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## The Canadian Mining Journal

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Editor:

J. C. MURRAY, B.A., B.Sc.

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### CIRCULATION.

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### RECIPROCITY IN COAL.

The article on reciprocity in coal, that appears in this issue, should arouse comment.

In the Maritime Provinces the question has long been discussed. With a few exceptions, the coal operators of the East appear to be vigorously opposed to the removal of tariff restrictions. On the other hand, there is decided, though not extensive, public sentiment in favour of reciprocity.

Throughout Quebec and Ontario reciprocity would be welcomed, merely because it is believed that the price of fuel would thereby be lowered. In the middle and far West there is a general sentiment in favour of reciprocity. It is urged that the adequate development of Alberta's and British Columbia's coal fields cannot take place until reciprocity is an accomplished fact. Roughly, this sketches the condition of Canadian opinion at present.

It is contended by western coal operators that reciprocity will benefit Canada generally, and that their eastern brethren will lose nothing if the tariff wall is razed. To this the easterners reply that free United States coal would swamp our markets completely.

We shall not reiterate here any of the arguments, facts, and figures adduced by Mr. Jacobs. Our intention is solely to arouse interest in a question that affects vitally the future of the Dominion.

Mr. Jacobs alludes to the surprising apathy on the part of the Canadian public in regard to reciprocity in coal. So marked is this apathy that the activity of Nova Scotian operators is thrown into undue relief. When Parliament was discussing the subject last winter, the views of the larger coal mining interests of the East were forcefully presented. Western interests claimed and received scant consideration. Hence there was little debate, and no constructive measures were suggested.

Apart from sporadic paragraphs in the public press, hardly one attempt has been made to ventilate the situation fairly. The pronouncements that have appeared in Montreal papers, presenting the case for the East, must be regarded as, in some degree, special pleading. Similarly, western views have been set forth in local publications.

The only presentation of the question from a national point of view came from the pen of Mr. D. D. Mann, in a recent number of The Saturday Evening Post. Mr. Mann, having spun webs of steel over half the continent, has become something of a publicist. And there are few men of affairs to whom we can listen with more profit. His attitude towards reciprocity may be summed up in two sentences from his own article: "I cannot, at the moment, think of any considerable

manufacturing advantage that would be sacrificed by a readjustment of the coal tariff." And, "The tariff is, at best, an expedient. As its crude necessities are outgrown and the distribution of Nature's favours is better understood, the courses of trade will find their natural channels, and Canada, handicapped at the beginning by the wider range of business possible to her southern neighbour, will come into her own."

Mr. Mann, however, is too wise to give any degree of finality to his utterance. He recognizes tacitly that the last word cannot yet be said. The whole situation requires thorough, deliberate, and wide consideration.

It is evident that what will suit the West will not meet the approval of the East, and vice versa. Each party is confident that its point of view best conserves the interests of Canada as a whole. Both cannot be right. Somewhere in between lies the most profitable course.

Will it not be possible for the conflicting interests to meet and attempt to evolve a *modus vivendi*? It is not unreasonable to suppose that eastern operators know their own business best. Similarly, western mine owners should be the most competent judges of their own requirements. Instead of clashing at Ottawa, would it not be well to meet peaceably at Winnipeg!

Meanwhile the day is fast approaching when Canada will determine for herself whether she desires or does not desire reciprocity. Every year strengthens her position and places her less and less in the posture of a suppliant.

### GOWGANDA—ITS PROSPECTS AND ITS PERILS.

Anonymous destructive criticism and extravagant praise are two evils that threaten the silver mining regions of Northern Ontario. Of the two, the latter is immeasurably the more dangerous.

In its issue of July 17, *The Financial Post* of Canada, an enterprising weekly of somewhat nebulous convictions, devotes an editorial column to Gowganda. Quoting an anonymous "able mining engineer of undoubted authority," the *Post* accepts his statements and moralizes thereupon.

Before alluding to any of these statements, we wish to point out that our contemporary transgresses the rules of fair play and of editorial decorum in publishing such matter. The *Post's* strictures are based upon specific statements. They are directed against specific mining companies, the Mann, Bonsall, Bartlett, and Boyd-Gordon.

Disregarding the question as to whether these strictures are just or unjust, it is evident that the companies that are attacked are given no chance to defend themselves. The *Post* does not accept responsibility for its editorial, and the identity of the person whom they quote is carefully suppressed. As to his ability and standing, we must accept (or reject) the *Post's* warm asseverations. Hence our contemporary is in the posi-

tion of the small boy who puts pepper on the stove when no one is looking—and is prepared to sneeze with the rest.

If the *Post* feels called upon to attack mining companies and to dabble in mining generally, it must assuredly prepare also to speak and act for itself. Hiding behind the skirts of an unknown is neither sportsman-like nor edifying.

If the *Post's* informant is what the *Post* believes him to be, he was at least ill-advised to vent his opinions anonymously. But we believe that there is internal evidence to show that either the *Post* is misquoting its "expert," or, on the other hand, its "expert" is a broken reed.

One sentence from the editorial in question calls for comment: "That he [the expert] is conservative is," says the *Post*, "evidenced in his statement that the Cobalt mines have probably reached the climax of their high-grade production." Now, this is not conservatism; it is exactly the antithesis of conservatism. The conservative mining man does not draw a bow at a venture. He gathers his evidence systematically and carefully, and formulates his conclusions sanely from observed facts.

A conservative mining engineer might easily come to the conclusion that Cobalt had passed its zenith. An utterly incompetent person might also come to the same conclusion. Hence the conclusion has nothing to do with the case. Obviously the thing that counts is the method employed in reaching the conclusion. Our contemporary has fallen into the common error of confounding conservatism with pessimism. The most conservative mining engineer in the world would neither lose nor gain in conservatism by speaking highly or disparagingly of Cobalt or Gowganda.

The point made by the *Post* regarding the fact that practically no ore has yet been shipped from Gowganda is not well taken. There is ample time yet for this. Its reference to overequipment is fair. But the whole editorial loses meaning because of its dubious birth.

When next the *Post* wishes to instruct its readers in this direction, we suggest that it take time for meditation. The only straight course is to get your facts first-hand and tell the truth boldly off your own bat.

It is yet too early to jump to conclusions concerning Gowganda. Development has been slow. The silver-bearing veins have proved irregular. Transportation facilities are lacking. The camp has not settled down to efficient production. The effects of extravagant advertising and injudicious expenditure are apparent. These will handicap the camp for a long time. But, sooner or later, legitimate mining, conducted by efficient engineers, will determine the destiny of Gowganda. When that time arrives we shall know whether Gowganda is to be a second Cobalt or a flat disappointment. Neither subsidized eulogies nor the opinions of a thousand "experts" can alter by one milligram the silver contents of the new North.

**PUFFING.**

It is bad enough to read ordinary newspaper puffs of mining districts. Usually these purport to be interviews with "eminent" engineers. Always they are overdone.

But it is worse to see responsible officials misquoted. One of the most offensive specimens of misquotation has been brought to our attention. The Mining Age, of New York, in its issue of August 10, published an absolutely spurious quotation supposed to have been extracted from a public address delivered by Dr. W. G. Miller.

Here is the quotation:—

"In a recent address at Cobalt, Prof. Miller said:

'Values at Cobalt will reach at least to a depth of 400 feet. On the Lawson property the geology is such that it is only reasonable to expect the values to go deeper there than anywhere else in the camp. The Kerr Lake, which adjoins, is mining high-grade ore at 400 feet. The history of the Crown Reserve is well known. The ore is so full of metal that it takes only six cubic feet to make a ton. Assuming a length of 600 feet on the Lawson and an average width of high-grade ore of one foot, there is already in sight 100 tons for every foot in depth. The ore runs 7,000 ounces to the ton, but assuming only a net value of \$1,000 a ton, the first foot from the surface should yield \$100,000. One hundred feet of that vein will make 10,000,000, or practically the selling price of the entire La Rose mine. Such an estimate would be extremely conservative.

'These figures stagger the imagination, but it is easy to calculate. I do not believe that the mining engineers realize the value of the Cobalt camp, or, if they do, they are afraid to make their impressions public lest they be accused of exaggeration.'

Not to mince matters, the writer who gave this to the Mining Age was guilty of deliberate fraud. The excerpt is given in quotation marks to make the statements appear as if they had been taken from a verbatim report. Dr. Miller did not make the statements attributed to him. The language in which the extract is couched is entirely misleading, and the whole article is designedly false. No decent paper should lend itself to such cheap touting.

**NEWFOUNDLAND.**

Ten years ago Canada was popularly supposed to be a fringe of snow-clad territory decorating the northern boundary of the United States. To-day Canada is the centre of attraction for emigrants of all nationalities.

Newfoundland to-day is still terra incognita. All the erroneous ideas that were current concerning Canada a decade ago are now current concerning Newfoundland. The ancient colony has not been properly advertized. Its people are profoundly insular. Its changing governments are tied hand and foot by fac-

tion and prejudice. Hence Newfoundland has remained voiceless, save when some rash Canadian suggests confederation or a Washington politician monkeys with the Fisheries Treaty.

Yet Newfoundland is a country of specific promise. Her mineral wealth is hardly touched. Of copper she has known, large, workable deposits. Her iron ore supplies the Sydney furnaces. Gold has been found, and is being worked. Coal of good quality and in fair quantity has been discovered. Gypsum, feldspar, building stones occur in abundance. Of tin there is rich indication. And so through the gamut of commercially valuable minerals.

A month or so past our representative visited Newfoundland. The first of his articles appears in this number of the Canadian Mining Journal. Others will follow.

**THE GLACE BAY STRIKE.**

The letter from our Glace Bay correspondent, to be found under the heading "Special Correspondence," is a clear resume of the present condition of the strike and of the causes that have led up to it.

Particularly interesting is our correspondent's delineation of the objects and methods of the United Mine Workers. With some surprise we learn that "the U. M. W. A. have five of their officers from the United States, assisted by a clerical force of two female clerks and a male clerk." This staff has been imported for the express purpose of destroying the Provincial Workmen's Association and holding up the Dominion Coal Company.

There appears to be no room left for moral suasion. We are strongly of opinion that the Federal authorities should promptly deport the leaders of this senseless agitation. This is about the only complete safeguard that remains.

**EDITORIAL NOTES.**

Our London contemporary, The Mining Journal, is to be congratulated heartily upon its improved dress. Beginning with its issue of July 3rd, The Mining Journal assumes a much more convenient size, and more orderly paging. This changes will be welcomed by its readers everywhere. Changes of this kind are, from many causes, exceedingly difficult to make. Sentimental considerations are not the least important deterrents.

The benefits of constantly improving methods of coal mine inspection are strikingly illustrated by comparing statistics of 50 years ago with those of to-day. The average output per person killed for five years up to 1860 was 74,674 tons. The output for 1008 per person killed was 210,815 tons, or almost three times the amount of coal raised per person killed.

The director of the Geological Survey, Mr. R. W. Brock, who was in hospital in Ottawa during the former half of July, continued to transact much routine business by telephone from his sick-room. Immediately on leaving the hospital Mr. Brock, although hardly able to walk, took train for British Columbia, there to join the

Hon. Mr. Templeman in an official tour of inspection. This is an almost dangerous instance of enthusiasm.

