mr. Addicks wrote, in part: "The charge was fine and 10 to 15 per cent. of it was blown into the flue. Sulphur was at that time too scarce to make the sintering of the finer part of the charge attractive, and raw-ore smelting in a reverberatory with a partly oxidized charge was not to be thought of.

"A great many schemes were considered, including leaching, blowing into the converters, and briquetting,

the problem finally narrowing down to blast roasting and nodulizing. It was found by experiment that blast roasting would not yield a satisfactory sinter without the addition of coke dust or sulphide fines to augment the fuel value of the flue dust, and on this account, together with the low cost of a kiln, the latter was decided upon.

"Two tons of flue dust was tried out in the experimental kiln in the laboratory at Yorktown, Va., of J. H. Payne, who acted as consulting engineer in this connection. This kiln was approximately 2 ft. in diameter and 20 ft. long and was fired with fuel oil. A run of several hours yielded excellent nodules. The kiln showed no tendency to build in and form 'nose rings,' and gave a fuel consumption of 50 gal. of oil per ton of flue dust. There was no indication of any stack loss. The roasting was strongly oxidizing. A study of what full-size kilns were doing on cement clinker and on nodulizing pyrites cinder indicated that a 60 by 6 ft. kiln would certainly not consume more than one-half of the oil per ton of flue dust shown on the test and as fuel oil at that time was selling around 2½ cents a gallon, it was decided to let it go at that.

"A 60 by 6 ft. kiln was decided on, as that is standard in cement practice, although fast being replaced by much larger ones with their greater fuel economy, and as it fitted in the building space available. A 6-in. brick lining brought the net diameter down to 5 ft. The inclination toward the discharge end was fixed at ⅝ in. to the foot, and the revolutions per minute at 1½.

"The results, while satisfactory, were quite different from those anticipated. In the first place, the fuel consumption was far lower than had been expected. A granular sand can be made with perhaps 8 gal. per ton, a first-class smelting product with 12, and great chunks with 16. It appears, therefore, that such a test kiln as that used takes about four times the fuel that will be required on a 60-ft. installation, although this ratio might be changed for different material with varying internal fuel values.

"In the matter of formation of nose rings, the test kiln was deceptive. There was a decided tendency to such formations and it took some time for the operators to acquire the necessary skill to control this. Steady conditions of flame are very necessary. If the kiln is overheated, semi-molten material forms on the walls and a subsequent over-chilling will plaster the sand on very rapidly. A number of devices were tried to meet this difficulty, but finally it was found that reasonable skill and care on the part of the attendant and an occasional shut-down of a few hours to remove any obstinate obstruction were the best remedies. . . . When perfectly clean 75 tons of flue dust can readily be nodulized in 24 hours, while a choked-up barrel will deliver less than one-half of this quantity. There is no difficulty in regular work in delivering 50 tons a day, including all delays, and a few hours' work for two or three men once in two weeks will handle the accretions."

Nodulizing Concentrates at Braden.

In discussing Mr. Addick's paper, Mr. James H. Payne, Baltimore, Indiana, first outlined further experimental work he had done on flue dust and then continued:

"In the early part of 1914, I succeeded in interesting the Braden Copper Co. in nodulizing, with the result that an extensive series of tests were made in Yorkton upon oil-floated concentrates covering quite a wide

range in analysis. These tests led to trials in the Chrome rotary, on the part of the U.S. Metals Refining Co., of Minerals Separation concentrates which they had in stock, and later to test runs to check up the Yorkton runs on Braden concentrates. The large-scale tests checked up with the Yorkton tests in every way (except fuel consumption, which was, however, correctly predicted), and led to the Braden Co.'s decision to adopt the process at Braden.

"The fuel consumption upon oil-floated concentrates is not more than 6 gal. per ton, and in many cases is less. The action in the furnace is independent of the sulphur content, and there is actually less tendency to form nose rings in the Chrome rotary than upon flue dust. It is believed that the improvements entering into the design of the Braden kilns will cut down the nose-ring trouble to where it will no longer be a drawback to the process.

"The flue dust produced by the kiln itself is practically nil, although some of the material treated has been as fine as 82 per cent. through 100 mesh. This is unbelievable to metallurgists familiar with the old Bruckner roaster, but the conditions are entirely different. The material is fed wet and what dust there is precipitates in the atmosphere of steam at the exit end. The material, furthermore, is constantly moving downward to the hot end and is in a dry, dusty state but a short time, soon changing to a densified condition which is no longer dust.

"The amount of sulphur in the nodules is under perfect control. It can be as high as 15 per cent. or as low as 5 per cent., as may be desired. The upper limit for good working appears to be about 15 per cent., as the nodules are very sticky, with higher sulphur content. A product running 13 to 15 per cent. sulphur has been readily obtained on all oil-floated concentrates so far tried, where the object was to retain all sulphur possible. This makes pyritic blast-furnace smelting of sulphide concentrates possible.

"The size and character of the product has varied with the different concentrates tested so far, and also with the sulphur content sought for. When high sulphur is desired in the product, the nodules run smaller than the flue-dust nodules, as produced at Chrome. They are, however, entirely free from material that would blow out of a blast furnace. A number of samples tested show from 42 to 45 per cent. of voids.

"Nodulizing of sulphide concentrates, particularly oil-floated concentrates, opens up a new field because it makes possible pyritic smelting of such material. Further, the operation appears to be such a cheap one that it may compete with roasting in multiple-hearth furnaces in reverberatory practice. If so, it would be far preferable to roasting in the case of the exceedingly fine-oil-floated concentrates, because of the large amount of dust that the roasters must necessarily produce on this material."

Success at Chrome on El Cobre Concentrates.

Mr. R. M. Draper also took part in the discussion, as follows:—

"The kiln will treat El Cobre flotation concentrates very successfully. There does not seem to be much of a tendency to form ring accretions, and those that do form are nearer the discharge end of the kiln, where they may be removed much more readily. The temperature of the kiln is much lower for concentrates than for flue-dust, and the oil consumption much less. Our consumption of oil was about 6 to 7 gal. per ton of concentrate.

"The nodules were very satisfactory from a blast-furnace point of view when charged into the furnace cold. We did have considerable trouble with crusts on the furnace, if we put in too much of the hot nodules, due probably to the fact that they were near the smelting point when charged into the furnace and naturally smelted much higher up in the furnace. I think we would have had this difficulty with any hot material that was charged. In fact, we found the same tendency to crust when we tried the experiment of charging hot converter slag into the furnace several years ago.

"The concentrate feed averaged about 30 per cent. sulphur, and several samples of nodules taken at various times showed an average of 14 per cent. sulphur. One sample of nodules chilled immediately in water showed a sulphur assay of 20 per cent. There is no difficulty in averaging 60 tons of the concentrates per day, and I believe that, with a proper feeding device, the tonnage could be increased to 75 tons a day. There is no question that the greater the tonnage the less the consumption of oil per ton.

"Screen Test on Nodules from El Cobre Concentrates.

	Per cent.
"Between 1/2 and 1/4 mesh	25.95
" 1/4 " 8 "	44.75
" 8 " 16 "	24.52
" 16 " 20 "	1.64
" 20 " 30 "	1.93
" 30 " 40 "	0.46
" 40 " 60 "	0.33
" 60 " 80 "	0.14
" 80 " 100 "	0.04
" 100 " 120 "	0.06
Through 120 mesh	0.18
	100.00

It will be noted that, although all the product is under 1/2 in., the proportion of real fines is very small.

British Columbia's Coal Production in Half Year

The Vancouver Island Collieries produced 137,895 tons of 2,240 lbs. for the month of June, a little over 5,000 tons less than the quantity produced in the month of May.

The tonnage produced by the various companies was as follows:—

	Tons.
Canadian Western Fuel Co., Nanaimo Colliery	61,685
Canadian Collieries (D), Ltd., Comox Colliery	47,926
Canadian Collieries (D), Ltd., Extension Colliery	18,367
Pacific Coast Coal Mines, Ltd., South Wellington	8,417
Nanose Collieries, Ltd., Nanose Colliery	1,500
	137,895

For the first six months of the year the Vancouver Island Collieries produced 857,131 tons, a decrease of 24,881 tons, as compared with the same period last year. The producing mines are three less than was the case in 1917, namely, the Jingle Pot Mine, South Wellington Mine, Pacific Coast Coal Mines, Ltd., and No. 4 Mine, Canadian Collieries (D), Ltd., Extension Colliery. The Jingle Pot Mine alone produced 48,885 tons during the first six months of last year, so that, in spite of the loss in tonnage from this mine and the others since closed down, the tonnage has been well maintained.

The tonnage produced by the various companies for the first six months follows:—

	Tons.
Canadian Western Fuel Co., Nanaimo Colliery	389,984
Canadian Collieries (D), Ltd., Comox Colliery	280,151
Canadian Collieries (D), Ltd., Extension Colliery	118,148
Pacific Coal Mines, Ltd., South Wellington ...	51,181
Nanose Collieries, Ltd., Nanose Colliery	17,667
	857,131

The Canadian Western Fuel Co. at its Nanaimo Colliery has made a gain of 63,515 tons for the first six months of the year.

The Canadian Collieries (D), Ltd., at its Comox Colliery, has made a gain of 21,233 tons thus far, but has lost 32,014 tons at its Extension Colliery. This is accounted for by the closing down of No. 4 Mine, as previously mentioned.

The Pacific Coast Coal Mines has a loss in output of 36,816 tons for the first half of the year. This is explained by the abandonment of the South Wellington Mine.

The Nanose Collieries has made a gain of 9,086 tons, while the Jinglepot Mine of the Vancouver Nanaimo Coal Company, as stated, has produced no coal this year, while for the first half of 1917 its output was 48,885 tons.

The No. 5 Mine of the Canadian Collieries is now producing about 100 tons daily from development work and should considerably augment the Island tonnage before the end of the year.

The new mine at Cassidy's Siding, E. & N. Ry., which is being opened by the Granby Consolidated Mining & Smelting Co., is now producing coal from the development work. Some 1,000 tons has been dumped at the surface of the mine, but no shipments have been made as yet. The Island tonnage should be somewhat augmented by the production of this colliery before the end of the year.

