

The Mines in 1933

A Year of Great Progress, Making a Record in Several Respects.

The Rossland camp has concluded a year of marked achievement. In respect to ore production—the concrete and unflinching barometer of the prosperity of mines—the year witnessed the greatest expansion ever accomplished in any twelvemonth of its history, and along the lines of metallurgical achievement the advances were indeed notable. All that was predicted at the first of the year has been accomplished, and more. Concentration—predicted in January last as an accomplished fact, and now the camp enters a year when the mining industry will witness equally wide expansion along the lines of the utilization of low grade ores.

There have been no financial difficulties among its business men or mining companies, and the twelvemonth has concluded with a volume of trade looking ahead to the year 1934 with confidence. The year has witnessed a happy and prosperous year of continued and growing prosperity and expansion in all lines constituting the wealth of the city.

The outstanding feature of the year was the inauguration of the new year in the remarkable increase in production in 1933 as compared with the previous years of the camp's history. Each year has witnessed an increase in production, but no instance has the tonnage increased as was the case in the year just closed. On a percentage basis the increase amounts to about 18 per cent, while in tons it represents an increase of approximately 70,000 tons over the output of 1932, which in turn was approximately 50,000 greater than 1931. A notable feature for the year was the inauguration of the tonnage statistics of the Rossland camp for the past year is that for the first time in the history of the city the statement includes figures relating to "tons crushed." This chronicles the arrival of concentration in practical form, and when the tale is told of the year now just opening up it is safe to predict that the totals opposite the classification "tons crushed" will constitute a substantially important factor in the grand total.

The most interesting development of the year was the inauguration of concentration. A start was made in the milling of low grade ores at the Siletta Reduction works under the auspices of the War Eagle and Centre Star mines, and the outcome of these operations was the adoption of the idea on a large scale and the commencement of buildings on a 200-ton plant by the Rossland Power company, subsidiary to the mining companies in question. Then the Canadian Concentration company, owning the patents for the Elmore process, inaugurated a series of experiments in London on various Rossland ores. This was followed quickly by the announcement that the Le Roi Two company proposed putting the process into actual operation, and last spring saw the commencement of building operations on the Le Roi Two's mill. These were completed in the latter part of the year, and the plant was in operation. Since then the mill has run steadily, about 2500 tons of ore having passed through the machinery, giving an output of about 1000 tons of concentrates, part of which has been distributed among the smelters in the market for Rossland ores. The outcome of the experiment on a practical basis thus instituted has been satisfactory. Figures have not been divulged as to details, but sufficient data in a general way have been made public to indicate that the process can be successfully applied to Rossland ore of the particular character amenable to the process. The year just opening will see the Elmore process installed at the White Bear mine, where a 100-ton plant is already under order, and at the Rossland Power company's works, where the process will be employed on tailings from the balance of the work in the Siletta plant. The Rossland Power company has taken the question of concentration up seriously and practically concluded to adopt the idea in event of developments in the lower levels of the mine proving as satisfactory as has been the case in the upper level. It is on the cards that the Le Roi company may go into the question in earnest at no late date with a view of turning to advantage the ore dumps that do not carry sufficient values to permit of profitable smelting treatment.

Under the heading of reduction works planned for the ensuing year it would be unfair to omit the proposed smelter enterprise for the Velvet mine and the proposed reduction works to treat the ferruginous ores with which Monte Cristo and Kootenay mountains abound. Both enterprises are now well under way, and each, in its own way, would be of inestimable value to the camp.

CONCENTRATION.
The problem of milling Rossland ore is now solved so far as the pyritic ores of the camp are concerned. The ferruginous ores will require another system of reduction by reason of the presence of such large percentages of iron in their composition, but it is in milling ore in the way of all of the mines of Red Mountain, and this includes all the properties that are contributing so largely to the output of the camp.