Mr. Alex. Gray's eminently useful summary of the progress and financial status of Cobalt mines is noticed in another column.

## MINERAL RESOURCES OF NEWFOUNDLAND.

(Written specially for The Canadian Mining Journal.)

"Newfoundland is a country that has undergone many vicissitudes during the earlier geological epochs," said J. P. Howley, F.G.S., Government geologist of the colony, in a paper recently read before the Canadian Mining Institute. "Its rock structure consists chiefly of the most ancient series comprised within Archæan, Eozoic and Palæozoic times, such as the Laurentian, Huronian or Pre-Cambrian, Cambrian, Silurian, Devonian and Carboniferous. It is, consequently, one of the oldest countries in the world.

Large areas are found to be occupied by igneous, eruptive and igneo-aqueous materials, otherwise highly metamorphosed sediments, indicating prolonged volcanic action at different periods of its structural history.

"Still later, during the post-pliocene glacial epoch an immense ice-mantle seems to have enveloped the whole surface of the country. This ice-cap, descending from the higher elevations towards the sea, acted like a cyclopean ploughshare. It tore up and pushed or carried along with it everything that came in its way, scattering broadcast over the surface innumerable granitic and other boulders and planed down the entire face of the country. It was this same agency that moulded the country into its present contour of smooth, rounded, rolling ridges and low valleys. There are no sharp, serrated peaks, such as are visible in non-glaciated countries. Here and there throughout the interior a few isolated, truncated bosses of granite or trap rear their heads above the general level. These are known locally as "Tolts" and correspond closely with the American "Butte" or the South African "Kopje".

"In several respects the geological structure of Newfoundland bears a striking resemblance to that of parts of England. On its eastern seaboard we have the structure of Wales repeated in the Cambrian deposits. Sediments of an almost identical character, holding similar fossil organisms, are found on the shores of all the principal southern and eastern bays, even the celebrated Carnarvon slates being repeated here.

"Fossils of the Silurian and Carboniferous ages, while closely allied to those of both the Eastern and the Western Continents, nevertheless, possess some local peculiarities which seem to point to a transitional or intermediate stage between the two. This would go to bear out the expression that "Newfoundland is a stepping-stone between Europe and America."

"It would be but reasonable to expect that in a country so composed of the most ancient rock formations, one that has undergone so many changes, mineral wealth of no mean order should occur. Such has been abundantly proven to be the case; although mining may be looked upon as still in the infant stage."

### Copper Mining.

Mining on a large scale was initiated about forty-five years ago, when one of the Tilt Cove mines was

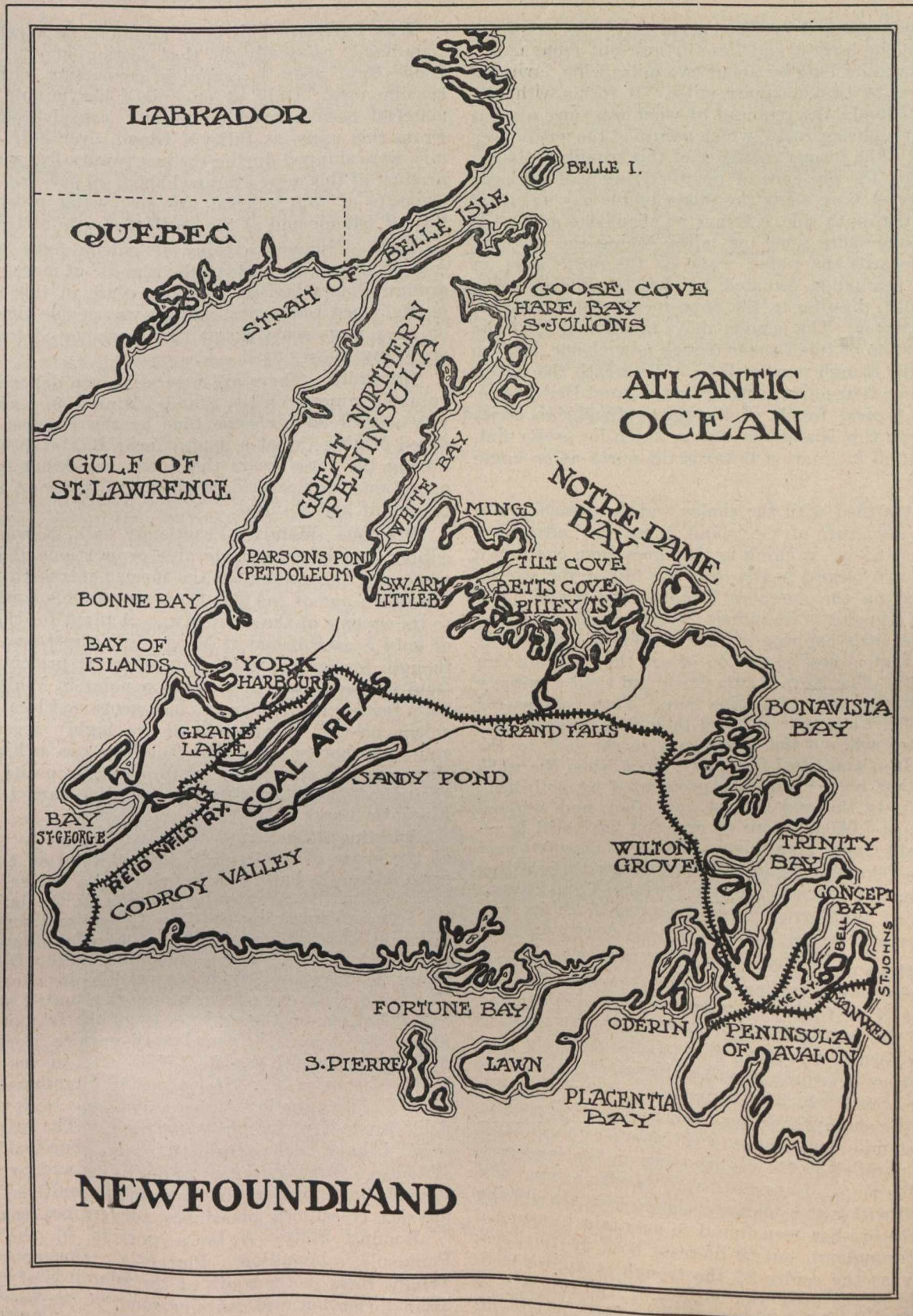
opened. Several other copper mines have been operated in Newfoundland within recent years:—Betts Cove, opened in 1875, and Little Bay in 1878. The scale on which the Betts Cove mine was worked may be judged from the fact that when work there was in full blast the yearly wage bill was upwards of \$125,000. Unfortunately, combination of low prices and financial difficulties drove the operating company out of business and this mine is now lying idle. Little Bay mines were also abandoned for practically the same reasons. It is believed that considerable quantities of ore are still waiting the miner at both these locations and local companies are now negotiating for the reopening of the old mines. Two most promising copper areas are now being vigorously prospected, one at York Harbor, Bay of Islands, in the west of the Island, and the other at Goose Cove, Hare Bay, in the north. Plants are being installed at both locations and it is anticipated that in the near future these new workings will become large copper pro-



Reid's Granite Quarry, near Gander Lake.

ducers. At Goose Cove it is expected to have 3,000 tons ready for shipping at the end of the present season.

Practically all the prospecting has been done on the coast of the island. This has been rewarded with numerous indications of copper ore. In the southern part of the island it has been found that the Huronian series contains very rich ores of copper glance, tetrahedrite and bornite. The Government geologist reports that native copper occurs in large quantities in Placentia Bay, on Oderin Island. Some portions of the rock in this location—greenstone and amygdaloidal trap—are quite rich in the metal, which is disseminated throughout it in the form of fine scales or particles. At one place where the overhanging cliff had fallen down, large masses of copper were found amongst the debris. The Newfoundland Development Co., the big concern controlled by the Harmsworths, which is developing the pulpwood on so large a scale, has discovered copper near Red Indian Lake, in the very heart of the interior. Statistics from



the Newfoundland geological department show that up to date 1,319,594 tons of copper have been shipped from the various mines of the island. To this can be added 78,015 tons regulus and 5,418 tons copper ingots produced in the same period. The percentages of copper in these ores ranged from 4 to 30 per cent. Taking the average as 15 per cent the total yield of metallic copper would be over 210,000 tons.

**Iron Mining.**

Practically every variety of iron ore is found in Newfoundland, although only one location has been developed to any extent. The area in question is in Conception Bay, on Bell Island, and is one of the most profitable mines ever operated. Referring to this area in a recent report, Mr. J. P. Howley makes the following observations:—"Great Bell Island is one of a group of

three islands situated in Conception Bay, near its south side. It is the largest and lies furthest out from shore; is about six miles long by about two miles wide, having a surface area of twelve square miles. It forms, with the other two islands, the remnant of what was once a great trough of Cambrian rocks, which occupied the entire area of the bay. The former existence of this trough is plainly indicated by the presence of narrow fringes of its basic members, stretching along the shores of the bay on either side. On the south side, a fringe of about one-mile wide extends along shore some ten miles, facing the bay and dipping towards the water, while on the north side, on the outer headlands, isolated patches of similar rocks are met with, dipping in the opposite direction, also towards the water. The islands above mentioned form the highest portion of this former trough now visible, but the centre of the trough must still lie out beneath the water, some three or four miles north from the great Bell Island. Numerous typical fossils of the upper Cambrian series are found on this island, the strata which lie pretty flat, have a general inclination towards the north at an angle of 8° or 9°.

Interstratified with the shales and sandstones, composing the structure of the island, there are altogether twelve bands of ore, ranging in thickness from one to ten feet. The two largest bands near the top of the section are situated on the northern slope of the island, and occupy the segment of an ellipse. So accessible are these beds, and so little capping of rock or debris covers their out crops, that almost every ton of ore they contain can be recovered. The Nova Scotia Steel and Coal Company were the first to operate a mine here. They commenced work in 1895, when they shipped their first cargo of ore. In 1899, they sold out the lower and larger bed to the Dominion Iron and Steel Company, since when the work of mining has been vigorously prosecuted by both companies. Up to the end of last year they had shipped between them 7,000,000 tons of ore, and have still in reserve, on the land area alone, about 25,000,000 tons. Most of the Dominion Company's ore goes to the smelting establishment of that company in Sydney, Cape Breton, while that of the Nova Scotia Company finds its way to various markets in both Europe and America.

Both these companies are the holders of large submarine areas, covering the ore deposit under the bay. That of the N. S. Company comprising 33 square miles. In view of the rapid diminution of the ore on the land area of the former company, they have, during the past two years, been driving out under the water, in order to reach their claim, which is situated three-quarters of a mile from the shore, the latter company holding a claim for the first mile contiguous to the shore of the island. Two main parallel drifts, commencing on the land; and following the slope of the ore bands seaward, have now reached well within the company's boundary. In driving this slope the ore has been found to maintain its general character throughout, but to increase both in thickness and quality as the centre of the trough is approached. By the aid of the dips and strikes of the strata it is possible to form a fair idea of the extent of the trough. Unless some unforeseen disturbances should occur cutting off the ore, or throwing it out altogether, and provided the ore bands maintain their thickness and regular stratified character throughout, a fairly reliable result can be arrived at. According to this mode of figuring then, I find the trough should contain the enormous amount of 3,635,543,360 tons. Of course this estimate takes into account all the ore bands now known to exist on the island."