A pair of shafts are now being sunk for the purpose of opening up a new mine on the Company's Farm near Nanaimo by the Canadian Western Fuel Co., and coal will probably be reached by October of this year, and shipments made before the end of the year.

The coal produced by the mines of the Nicola-Princeton district for the first six months of the present year was 19,972 tons in excess of that produced in the same time in 1917.

The tonnage to the credit of the several companies for the first six months of 1918 follows:—

	Tons.
Middlesboro Collieries	54,698
The Fleming Coal Co.	12,637
Princeton Collieries, Ltd.	22,148
	89,483

The Middlesboro Collieries has made a gain of 19,152 tons over last year, and the Fleming Coal Co. (formerly the Inland Coal & Coke Co.) has exceeded last year's showing for the same period by 5,198 tons. The Princeton Collieries has made a gain of 355 tons.

The Merritt Collieries has not been operating this year, while last year, for the first six months, its output was 4,782. Despite this handicap, the district shows an increase of 19,152 tons.

While the returns of the Crow's Nest Pass Field are not available, it is known that the entire output of British Columbia, for the first six months of 1918, is considerably in excess of the showing made in 1917.

Mining Convention at Revelstoke, B. C.

The annual Northwest International Mining Convention of 1918, which was attended by delegates representative of the mining men of Washington, Idaho, and Montana as well as the Provinces of Alberta and British Columbia, was held at Revelstoke, B.C., on the 8th, 9th, 10th and 11th of July. It was one of the most outstanding assemblages of its kind in point of attendance, the high standard of addresses and of the general discussion, the enthusiasm with which the idea of co-operation, regardless of the National boundary, was endorsed, the very evident desire of all to assist in paving the way to further progress in the development of the mining resources of the North country, and, last but not the least notable, the splendid entertainment furnished the visitors by the citizens of Revelstoke.

One of the features of the opening session was the occupancy of the chair by Mrs. Ralph Smith, the first woman member of the Legislature of British Columbia, and the first of her sex to preside over the deliberations of such an organization. In thanking the delegates Mrs. Smith said that she appreciated the honor because it was a recognition of the right of womankind to a more prominent and influential part in shaping the policies of governing and semi-governing bodies of the country. She trusted that the Convention would follow up such resolutions as might be passed by action to the end that the mineral resources of the two nations represented might be more fully developed.

Mr. Alex McRae was chairman of the Executive Committee in charge; Mr. W. J. Coulthard, vice-chairman; Mr. F. B. Hill, secretary; Mr. L. A. Howson, assistant secretary; Mr. K. G. McRae, treasurer; and Messrs. W. A. Anstie, H. McKinnon, B. R. Atkins, A. Johnson, W. R. Grubbe, and M. H. Lister, and Dr. W. H. Sutherland, the latter being the member of the legislature for Revelstoke. Through their efforts the Convention programme was prepared and a mineral exhibit was assembled comprising samples from practically every known British Columbia mining camp. The Canadian Consolidated Mining & Smelting Co. contributed a special display of the products of its smeltery. Mr. T. O. Bibb was in charge of the exhibition.

Mr. A. G. Langley on Prospects.

Mr. A. G. Langley, Provincial Resident Mining Engineer for the Revelstoke District, gave the first address, the subject being "Discovery and Development of Prospects." He said that the District had been prospected for gold, silver, lead and other minerals to some extent, but there was much to be accomplished. He sketched mining activity from the "eighties" in the Big Bend, Trout Lake, Ainsworth and other mining camps. Emphasis was laid on the importance, when a good find was located, of thoroughly prospecting the adjacent sections and valuable hints were given with reference to the finding of ores peculiar to the Kootenays of British Columbia. Dealing with development the speaker stated that the prospector and miner should not crosscut his course until he finds himself justified by his original findings. Too much work should not be done until it is definitely established that the ore is likely to be sufficiently valuable to warrant the expenditure of labor and money. Mr. Langley thought special attention should be paid to the development of

minerals especially required for war purposes and deprecated "wild-catting," asserting that mining, if carried out along proper lines, was a good investment.

Mr. Bruce White on Resources of Revelstoke District.

Mr. Bruce White, of Sandon, B.C., chairman of the Western Section of the Canadian Mining Institute, discussed "Geology and Mineral Resources of the Revelstoke District." Declaring that there were greater varieties of geological formations in this section than in any other part of British Columbia he said that even the rare metal, tin, was found in pegmatite rock on the headquarters of McDougall Creek. This pegmatite was an altered granite and quartz mixture and was of the pre-Cambrian age. Tungsten was likely to be found in this vicinity or might be associated with the tin in the form of scheelite. In the Trout Lake district manganese was in evidence while molybdenum, another war metal was found in several places along the Arrow Lakes in the altered granite formation but very little work had been done on them. The Big Bend Country, north of Revelstoke, had been well-known for over fifty years, its placer mining having first brought it into prominence. The speaker referred briefly to the Trout Lake and Lardeau District and its mineral riches and concluded by expressing the opinion that the Revelstoke District's possibilities were not realized and that all that was necessary to bring about notable development were men and capital.

Hon. John Hart on Taxation of Mines.

Hon. John Hart, Minister of Finance, took for his text "Taxation, as it affects the Mining Industry." He said, in part:

"For the benefit of those of you who have not had experience with British Columbia taxation of mines, I might state that until 1896 the output of mines was made a subject of personal property tax. In 1896 an amendment to the Taxation Act was passed placing mines and mineral in a separate class of property. The amendment stated that there shall be assessed, levied and collected from every person owning, working or leasing a mine, a tax of one per cent. on the assessed value of ore raised from the land, the value of the ore to be determined by smelter returns.

"In 1900 a further amendment was passed to the Act making the rate two per cent. on the ore produced, providing, however, that all ore producing mines not yielding a market value of \$5,000, and on placer or dredging not producing a gross value of \$2,000 in any one year shall be entitled to a refund of half the tax paid in the case of ore mines and of the whole tax in case of placer and dredging mines. The tax imposed by this amendment was in substitution for all taxes upon the land and upon personal property used in the working of said mines.

"In 1901 there was a further amendment stating that the owner of a mine shall be exempted from payment of income tax from income on mines. In 1902 a further amendment was put through to the effect that the gross output of placer or dredging mines to the value of \$2,000 should be exempt from taxation.

"In 1903 an amendment was carried, repealing the portion of the Act exempting mines from income tax; but substituting a clause that, in addition to exempting ore mines from income tax, coal mines also should be exempt from the income levy.

"In 1911 a Commission was appointed to revise the statutes and when its work was completed it was found that instead of having repealed the amendment of 1903 regarding the exemption of mines from income tax, part of it was left out, with the result that only coal mines were exempt from income tax. As there was no provision in the consolidated act to treat the two per cent. tax as being in substitution of all other taxes, the assessors in 1912 assessed the Granby Consolidated Mining & Smelting Co. and the Canadian Consolidated Mining & Smelting Co. on income. In 1913 the omission was corrected by an amendment and ore mines were again exempted from income tax. From the 1913 amendment to the 1917 amendment, mines were only taxed two per cent. on the output. This two per cent. tax for the year 1917 from all mines amounted to approximately \$285,000.

"When the present Government took office in 1916, the late Ralph Smith became Minister of Finance. He immediately commenced an investigation of taxation, particularly as to its effect on mining; but his untimely death lost to us the benefit of his experience and his researches. The late Mr. Brewster, who was then Premier, was obliged to take charge of the Finance Department temporarily and although he suggested amendments to the Act he had not sufficient time to supervise the details of the amendments and their effect on the mining industry with the result that the changes made were not considered equitable.

"In 1916 the rates of taxation were as follows:

- A. One per cent. taxable income up to \$2,000.
- B. Over \$2,000 and not over \$3,000, taxable income $1\frac{1}{4}$ per cent.
- C. Over \$3,000 and not over \$4,000, $1\frac{1}{2}$ per cent.
- D. Over \$4,000 and not over \$7,000, 2 per cent.
- E. Over \$7,000, taxable income $2\frac{1}{2}$ per cent.

"By Section II. of the Amendment Act, 1917, the clause exempting mines from income tax, inserted in 1913 was struck out, thereby bringing mining companies under the above scale of income tax, but in addition to this there was a sur-tax passed which imposed a further tax of one-half of one per cent. on incomes above \$3,000 and not exceeding \$4,000; two per cent. on incomes over \$4,000 but not exceeding \$7,000, and $2\frac{1}{2}$ per cent. on incomes above \$7,000; and further, there was a special Sur-tax of $7\frac{1}{2}$ per cent. on the excess of incomes over \$50,000. Therefore for 1917 the total income tax was 5 per cent. up to \$50,000 of taxable income and $12\frac{1}{2}$ on excess income above \$50,000.

"By a further amendment to the Taxation Act of 1917 the income tax for 1918 and until further amended is as follows:

- On taxable incomes not exceeding \$2,000, 1 per cent.
- Over \$2,000, not exceeding \$3,000, $1\frac{1}{4}$ per cent.
- Over \$3,000, not exceeding \$4,000, 2 per cent.
- Over \$4,000, not exceeding \$7,000, 4 per cent.
- Over \$7,000, not exceeding \$10,000, 5 per cent.
- Over \$10,000, not exceeding \$20,000, $7\frac{1}{2}$ per cent.
- Over \$20,000, 10 per cent.

"I took office of Minister of Finance in June, 1917. One of my first duties was to assess mining companies under the terms of the 1917 amendment and Sur-tax Act. On a close study of conditions I found that mining companies were taxed, not on profits, but nearly on gross income. In ascertaining the taxable income no deductions could be made for depreciation of plant, for development work or managers' or directors' salaries resident in the Province, while shareholders receiving dividends from mines were obliged to pay

further tax on such dividends and in addition to this the two per cent. ore tax had to be collected.

"After having explained in detail the drastic effect the enforcement of the Act would have on the mining industry, I was authorized not to assess under the Act as it then was, but to investigate and prepare amendments that would refine the Act to a more reasonable and equitable measure and make these retroactive to 1917.