At the Le Roi Two mill it has been demonstrated that ore carrying more than \$5.00 gross smelter value can be treated profitably. This in itself is a notable achievement, but it should be borne in mind that the conditions existing at the plant in question are not such as to secure the best results. A scrutiny of the figures adduced

The Le Roi Two plant handles fifty tons of crude ore under present conditions; with the enlarged crushing apparatus now under order the works will handle a larger tonnage than is now possible. With a fifty-ton concentrator the costs for labor are almost as great as with a capacity of double the tonnage. With a 100-ton plant, therefore, the Le Roi Two's milling costs would be halved, for not only does the reduction in labor costs apply but other expenses are approximately cut in half so far as the per ton cost of producing concentrates is concerned. If the plant were of 200-ton capacity the costs would be correspondingly reduced, and each time costs are reduced the grade of ore mined for milling the costs of extraction offers a barrier to the second mill. With a 200-ton plant producing 33 in gross smelter value would be profitable. In the case of ore mined for milling the costs of extraction offers a barrier to the second mill. With a 200-ton plant producing 33 in gross smelter value would be profitable. In the case of ore mined for milling the costs of extraction offers a barrier to the second mill.

The Rossland Power company has not as yet made an announcement in specific terms as to the grade of ore which its system of concentration will handle, but in an unofficial way it has been stated that ore carrying \$5 per ton net smelter value will be handled at a profit. Needless to say the resources of the War Eagle and Centre Star mines in milling ore of a grade as high as \$5 per ton net smelter value is very large, running into many thousands of tons, as indicated in the reports of the management.

It is hinted that a new process of dry concentration may be inaugurated in Rossland on a large scale during the year just commencing. By this process the bulk of the values are extracted by a specific process, leaving the residue to be treated by the Elmore or similar system of wet concentration. This whole subject is too indefinite to discuss at length at the present juncture.

Appropos of concentration, it is of importance to point out a line of action in which the entire community and the country generally can bear a part in improving the status of the mining industry. It is now a certainty that the oil process of concentration will be one of the great subsidiary branches of mining, not only in Rossland, where it has already been instituted successfully, but in other sections of the Kootenays. An essential element in the success of this process is the use of a heavy duty, and the efforts of the country should be directed toward having this oil placed on the free list, at least until such time as all equal efficiency is produced in Canada. The importance of this is already before the public in statements made from interested parties, and to date no argument has been raised to prevent a heavy duty on the concentration operations in the Kootenays should be hampered by a heavy duty that protects no Canadian industry.

THE RECORD OFFICE.
The returns for the year just closed from the Rossland mining recorder's office are appended:

Certificates of improvement... 14
Certificates of work... 136
Payments in lieu of work (\$100)... 2
Claims recorded... 64
Bills of sale, etc. recorded... 24
Water grants issued... 6
Free Miners' Certificates... 15
Commissaries... 1
Personnel... 496
Substitute personnel... 118
Special personnel... 11
1897... 1297
1898... 499
1899... 1899
1900... 219,202
1901... 279,123
1902... 329,589
1903... 377,134
1,687,758

THE PRODUCTION.
In an accompanying schedule is given in a statement of the tonnage produced in the camp for the twelve months ending last night. It will be noted that the figures are somewhat lower than was believed would be the case, this being the result of the revision of the figures made with the assistance of the mining companies. Throughout the year The Miner compiled the statistics relating to ore shipments, and the figures are not such as to include the tonnage of the mining companies concerned. The varying capacity of cars used in ore hauling is an obstacle in the way of close estimates from week to week, and in the case of the Le Roi mine especially it was necessary to reduce the estimated total considerably to make it agree with actual shipments. In the cases of the War Eagle and Centre Star mines better results were secured. The Miner's statistics in the way of tonnage shipped. Thus matters went down the whole list existing at the plant in question are not such as to secure the best results. A scrutiny of the figures adduced

will, however, afford gratification to all Rosslanders. It is not possible that the ratio of advance that has marked the progress of the camp since its inception was maintained last year in a most satisfactory manner, the production for the twelve months showing an increase over the aggregate output for the preceding year of approximately \$5,000,000. Coupled with the important advances achieved in other branches of the local mining industry, the increased output is a magnificent commentary on the solid prosperity and magnificence of the city. It must be borne in mind that this large output of ore was accomplished under serious drawbacks so far as the operating months of the year were concerned. For some months the smelters handling Rossland ores were so hampered through the temporary failure in coke supplies from East Kootenay as to cut down their capacity to take ore under the second class heading. Later this disability was removed, and in the most important instances production was increased with the outcome of the big advance in tonnage was accomplished.