**Iron Pyrites.**—This is an abundant mineral in Newfoundland, especially in that section known as Notre Dame Bay, where it occurs in connection with copper-bearing ores. Only at one place has mining for this material been carried on to any considerable extent. From this mine, at Pilley's Island, over half a million tons were shipped during the last twenty-five years. The product of this mine averaged about 50 per cent. sulphur. Deposits of this mineral are also being prospected at Bay of Islands and at the south-west arm of Green Bay.

**Lead.**—Numerous veins of galena have been discovered in various parts of the island, but more especially around Placentia Bay. At one place in this neighborhood, named LaManche, mining was at one time carried on on a large scale, about twenty thousand tons of the ore being taken out.

**Chromite.**—There are several known deposits of this valuable mineral on the island. Mining on a small scale was carried on for some time by the Humber Consolidated Mining Co. at a deposit near Bay of Islands, and during the three years that the somewhat spasmodic operations were carried on about ten thousand tons were taken out and shipped.

**Precious Metals.**—Practically all Newfoundland copper ores carry considerable proportions of gold and silver and the amount of the former extracted from the ore taken out of the Tilt Cove mines adds considerably to the income of the company. A plant for the mining of gold is established at Mings, in Notre Dame Bay, although, for lack of capital, it is not at present worked. Gold is also known to occur at a point in White Bay, a little farther north than the last-mentioned location. The galena ores of Newfoundland are highly argentiferous and an authority states that they have run as high as 400 ounces to the ton. The most promising deposits of silver at present known are situated at a place named Lawn, in Placentia Bay.

**Building Stone.**—The best testimonials to the value of the areas of available building stone on the island are the public buildings in which the native material has been used. A splendid example is the building in St. John's, containing the Law Courts and some of the Colonial Governmental offices, Newfoundland sandstone from Kelley's Island, near the famous Bell Island mines, Conception Bay being used in its construction. The facing is syenite from a quarry situated at a place called Petites, on the south coast of the Island. Water Street, St. John's, is paved with granite blocks taken from a quarry of the Reid-Nfld. Co., in the interior. Marble has also been discovered in abundance and an effort is being made to form a company to develop one field situated on the west coast. The marbles discovered have been of almost every conceivable shade of color. Other varieties of building and ornamental stone known to exist in workable quantities are porphyries, freestones, limestones, serpentines, soapstone.

**Roofing Slate.**—A large portion of the Avalon Peninsula, including, Placentia, Conception and Trinity Bays in the south of the island, is of the Cambrian formation and contains some of the best roofing slates quarried. The principal quarry is situated at Wilton Grove, in Trinity Bay. The slate is of various shades of color, dark purple prevailing and there is also an extensive band of pale sea-green color. Experienced Welsh slaters are employed in working the quarry, which up to date has produced over 150,000 squares, having a total value of something like \$450,000. The slate has been pronounced to be the equal of the best product of Carnarvonshire, Wales. One

of the directors of the United States Geological Survey, who examined the quarry, reported that "this is one of the great roofing-slate deposits in the world, being comparable with that of North Wales and the American deposits of Washington County and Rutland County, Vermont."

**Coal Areas.**—These are treated in a separate article. It is interesting to note here that Professor Jukes visited them almost half a century ago, and estimated that one area alone was about twenty-five miles long by ten in breadth. Of recent years a number of seams have been discovered, all of which are being tested by the government geologist, Mr. Howley.

Of other minerals that have been discovered in workable quantities we have antimony, manganese, and tin. A most promising deposit of the first-men-

tioned occurs on the north-east coast of the island at a place called Moreton's Harbor. An attempt was at one time made to mine it, several thousand tons being taken out and shipped. Extensive deposits of manganese of a low grade are found in various parts of the island, more especially around Conception Bay, where it occurs in conjunction with limestone. An attempt is now being made to mine this mineral at Manuels, Conception Bay. Recently a body of tin-bearing ore has been discovered at How Harbor, Har-Bay, in the far north of the island, and assays of some of the specimens taken out showed the presence of over two per cent. of tin. A big body of talc on the south side of Conception Bay is being worked. An overhead tramway and a large pier have been built and already several thousand tons have been shipped to the American market.

## COAL AREAS OF NEWFOUNDLAND.

By James P. Howley, F. G. S., Director Nfld. Geological Survey.

There are in Newfoundland three distinct carboniferous areas, one in the Codroy Valley, west coast, another in the country lying to the south of Bay St. George and the third on the upper reaches of the Humber River, Bay of Islands, in the region between Grand and Sandy Lakes. The first named is of very limited extent, being a mere segment of a trough, cut off by a great fault. There are two little patches of about a mile each in longitudinal extent, but the greatest thickness of the true coal measures does not exceed 250 to 300 feet in all. Nevertheless, within these narrow

its strike, gave an average thickness of 7 1-2 feet. The nine-foot seam was drifted upon for ninety feet, and about 100 tons taken out. Some of this coal was used by the Reid Railway Co. on their locomotives, with excellent results as a steam producer.

The Bay St. George coal area is in the form of a narrow trough situated some eight miles inland from the south shore of the bay. The full extent of this trough is not yet known, but it has been traced longitudinally for about five miles. Three brooks which have cut channels across it afford the only sections of

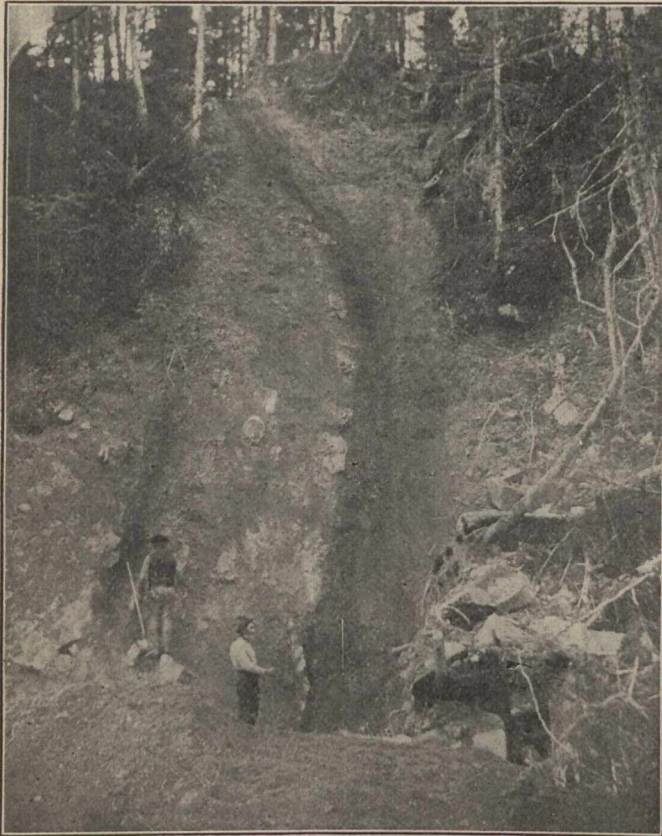


Diamond Drill at Work—Bore F, Kelvin Brook, Grand Lake.

limits there are six seams of coal, all standing in a vertical position. Four of the six are of small dimensions, but the remaining two are of some considerable extent. One at its outcrop showed 9½ feet of good, clean coal, while the other at one point was 23 feet wide, consisting of layers of coal, shale and clay, and containing 15 feet of fairly good coal. They did not, however, maintain this thickness throughout, but were found to vary considerably; the first had dwindled down to five feet, with only three feet of coal, while the larger seam, which was uncovered at five different places along

the measures. On the most westerly of these, called the Middle Barachois, a good section of about two miles in extent is exposed. When this was stripped with pick and shovel twelve separate seams of coal were revealed, on the north side of the trough toward which they dipped, most of them being also uncovered on the opposite side.

The seams ranged in thickness from a few inches up to over five feet, and the coal in several was of first-class quality. On Robinson's River, two miles east, and on one of its tributaries, small exposures of the



No. 6 Coal Seam—West Side Aldery Brook.

coal measures were again met with. The Robinson's River section contained three seams, one of which gave a thickness of 4 feet 2 inches of good solid coal, and on a northern feeder of the River four seams were uncovered. Only one of the latter was of any importance measuring in width 1 foot 6 inches, the coal of an exceptionally superior quality, being clean, bright and semi-anthracitic in character. It was low in sulphur, burnt with a bright, clear flame in an open grate, and left but a small percentage of ash.

The coal seams of one foot and over in thickness so far discovered in this trough are as follows:



Coal Seam, Codroy.

	Ft.	Ins.
Murray Seam .....	5	4
Rocky Seam .....	1	5
Clay Seam .....	1	8
Slaty Seam .....	1	4
18-inch Seam .....	1	6
Jukes .....	4	6
Cleary Seam .....	2	2
Howley Seam .....	4	2
Shears Seam .....	1	2

The aggregate thickness of all the seams in this trough is 27 feet, which, should they maintain this average throughout, would give 25,920,000 tons of coal for every mile of superficial area they underlay.

In the Humber Valley, the Carboniferous series spreads over fully five hundred square miles of coun-



Coal Seam on Coal Brook, Grand Lake.

try, but by far the greater portion of this is occupied by the lower and unproductive members of the series. Here again the true coal measures are confined to a long, narrow trough, which extends along the south side of Grand Lake some four or five miles, and thence strikes north-easterly into the flat country lying between Grand and Sandy Lakes. This trough has now been traced over eleven miles on its strike and in all probability it terminates in Sandy Lake, some six or seven miles further on!

The country hereabout is very difficult to explore, owing to the immense accumulation of superficial debris, in the shape of sand, gravel and boulders, spread out over the surface in all directions and effectually concealing the structure beneath. Of late years the



Calyx boring drill has been brought into requisition to test this coal field and we are gradually acquiring a fuller knowledge of its extent and possibilities.

One small section has been uncovered at Aldery Brook on the south side of Grand Lake, two miles from its head. Here the trough is very narrow and lies close up against the Laurentian Hill range. It does not exceed altogether a quarter of a mile in width, yet it contains thirty outcrops of coal, all crowded together, in a nearly vertical position. Owing to the doubling



Camp MacGregor, Coal Boring.

up of the strata these outcrops, in reality, only represent fifteen distinct seams. They vary from a few inches up to six-and-a-half feet in thickness. The largest seam was drifted upon for 150 feet, and a great deal of coal of excellent quality was taken out. Several of the other seams were also partly opened up and some good coal extracted from them.

Six seams in this section exhibited the following dimensions at their outcrop: 2ft. 0in.; 1ft. 6in.; 1ft. 8in.; 6ft. 6in.; 3ft. 0in.; 2ft. 6in.