"During the year 1917 and prior to the 1918 Session, I had many opportunities of discussing taxation of mines with representatives of mining interests and I can say that the point of view of the mining men was very forcibly placed before the Government. The Government realized from the outset of the conference with the mining men that they were not trying to evade a just and fair tax, but that they were anxious to assist us in the solution of the difficult problems with which we were confronted. On the other hand I think I am right in saying that the mining men soon realized that they had the sympathy of the Government and while we were anxious to increase our revenue we were determined not to do so at the risk of crippling the great industry of mining on which this Province depends so much for its progress and prosperity.

"During the Session of the British Columbia Legislature of 1918 I am pleased to say the whole of the suggestions of the mining men, with one exception, were crystallized into legislation. The following allowances or deductions were made:

In addition to administrative expenses and necessary expenditure made for mining, an allowance for depreciation of plant not exceeding 15 per cent. per annum of value.

Development work in connection with ore from which an income is derived.

Salaries of managers and directors who reside in the Province and who are liable for income tax themselves.

Dividends from mines are not again taxed, and in addition it was arranged not to collect income tax and the 2 per cent. ore tax but only whichever is the greater.

All these changes apply to the 1917 tax as well as to 1918 and have a very material effect on the amounts to be paid by the Companies.

"A little misunderstanding existed about the year's operations on which to base the returns. Some companies requested that they be allowed to pay taxes for 1917-18-19 on the basis of the 1917 returns, but when it was pointed out to them that provision was made in the Act to credit the 2 per cent. tax paid in the year that might be used as a base for income against said income tax they readily agreed to pay taxes for 1917 on 1915 balance sheet, for 1918 on 1916 balance sheet, and for 1919 on 1917 balance sheet, because by accepting this method their account for income tax for the 3 years would be credited with the 2 per cent. tax paid in the years 1915-16-17, while, if the tax for 1917-18-19 were based on the 1917 income, credit could only be had for the 2 per cent. tax paid in that year.

"Gold mines were treated a little differently on account of the price of gold being fixed and the increased cost of production. The 2 per cent. tax is struck out altogether, and they pay on their profits, without regard to whether or not the amount is greater than the 2 per cent. tax. The only other deduction that the mining companies can reasonably ask for is that the capital invested be allowed to earn a reasonable interest before profits are taxed, but this would also have

to apply to lumbering and other industries. We are in sympathy with the idea, but before arriving at a decision on the point we are waiting for complete returns from mining companies and other corporations, so that we may have sufficient information before us to see what effect such deductions would have on our revenue.

"It is hardly necessary for me to again repeat that Premier Oliver and the Government are determined that taxation shall not interfere with the progress of mining in this Province and when your returns are all in our possession we will give the matter our fullest consideration and study, so that adjustments may be made, if necessary."

Mr. R. Randolph Bruce, of the Paradise Mine, Windermere, followed with an acknowledgement of the courtesy and consideration given the representatives of the Mining Industry by the Government in discussions on taxation.

On Wednesday morning (July 10th) Mr. R. F. Green, M.P., spoke briefly and Mr. S. G. Blaylock, of Trail, B.C., assistant general manager of the Canadian Consolidated Mining and Smelting Co., gave an interesting address on "The Part Played in the War by the Trail Smelter." He spoke of the development of the lead and other branches of the smeltery since the outbreak of the war and made the statement that facilities had been provided for the handling of all the ores of the Province.

Hon. Wm. Sloan on Mining Industry of B.C.

Mr. A. B. Clabon, president of the Vancouver Chamber of Mines, took for his subject "The Value of the Mining Industry" and in the afternoon Hon. Wm. Sloan, Minister of Mines, delivered a spirited speech on "British Columbia, the Mineral Province." He extended a special welcome to the visitors from the United States, speaking of the value of co-operation and of the fact that at such a time, when Canadians and Americans were fighting shoulder to shoulder against the common enemy, their fellow-countymen at home should and would "do their bit" by pooling their interests, so to speak and by concerted effort attain the maximum output of those materials essential to the successful prosecution of the war. He traced the development of the mining industry in British Columbia from 1848 when the Hudson's Bay Co. first mined coal on Vancouver Island. Since then \$170,000,000 worth of coal had been dug up in the Province. British Columbia, contemptuously referred to as a "Sea of Mountains," had yielded \$80,000,000 in quartz mining in the last three years. California mining wealth had produced a record of \$37 per capita whilst British Columbia had a record of \$115 per capita and its resources were only scratched. He dealt with what the Government had done to assist the prospector and with taxation, "taxation and legislation" being referred to as the bugbear of the miners. Personally, he disapproved of the 2 per cent. tax, favoring taxation on the net income of the mines. Reference also was made by the minister to the Government's policy of encouraging the development of the iron ore resources of the country. British Columbia, he said, lacked experimental plants. What was wanted was a plant combining both the commercial and the experimental and the Federal and British Columbia Governments would work towards the establishment of such a plant.

"Northwest Kootenay" was the title of an address by Mr. Orville Young, M.E., of Golden, B.C.

Mr. F. A. Starkey, of Nelson, B.C., President of the Eastern British Columbia Associated Boards of Trade, addressed the convention on Thursday morning, his

subject being "Closer Co-Operation Between Boards of Trade and Mining Organizations." He regretted the lack of a better understanding between the mine-owners and the Trail Smeltery and thought that the former by presenting a united front would be able to obtain redress from the smeltermen.

Before the noon adjournment a Resolution Committee was appointed, composed of Messrs. R. Randolph Bruce, Golden, B.C.; Sidney Norman, Spokane, Wash.; Andrew M. Craig, Trout Lake, B.C.; F. A. Starkey, Nelson, B.C.; and J. W. Evans, Revelstoke, B.C.

The prospectors' luncheon which followed and of which nearly one hundred delegates partook, was unique as well as appetizing, features of the menu being bacon, beans and bannock.

In the absence of Mr. Thomas French, manager of the French Complex Ore Reduction Co., Nelson, B.C., his paper on "Some Notes on the Smelter Situation in British Columbia," was read by Mr. F. B. Hill, the Convention secretary. A vigorous address strongly protesting against the evils of the smelter trust was delivered by Mr. Sidney Norman, editor of the "Northwest Mining Truth" and the representative, on this occasion, of the Spokane Chamber of Commerce.

Mr. J. J. Warren on Smeltery Problems.

Mr. J. J. Warren, of Trail, B.C., president of the Canadian Consolidated Mining and Smelting Co., whose address was entitled "Some Smelting Problems under War-time Conditions," summed up the difficulties with which the smelter has had to contend and warmly defended its management against statements made by some of the speakers. He spoke of the difficulty of finding labor, of the increased cost of production for various reasons among those cited being coal strikes, which restricted operations, and of the problem of fixing smelting rates. In regard to the latter, he instanced the inability of the mine operators to supply the lead demand of the winters of 1916 and 1917, as a result of which an effort had to be made to meet the demand from the American side. When, however, war needs were satisfied the smelter found itself without a market, and, the lead market having collapsed, the smelter had a surplus on its hands. Shortage of clean lead in British Columbia for smelting purposes was the great difficulty. He resented the suggestion that the company was not treating the mine operators fairly. If it was to be subjected to Government regulation the same action should be taken with saw-mills and flour mills. The smelter was ready to treat lead at \$1.00 over cost, which, he believed, was a better rate than was quoted by any other smelter on the continent.

Mr. Charles F. Caldwell, of Nelson, B.C., president and manager of the Utica Mines and President of the Kootenay Mine Owners' Association, outlined the claims of the mine owners of the Kootenay District with respect to smelting rates and asked for the sympathy and the support of the Convention and the Boards of Trade of British Columbia.

In closing the Convention considered the following resolution, in addition to passing those of the usual formal character:

"That inasmuch as the Consolidated Mining and Smelting Company is treating custom ores and may be considered a public utility; that a Royal Commission be appointed to investigate and regulate treatment and smelter charges, guaranteeing fair and equal treatment to all producers."

It was decided, on amendment, to defer action pending consideration of the matter by the Associated Boards of Trade.

How the Trail Smelter Has Helped to Win the War

One of the features of the discussion which took place at the Annual Northwest Mining Convention held at Revelstoke, B.C., from July 9 to 12, was Mr. S. G. Blaylock's address on "The Part Played in the War by the Trail Smelter." Because of his position as assistant General Manager of the Consolidated Mining & Smelting Co. and owing to his high standing in British Columbia mining circles his observations were based on an intimate knowledge of his subject and were listened to with profound attention.

He said that no better illustration of the work done for the British Empire by the company could be found than the giving of a rough outline of the zinc industry. The problem to be solved was how to separate the zinc from the lead in ores. Although this matter had received close attention and endless experiments had been made, when the war broke out the company was only making one half ton of zinc a day. To quote Mr. Blaylock:

"The Imperial Munitions Board was in dire need of high grade zinc, which was selling at from 35 to 45 cents a pound, when obtained at all. Besides this, it appeared to be cornered by our enemies. It was on this account that the company agreed to build a plant, based on our experimental work, to make twenty tons of zinc a day, at a price of 15 cents a pound, or less than one-half of the current price. This was rapidly followed by demands for a larger and a still larger production, but at the same price a pound of zinc.

"Before the plant could be designed and orders placed, preliminary quotations on many things were doubled.

"The plant required proved to be more extensive than was originally thought sufficient. Sulphuric acid was prohibitive in price, necessitating the installation of a sulphuric acid plant, and many other difficulties arose and were overcome, till finally the plant was completed and in operation. Hundreds of difficulties were experienced when the big plant started which did not show up in the small experimental unit. These were met and surmounted by the most incessant work of those in charge.

"Some of the main points of the process as carried out are the counter-current leaching, the neutral solution by addition of an excess of ore—in other words, a double leach; the drastic purification of solution; the development of suitable pumps and air lifts for handling solids and solutions; the proper content of the electrolytic tanks to prevent the breaking up of the electrolysis and the formation of hydrogen; and also the keeping down of the volatile and the development of efficient melting furnaces.