Scrutiny of the schedule giving the output and value of ore produced in Rossland since the commencement of practical mining here also affords food for thought. It will be seen that the camp has contributed many millions to the wealth of the country, and that the advance has been steady and constant since the first pound of ore was packed out on horseback for treatment at the coast smelters, then the only reduction works available.

Looking forward to the year just opening, it may be fairly expected that a high rate of concentration may be instituted. There is no reason to believe that shipments of smelting ore will be curtailed, in fact it is more than likely that the inauguration of smelting operations will result in a considerable increase in the production of higher grade ores. It is probable that in the Rossland camp low grade ore bodies contain quantities of high grade material, but the proportion of the second class ore makes it inexpedient to attack such ore bodies for the richer product alone. When it is an object to extract the millable ore, as will be the case after milling is in full swing here, this high grade ore will be broken along with all the contents of such stopes, and in this way the production of shipping ore will be increased. The extraction of large quantities of high grade ore will accordingly bring up the production of the camp to figures that can only be guessed at now, but which are certain to be so large as to make Rossland the leader in point of ore production for the Dominion.

OUTPUT FOR 1933.

Mine	Gross Tonnage	Estimated Value
Le Roi Two	192,000	\$2,113,000
Centre Star	81,967	1,093,353
War Eagle	59,948	813,138
Le Roi Two	23,000	332,000
Le Roi Two (milled)	2,000	16,000
Jumbo	4,395	52,740
Spitzee	570	8,550
L. X. L. (milled)	2,000	12,000
Kootenay	2,405	37,495
Glant	830	12,475
Velvet	3,375	67,500
Iron Horse	40	320
White Bear	297	4,445
O. K.	25	625
Homestake	40	675
Grand Totals	377,134	\$4,633,280

RECORD OF TEN YEARS.

Year	Tonnage	Estimated Value
1924	1,850	\$5,400
1925	15,690	207,353
1926	98,075	1,248,860
1927	68,804	2,007,780
1928	112,921	2,479,511
1929	190,200	3,211,400
1930	219,202	3,000,000
1931	279,123	3,700,000
1932	329,589	4,274,352
1933	377,134	4,633,280
Total	1,687,758	\$26,816,342

THE LOCAL PAYROLL.
The payroll of Rossland mines for the past year has been substantial, and this has led to satisfactory conditions throughout the community. It was a marked feature of the closing month of the year that business was almost a unit expressed great satisfaction with the volume of business, and in many instances testified to the largest business ever transacted since their location in the city.

The amounts disbursed by the mines are divided under two headings, one embracing the sums distributed among the mine workers and the second embracing the salaries paid to managers and office staffs. Following are the figures:

Mine	Wage roll for year
Le Roi	\$385,000
Centre Star	123,500
War Eagle	126,700
Le Roi Two	109,200
Kootenay	45,000
Jumbo	25,000
Spitzee	12,000
Glant	4,900
Velvet	25,000
White Bear	50,000
L. X. L.	3,000
Other Mines	25,000
Total	\$975,300
Mine salaries (estimated)	\$45,000
Total sum disbursed by Rossland mines for labor and management	\$1,020,300

This does not include the payroll of the Northport and Trail smelters nor the amount expended in prospecting. The new year is certain to see the

record of 1933 passed in point of sums disbursed by mining companies under the head of wages and salaries. The construction of concentrators will have important effect in this direction, and the mining of milling ore will naturally employ more men than has been the case in the past when mining operations were confined practically to the extraction of smelting ore.