One-and-a-half miles further east, on Coal Brook, eighteen outcrops were observed, representing nine different seams. Here the trough begins to widen out somewhat and the angle of inclination of the bedding assumes a dip of 50 deg. or less. Six of the seams had the following dimensions: 1ft. 4in.; 3ft. 5in.; 1ft. 0in.; 1ft. 6in.; 2ft. 4in.; 1ft. 0in.;

On Kelvin Brook, two-and-a-half miles still further south along the strike, a small section on the south side of the trough exhibited six seams, three of which showed: 3ft. 8in.; 2ft. 6in.; 6ft. 2in.; The Reid Nfd. Railroad Co. mined one of these seams for a while taking out about 7,000 tons of coal, all of which was used on their locomotives, with quite satisfactory results.

Three-and-three-quarter miles eastward, where the railway crosses the trough, three seams were discovered by sinking pits through the gravel and sand. They were all on the south side of the trough, dipping nearly north, at a much lower angle, indicating a considerable widening-out of the measures. Owing to the utter impossibility of accomplishing any further effective work here with pick and shovel, recourse was next had to the boring rod. Ten holes have been put down at short intervals apart and several new seams thus discovered. Seventeen seams were bored through during the past two years, which, with the three previously mentioned, making twenty altogether, so far discovered in the Grand Lake section. As in the other cases, they vary from a few inches up to something over three feet. Nine of them ranged from one foot upwards, as follows: 2ft. 6in.; 3ft. 4in.; 1ft. 6in.; 3ft. 0in.; 2ft. 6in.; 1ft. 0in.; 2ft. 4in.; 1ft. 0in.; 1ft. 6in. Several thousand tons of coal were also taken from this section by the Reid Nfd. Co. and burned on their locomotives. It is at present impossible to estimate the amount of available coal in this area, but it must unquestionably mount into many millions of tons.

The following analysis will give some idea of the composition of these coals:

From Bay St. George.				From Coal Brook.		From Kelvin Brook.				
	Clary Seam.	Jukes Seam.	Howley Seam.	Shears Seam.	No. 3.	No. 4.	No. 1.			
Moisture . . . . .	3.548	3.036	2.784	4.90	9.93	5.02	8.44			
Volatile matter	30.897	30.344	29.784	33.12	24.01	31.25	28.54			
Fixed carbon . . . . .	55.229	60.142	54.468	not given	49.15	54.03	50.07			
Sulphur . . . . .	3.946	1.963	3.047	0.44	16.14	8.66	11.53			
Ash . . . . .	6.380	4.515	10.430	3.16	.77	1.04	1.42			
	100.000	100.000	100.000	Coke 61,371	100.00	100.00	100.00			
					Coke in closed vessel . . . . .	66.06	63.73	63.92		
From Aldery Brook, Grand Lake.										
	No. 2.	No. 6.	No. 7.	No. 9.	No. 15.	No. 16.	No. 17.	No. 20.		
Moisture . . . . .	10.22	5.80	10.77	13.71	15.78	5.82	4.32	7.41		
Volatile matter . . . . .	24.39	31.44	16.55	26.83	30.30	33.62	16.84	30.73		
Fixed Carbon . . . . .	48.51	57.86	33.89	51.06	45.29	55.28	72.66	52.49		
Ash . . . . .	15.72	4.08	37.86	7.56	8.08	4.49	5.53	7.71		
Sulphur . . . . .	1.16	.82	.93	.84	.55	.79	.85	.66		
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00		
Coke in closed vessel . . . . .	65.39	62.76	72.68	59.56	33.92	60.56	78.84	61.86		

## BETTS COVE MINE.

Betts Cove is situated in Notre Dame Bay on the north east coast of Newfoundland. It is reached from St. John's, the capital, first by railway to Erploys, a distance of 260 miles, and then by steamer, run in connection with the railway system, a further distance of 125 miles. The Cove itself is about 2,000 feet wide at its entrance, narrowing to about 200 feet at the head, and is about three-quarters of a mile in length, with a slight curve westwards. It is surrounded by perpendicular, sometimes overhanging, cliffs. A short distance back from the head of the Cove a high mass of rock stretches obliquely across and, trending westward, leaves a narrow ravine, the situation of the famous little mining town.

All along the shore of Notre Dame Bay and in the islands that dot its waters, numerous copper deposits of ranging extent have been found. Betts Cove is apparently the centre of this belt or zone of mineral.

posit was worked uninterruptedly, 117,000 tons of ore were shipped. The suspension of operations was then caused by a cave-in of the mine due to the robbing of the pillars of their ore. This tribute system was inaugurated to offset the damage done by the fall of a huge bluff which destroyed much of the plant. Financial difficulties, coupled with the low price of copper—£44 10s.—prevented the company from reopening this promising mine. The magnitude of the operations carried on while the deposit was being worked may be judged from the fact that in one year about £95,000 were paid out in wages.

When the mine was closed down a most complete plant was left standing there. Two substantial wharves were ranged along either side of the Cove and provided mooring space for several large vessels at a time. The principal buildings of the town included large warehouses and shops, the manager's residence,



BETTS COVE.

The enclosing rocks are chiefly diorites and serpentines, with some metamorphic formations, and belong to the lower Silurian system. The cuperiferous and pyritic ores are found in veins more or less continuous, and in pockets of varying sizes. In places the ore is free from any admixture of gangue filling, but where the latter is present it invariably consists of, chloritic slate, often heavily charged with iron and sometimes copper. The surface indications of the ore deposits generally consist of "gossan" and ironstone, usually much weathered and decomposed. The ore is a sulphide containing copper varying from one-half per cent. to twenty per cent. A promising body of pyrites has also been uncovered and samples of it have assayed from 43.75 to 46.74 per cent. of sulphur.

Operations were commenced at the Betts Cove mine during 1874 and the first shipment of ore was made in 1875. For the next ten years, during which the de-

and a number of other houses, occupying the foreground of the Cove. Behind these buildings was the barracks, a long, low building, occupied by the unmarried officials and containing also the surgery and dispensary. In the background were a number of other buildings, miners' houses and boarding-houses.

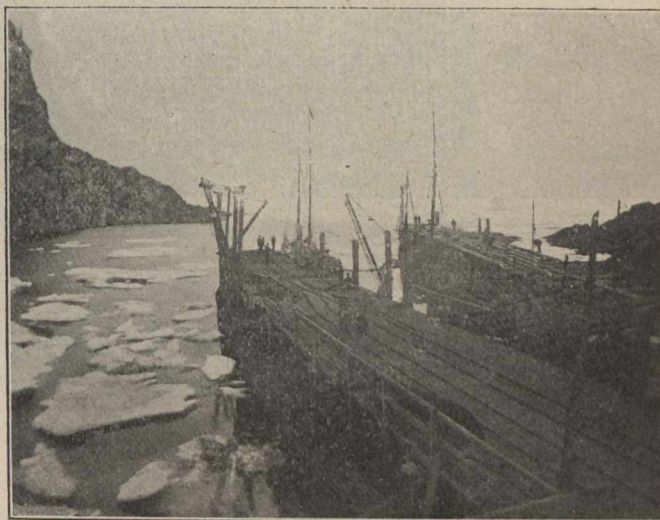
On the western side of the Cove, high up the hill, were the reverberatory smelting furnaces, enclosed in a large wooden building. Attached to this was a laboratory. At the head of the western wharf was situated smelting works, of more recent construction and containing six cupel furnaces.

The mine is situated about three-quarters of a mile west of the Cove, although to reach it via the road would entail travelling a much greater distance. The mouth of the shaft with its engine-house and hoisting machinery is at an elevation of about 500 feet above high-water mark. Near the mouth of the shaft is a

large copper floor, roofed over, on which the ore received from the mine was spread out and sorted, the larger masses being broken up to a size convenient for handling and being also freed from rock and iron pyrite. The culled material was afterward taken to a small lake, where it was washed with a hose and again carefully picked over. The better quality of this ore was afterwards shipped with the ordinary ore from the mine, while the poorer quality was sent to the smelting works to be converted into regulus. A tramway of ore 1500 yards in length conveyed the entire product of the mine to the waterside. For the first six or seven hundred yards there was a slight up-grade and the cars, each containing two tons of ore, were pulled over this by horses. Then succeeded an incline of 150 yards and a level section of about a quarter of a mile. The last section of the track, inclined at an angle of about 20° led directly down to the wharf.

This extended notice has been given the old Betts Cove workings and plant for several reasons. They show from the big plant installed, that the company carrying on operations had pinned its faith to the locality and was only forced out of business by poor management and financial troubles. Recent investigations have also convinced the Pillies Island Pyrites Co. that the deposits of pyrites referred to above will well repay working, and they have now upwards of 1000 tons piled on the surface, with as much more in sight, the result of a drift 36 feet long, so that in the very near future Betts Cove will again probably become a producer. Also, the old mining headquarters here was a centre from which radiated prospecting efforts all over the surrounding district. These prospecting tours resulted in the discovery of mining locations whose development promised much profits. Two of these deserve special mention, both being copper deposits. One

at Burton's Pond, is situated about two miles west of Betts Cove and here, when operations were stopped at the latter place, about 100 tons of copper ore had been deposited on the surface. Serpentine rocks have been found to run along the south-eastern side of the pond, being interstratified with quartzite, diorite and slate with steatitic bands. At the entrance of the pond there



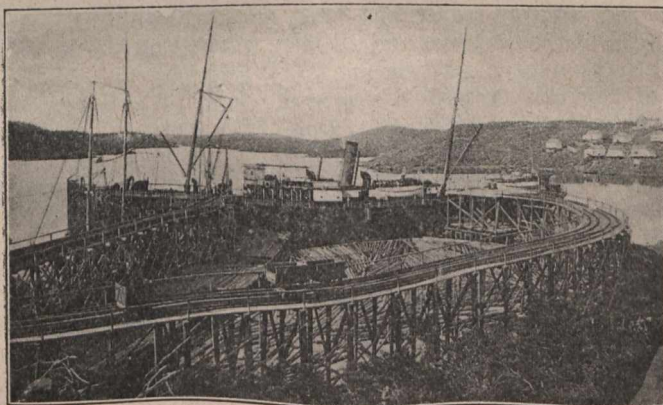
Loading Pier, Betts Cove Copper Mine.

is a considerable display of copper pyrites and sulphide of iron, and it was here that mining operations were begun.

The second location to which reference has been made was at South West Arm, a few miles up the Bay from Betts Cove. The ore mined here was of a superior quality, yielding 26 per cent. of pure copper.