"Much work has been done on the residues and we feel that we soon will be in a position to treat these successfully, the trouble to date being to get the zinc in these tails sufficiently low to allow of their profitable treatment for lead and silver.

"The Government aided in financing the company to the extent of lending about 30 per cent. of the money necessary to build the plant. This money, however, was merely a loan and has to be repaid in full. A bounty was also promised and has been extended, which would ensure a price 2 cents a pound better than the price of prime western spelter, unless the price of this grade was 9 cents a pound."

It, therefore, will be seen that the starting of this electrolysis plant at Trail, B.C., together with that

which was established almost simultaneously at Anaconda, Montana, had a strong bearing, and probably was the determining factor, in the bearing of the German hold on high-grade zinc.

Mr. Blaylock, continuing, said that in order to assure the greatest possible output of lead for the Imperial Munitions Board, the company took all the customs ore offered in the country until the Board notified the company that it could handle no more. In order to accommodate this customs ore, which had increased from less than thirty tons a day, when the metal markets were low at the start of the war, to over 200 tons a day, when metals were high immediately prior to the cancellation of their contract by the Munitions Board, it was necessary to curtail shipments from the company's own properties to a minimum, thus losing the advantage of the high price of lead, but contributing greatly to the ultimate winning of the war.

In enumerating some of the calls made on the company during the crisis, Mr. Blaylock said:

"The Consolidated was also requested to build a refinery for the production of copper. While this refinery is comparatively small, its building and operation in conjunction with the necessary converter plant was a large undertaking for a company which had lost so many of its best employees who had answered the country's call for men to go overseas."

GRANBY COMPANY INCREASES WAGES.

The Granby Consolidated Mining & Smelting Co. has advanced wages to all employees at its smeltery 25 cents a day as from the 1st of July. The increase was the result of the rise in the price of copper, which went recently from 23½ to 26 cents a pound, and is in accordance with an agreement between the Granby Company and its men. The men now receive \$1.25 a day above the normal wages, which are based on copper at 16 cents. Although copper has been 23½ cents for the past year the company has paid its men on a basis of 24 cent copper.

GRANBY EMPLOYEES ON STRIKE.

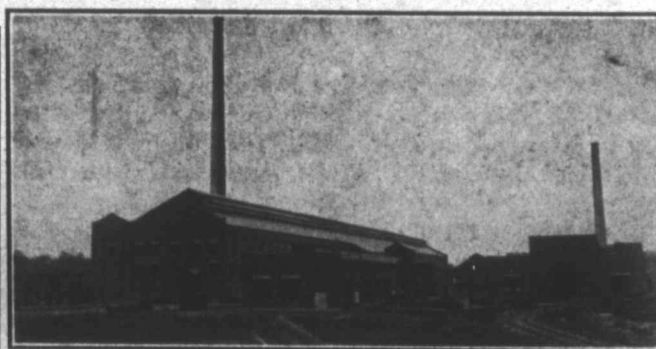
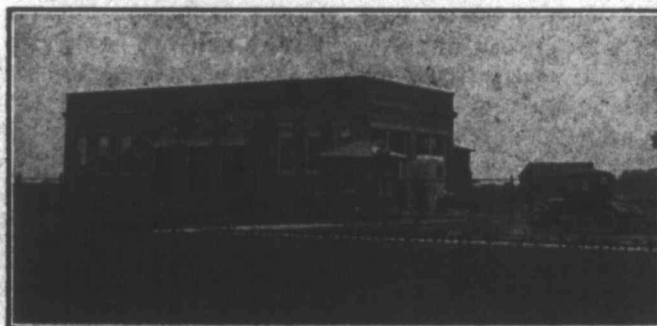
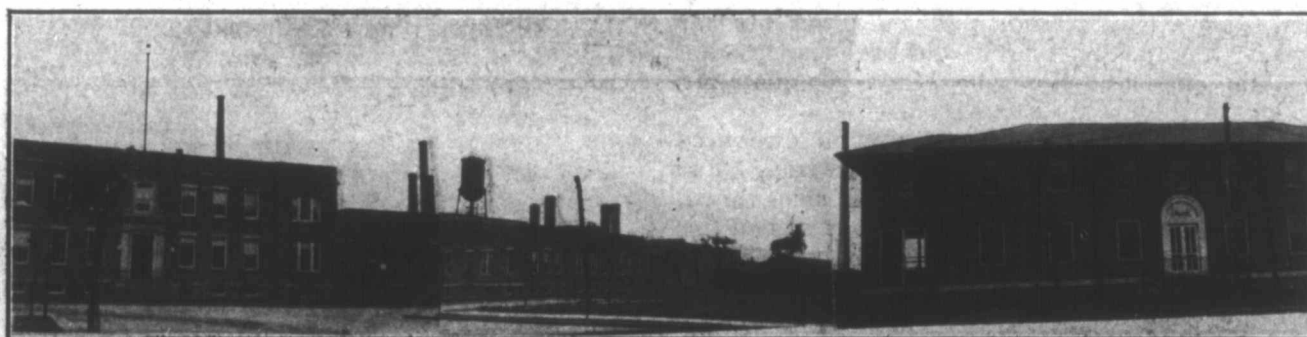
About 2,000 men are affected by a strike declared by employees of the Granby Consolidated Mining and Smelting Co. at Anyox, B.C., the mining and smelting centre of that company in British Columbia. An increase of \$1 a day all round is the men's demand. The management of the company, in a statement issued immediately following the trouble, allege that it was fomented by I.W.W. agents. It is maintained that the wages paid are as high, or higher, than are paid anywhere else in America for the same service. Common laborers receive \$4.75 for eight hours, which is claimed to be higher than is given anywhere else in the Province. Ninety per cent of the men, it is stated, are living in the rooming houses and eating at the mess-houses, where their living only costs \$7.50 per month more than it did before the war. Their wages have been increased \$50 to \$60 a month. In this respect they are better off than the married men, although the latter, because of the fact that the company is selling supplies through its store at less than retail prices elsewhere, are able to live comparatively cheaply. The foregoing is taken from the company's statement, which adds that the wage increase during the past four years is double the increase in the cost of living. At the time of writing (July 23rd) the men appeared to be determined and were being supported in Vancouver, B.C., where notices had been posted at labor headquarters warning workers to remain away from Anyox during the strike.

International Nickel Co.'s Refinery at Port Colborne

On July 1st, 1918, the plant of the International Nickel Company of Canada, was put into operation for the treatment of nickel-copper matte. A large supply of matte has been shipped to this refinery during recent months from Copper Cliff, where it is produced at the smelter of the Canadian Copper Company. The bins have also been well stocked with fuels and salt cake. The first operation—smelting the matte with salt cake—is now being carried out in one of the three furnaces. It will take a few weeks to fill up the plant, and then the production of refined nickel on a large scale will have begun. The plant was designed to produce about fifteen million pounds of nickel per year. There will

The Foundation Company, Ltd., of Montreal, had charge of the entire construction. From four to nine hundred men were employed on this work. The buildings are of steel and brick construction. The Dominion Bridge Company, of Montreal, supplied, fabricated and erected the steel—about 10,000,000 pounds. About 51,000 tons of concrete and 6,000,000 bricks were used on the work.

The first view of the works shows two enormous and three smaller stacks rising from a well-laid group of brick buildings. Approaching the plant from Port Colborne, we find a handsome office at the end of a court flanked on either side by very attractive club-lodging



The new nickel refinery at Port Colborne, Ont.

be produced at the same time about half this amount of copper. There is at present no provision for recovering the precious metals at the Port Colborne plant, and the slimes will be sent to the New Jersey refinery of the International Nickel Company for treatment.

The site selected for the refinery is at Port Colborne, adjoining that of the Canadian Furnace Company. It is close to the Welland Canal and to a branch line of the Grand Trunk Railway. Port Colborne is on Lake Erie at the entrance to the Welland Canal, and the transportation of fuels by water will, therefore, be possible.

houses. At the left of the office is the hospital and time-recording office. At the right is the laboratory building.

The railway sidings enter the yard from the north, the main supply line leading to the bins at the east side of the furnace building. The approach to the bins is over a very substantial concrete trestle. From these bins the matte, fuel and salt cake are loaded into cars resting in pits in the concrete floor of the building. These cars are hoisted to the feeding floor.

The furnace building is a large one—746 ft. by 125 ft. It houses three blast furnaces and three converter

stands. These are served by seven travelling cranes—two five-ton, 30-ft. span; three 2-trolley, 20-ton, 85-ft. span; one 2-trolley, 35-ton, 85-ft. span, and one single-trolley, 50-ton, 85-ft. span. The furnace stack is an enormous one—365 ft. high.

A similar large stack serves the roasting furnaces. There are 10 of these in the oxide department.

In the refining building are two refining furnaces with waste heat boilers. One 15 ton 2-hoist and one 5-ton single-hoist cranes serve the furnaces. There are two stacks 100 ft. high.

The power house contains four 400 h.p. boilers with chain grate stokers and two 1,000 k.w. turbo generators. A very complete Cottrell precipitation plant treats the fumes from the furnaces.