QUESTION OF COSTS.
In the important matter of mining costs reduction were made during 1933. So substantial were these reductions that mining costs were never as low as in any previous year. The fact that the cost of production today, when the camp is on the threshold of a new year, is this desirable condition has been attained without any reduction in the price of ore.

The business of reducing Rossland ores has largely been confined, as in past years, to two plants—the Northport Smelting and Refining company and the Canadian Smelting Works at Trail. Both works have had a fairly successful year, although the opening months witnessed serious complications in respect to coke supplies. The smelters' demand for coke has been met by the Crow's Nest company's pits had the effect of hampering smelter operations throughout the Kootenays and Bonanza regions in which the smelters are located. Matters improved as the year progressed, and by midsummer, or thereabouts, the coke supply was again normal.

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In connection with the Northport smelter it may be stated that the coke supply for the year was not only normal, but that the price of the commodity is considerably less than the smelter paid for coke when its supply was imported from the coast smelters. This is due to the fact that, however, an import duty of eighty cents per ton on its Canadian coke, and therefore suffers to this extent from the fact that it is located north of the international boundary line. The present coke charges at all southern British Columbia smelters are unnecessary high. The cost of the coke is probably not so broken if the costs are to be reduced, and this is likely to occur during 1934.

The Canadian Smelting Works at Trail have enjoyed a year of progress and prosperity, only marred by the coke shortage during the first half of the year and the period of comparative inactivity during the latter half. The production of the War Eagle and Centre Star mines in Rossland went to Trail for treatment, and only in the year, in fact shortly before the actual commencement of the calendar year, the smelter reduced rates to the mines in question. The company has been a unit expressed great satisfaction with the volume of business, and in many instances testified to the largest business ever transacted since their location in the city.

The average force of men employed at the Trail smelter during the year was about 250, and the payroll aggregated about \$250,000. A notable improvement at the Trail smelter was the inauguration of practical experiments along the line of reduction works, and the subsequent erection of lead refinery capable of turning out fifty tons of pure lead per day, and an additional smelter plant for the purpose of extracting from the residue the lead content of the structure and contained therein. This plant will be in operation within the next few weeks. Last fall the Greenwood smelter started the construction of a new ore, securing the output of the Le Roi Two company's Jostie mine. The question of the disposition of the concentrates produced by the mine is still open, although substantial consignments of the product have been made to the Northport, Trail and Greenwood smelters. The mine is to ship ore on a basis of fifty to sixty tons per day, commencing on or about the 29th inst. It is to be further equipped with a new hoist and a new shaft, which is to be in operation in the early spring. The order for the plant having already been placed with the Canadian Ore Concentration company, owning the

THE MINES IN DETAIL.
LE ROI—During the year the mine passed under the management of John

H. Mackenzie to that of S. P. Parrish. In the early part of the year mining and development had been carried ahead steadily, but more attention was paid to the development of the upper levels than in the deep levels, notably the 1350 level, which was the lowest depth reached by the big four-concentrator shaft which forms one of the structures of the mine. On Parrish's succession to the management the efforts to locate ore in the deep levels were redoubled, with results now well known throughout the camp. The largest ever developed in the mine. The first class dump at the mouth of the old shaft was drawn on for a considerable period during the year, but a considerable tonnage still remains to be utilized when the management deems fit. Incidentally it may be stated that the No. 3 shaft, from the sorting tables was largely increased during the year as the result of the extensive operations in the mine, and this shaft may yet prove an important asset of the company when the stone of concentration is enlarged to include the lowest quality of ore amenable to any process of treatment. During the year the Jumbo mine yielded a considerable tonnage of high grade ore, which was consigned to the smelter along with the mine run ore.

CENTRE STAR—Throughout the year the mine was operated along the lines marked out at the opening of the year and enlarged upon in the publication of the manager's report. Work was extracted on the various levels, and the system of blocking out millable ores maintained, with the result that the reserve of these millable ores was a very large tonnage. As was indicated in the manager's report recently, the millable ore occurs in bodies of great magnitude, up to thirty feet in width. Development was resumed during the year, and considerable work was done on the 700 level. In the course of the year a total of 312,750 feet of work was done, mostly in drifting. The shipments of ore were 18,575 tons, which netted the company \$18,575 in profits.