### PILLEY'S ISLAND MINE.

Pilley's Island is situated in Notre Dame Bay, on the north east coast of Newfoundland, and at a distance of about 250 miles from St. John's, the capital city of the colony. The geology of the island is similar to that of the other copper bearing areas of Newfoundland. The ore is found associated with serpentine, the strata consisting largely of chlorite slate, diorites, and



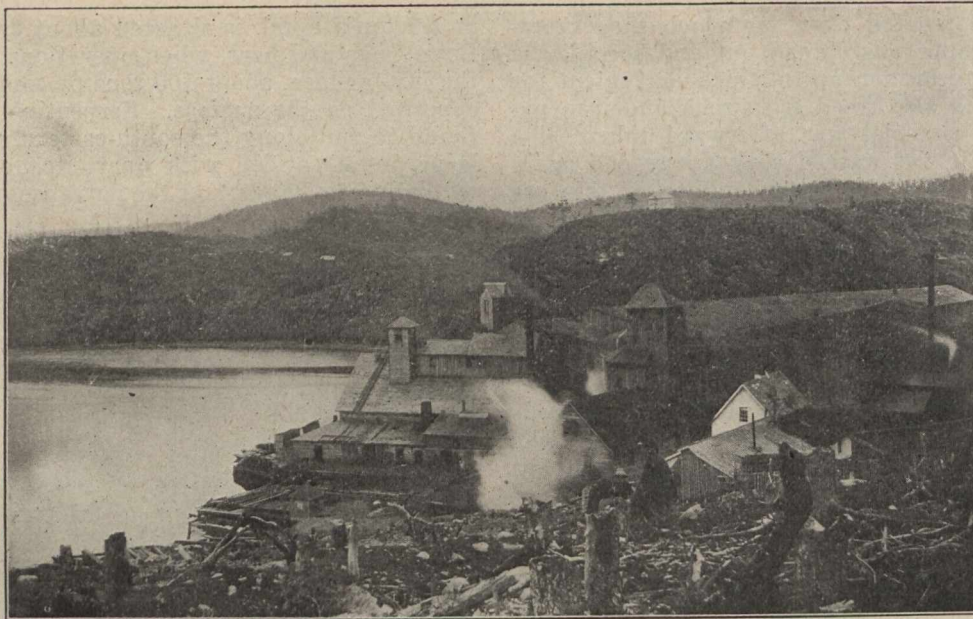
Pier at Pilley's Island.

dolomites. The ore mined here is of excellent quality and is almost chemically pure, assaying 45 per cent. sulphur, 52 per cent. iron, 2 per cent. copper and about 1 per cent. alum. It is contained in a lenticular vein which dips 25° from the horizontal, the ore on this incline being traceable for over 700 feet.

Mining operations on Pilley's Island commenced in 1886 and were carried on uninterruptedly until 1899. Then for two years operations were suspended, but the mine re-opened and worked again until 1907 when it was again closed owing to the financial embarrassment of the Pilley's Island Pyrites Co., the owners, mainly New York capitalists. Arrangements have, however, been made by which it is likely that this mine will be once again opened up this season.

When operations were suspended in 1907 the prospects of the area were unusually promising. A 300 foot shaft had been sunk through the main one vein and various drifts made through it. A body of ore, 150ft.x140ft.x20ft. had then been blocked out from the fifth to the seventh level. The specific gravity of the ore is about 5, which gives an equivalent of about 7 cubic feet to the ton. A simple calculation from the figures given above will show that about 60,000 tons of ore are at present available. The continuity of the ore band has been proven by diamond drilling and sufficient data have been gathered to indicate the presence of a further quantity of 100,000 tons of ore.

The mine plant is an up-to-date one. It includes a 150 h.p., high-pressure, friction engine, with double drawn for hoisting purposes; an air-compressor of sufficient capacity to run fourteen rock drills; four return tubular boilers developing 700 horse-power, a 7 k.w. electric dynamo used exclusively for lighting the mine. There is also a thoroughly equipped machine shop and a smithy, in which mechanical apparatus is installed.



SHAFT HOUSES AND POWER PLANT OF PILLEY'S ISLAND MINES.

Ore pockets with aggregate capacity of 4,000 tons have been provided and are used during winter months when shipping is suspended. The mine equipment also includes a crusher fitted with inclined screens and conveyors.

Shipping facilities are such that ships of 5,000 tons

displacement can lie at the pier head within half a dozen yards of the shore and receive cargo. The harbor is commodious and is almost landlocked. There is plenty of timber in the neighborhood and conditions are such as to render mining operations possible at low expense.

### HARE BAY MINES.

North of a line drawn across the Island of Newfoundland from the bottom of White Bay on the east coast to Bonne Bay on the west coast, the great northern Peninsula stretches for upwards of one hundred and twenty-five miles towards the coast of Labrador being separated from the latter at its northern extremity by the narrow Straits of Belle Isle. Its shores both east and west are bold and precipitous and are indented with many fine bays and harbors. Towards the northern extremity of the east coast is an unusually large inlet known as Hare Bay, and several of the harbors and coves around this have recently become the scene of much mining activity. Attention has been given specially to Goose Cove, How Harbor and St. Julien's, in each case with encouraging success.

The Goose Cove property is situated adjacent to Goose Cape, which forms the extreme north-east corner of Hare Bay, where it opens on to the Atlantic. The rocks in which the copper lodes are enclosed are metamorphic and, like all the well-known deposits of Newfoundland, they occur in the suprafiferous strata of the Quebec, or middle Silurian formation. The strata associated with the copper beds are slates, thin beds of fine conglomerates and quartzites. At the surface, owing to weathering, the beds are not conspicuous, but beneath they are more distinct and exhibit a dip toward the north east, though this, as well as their strike, is subject to variations. The slates between which the lodes occur are softer than the surrounding rocks, this facilitating sinking and drawing. The copper veins are interbedded with the strata and, necessarily, follow their flexures. In the concession which is now being prospected two copper veins have been traced. The main, or west, vein is a rather slaty bed of copper pyrites, containing no quartz or other gangue, and bearing a little east of north with a dip slightly inclined

eastwards. It has a width of two or three feet of compact copper pyrites which, when picked, yielded 8.85 per cent. copper according to an English assayer. The east vein is similar to the main vein with a nearly north and south strike. It is also interstratified with the slate, and has a surface width of from one to two feet. The deposits at Goose Cove occur in the same rock formation as, and under similar conditions to, the rich copper mines that have been worked in Notre Dame Bay, on the east coast of northern Newfoundland. Tilt Cove, for instance, has returned large dividends for many years and last year is stated to have made a profit of about £100,000.

A 74 foot shaft has been sunk through the main vein at Goose Cove and 12 men worked on the location all the winter, getting out 2,000 tons of ore. Analysis of this ore showed 10 per cent. copper; 24.6 per cent. sulphur and 19 per cent. iron, with traces of gold and silver. Mr. M. L. Parnell, one of the local owners of the location, has succeeded in forming a company in England, and an expert, representing the shareholders, is now on the ground directing operations.

The staff of miners is to be at once increased to 100 men and it is expected that by the end of July a first shipment of some 3000 tons of the ore will be made to Swansea. A recent report of the expert referred to, Mr. Brenton Symons, M.I.C.E., F.G.S., M.E., states the vein which, at the commencement of operations showed only two inches of ore, now shows 8 feet. The company will immediately erect the necessary machinery and expect to mine and ship at least 20,000 tons of ore before the close of the present season. The facilities for shipping are excellent. Goose Cove is a commodious harbor with a narrow entrance and perfectly sheltered from all storms. The depth of water is 20 to 40 feet and there are two or three spots where a 50

foot pier would be of sufficient length to load an ore boat of from 2,000 to 3,000 tons burthen. The mine is about three-quarters of a mile from the shore of the harbor.

St. Julien's is situated near the opposite, or south-east, Cape of Hare Bay. The copper lands are close to the shore. The country is very hilly, the prevailing rocks being limestone and granite, the quartz veins running straight, principally in a northwesterly and southwesterly direction, occasionally showing outcroppings of copper ore for hundreds of yards. A shaft sunk a short distance from the shore and about 35 feet above sea level showed a 13 inch vein of copper ore at a depth of five feet and when this had been extended to fourteen feet deep the vein had increased to 23 inches in width. Prospecting shafts were also sunk in several other places and in every instance the vein increased in width the deeper operations were carried, the quality of the ore also improving greatly. The widest vein of copper ore discovered in these prospects measured 2ft. 6ins., this at a depth of nine feet. An assay of the ore from this mine by a New York firm showed 14.65 per cent. copper and 26.19 per cent. sulphur; another by a German expert of three samples showed copper 26 per cent. 21 per cent. and 26 per cent. in each instance,

will be brought into the camp at 44,000 volts, and the different mines will be fed at a voltage of 2,200.

Their plans call for the installation of one or two large electrically driven air compressors and they undertake to supply the mines with compressed air as well as electrical power. The cost per H.P. will be about \$50.00 per annum for a 24 hr. service.

It is expected that they will be serving their customers about Oct. 31, 1909.

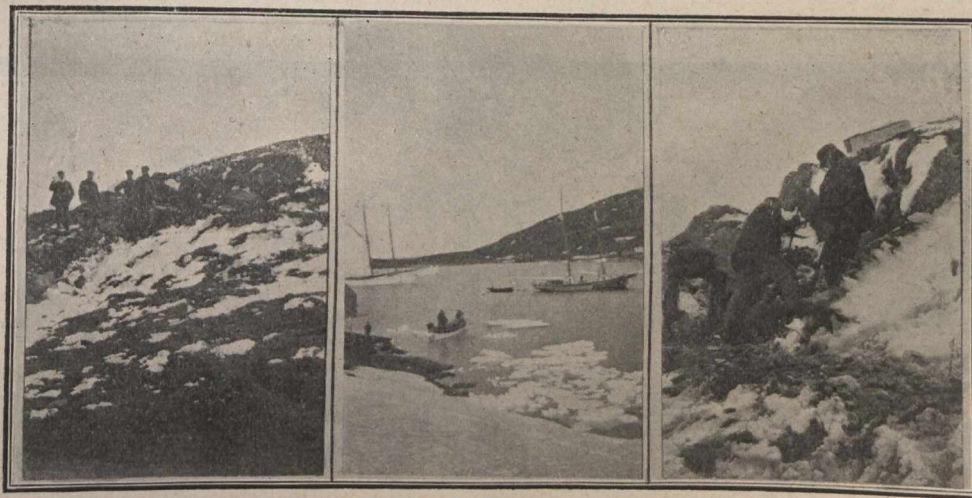
#### Cobalt Hydraulic Power Co., Ltd.

CHAMBER—1,000 feet long, 20 feet wide and 26 feet high—100,000 feet (cu.).

INTAKE—347 feet, outlet 298 feet or a difference of 49 feet.

There will be two intake pipes 8 feet diameter and an outlet pipe of 22 feet. The two inlet pipes will be steel lined. The blow off pipe will be 12 inches in diameter.

This plant is situated six and three quarter miles south of the Kerr Lake siding of the T & N.O.R.R. at Ragged Chutes on the Montreal River. They will charge 25c per 1000 cu. ft. compressed air at 100 lbs. pressure and at a.t. This is on their metered air power contracts.



PROSPECTING AT GOOSE COVE.

while an assay by Prof. R. E. Holloway, Government assayer, at St. John's, Nfld., showed copper 21.03 per cent with 3 dwt. gold per ton.

There are splendid shipping facilities here also. The harbor is commodious and well protected and the water very deep. Timber can be had in abundance and at small expense from a mill and lumber yard situated some little distance along the coast.