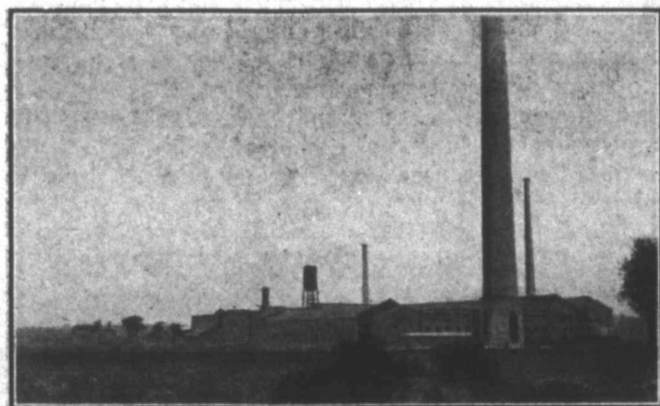
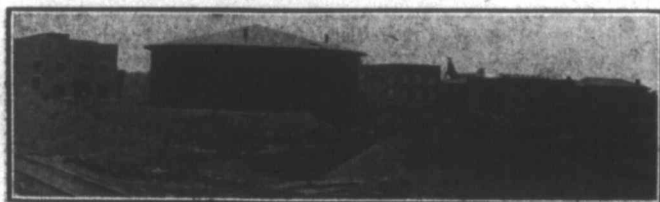
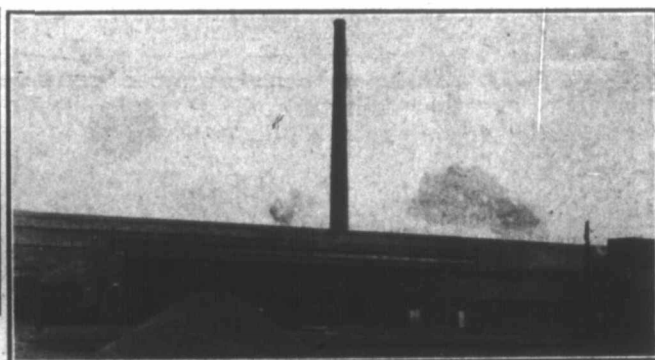
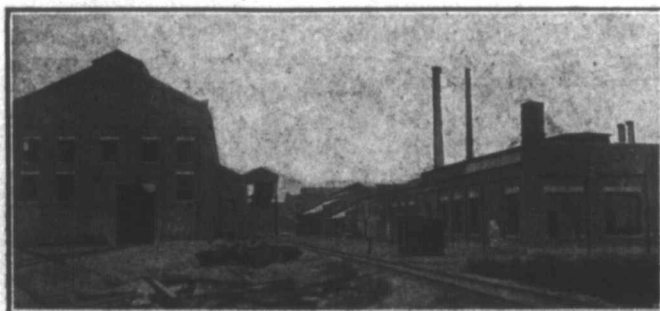
Altogether the plant is a very imposing one. It is the result of careful planning after long experience.

PERSONAL

Mr. Thomas Taylor, formerly overman at the No. 5 Mine, Comox Colliery, operated by the Canadian Collieries (D), Ltd., has accepted a position as overman of the Morden Mine, operated by the Pacific Coast Coal Mines at South Wellington, B.C.

Mr. W. H. Moore, formerly safety inspector for the Canadian Western Fuel Co., has been appointed manager of the new Wakesiah Mine, now being opened by the same company.

Mr. J. Jemson, overman of the South Side No. 1 Mine, Nanaimo Colliery, operated by the Canadian Western Fuel Co., has been appointed Safety Inspector to succeed W. H. Moore in that position, and Robert Laid has been made overman to succeed Mr. Jemson.



The new nickel refinery at Port Colborne, Ont.

The contractors have done their work well and it is reasonable to expect that the plant will prove so suitable for its work that it will be extended so that all the refining for the International Nickel Company will eventually be done at Port Colborne.

We have given here only a brief account in order to give our readers some idea of what the buildings shown on these pages contain. In a later issue we will present a more technical description of the plant and its construction.

Mr. John More is general manager and Mr. James T. Kemp assistant general manager at the Port Colborne plant. There are at present about 350 men employed.

Col. Jos. W. Boyle, who has been doing important work for the Allies in Russia, has been decorated by the King of Roumania for saving a number of Roumanians from exile and probably death at the hands of Russian Bolsheviki.

Major R. W. Brock has been appointed geological expert in Palestine by the British Government.

Prof. R. C. Wallace has been appointed Commissioner for Northern Manitoba.

Prof. J. S. DeLury of the University of Manitoba was in Toronto last week.

Mr. E. J. Collins, of Duluth, visited the Flin-Flor district, Manitoba, last week.

INVESTIGATION OF SMELTERY CHARGES IN BRITISH COLUMBIA.

The promised investigation into the affairs of the Canadian Consolidated Mining and Smelting Co., with special reference to its schedule of charges in connection with the Trail Smeltery, still hangs fire. Over a month ago it was thought that the inquiry would proceed, a committee, appointed by the Associated Boards of Trade of British Columbia, having been endorsed by the Dominion Government, which evinced its practical interest by retaining Mr. E. R. Whittaker, of Denver, Colorado, the mining engineer who compiled a report of a recent commission appointed to deal with similar business in Colorado, and also voted \$3,000 towards the expenses likely to be incurred. Messrs. S. S. Fowler, Ivan de Lashmutt, and James Anderson were those named; Mr. W. E. Zwicky being selected to act in an advisory capacity. There was some delay in getting the committee together following the Dominion Government's action, owing to the illness of Mr. Fowler, but finally a meeting took place. The deliberations were short, coming to an untimely conclusion, when it was found that \$3,000 would be much too little to carry through the work and that the committee had no authority to hear sworn testimony. It was decided, therefore, to petition the Dominion Government to appoint a Royal Commission, with power to go fully into all disputed points as between the company and the mine operators of the Province. To make a thorough inquiry, it is the opinion that \$10,000 at least will be wanted, and the Government has been asked for such an appropriation. While nothing definite has been learned, reports of an authoritative character have been circulated to the effect that the Federal authorities have decided to accede to the demands of the operators and that the Commission will be established in a short time. It may be said incidentally that the recent action of the Dominion Government in setting aside \$400,000 to provide for what is termed a bounty on the production of zinc in Canada has resulted in the development of a somewhat stronger feeling against the Canadian Consolidated Company, because the latter will obtain the entire benefit. Operators of mines which produce ore carrying large percentages of zinc, maintain that the Government vote should be termed a subsidy, as it will go altogether to the company. On the other hand, it is argued that, as the company went to considerable expense in the installation of its electrolytic plant, it is entitled to the support granted. The mine owners contend that the stimulation of the production of zinc should have been carried out as was that of lead, namely, by the granting of a bounty on the basis of the zinc contents of the ore mined, the same to be established by assay.

McGILLIVRAY COAL AND COKE CO.

At the annual meeting of the McGillivray Coal and Coke Company held at Coleman, Alberta, recently, Mr. Lorne A. Campbell, formerly Minister of Mines for British Columbia, was re-elected president; Mr. J. A. Newell, of St. Paul, Minn., vice-president; and Mr. C. B. Smith, secretary-treasurer. The officers, with Mr. Henry L. Simons, of Glencoe, Minn., and Mr. Fitzhugh Burns, of St. Paul, Minn., were elected to the directorate. Much of the stock of this company is held in Spokane, Wash., and the adjacent district.

VANCOUVER ISLAND COLLIERIES ARE PERMITTED TO RAISE PRICE OF COAL.

Permission has been granted by Fuel Controller C. A. McGrath of Canada to the following Vancouver Island (B.C.) Collieries to advance the selling price of their coal seventy-five cents per gross ton: Canadian Collieries (Dunsmuir) Ltd., The Pacific Coast Coal Mines, Ltd., The Nanoose Collieries, Ltd.

The maximum allowed heretofore at the mines has been \$5.80 per gross ton and to this the Canadian Western Fuel Co., Ltd., at present the largest of the Island producers, is held by the ruling of the fuel administrators.

An application for this concession was made to Fuel Controller McGrath by the operators some months ago and, pursuant to the policy inaugurated in the Provinces of Nova Scotia and New Brunswick, an investigation of costs and of general conditions was ordered and entrusted to Mr. Kerr, the Fuel Control Auditor; and Mr. Nichol Thompson, Fuel Administrator for British Columbia. In carrying out the inquiry they had the co-operation of Mr. George Wilkinson, Chief Inspector of Mines for British Columbia.

The announcement of the advance authorized was accompanied by a statement, one paragraph of which explains the action of the Administrators in differentiating between collieries, the most notable instance of which is the withholding of permission to the Western Canadian Fuel Company to increase prices at the mine. This paragraph follows:

"As can readily be appreciated, some coal operators are placed very favorably as compared with others in the same province. This may be due to better coal seams or other more advantageous conditions attending the practical operations. The Fuel Controller fully realizes that the country requires all the coal that can be produced. At the same time he has decided that in granting permission to increase the selling prices, there will be allowed only fair and reasonable profits. The result is that in order to procure the best possible output and at the same time to avoid any operator making undue profits, it has been necessary in some instances to have different prices prevail at different collieries which supply the same markets. In the case of the operators on Vancouver Island a differentiation in prices has been necessary in order to meet the situation there."

OPENING SMALL COAL MINES TO SUPPLY LOCAL TRADE.

The present demand for coal, and the prospect of a much greater demand in the course of the next few months, has led to an interesting development in both Alberta and British Columbia. Coal properties are being opened up by individual miners in both Provinces and are giving their enterprising operators good returns. There are quite a number of these propositions in Alberta, a few men being engaged in the summer in digging the lignite coal, which, in the winter, is carted over the snow by sleigh to the farmers and other residents within reach. In British Columbia a bituminous mine has been opened on the line of the Grand Trunk Pacific Railway and a short distance from the city of Prince Rupert. It is being worked by a few coal miners who are looking forward to supplying the Prince Rupert market this winter, the proximity of the property to the city making it possible to effect delivery at a much cheaper rate than it can be obtained from the mines of Vancouver Island and of other sections of the Province.

R. C. WALLACE IS COMMISSIONER OF NORTHERN MANITOBA.

The Pas, Man., July 12.—Professor R. C. Wallace, M.A., D.S., Ph.D., head of the Department of Geology and Mineralogy of the University of Manitoba, has been appointed to succeed John A. Campbell, member of Parliament for Nelson, as commissioner of Northern Manitoba.

Prof. Wallace is well known by miners and mining men generally throughout the Northland, having been through the whole known mineral district adjacent to The Pas. His reports to Government of researches in Northern Manitoba have been very favorable to this region as a positive mining centre, only awaiting development.

Other duties pertaining to the office are the supervision of education, of health and to act as a judge where necessary. His jurisdiction covers an area of nearly 200,000 square miles.

Professor Wallace and his family will take up their residence in The Pas after December 1st, on which date he assumes his new duties.

IVANHOE MINE, B.C.