WAR EAGLE—The plan of operations followed at the War Eagle during the year was similar to that in the Centre Star. Shipments were extracted in large quantities, the record for the year being the best yet accomplished at the mine. It was noticeable that the year's shipments were maintained almost at the same point from week to week. In common with the Centre Star results large bodies of millable ore were blocked out in the War Eagle, and in addition various eminently satisfactory conditions were developed in connection with the bodies of smelting ore. The development work for the year comprised 124,500 feet, principally drifting and crosscutting. The tonnage of smelting ore shipped aggregated 53,348 tons, which netted the company \$53,348 in profits.

LE ROI TWO—The company's record for the year has been exceedingly satisfactory and gratifying, as was gathered from the remarks of Consulting Engineer Hill on the occasion of his recent visit to Rossland. In January last the Jostie mine's ore reserves had been practically wiped out as the result of the policy adopted by the directors of the company. In the No. 1 mine some excellent smelting ore was in place, but the quantity of high grade material available was small. The mine was operated on a basis of low grade material, and with vigorous development and exploration the reserves were rapidly increased and the company entered a new era of substantial prosperity. The statement as to profits earned had not been made yet, but it has been estimated that a dividend can be paid out of 1933 profits if the company desires, although this may be passed in favor of large extensions to the milling works out of the accrued profits.

In the Jostie mine 1100 feet of drift was done during the year, and 18 feet of raising. During the summer it was decided to close down the No. 1 mine, the reason being that the property had been operated up to that time as a producer of high grade ore, while conditions had developed that made it advisable to suspend operations pending arrangements to reopen it as a low grade proposition, i. e. to take advantage of the considerable tonnage available of heavy low grade material. The flow of water into Centre Star workings via the altered trespass workings. The mine is now being kept unworked to the 300 level, and it is not impossible that mining operations may be resumed at no late date.

The Great Western mine, also owned by the Rossland-Kootenay company, was unworked in the summer, but after inspecting the workings the property was allowed to refill and a resumption of activity there is definitely postponed.

GIANT—The mine was on the working list in 1933 for a part of the year only. At one stage a shut-down was occasioned by the inability of the smelters to take the product at the time when the coke shortage was keenest, and later a complete suspension was ordered pending further investigation into means of reducing the cost to save the molybdenum and cobalt values carried in commercial quantities. Some developments along this line are expected early in the ensuing year.

VELVET—The Velvet mine operated almost continuously until last fall, when a suspension was ordered. The mine shipped a large quantity of excellent ore and made money on the operation, but it was found that the excessive costs of teaming the crude product to the mill over twelve miles prevented the mine from running at the profit. A 100-ton pitlike smelter designed to concentrate the product is now on the tapis, and it is expected that the enterprise will be proceeded with to completion during 1934, in which event the Velvet will have another lease of life under propitious conditions.

rights for the Elmore process. A side track has been completed connecting the mine with the Spokane Falls & Northern main line.

SPITZEE—1933 was an eventful year with the Spitzee Gold Mine. The early winter saw the construction of a deal whereby the company's area of mineral land was increased by the acquisition of the Nelson and Derby claims, adjoining the original property, and the strengthening of the treasury in a manner that permitted of extensive operations. One of the first things undertaken by the company was the raising of the old and inadequate equipment and mine buildings and the erection of new, neat, convenient and substantial headquarters, equipped with a powerful compressor and thirty horsepower motor electrically driven. With these increased facilities the development of the mine was proceeded with. On the 200 level the development work was carried west to a point 230 feet from the shaft. The drive was on the vein, and several strong shoots of ore were opened up, from which ore was shipped as an incidental by-product. The principal motive, which was development, a start was made to carry the shaft to the 400 level, but this feature was dropped temporarily until driving on the 200 level was carried as far as was deemed desirable. Then sinking was resumed, the shaft was carried down to the 300 level and a station set at the 200 level. Drift from this point to tap the continuation of the vein is now under way and the indications for success in this effort are most reassuring.