#### POWER DEVELOPMENT IN COBALT. MINES, POWER LTD. COBALT.

This plant is an electrical one situated on the Matibichewan river some 25 miles from Cobalt. The company has the right to raise lakes feeding this power 40 feet. They will have a head of 312 which will be brought to the turbines through two steel tubes 5 feet in diameter. The electrical installation will consist of four generators 2500 H.P. each or 10,000 in all. It is proposed to keep one unite in reserve. There will be two transmission lines to Cobalt to prevent any break down, the right of way will be 135 feet. The current

The air will be piped to Cobalt at 110 lbs. pressure through wrought iron pipes 20 inches in diameter and 40 feet long. These tubes are very heavy, the flanges being welded on. Each flange contains holes for 24 one-inch bolts, the holes being 3½ inches centre to centre. 1/16 inches cardboard is used as a gasket. Cement anchors are placed every half mile and between anchors expansion joints are placed. Loops supplying the mines will be 12 inch pipe. This company will also supply electric power.

Power from this plant is supposed to be supplied to the mines about the middle of October, but I think it impossible as the contractors that have the shaft sinking and tunneling for the chamber have had trouble with low water and in fact I heard that they had pulled out.

Cobalt should at last get cheap power as there will be two companies in opposition and looking for a market for their power. At present some of the mines are paying \$250 per drill per month on an 18 hour service. These two companies will do the same for less than \$4.00 per day, or say \$100 per month.

## RECIPROCITY IN COAL.—A WESTERN POINT OF VIEW.

Written for the Canadian Mining Journal by E. Jacobs.

Canada's total production of coal during all years to 1908, inclusive, has been about 131,000,000 tons; that of the United States about 7,284,000,000 tons. During five years, 1904-8, Canada produced 48,000,000 tons of coal; in the same period the United States produced 2,060,000,000 tons. Canada's production in 1908 was about 11,000,000 tons; that of the United States nearly 420,000,000 tons. With such extremely disproportionate production figures in view, the suggestion of reciprocity in coal between the two countries, if nothing else were taken into account, might well appear one that should be dismissed without further consideration. But there are other factors in the situation to be considered, and they are decidedly important in their relation to a question seriously affecting the industrial and domestic interests of extensive areas of the Dominion.

### The General Position.

Generally, the position seems to be this: There is an enormous quantity of coal of excellent quality in Canada—in the Maritime Provinces in the East and

in Alberta and British Columbia in the West, but practically none in about 2,000 miles of territory situated between Alberta and New Brunswick. On the other hand, there is no coal in the Northeastern United States; none thence immediately south of the International boundary line (excepting in Michigan) until North Dakota is reached, where lignite coal occurs; then there is coal in the Rocky Mountain region—Montana and Wyoming, and again there is coal (though not of nearly so good quality as that in British Columbia and Western Alberta) in the State of Washington. Thus nature, taking no account of future divisions such as have been brought about by the establishment of political boundaries, and ignoring artificial trade restrictions, placed much good coal in the far eastern and western parts of Canada respectively, but did not similarly favour the wide extent of intervening Canadian territory, thereby leaving this great expanse of country dependent in large measure for its fuel supply upon fields situated south of what afterwards became the boundary line between Canada and the States. So



● indicates working coal mines.  
 X indicates undeveloped coal mines.  
 The approximate market areas of the several mining districts are shown by the dotted lines. They are, reading from west to east, as follows: 1—Area supplied by Vancouver Island Coal Mines; 2—Small tributary to Nicola Coal Mines, recently opened; 3—Small tributary to Bankhead and Cammore, Alberta; 4—Small tributary to Edmonton, Alberta, Coal Mines; 5—Area, comparatively large, taking coal from Crow's Nest Pass Coal Mines in both British Columbia and Alberta, and others in latter province about Lethbridge, etc.; 6—Large area supplied by Pennsylvania, Ohio, etc.; 7—Large area supplied by Maritime Province Coal Mines.

it would appear, in these circumstances, that the natural position would be for the Maritime Provinces of Canada to be the chief source of fuel supply for the New England States, while Alberta and British Columbia would in large measure stand in a similar relation to the Pacific States. But the trade restrictions referred to, supplemented, or perhaps overshadowed so far as Canada is concerned, by vested interests and the stronger political influences of the Maritime Provinces, have combined, and appear determined, if possible, to strengthen their combination, to serve their own ends rather than assist in bringing about a change that fair play to coal consumers in Ontario and Manitoba and producers in Alberta and British Columbia demands.

**Summary of Coal Mining in Canada.**

Of the coal mining industry of Canada as a whole, the "Report on the Mining and Metallurgical Industries of Canada for 1907-8," issued early in the current year by the Mines Branch of the Canada Department of Mines, gives (p. 934) the following brief summary:—

"The annual output throughout Canada is now more than 10,000,000 short tons, of which about 60 per cent. is mined in the Maritime Provinces and 40 per cent. in the Western Provinces. The total output in Nova Scotia since 1785 has been about 83,000,000 gross tons, and in British Columbia since 1836 about 28,000,000 gross tons. In the Northwest Territories there has been mined since 1887 about 8,500,000 gross tons. There is, therefore, a total output on record to the end of 1907 of nearly 120,000,000 gross tons. At the present rate of production, as much more will be mined during the text ten years.

"The coal fields of Canada are not found in proximity to the centres of population. The Province of Ontario—the most populous province of Canada—has no coal deposits, hence the consumers of coal in this province find it more convenient and profitable to import their coal supplies from the nearer fields of Pennsylvania and Ohio, U.S.A.

"From 2,000,000 to 2,500,000 tons, or about 30 per cent. of our imported coal, is anthracite, which is not found in Eastern Canada. For similar geographical reasons it is probable that upwards of 20 per cent. of the total production of bituminous coal in Canada finds a market in certain northern parts of the United States.

"Our imports of coal aggregate about four times as much as we export, hence our consumption of coal is considerably greater than the amount mined in Canada. In 1906 our consumption of coal was estimated at 15,326,466 short tons, or nearly 60 per cent. greater than the production, which amounted that year to 9,782,601 short tons."

The foregoing review was written before the question of reciprocity in coal between the United States and Canada was once more brought into public notice. In connection with the last paragraph above quoted it may be mentioned that "The Coal Trade" for 1909 (published by the editor of "The Coal Trade Journal," New York), says concerning Canada's fuel imports:—

"During the fiscal year ending June 30, the imports of fuel into Canada were as follows:—

	1905.	1906.	1907.	1908.
Receipts.	Tons.	Tons.	Tons.	Tons.
Bituminous.	4,826,535	5,516,019	6,714,311	6,710,933
Anthracite .	2,604,137	2,200,863	2,784,161	3,296,522
Coke . . . . .	371,593	480,222	557,842	565,273
Bitum. dust . . . . .	.....	.....	.....	1,139,233
Totals . . .	7,802,265	7,197,104	10,056,314	11,711,961

"Under the general tariff of Canada the duty on bituminous coal is 63 cents per net ton, and on bituminous dust, or slack, and upon charcoal, 14 cents per ton. There is no duty imposed upon anthracite or coke."

The opinion may here be offered that it is a matter for much surprise that when it came up lately there was so little public interest shown in this matter, though the explanation of the seeming indifference of the comparatively large coal-producing interests of the West and the larger body of consumers in Ontario and Manitoba may be attributed to doubt as to whether the United States would consent to the abolition of all duty on coal, provided that Canada would act similarly. But since the question is not one for the present only, but must increase in importance as the great coal resources of the Dominion become further developed, it is desirable that the views of men in positions to speak with more or less authority regarding it, be taken note of, and this notwithstanding that there appears no present prospect of reciprocity.

**Some Production and Report Figures.**

Before quoting recently given expressions of opinion of several well-known men, though, a few more production figures will be submitted, and, too, some notes concerning development in established western coal fields, and prospects in others known but not yet producing coal for market.

**Coal Production in Alberta, British Columbia and Nova Scotia for Five Years, 1904-1908.**

Year.	Alberta. Short tons.	Brit. Columbia. Short tons.	N. Scotia. Short tons.
1904.....	728,931	1,862,625	5,596,241
1905.....	811,228	1,945,452	5,646,583
1906.....	1,385,000	1,955,000	5,840,000
1907.....	1,834,745	2,365,000	6,354,000
1908.....	1,845,000	2,362,000	6,540,000
Totals . . . . .	6,604,904	10,490,077	29,976,824

The above tonnages are gross, i.e., inclusive of coal made into coke.

**Coal Production in Pacific Coast States for Five Years, 1904-1908.**

Year.	Washington. Tons.	Oregon. Tons.	California. Tons.	Alaska. Tons.
1904.....	2,905,689	111,540	79,582	1,694
1905.....	2,846,901	109,641	80,824	3,774
1906.....	3,290,523	79,731	30,831	5,541
1907.....	3,722,434	70,981	24,089	10,139
1908.....	2,977,490	*70,000	*20,000	*30,000
Total . . . . .	15,743,037	441,893	235,326	51,148

\*Estimated.

No information is at hand relative to the quantity of coal shipped from Alberta to the United States, but the following figures give, in long tons, that from British Columbia for five years, 1904-1908: In 1904, 532,436 tons; 1905, 673,700 tons; 1906, 679,829 tons; 1907, 651,076 tons; 1908, 567,274 tons; total, 3,104,315 tons, or nearly one-third of the gross production. Adding that used in making the coke also shipped to that country, it is found that about 39 per cent. of British Columbia's gross output of coal for the last five years, notwithstanding the customs duty charged against it, was exported to the United States. The interest of

Western Canada in the question of reciprocity in coal is, therefore, very evident, especially since no very great increase in demand for coal may reasonably be expected from Canadian territory accessible at freight charges that are not prohibitory to a profitable coal trade.

It may here be mentioned that "The Coal Trade" gives the following as the tonnage of coal exported from British Columbia to San Francisco, California, during five years, 1904-1908: In 1904, 335,137 tons; 1905, 348,515 tons; 1906, 311,099 tons; 1907, 205,956 tons; 1908, 167,415 tons. It says further: "Of the three Pacific States, Washington is the only one producing a large amount of coal. Coal fields in this State are conveniently located with regard to the chief centres of population, and while the coal is of fair quality, there is nevertheless the opportunity for the importation of coal from the adjacent Canadian Province of British Columbia. This coal finds a market in Seattle and Tacoma and the vicinity thereof, despite importation duty, but naturally cannot stand rail freight to the interior, save in the case of that going all-rail to Spokane. The superiority of the British Columbia coal is also a factor tending to restrict the shipment of Washington coal to San Francisco, for, despite greater length of voyage, British Columbia coal is delivered in San Francisco in greater volume every year than is the coal from Washington."

#### Coal Mining in British Columbia.

The Provincial Mineralogist for British Columbia, in his review of coal mining in the Province in 1908 (vide "Report of Minister of Mines, 1908," pp. 194-195), says in part: "The coal mines of the Province have, for many years, been sufficiently developed to supply the domestic demand, and they, therefore, have had to look to the export market to increase their sales; unlike the metalliferous mines, whose product is taken to the market to be sold, the coal mines must wait until the market comes to them, or within their reach. The market for coal is, therefore, directly dependent upon, and in proportion to, the industrial activity of the district supplied. . . . This enlarging of the market must necessarily be gradual in a new country—and all the Pacific Coast is industrially new—but that an increase has taken and is taking place, a glance at the coal statistics will show. This increase has been fairly regular amounting to an average yearly increment of between 50,000 and 60,000 tons of coal, while at the same time, in ten years, the annual output of coke has increased from 35,000 to 247,000 tons, due to the growth of a special industry, viz., ore smelting."