The Rosebery-Surprise mining company is reported to have taken a bond on the Ivanhoe Group, the property of the Minnesota Silver Co., largely owned by Mr. W. H. Yawkey, of New York. The deal includes the concentrator which was put up by the Surprise company, under agreement with the Minnesota Silver Co., to replace the mill destroyed by fire several years ago. Work on the Ivanhoe has been started by the Rosebery-Surprise forces according to a statement by Mr. McFadden, the manager, who adds that negotiations are under way for the acquisition of the Canadian group, adjoining the Ivanhoe, and owned by Brandon Bros., of Silverton. Mr. D. McKenzie, formerly superintendent of the Ruth Mines, will be in charge of operations at the Ivanhoe. Considerable shipments were made from the Ivanhoe several years ago, but the mine did not prove profitable under the then prices of metals. Most of the mine product is milling ore.

UNDERSTANDING BETWEEN GRANBY AND CANADIAN COLLIERIES.

It is understood that the Canadian Collieries (Dunsmuir), Ltd., and the Granby Consolidated Mining & Smelting Co., Ltd., either have or are about at the point of reaching an agreement as to the coal lands in dispute situated in the Esquimalt & Nanaimo Ry. Belt on Vancouver Island, British Columbia. These lands, as has been explained previously, are held by the Granby Company under title from the Province, which title was acquired from certain settlers who secured it by virtue of the Settlers' Rights Amendment Act, 1917. Subsequently this Act was disallowed by the Dominion Government, and the Canadian Collieries Co. claimed title, having acquired the Island coal lands granted to the E. & N. Ry. Co. in 1884. Believing their title sound, the Granby Co. had prospected for and found coal. They then went to an expense of approximately \$300,000 in opening up the seams and in installation of plant on the ground. Further outlay was undertaken in the installation of by-product coking ovens at Anyox, B.C., where it is proposed making coal from the Island coal for the Company's smelters. It was feared that the Dominion Government's action would result in the cessation of this development while the two companies engaged in a lengthy law-suit to settle the dispute. The report, therefore, that the two

concerns are likely to arrive at a mutually satisfactory agreement is welcomed in British Columbia.

PLATINUM ON KASLO RIVER PROPERTY.

Norquist Brothers, of Spokane and Seattle, owners of the Gum and Nome group of claims on the south fork of the Kaslo River, are credited with having made the important discovery that their property has possibilities as a platinum producer. Twenty years work and \$28,000 are said to have been expended in a vain effort to prove a silver mine, hundreds of feet of tunnel being driven in the course of which good showings repeatedly were found and lost. Last year the owners despaired and were contemplating abandoning the claims. At this point one took a sample of what seemed to be peculiar rock which projected from the face of the drift. He had it analyzed and, report has it that the returns showed the occurrence of platinum to the extent of about \$700 to the ton. A little of this at the prevailing price of \$105 per ounce would soon wipe out the property's indebtedness and the owners have reopened with renewed optimism.

The Rex Mine have made their second monthly shipment of bullion, amounting to over \$6,000. The drift in the 100-ft. level is now 130 ft. south of the shaft, and the vein is six feet in width. The ore continues to show its usual consistent satisfactory gold content.

Archie Close has almost completed the enlargement of the shaft on the Northern Manitoba Co.'s property, and expects to start work on the sinking of the shaft next week.

Mr. Cram, of Rossland, B.C., and J. MacCutcheon, returned from Herb and Elbow Lakes on Friday, with samples from various properties around Herb Lake. Paul Gasse came in also, and is now negotiating with Eastern capitalists, with a view to granting them an option on his property. Hugh Vickers located a rich, small vein about a mile north-east of the new find. Samples show much free gold. John W. Callinan is in from Flin-Flon district. J. G. Cameron, of Regina, arrived in town the beginning of this week, and has gone north to Copper Lake, north of Cranberry. He has copper propertites in that locality. Six carloads of copper ore from the Mandy Mine were sent to B.C. on Wednesday's train. About 750 tons of Mandy Mine ore came down this week.—The Pas Herald.

STRONTIANITE DEPOSITS ON ASHNOLA RIVER, B.C.

Deposits of strontianite have been found on the lower Ashnola River, B.C. No development work of consequence has been done as yet, but the discoverers believe that there is a considerable body of the ore. Owing to the special uses to which the mineral is being put within the war area, its value as a means of signalling being one of the most notable, the prospect has attracted more than usual attention.

On account of the cutting off of the supply of platinum from the Urals, Great Britain and her Allies are now forced to look to other sources for that metal which is so urgently needed for war purposes. In order to stimulate production in Canada, the Department of Mines, the Honorable Martin Burrell, Minister, has arranged for the purchase of platinum at the Dominion Assay Office, which the Department maintains in Vancouver. The establishment of this purchasing agency will be a great convenience to miners, particularly to small producers, who heretofore have had to market their product in the United States with considerable trouble and delay.

COAL MINER ACCUSED OF DRAWING DOUBLE PAY.

A criminal action was heard in the coal mining town of Fernie, B.C., last week, which created something of a furore there and held the attention of coal mine operators and coal miners throughout the province. The circumstances, in a few words, were that a miner employed by the Crow's Nest Pass Coal Company was accused of loading a number of cars and placing his tally check thereon while supposed to be on company work and paid by the company. Thus he got double-pay—pay at the stated rate for company work and pay, under the contract system, for the coal loaded which in the ordinary way was credited to him. Witnesses for the defence testified in effect that it frequently happened, so frequently as to be almost a custom, that sub-officials would allow contract miners, while working on company time, credit for coal loaded by time on contract basis in addition to the regular schedule for the company shift. It was alleged that the motive for this was to "speed-up" the work by hastening the expeditious completion of necessary work and avoiding undue interference with production. On the other hand company officials and sub-officials entered an emphatic denial of the existence of such a system. The secretary of the local union declared that it was a common practice, but repudiated it, stating that it was not done with the approval of union officials. The Court in fining the accused \$100 or six months in jail said: "If this custom did exist, it is a criminal one. I do not care if a few overmen or fire-bosses connived with the workmen; it was a criminal one undoubtedly. I do not share Mr. Phillips' (witness for the defence) Bolsheviki idea that it is all right to steal from your employer, but not from your fellow worker. I do not think any right thinking man will agree. But, as I say, if it was a custom, it was a criminal one and one a man should be punished for."

WESTERN CANADA'S COAL SUPPLY.

The question of next winter's coal supply begins to loom large in the minds of the citizens of Winnipeg, Manitoba, and other parts of that Province, as well as of Saskatchewan. A few weeks ago a committee representing the city of Winnipeg visited Calgary, Alberta, for the purpose of going into the matter of coal costs with the operators of the latter Province, it being contended that, if Manitoba is expected to use Alberta coal, it will have to be put on the market at a cheaper rate than the present retail price, namely, from \$11.50 to \$12 a ton. The delegates do not appear to be satisfied with the results achieved, stating that the operators did not evince a willingness to assist in their work, nor to show any strong desire to establish their product in the markets of Manitoba. The information they got was summed up as follows: That the coal costs on cars at the mine was \$4.95; that the freight to Winnipeg was \$4.15; and that administration and cartage accounted for another \$2. In the face of this, it is admitted that there does not seem to be any indication of profiteering; but the members of the committee expressed disappointment that the mine owners had not thrown open their books for inspection in order that these statements might be confirmed. The difficulty, however, was agreed to be the high freight charges and Mr. S. C. Oxton, deputy minister of public works, Manitoba, and Mr. J. A. McDonald, acting fuel administrator for the Province of Manitoba, recently interviewed the fuel administrators of Alberta with a view to finding some means of bringing about a reduction in the transportation costs. In the meantime, the coal consumers of Mani-

toba are debating whether it would not be as cheap to pay \$14 a ton for the high-class anthracite of the U. S. as against about \$12 for the bituminous coal of Alberta. There is no doubt what their decision would be, but for the fact that they have been cautioned that the United States this winter will have use for its full production of coal and that the prospect is that there will be little available for export to Canada.

In answer to the statements of the Winnipeg representatives, Mr. Jesse Gouge, one of the operators of the Drumheller field, Alberta, states that, if they return and state that Alberta coal costs \$4.95 a ton, they will not be telling the whole truth. He adds: "Four dollars and ninety-five cents is the maximum price for the very highest grade double-screened coal produced in the Drumheller field. Good coal, mine run, can be purchased for \$3.35 a ton; good lump coal, run over single screen, at from \$4.50 to \$4.65 a ton; good sreen coal may be had for \$3.75 a ton; nut, screened coal for \$2.40, and steam coal, good for boilers and for heating big buildings, may be had at from 25 cents to \$1 a ton." Mr. Gouge further pointed out that Winnipeg had use for all grades of coal, just as was the case in Calgary, and that coal costing only 25 cents a ton was being used in the Calgary City Power Plant. As to the charge that the committee members were not allowed to inspect the operators' cost book, he stated that it would have been absurd to permit men with little knowledge of coal and no authority outside of the City Council of Winnipeg such a privilege as the likely result would be the dissemination of misinformation. The owners were quite willing to throw open their records to a properly constituted Government body.

LADYSMITH SMELTER.

Some weeks ago it was stated in these columns on the authority of Mr. W. J. Rattle, general manager of the Ladysmith Smelter Corporation, that this British Columbia Smelter would be blown-in after some months of inactivity on the 20th of June, 1918. Because it was not possible to arrange definitely for a continuous supply of ore that programme was not carried out; but it now is stated that preparations are practically complete for the re-opening of the smelter with good assurance that its furnaces will be kept busy. The date now selected is the 29th of July. Besides being reported to have a bond on the Willow Grouse Mine, Cowichan Lake, the Ladysmith Corporation has secured the Girtwood Mine on Latouche Island, Southeastern Alaska. The latter is an old producer and in the past has shipped regularly to the Tacoma Smelter, its average for considerable periods being 1,000 tons a month. The property joins the Beatson, owned by the Guggenheim interests, and by reason of being near tidewater the transportation is simple.

THE WAKESIAH—A NEW COAL MINE.