JUMBO—The Jumbo is one of the mines added to the working list last year after a suspension of activity for the preceding four years. Work was started in July under the direction of M. R. Galusha, one of the owners, and the results were eminently satisfactory. On the first level of the mine a strong shoot of payable ore was opened up and from this shoot shipments have been maintained steadily. For the purpose of opening up the ore body at greater depth an intermediate level has been started 100 feet below the No. 1, and the drift there is making excellent headway. Early in the summer a substantial boarding house was constructed at the mine, together with other minor buildings to expedite the work of the mine. It is among the probabilities that the Jumbo will be equipped with a substantial handwork compressor plant, and that this may be accompanied by the construction of a sliding from the main line of the Spokane Falls & Northern.

I. X. L.—The operations at the I. X. L. afford one of the brightest instances on record in the Kootenays of the possibilities of the leasing system. E. H. Craven and George Priddy, practical miners, mill men and mine mechanics, conceived the idea that the dumps of the I. X. L. were worth consideration, and eventually took a lease on the dumps, together with the tonnage mill owned by the present proprietors of the O. K. mine. The result of the lease was a very successful one, each of the lessees reaping a substantial profit. Then they took a lease on the mine, and at present are witnessing even greater success in the wider field of activity.

O. K.—Early in the year the mine was operated under lease for a short time by J. Worson, former superintendent of the mine. He stored a small quantity of ore from which good results were realized but made no special effort to operate on any considerable scale. The O. K. mine is among the Rossland properties that will be close inspection by prospective lessees.

KOOTENAY—The principal operations of the Rossland-Kootenay mine were confined to the Kootenay mine, where an average force of about forty men was employed continuously during the year. The property is typical of the section east of the Kootenay gulches, where a close system of blocking out the ore a good payback was opened up on the third, fourth and intermediate levels, and from this ore body the tonnage accumulated to the point where it was stopped. Development was carried on in the deep levels, notably the mine from No. 2 level, in which a couple of unfortunate miners met death last spring.

Practically no mining was done in the Nickel Plate mine, owned by the same company, although the property witnessed considerable activity during the year. This was in connection with the erection of heavy bulkheads on the 400 and 600 levels, that were constructed for the purpose of preventing the flow of water into Centre Star workings via the altered trespass workings. The mine is now being kept unworked to the 300 level, and it is not impossible that mining operations may be resumed at no late date.

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the smelter, and the return not being satisfactory it was concluded to suspend operations. The company has as yet made no statement as to its intentions in respect to further operations. **CONTACT**—This property is regarded as the most promising in the Burnt Basin district. It has been developed by some 4500 feet of workings and has reached a stage where further work cannot be proceeded with economically without machinery. The lack of a wagon road prevents machinery being rolled down the mine. The commencement of a road into Burnt Basin by the provincial government promised better things for the section, but the added hopes of its work dashed these hopes. It is presumed that the undertaking will be completed in the spring, in which event the Contact and other mines in the same vicinity will be actively operated.

NEW PROPERTIES.

An Impending List of Embryo Mines Discovered During 1933.

The following is a list of mining claims located this year. It shows that considerable prospecting has been done in this camp, although it was generally supposed that little or nothing was being done in this respect. The data are taken from the office of the local mining recorder, and are therefore authoritative in every respect. It is an interesting and noteworthy fact that there are some excellent showings in the new locations. Prospecting has been conducted in the following mines:

- SOPHIE MOUNTAIN SECTION**—Ora Plata, Flossie A. Effie M. Georgia, F. N. Cypress, F. N. Golden, Gene Estabrook, Harry Morning, E. C. Hecla, Norway, King, Jack Pot No. 2.
- NORWAY MOUNTAIN SECTION AND FROM ROSSLAND NORTH**—Mill Fraction, Little John, Iron Chief, Ernest Shannon, Gladstone, Justice, Satsuma, Monitor No. 2, Crater, Brown Bear, Sangerfest, Isabella, Dibel, Prudence, Amazon, No. 2, Burgen, Pilgrim, Washington, Empire, Gold, E. H. Craven, Independent, Mack, Bull Pine, Willow, Bamboo, Le Chien Dor, Bolger, King, Baden, Fovell, Bruce, Granite, Dawson, Walker, Fraction, Lone One, Minto, Jefferson.