Of new producers of coal in the Province, and of coal exports, the same official says: "The Hosmer colliery, in East Kootenay, began shipments in December of 1908, and while its actual production, having been but for one month of the year, was small, its development and equipment have placed it among the large mines, and it will have to be reckoned with next year.

"The colliery of the Corbin Coal & Coke Company, in the same district, also began shipping regularly during the year, making a small output, and, although not so extensively developed nor equipped as the Hosmer mines, may be counted upon for a very much larger production in the near future.

"In the Nicola Valley section of the Coast district the Middlesboro colliery, which was only opened last year, has this year shipped 26,000 tons of coal, and its output might have been doubled with more favorable freight rates to the Coast.

"On Vancouver Island, the Fiddick colliery, also opened last year, has produced 17,000 tons of coal, chiefly from development workings, and next year, when it will have its own railway to salt water and shipping facilities, its output will be much greater. Two other collieries on the island made small shipments, viz., the Gilfillan and New East Wellington collieries, but these have not as yet become important factors in the coal output.\*

"The available supply of coal in the Province seems to be unlimited, particularly in the Rocky Mountain coal field, in which might be included several coal mines in Alberta, just over the provincial borders, and it would seem that the Province controls the coal situation of the whole Pacific Coast, since the quality of the coal found on the coast to the south of the international boundary line is admittedly of inferior quality.

"During the year about 37.5 per cent. of the total coal sold from British Columbia mines was exported to the United States; the export trade to other countries was insignificant, having been less than 2 per cent. of the total sales. The collieries of the East Kootenay District exported to the United States about 57 per cent. of the coal they sold, while the coast collieries exported to that country about 30 per cent. of theirs. Formerly, in 1902, the coast collieries exported to the United States 75 per cent. of their coal, but the percentage exported since then has been gradually diminishing, owing to an increasing home market and to the use in California of crude oil as fuel."

#### Alaska a Probable Competitor.

It must be expected that ere long Alaska will become a competitor with British Columbia for the coal trade of the Pacific Coast States, and this is already recognized by those familiar with the extent and the promising nature of the coal fields already discovered in that country, in some of which there is coal in considerable quantity and of superior quality. The following significant reference to these fields is made in the "Mineral Resources of the United States" (Part II., p. 95): "The Alaskan coal fields, particularly those carrying a high-grade fuel, like the Controller Bay and Matanuska, are destined to play an important part in the advancement of industry on the entire Pacific seaboard of the North American continent. Their early opening up is a vital question to all residents on the Pacific." It is, therefore, apparent that Alaskan coal, as well as Californian fuel oil, may be expected ere long to curtail seriously the market for British Columbia coal on the Pacific Coast, hence the greater necessity for the advocacy by Canadians of the removal of all trade restrictions.

#### Coal in East Kootenay and Alberta.

Turning now to the Crow's Nest Pass coal field, and to other large areas northward and eastward, respec-

\*Note.—The Provincial Mineralogist also mentions, on pp. 198-9, a number of "prospective coal mines," of which the following is a summary: In East Kootenay, on the upper Elk River and Flathead River; in Similkameen, near Princeton, and on Granite Creek and Collins Gulch; in Nicola Valley; on Vancouver Island and neighboring islands in the Straits of Georgia; and in Skeena District, on Telkwa, Zymoetz, and upper Skeena Rivers. Then, too, there are occurrences of coal on Graham Island, of the Queen Charlotte group, while coal is reported as also having been found in the Peace River country, within the Boundaries of British Columbia.



tively, from that very important field, the following notes are submitted. While comparatively little is yet definitely known about coal in the Flathead section of Southeast Kootenay, the position is somewhat different concerning the country extending 100 miles north of that in which the producing mines of the Crow's Nest Pass are situated. In the vicinity of the upper Elk and Fording Rivers, including the area known as the Green Hills field, prospecting has disclosed the occurrence in these localities of much workable coal, which is only awaiting the provision of railway transportation facilities to make it available for marketing. In regard to size of seams and quality of coal, this part of the Province promises to take a leading position whenever the utilization of its immense coal resources shall be undertaken. In the Alberta extension of this field and, as well, southward from present collieries having connection with the Crow's Nest Railway, there are coal measures that, in many places, give promise of proving productive. About Lethbridge, in the prairie country, too, there is much coal, to work which more extensively old collieries are being provided with modern mining and handling equipment, and new enterprises are being established. And for much of the coal—probably for by far the greater part of it—a market will have to be found south of the international boundary line. So here, too, the question of reciprocity in coal will soon become a very important one.

The very large area of the fields and the enormous quantity of coal they are estimated to contain are probably not known to the general public. For the "Mineral Industry" (to the end of 1908, p. 200) the late Dr. George M. Dawson, for some years prior to his death the Director of the Geological Survey of Canada, wrote: "This (Crow's Nest) coal field, although it has not yet been fully defined, must have an area of at least a couple of hundred square miles. . . . It is already manifest that we have here one of the most remarkable coal basins known. Dr. Selwyn roughly estimated the coal underlying each square mile, in one part of the field, at 49,952,000 tons." (Annual Report, Geological Survey, Vol. V., N.S., p. 14 A.)

Later explorations by the Geological Survey have led to the discovery of other very important occurrences of coal, situated approximately 200 miles north of the Crow's Nest area. Of certain localities in the Cascade basin, D. B. Dowling, also of the Geological Survey, said recently (see "Summary Report of the Geological Survey, 1908," p. 79): "The number of seams discovered, as well as the undisturbed position of the measures, assures a very large total of mineable coal. . . . Assuming that where the whole thickness of measures is present there is an average of 90 feet of coal capable of being mined, the available coal amounts to 150,000 tons to the acre, or 90,000,000 tons to the square mile. For the average of the area as mapped, allowing for dirty seams and coal left in the mine, approximately 65,000,000 tons should not be an excessive estimate."

In further indication of the enormous quantity of coal available in this part of Canada, it may be mentioned that Mr. Dowling, in a report published by the German Development Company, Limited, of Ottawa, Ontario, gave as his estimate of tonnage of coal contained in three areas selected for the company, that so far as prospected, it would "show at the very least a total of 279,000,000 of tons," and in the same company's Kananaskis area his approximation was about 500,000,000 tons, while Mr. James McEvoy, formerly of the Geological Survey, estimated the last-mentioned area to contain "519,750,000 tons, of which 75 per cent. can

be actually taken out, or 4,000 tons a day for over 320 years."

Mr. McEvoy's estimate of coal in the German Development Company's Bighorn area, in Alberta, is 124,618,000 tons, of which 85 per cent. can be actually taken out—nearly 106,000,000 tons, or 2,000 tons a day for more than 175 years. For its Brazeau area, in the same province, he estimates a total of 198,000,000 tons, 85 per cent. of which 168,300,000 tons or say 4,000 tons a day for more than 140 years, can be extracted.

The foregoing estimates are here quoted with the object of giving some idea of the enormous quantities of coal available in the parts of Western Canada mentioned, not as in any way showing the total extent of the coal resources of this part of the Dominion. They should serve, too, to impress those who read them with some conception of the importance to Western Canada of securing, if possible, reciprocity in coal. In this connection, that is, as regards area of coal lands, it may be of interest to point out that in a bulletin published by the United States Geological Survey it is stated (after mentioning an area of about 484 square miles in Eastern Pennsylvania, and two small areas in the Rocky Mountain region underlain by anthracite coal), noting the several bituminous fields in the United States, that: "By far the most important of these in production is the Appalachian field, which includes the areas in Western Pennsylvania, and in Ohio, Maryland, Virginia, West Virginia, Eastern Tennessee and Kentucky, Georgia, and Alabama. In this region an area of 70,807 square miles is underlain by coal. Next in importance is the Central field, which comprises 58,000 square miles. The western coal field, the third in productive importance, contains 94,076 square miles. The Rocky Mountain field is the largest in area, comprising more than 100,000 square miles."

#### Reciprocity from Different Points of View.

Naturally, this question is unfavourably or favourably viewed, according to the effect reciprocity in coal would have upon the various interests directly concerned. In its "Coal Trade Review" of June 26, the New York "Engineering and Mining Journal" (p. 1309) stated the position fairly correctly in comparatively few words. It said:

"Many Pennsylvania shippers favoursuch an arrangement because they have a large trade with Canada; but West Virginia men are opposed because they are cultivating the New England trade, and do not want to come into competition with Nova Scotia coal. A similar local division exists in Canada itself. Nova Scotia miners are opposed to reciprocity, fearing to lose Canadian trade; Ontario favours it as a means of getting cheaper coal; while British Columbia also favours it owing to its large trade on the Pacific Coast." The last statement presents the case only in part, for of 567,274 long tons of coal and 37,314 tons of coke exported from British Columbia to the United States in 1908, 266,829 tons of coke were shipped to that country from the Crow's Nest Pass district, and none of this latter went to U. S. Pacific Coast points. The big market for coal and coke from Southeastern British Columbia and Southern Alberta will in the future be in Eastern Washington, Idaho, and Montana. It is quite probable exports to the Northwestern States of coal and coke from the Canadian fields just mentioned will steadily increase from now on, especially after additional railway connections shall have been established, as they most assuredly will be ere long. Reciprocity or no reciprocity, more Western Canadian coal and coke will find

a market in the states named, and this for two chief reasons—one, it will be the most accessible source of supply, and, two, the quality of fuel obtainable is excellent and probably better than from other fields seeking to supply the same market.

It is not the purpose of the writer to present here at length the views of those who are opposed to reciprocity from the standpoint of the coal mine operators of the Maritime Provinces. Only brief reference will be made to two published press despatches, both from Montreal, dated March 18, 1909. One was to the Toronto "Globe," and purported to give the view of the Dominion Coal Company, which was, in substance, that owing to labor costs being 50 per cent. higher at Cape Breton coal mines than at those of West Virginia, the former could not compete with the latter in the New England markets; further, that it would take the Dominion Coal Company at least three years to provide adequate terminal facilities at Boston and elsewhere, by which to handle the New England coal trade, and that the New England markets must be absolutely assured to the Dominion Coal Company for at least 20 years, or its losses on its St. Lawrence investments and the large outlay requisite in New England ports would together ruin its credit. Now, it does not necessarily follow that the whole of the St. Lawrence trade would be lost to the Dominion Coal Company, even if reciprocity were arranged. The statements of a Dominion Coal Company official made about two years ago (see "Journal of the Mining Society of Nova Scotia," pp. 92-95) may be regarded as throwing some light on this question. Space restrictions prevent these being here quoted in full, so only two will be reprinted: "We are selling coal in Montreal to the Grand Trunk and Canadian Pacific Railways at \$2.75 delivered. . . . We can discharge coal in Montreal at the rate of 1,000 tons an hour at a cost of less than 10 cents a ton." The whole discussion, as printed in the journal mentioned, is, however, of much interest at this time.