The Canadian Western Fuel Co.'s new mine, situated near Nanaimo, B.C., and two shafts of which are being sunk to tap the famous Wellington Seam, will be known as the Wakesiah Mine. To reach the seam, the shafts must be sunk 350 feet. The concrete collars are in, and sinking has progressed to a depth of about 50 feet in the hoisting shaft. Plans have been prepared for the various buildings and machinery and mine yards. The mine will be up to date in every respect, and will be shipping coal before the end of the year. The company has three other producing mines, yielding a monthly tonnage of approximately 65,000 tons, and mining from three seams—the Douglas, Newcastle and Wellington.

SPECIAL CORRESPONDENCE

BRITISH COLUMBIA.

Rocher de Boule Strikes High Grade.

A shoot of ore of high grade, about seventeen feet in width, is said to have been struck by the Rocher de Boule Mining Co. on its property at New Hazelton, B.C. In the effort to locate this ore, a low-level tunnel was driven without result, but a streak of ore was noticed, and it was decided to raise on this. The shoot was encountered at an elevation of about 160 feet above the main level and, according to report, it has a great prospective value. A mill is to be erected to treat the lower grade of ore.

Prospecting for Platinum.

With further reference to prospecting for platinum in Western Canada, it is authoritatively reported that the Munition Resources Commission of the Dominion Government has a drill at work on the Saskatchewan River and another on the Peace River in British Columbia. The Tulameen River, of this Province, is to be thoroughly tested, two drills being on the way for operation there. It is understood that there already are two drills at work in the placer ground of this river.

Shipments to Trail Increase.

That the mining industry in British Columbia has been picking up in the last few weeks is indicated by the returns from the Trail Smeltery for the week ending June 30th. These showed that 6,510 tons was received for treatment as compared with 3,233 tons for the week ending June 21st. The shipments by districts follow: Rossland, 1,807; Slocan and Ainsworth, 1,102; Nelson, 97; Boundary, 730; East Kootenay, 1,462; other mines, 96; American mines, 1,216.

Authoritative reports indicate that there is only a difference of 119 tons in the quantity of ore received by the Trail Smeltery for treatment during the first six months of 1917 and the first half of the present year. The figures are: First half 1917, 179,493 tons; first half 1918, 179,274 tons. This showing is surprising, because the Rossland mines have been practically closed down, and there was a period of market depression and inactivity as far as the lead-silver-zinc mines of the Boundary, Slocan and Kootenay districts of the Province. It is thought likely that the revival, which is very evident at present, will result in much larger shipments over the remainder of the year and thus bring British Columbia's total production further up than was expected. The shipments by months follow:

	1917.	1918.
January	36,570	27,404
February	40,967	33,989
March	42,949	41,725
April	25,909	37,029
May	15,969	21,162
June	15,969	21,162
Totals	179,493	179,274

Prospectors Are Staking Claims Near Olivine Mountain

With further reference to the prospecting in progress in British Columbia for platinum Mr. Eugene Poitevin, a mineralogist attached to the Department of Mines, Ottawa, has returned after spending a few weeks at Olivine Mountain, near Tulameen, B.C. It is hoped that the source of both the gold and platinum of the Tulameen River placer ground will be found, as the character of what is being recovered along the rivers and streams of the district indicates that it has not

been carried a great distance. It is suggested that the Dominion Government may place a diamond drill in operation to prove some of the outcroppings in the mountain. That general interest has been aroused in the work is shown by the fact that there are many prospectors camped along the Tulameen river in close proximity to the mountain, and that quite a number of claims have been staked.

Western Gold Production Falling.

That some action should be taken by the State to encourage the production of gold is the consensus of opinion in British Columbia, where the effect of the ever-increasing cost of mining and of the augmented values of most minerals, with, of course, the exception of gold, has been felt to a serious extent. A notable case in point is the closing down of the Rossland Mines by the Canadian Consolidated Mining & Smelting Co. It is felt that, under the exceptional conditions, some effort should be made to maintain the output of gold, which is steadily declining in this Province. This is conclusively shown by the figures contained in the 1917 report of the Minister of Mines, as follows:—

British Columbia's output of placer and lode gold for the years 1915, 1916 and 1917: 1915, Placer 38,500 oz., value \$770,000; Lode, 250,021 oz., value \$5,167,934. 1916, Placer \$29,025 oz., value \$580,500; Lode 221,932 oz., value \$4,587,334. 1917, Placer 24,800 oz., value \$496,000; Lode, 114,523 oz., value \$2,367,190.

For this reason, a resolution passed by the Northwest Mining Association recently at a specially-called meeting, held at Spokane, Wash., meets with hearty approval here. The resolution is very clear in its terms and, while it refers specifically to conditions as they are in the United States, the principle enunciated is applicable and is accepted among mining men and those who have given the matter intelligent consideration in Canada. It follows:—

“That all war taxes be remitted insofar as they affect gold mining; That the present advance in freight rates be abrogated in respect to the gold mines that are unable to operate at a profit under the present rates; That commercially inaccessible gold properties of merit be made accessible through the building of motor roads; That the gold mining industry be placed on the same basis as other war industries in respect to financial assistance, to be extended through the war finance corporation or by means of re-discounts through the federal reserve bank, or through any other means that may be devised; That operators of gold properties be given Government guaranty, instead of a bonus, which guaranty shall assure to gold mine operators profits commensurate with those that would have accrued to them under the pre-war conditions and prices of labor, supplies, taxes and other items of general expense; That any and all Acts of the Government directed to the financial aid of the gold mining industry, as above set forth, shall be subject to the examinations, reports and recommendations of properly qualified mining and accounting experts acting on behalf of the Government; That copies of these resolutions be forwarded to Secretary McAdoo and to the senators and representatives of the various mining states.”

Britannia Mine.

At Britannia Mine the new mill is reported to be handling between 2,200 and 2,300 tons of ore a day. It is reported to be one of the most efficient on the continent, being credited with an extraction of between 94 and 95 per cent. The company has opened what is termed Mammoth Bluff as a quarry which marks the

commencement of the mining of Britannia Mountain. The greatest problem in connection with the operations is the shortage of labor. There now are only approximately 850 men on the pay-roll, as against a normal pay-roll of 1,000. The company is planning to place its entire system of ore transportation underground.

Oil Prospecting in British Columbia.

Considerable interest is being taken in oil prospecting in British Columbia. Had it not been for the untimely death of Mr. B. T. Rogers, capitalist, of Vancouver, B.C., work would have gone forward in the sinking of a test hole at Burnaby, where there are oil seepages. It is reported by the Empire Oil and Natural Gas Co., Ltd., that a drill has been sunk to a depth of about 400 feet at Aldergrove, B.C., the latest log showing a sandy shale. There have been two companies organized at Vancouver, namely, the Boundary Bay Oil Company, Ltd., and the Burnaby Oil Co., Ltd. The former intends to test by drilling an area at Boundary Bay and the latter to carry out work at Vancouver Heights. The possibilities of Graham Island, of the Queen Charlotte group, also are engaging attention. It is understood that the Geological Survey Station proposes this summer to make a thorough examination of the Fraser Valley, so as to establish at what point a drill would be most likely to strike oil in commercial quantities.

Annual Report of Minister of Mines.

The annual report of the Minister of Mines of British Columbia for 1917 has been issued. It is the first to contain reports from the district mining engineers who were stationed in different sections of the Province during the past year. Figures given relating to production proved that the preliminary estimates published months ago were very close to the mark, the estimated production for the twelve months being \$37,182,500, as against a definitely established total of \$37,010,392.

Vancouver Island, B.C.—A considerable amount of ore is on the dump at the Monitor Mine, Alberni Canal, Vancouver Island, waiting shipping. Difficulty is being experienced in obtaining shipping facilities.

A spur is being built by the Sunloch Mining Company from its property to the Vancouver Island Power Company's tramway at Jordan River and arrangements are being made for the shipment of ore to the Tacoma Smelter.

Two shifts, with a total of 40 men, are being worked by the Cork Province Mine on the south fork of Kaslo Creek, B.C. There is a mill in operation.

Action is being taken by the officials of the Dominion National Park to stop mining operations within the park area in that section, which will interfere with plans in hand for the development of the Dunvegan group of claims situated on the divide between the Illecillewaet River and the head of Fish Creek. The operators consider this unfair as the claims were located about twenty-five years ago before the establishment of a park area.

PYRITES.

A recently published report by P. S. Smith, of the U.S. Geological Survey, on pyrites is, in part, as follows:—

The term pyrites is the indefinite general trade name for any of the iron sulphide minerals, such as pyrite, marcasite and pyrrhotite. Pyrite and marcasite when pure have identical chemical composition, namely, about 53 per cent. sulphur and 47 per cent. iron, but differ from each other in mode of crystallization. Pyrite forms cubical crystals, whereas marcasite forms tabular crystals. Pyrrhotite when pure contains about 40 per cent. sulphur and 60 per cent. iron, it is somewhat softer, tarnishes more readily than either pyrite or marcasite, and is magnetic, whereas the other minerals are not.

Pyrites is used mainly for the manufacture of sulphuric acid, and more than 1,250,000 long tons is consumed in the United States each year for this purpose. Pyrites, as commercially used, is generally referred to one of two classes, lump or fines. The lump ore, as its name implies, consists of pieces more than half an inch in diameter, with a certain allowable proportion of smaller particles, and is used in the condition in which it comes from the mine, with little more than a preliminary crushing and sorting, according to size. The fines consist of smaller particles and generally have been obtained by crushing the ore so small that the pyrites can be separated from worthless gangue by some mechanical process. They are also derived from ore that has disintegrated as a result of leaching. Owing to the different methods of treating these two kinds of pyrites for the extraction of their sulphur, they can not be used interchangeably. The lump ore commands somewhat higher prices than the fines, but, of course, it is more difficult to obtain a lump ore with as high a sulphur content as that of fines. As a result, only a few mines or parts of a mine can furnish lump ore and maintain a sufficient sulphur content, whereas suitable fines may be obtained even from deposits in which the pyrites is sparsely disseminated.

No definite lower limit can be placed on the proportion of sulphur that a pyritic ore must contain to be of commercial grade. In practice, however, material containing more than 40 per cent. of sulphur is specified, and practically none of the acid companies use material that carries less than 35 per cent. of sulphur.