LOCATIONS IN THE IMMEDIATE VICINITY OF ROSSLAND—Ruby Pine, Durham, No. 1 Fraction, Diamond Hill, Harry, George, Fraction, Chance, Independence, F. N. Cypress, White Bear, F. N. Emma, Le Roi, Annie Fraction, Fred No. 2 F. N.

Yesterday a review of the operations of the larger local mines for the past year was given. Following is a summary of the work recorded on minor properties, the number of which may be represented by the following list:

THE GORDON—On this promising property 85 feet of surface work was done this year, with gratifying results.

THE I. D. A. FRACTION—Assessment work consisting of surface work improvements to the extent of \$200.

ALLENDALE FRACTION—Depth of the shaft was increased eight feet, and 100 feet of drift was made of shaft of 11 feet.

OTHER SOUTH BELT PROPERTIES—CHITROD, Union Made, Big-Car, Ben, Chas. Case, Colony, Fraction, Hafe Hon, Sunlight, Fraction, Tobique Fraction, Little Onyx, Twilight Fraction and Dip. From \$100 to \$1000 of assessment work was done on each of these properties and duly recorded with the mining recorder.

OTHER PROPERTIES ALONG THE CREEKS NORTH OF TOWN—May, Blecke, One-Eye-See, Grand, F. N. No. 2, Dale, Lord Roberts, Lord Roberts, Dawson, Oceanic, Galic, Oregon, F. N. No. 1, Oregon, Beaumont, Blue Bell, Oceanic, Galic, Portland, Nebu, Theodore, F. N. Mine, ha-ha, companies that only await the completion of this road to spend from \$10,000 to \$50,000 in development work. This should result in the addition of several shippers to Rossland's industry. Imposing list of shipping mines. This will be followed by the construction of a tramway system or a light railway, with numerous branches to the various mines, that will thus require shipping facilities. The year 1934 should see a large addition to the population of the Sheep Creek valley and an unprecedented amount of industrial activity thereabouts.

THE NORWAY AND GREENVILLE MOUNTAIN SECTION—From \$100 to \$1000 was spent last year on each of the following mining claims: H. H. Sagnin, E. C. Star, Homestake, Shasta, Jessie F. F. N. E. R. E. R. Fraction, Mammoth, Norway King, Brockton, Boston, Morning Star, John Bull, London, Eldorado, Amazon, Sunrest, Wosser, Little Chief, Cascade, Granite, Good Hope, Minnie Belle, Elma, Ivanhoe, Aladin, White Iron, Little Beta, Jo Jo, Big Sheep, G. F. Annie, Spungler, Sumpter, Monitor, Finance, Aquatic, Amazon, Empire, Revenue, Blue Bird, Iron Clad, Jessie F. N. Boy, Hill F. N.

The only drawback to this section is ha-ha, Merry Day, Washington, Troy, Jackson, I. X. L., Portland.

These properties in the aggregate show a large amount of preliminary development in the nature of assessment work. In quite a few instances some remarkably good showings were uncovered with the result that has greatly encouraged the owners. It is more than probable that the present year will see a considerable amount of money invested in this section with the result that some of the mines will be added to the shipping list.

ON O. K. AND SOPHIE MOUNTAIN—Several thousand dollars was expended last year on assessment work on the following mining claims: Silent Friend, Anchor, Constock, Copper King, Alk, Mount Taber, Portland, St. Charles, Little Katie, The Broken Tangle, F. N. Mountain Trail, Umatta, F. N. Lap, Snow Drop, Prince Charles, Triumph, F. N. Jack Bonnet, Glasgow, Beaver, Union Blue.

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