Several elements or substances by no means rare in pyritic ores are objectionable as material to be used in the manufacture of sulphuric acid and decrease the value of the ore in which they occur, or they can be used only by means of special treatment.

Certain elements, arsenic and antimony, for instance, are poisonous and have a bad effect on the resulting acid, but some of the large fertilizer plants do not reject an ore containing less than 1 per cent. of arsenic. These elements are also injurious from a manufacturing standpoint, if the pyrites is used in plants making acid by the contact process, as they attack the platinum and cause it to lose its efficiency. According to Wilson, pyrites carrying more than 8 per cent. of copper can not be profitably employed in the manufacture of sulphuric acid. Carbonaceous material, such as the coal adhering to the pyrites or "coal brasses," is apparently heavily penalized by acid manufacturers because it yields acid of a dark color. This effect, however, should not prevent pyrites containing some material of this sort being used in making some low-grade acids for the manufacture of fertilizers and similar materials.

On the other hand, however, most of the pyrites derived from the coal beds is marcasite, which decomposes readily, sometimes ignites through spontaneous combustion, or oxidizes to sulphuric acid, and is, therefore, a dangerous or expensive substance to leave in storage dumps.

The pyrites industry throughout 1917 showed an unsettled condition due largely to uncertainty as to whether importation of Spanish pyrites would be continued. At times the impression would be prevalent that further imports of pyrites would be stopped and there would follow a feverish interest in finding possible sources of domestic ore. Before much progress had been made in this search, however, a contrary rumor would be circulated and activities would decrease or actually stop. These conditions alternated in their hold on the minds of those who might have been willing to undertake the rather expensive and time-consuming operation of developing mines capable of supplying the sulphuric-acid industry with pyrites. Because of this uncertainty, some of the former users of imported pyrites decided to replace it with sulphur and thus reduce the quantity of imported ore required. This substitution required little change in technology in many of the plants and it was adopted by many manufacturers. By the last part of the year, however, it became evident that more domestic pyrites was necessary, and consequently several mines were opened. It takes time, however, to bring a pyrites mine to the producing stage, so that this activity had but little effect on the output of pyrites in 1917, but it will probably have a considerable effect on the output in 1918.

The shortage of pyrites was made evident by the high price that was paid for it and the difficulty of obtaining considerable quantities even at prices three times those paid in 1916. The quotations given for pyrites in the technical press in 1917 range all the way from 20 to 35 cents a unit for the sulphur content. On the assumption that the pyrites carried 45 per cent. sulphur, the latter price would bring a return of \$15.75 a ton for the pyrites. The usual pre-war price of pyrites was less than \$4 a ton, and, according to the statistics published by the U.S. Geological Survey, the average price per ton, even in 1916, was \$4.64.

The total value of the pyrites imported into the United States in 1917, was \$5,981,457, or an average value of \$6.18 a ton; in 1916 the average value was \$5.41 a ton. In this connection, it should be noted that in 1916 the price paid for Canadian ore was considerably lower than that paid for the Spanish ore. The value of Canadian pyrites was stated to be only about

two-thirds that of the Spanish ore. Some of this difference in price is warranted by the generally higher sulphur content of the Spanish ore, but some of the difference is caused by the unwillingness of the pyrites users to modify their old practice and to accept a substitute if Spanish ore is obtainable even at extra cost.

ANTHRACITE ALLOTMENTS FOR WESTERN CANADA.

In a memorandum issued on July 17 by Charles W. Peterson, deputy fuel controller for Canada, it is announced that Winnipeg is to have 65 per cent. of its normal supply of anthracite coal next winter. The remainder of the Province of Manitoba other than the City of Winnipeg and that portion of the Province of Saskatchewan east of approximately the 104th meridian, is to have 50 per cent of last year's consumption. To the cities of Moose Jaw, Regina and Saskatoon, 50 per cent. of last year's consumption is allotted.

TORONTO MARKETS.

Cobalt oxide, black, \$1.50 per lb.
 Cobalt oxide, grey, \$1.65 per lb.
 Cobalt metal, \$2.50 per lb.
 Nickel metal, 45 to 50 cents per lb.
 White arsenic, 12 cents per lb.
 July 31, 1918—(Quotations from Canada Metal Co., Toronto).
 Spelter, 11 cents per lb.
 Lead, 10¼ cents to 10½ cents per lb.
 Antimony, 18 cents per lb.
 Copper, casting, 30 cents per lb.
 Electrolytic, 29½ cents per lb.
 Ingot brass, yellow, 21 cents; red, 26 cents per lb.
 July 31, 1918—(Quotations from Elias Rogers Co., Toronto).
 Coal, anthracite, \$10.50 per ton.
 Coal, bituminous, nominal, \$9.50 per ton.

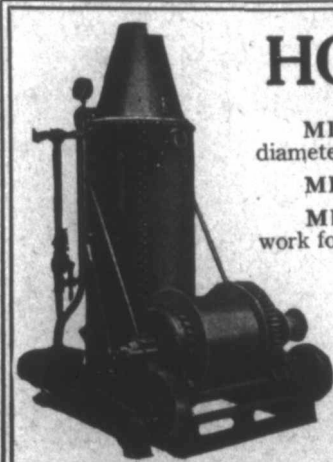
SILVER PRICES.

	New York cents.	London pence.
July—		
29	99%	48½

STANDARD MINING EXCHANGE.

As of close, July 29, 1918.

	Silver.	
	Sellers.	Buyers.
Adanac Silver Mines, Ltd.	8	7½
Ridley	4	3
Beaver Consolidated	25	23



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Gifford	2	1¾
Great Northern	3	2¾
Hargraves	4½	4¾
Kerr Lake	5.90	5.65
La Rose	40	35
McKinley Dar. Savage	39	38
Mining Corp. of Canada	2.50
Nipissing	8.50
Ophir	6¾	6¼
Peterson Lake	9	8¾
Silver Leaf	2	¾
Temiskaming	31	30½
Trethewey	22
Wettlaufer	4½

Gold.

	Sellers.	Buyers.
Apex	3	2½
Boston Creek Mines	20	..
Davidson Gold Mines	25
Dome Extension	10
Dome Lake	15	12
Dome Mines	9.40	9.25
Hollinger Cons.	4.75	4.60
Inspiration	2
Keora	7¾	..
Lake Shore Mines, Ltd.	72	71
McIntyre	1.29	1.28
Moneta	6½
Newray Mines, Ltd.	14	12
Porc. Crown	12½	10
Porc. Tisdale	1½	1
Vipond	13	11
Preston East Dome	3	2
Schumacher	20	17½
Teck-Hughes	15½	14½
Por. V. N. T. Gold M.	13	11
Thompson-Krist	6½	6
West Dome	9½	9
Wasapika Gold M., Ltd.	30	..

NEW YORK MARKETS.

July 20, 1918.

As quoted by Engineering and Mining Journal.

- Copper, 26 cents.
- Lead, 8.05 cents.
- Zinc, 8.40 cents.
- Tin—Banka, \$1.
- Aluminum, 33 cents.
- Antimony, 13¼ cents.
- Bismuth, \$3.50.
- Cadmium, \$1.50.
- Nickel, 45 cents.
- Quicksilver, \$125 to \$127½.
- Silver, 99½ cents.
- Platinum, \$105.
- Palladium, \$135.
- Iridium, \$175.
- Chrome ore, \$1.40 per unit, f.o.b. California.
- Molybdenite, about \$1.00 per lb.
- Pyrites, 20 to 25 cents per unit f.o.b. mine.
- Tungsten ore, \$18.50 to \$23.50 per unit.

**FOR SALE
IMMEDIATE DELIVERY**

4—300 H.P.—200 lbs. pressure water tube "Atlas" Canada Foundry boilers.
 4—201 H.P.—160 lbs. Babcock & Wilcox water tube boilers,
 5—Boiler feed pumps.
 1—Feed water treating tank.
 1—Wainwright feed water heater.
 3—Jet Condensers.
 1—1,000 H.P.—98 R.P.M.—24 inch x 36 inch x 46 inch Inglis Vertical Cross Compound Condensing Engine
 1—Canada Foundry Triplex Pump, motor driven, 300 gallons per minute, cylinders 8 inch x 12 inch.
 2—150 K.W.—250 volt, D.C. Generators direct connected to Peerless Self-oiling automatic engines, 125 lbs. working pressure, 230 R.P.M.
 2—400 K.W.—250 volt, 300 R.P.M., Belted Compound D.C. Generators, C.G.E.
 4—200 K.W., 360 R.P.M., single phase, 60 cycle, 2,200 volt C.G.E., A.C. Generators
 Quantity of 52-inch belting, idlers, and various boiler and engine room accessories.
 Piping, Valves, Fittings, etc.
 180—Type H, C.G.E., 2200/220/110-60 cycle line transformers, sizes 1 K.W. to 15 K.W.
 2,000 Poles in various lengths, 60 ft. to 20 ft., cross-arms, brackets, insulators, etc.
 Quantity of No. 6 Weatherproof wire.
 1,500—Watthour Meters, 110/220 volt, 60 cycle, and 250 volt D.C. Ferranti and C.G.E. Various sizes from 5 amp. to 150 amp.
 10—D.C. motors, 500 Volt, 1 H.P. to 20 H.P.
 Miscellaneous lot of general equipment used in connection with the generation, distribution and sale of electric power.
 Call or address—

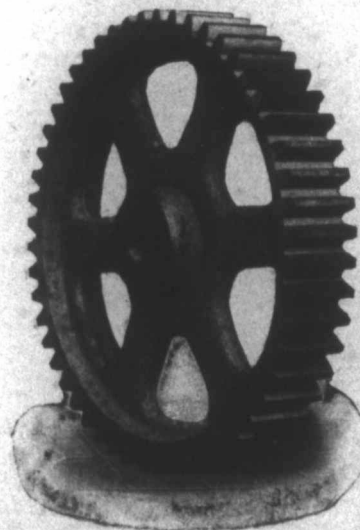
C. T. BARNES, Manager

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