The second news despatch now under notice appeared in the Vancouver, B.C., "News-Advertiser," and it was represented to be the views of F.L. Wanklyn, vice-president of the Dominion Coal Company, as stated to the Montreal "Star," and of W.E. Muir, local sales manager of the Nova Scotia Coal and Steel Company. Both gave various reasons against reciprocity. The former was represented to have said that "if reciprocity were established it would only be a short time before the whole of Canada would be flooded with American coal, and the Canadian production would be extinguished," and the latter was strongly of the opinion that reciprocity would soon completely destroy the Canadian coal-producing industry. It may be that the statements of those gentlemen were not nearly so comprehensive as alleged; possibly they said "of the maritime provinces," not "of the whole of Canada." But if the latter, well, they may well be reminded of the now historic utterances of certain other persons who are known as "the tailors of Tooley Street." It does not appear to be a rash prophecy to assert that in the course of a very few years more coal will be produced in western Canada than in eastern, and that the proportion will steadily grow in favour of the west.

In contrast to the alarmist opinions of the gentlemen just quoted may be placed these of Mr. D.D. Mann, the well-known railway builder, who said in Victoria, B.C., two months ago: "I cannot, at the moment, think of any considerable manufacturing advantage that would be sacrificed by a readjustment of the coal tariff. There are some conditions surrounding the mechanical pro-

duction of coal in Nova Scotia which would, I think, adjust themselves by the opening of the New England market. I have reason to know that the Pennsylvania coal interests would not object to the change. What they would lose in Boston they would gain in Montreal and Ontario. For, let this be observed—the present tax on United States coal hits the consumer back of lakes Ontario and Erie, even though he cannot possibly buy other than Pennsylvania coal. Undoubtedly the duty restricts the consumption. Remove it and the consumption would increase. On the other side of the continent similar conditions prevail. There is unlimited coal in British Columbia and Alberta, and very little and that of poor quality, in the Pacific States. A duty on Canadian coal is a tax upon industry in the near-by states, without any compensating advantage to either side of the line. A glance at the map of the North America will show, I think, that the providential distribution of coal is such that it might wisely be left to work out its own solution of supply and demand. In any case, the ultimate disposal of it will be determined, not by the accidents of any tariff, but by how long the supply endures."

Before turning to western Canadian opinion, it may here be mentioned that readers of the Canadian Mining Journal will already have been made familiar with opposing eastern views as stated in its special correspondence from Glace Bay, N.S., published on May 15 and the letter of the secretary of the Free Coal League, which was printed in its issue of July 1.

#### From the Western Standpoint.

The following editorial comment on "What Free Coal Would Mean," appeared in "The Evening Post," Victoria, B.C., on April 14, last. The writer, Wm. Blakemore, is a coal mining engineer well known in eastern Canada as well as in the West. He wrote:

"Up to a week ago, it was considered there was an excellent chance of securing reciprocity in coal with the United States, but at the last moment the deal slipped up, and for another indeterminate period coal remains on the dutiable list, with a few cents' reduction only. The subject is not likely to become a live issue for several years, at any rate, although it is probable that conditions will force it to the front before the next general revision of the tariff. The real reason the advocates of free coal were defeated is because Canada stood to get the best of the bargain, and that was sufficient to enable the big coal operators of Pennsylvania and Ohio to kill the proposal.

"The natural conditions governing the interchange of bituminous coal between the two countries are somewhat peculiar. Canada has a large coal field in Nova Scotia, producing, in round figures, 6,500,000 tons a year. Between the Maritime Provinces, and almost to the Rockies, there are no deposits of bituminous coal; but in Western Alberta and British Columbia there is a production which has rapidly increased during the last ten years until it now approximates 5,500,000 tons. The total exportation of Canadian coal in 1908 is estimated at a little less than 2,000,000 tons, showing that 9,000,000 tons of native product is consumed within our own borders. The geographical position of the two great producing centres, upon the Atlantic and Pacific Coasts, imposes a limit upon the area within which it is economically possible to distribute the product; that limit may be placed at Montreal with reference to the Nova Scotia coal, and at Winnipeg for the Western. Between these points, distant nearly 2,000 miles, and including the whole of

the populous Province of Ontario, the market is supplied exclusively by American coal, which was imported during 1908 to the extent of 7,500,000 tons.

"The crux of the question depends on the extent to which distribution will be affected by the abolition of the 67-cent-duty. According to expert opinion, it could only work to the advantage of the Dominion, because natural conditions have determined that American coal must dominate the central district described, duty or no duty, and free coal would not increase the consumption within that area faster than would result in any event from the ordinary increase in population.

"In Nova Scotia, which already exports about 1,000,000 tons a year to the New England States, it is estimated that free coal would enlarge the market to the extent of at least half the consumption of those states; this would mean practically doubling the present production, and absorbing that much of the territory now served by the American producers. British Columbia and Alberta export, in round figures, 1,000,000 tons a year, and would export a great deal more, even in face of the duty, with better development, and increased transportation facilities. With the duty removed, the market for this coal would be extended a radius of at least 100 miles, and would yield a practical monopoly of the great smelting centres in Montana and Washington, to the Canadian product. Just what tonnage this would represent it is difficult to estimate, but since there is no high class coal in any of the Western States, the mere question of quality would carry the Canadian product into every market within, say, 600 miles of the International Boundary line. The tonnage consumed in such a vast district for smelting, steaming, and domestic purposes, already approximates to 10,000,000 tons a year, and is increasing by leaps and bounds. From this it will be seen that Canada has everything to gain and nothing to lose, by agreeing to reciprocal coal, but the beneficent project was defeated on both sides of the line by wealthy coal operators, who, not for the first time, have been able to impose their wishes upon the legislatures of both countries. The action of the American Senate has saved the Canadian Government from sharing the odium of the decision, but the more the people of Canada, and of the United States, study the question, the more they will realize the injustice of continuing a system which imposes an unnecessary tax upon one of the prime necessities of life. The protection of vested interests does not require a duty on coal, and the point will be reached when the public interests, clashing with that of the great Eastern coal operators in both countries, will force them to yield to the popular demand."

About two months ago J.D. Hurd, general manager of the Crow's Nest Pass Coal Company (which, by the way is not seeking customers for its coal, being unable to supply all demands made upon it, and having a prospect of continuance of a similar condition for some time to come) was interviewed in Victoria, B.C., by a representative of the "Colonist," which quoted him as having said relative to the proposed reciprocal arrangements:

"I think such an arrangement would work out to the best interest of the operators and consumer throughout Canada and the United States.

"Some years ago I was connected with the coal mining industry in Ohio, and at that time we shipped a large quantity of our product to Ontario and Manitoba. Such an arrangement would certainly be in the interests of Central Canada for there are no Canadian mines which would be affected by the free entry of

coal into that district. About 1896, I investigated the condition of the coal industry in Cape Breton and Nova Scotia generally. At that time the Dominion Coal Company was controlled by H.M. Whitney, of Boston, and he was seeking to obtain the free entry of coal into New England, largely in connection with his Bay State Gas company. But the fact remains that the natural market for a great deal of the coal of Nova Scotia is the New England States. The Nova Scotia coal is of a somewhat lower grade than that shipped to the coast by Pennsylvania and other centres and is used for different purposes. The free entry should not only benefit the Canadian shippers but the American consumers.

"The Nova Scotia consumers are somewhat jealous of their St. Lawrence market, but, as a matter of fact, I do not think that taking the duty off the American coal entering Canada at that point would affect them to any degree. More coal would enter, but it would merely be due to the increased industry in the lines using that class of the product.

"Here in British Columbia, while the proposition is a different one, it comes to the same thing. There are coal mines in Washington and Montana, but these are for the most part owned by different railway companies, such as the Great Northern, the Northern Pacific, the Union Pacific, and so on, and there will never be any individual producers of any great volume of coal for market. The railways use all the coal they mine, and will use more with the increase of traffic. The ordinary consumer must use British Columbia coal, and that is the outlet for our surplus product.

"With the duty removed and British Columbia coal going into the United States free, it will mean that the coal areas of the province will be developed more widely and the output will increase. It cannot militate against the local consumer. The rates will not go up. With increased production, the cost of that production is lowered and the consumer reaps part of that benefit. Any short-sighted policy, such as attempting to set an arbitrary, high price on coal works out its own solution, especially in a country with the vast undeveloped areas of British Columbia. Reciprocity would be a good thing for the consumers and the operators, both in Canada and the United States."

Representatives of the two coal mining companies who have for many years been operating on a large scale on Vancouver Island, and whose chief market has heretofore been San Francisco, California, were interviewed last March by newspaper representatives. A despatch received in Victoria at that time from Nanaimo, where the company's general manager, Thos. R. Stockett, has his headquarters, was as under:

"The management of the Western Fuel Company, interviewed regarding the possibility of the removal of import duties on coal passing between Canada and the States said that they believed that reciprocity in coal between the States and Canada would be a good thing for both countries. So far as British Columbia is concerned, it would tend to extend the field in the States where its coal could be marketed and inasmuch as there is no American coal imported into British Columbia, the removal of the duty by Canada could not have any effect on any of the existing industries here and particularly as British Columbia coals are of a high standard.

"The Western Fuel Company has been making a specialty of developing trade in British Columbia and is now marketing fully 65 per cent. of its output in this province. But in order to keep its mines working to

capacity it is obliged at present to seek any outlet in other countries and in the States is the only field available. The Company will welcome the day when its entire output can be marketed in British Columbia."

J.A. Lindsay, of Victoria, treasurer of the Wellington Colliery Company, who has been intimately associated with the Dunsmuirs in this and other large coal mining enterprises for years, said to the "Colonist":

"The consumer in either country would reap the benefit of the abolition of the duty on coal by Canada and the United States.

"So far the details received from Washington giving the terms of the measure as it applies to coal are too meagre to venture any very lengthy opinion upon the matter. The removal of the duty on coal imported into the United States would have the effect of stimulating the production of coal in the interior and on this coast. It would mean probably that new coal measures would have to be opened here and provide work for more men. It would also mean cheaper coal for the consumer in California, and that many people there who now use oil for fuel would return to the use of coal. The prices of the two products have gradually equalized themselves. The removal of the duty on coal entering the United States would not, I believe, increase the cost of coal to the consumer in this province. It would simply mean that more coal would be mined.

"On the other hand the removal of the duty on American coal entering Canada would prove a great boon to the Canadian consumer upon the prairies, in Ontario and in Quebec. Nearly all the coal used there is brought from the United States, from Pennsylvania and Virginia.

"The Nova Scotian producers have generally opposed the proposal to abolish the duty on coal entering Canada. It is difficult, however, to understand their point of view. They export a large quantity of coal to the New England States and little of their product is used in Upper Canada. They would benefit immensely more under the reciprocal arrangement, I should think, than they would suffer.

"The coal fields of Canada and the United States are not active competitors. Nature has placed coal on this coast and none in California; coal in the Crow's Nest district, none in the rich copper mining camps to the immediate south of that district; coal in Pennsylvania and none in the central provinces of Canada; and coal in the Maritime Provinces and none in the New England States. The conclusion is obvious. Free interchange must benefit the consumer since it will tend to reduce the cost of production and as well, the cost to the consumer."

As coal mine owners in Western Canada are believed to be unanimous in the opinion that reciprocity in coal would greatly benefit the coal mining industry of the West, there does not appear to be any present necessity to seek the views of others than those quoted, especially, as the latter are representative of the largest operators in the two chief coal producing districts of British Columbia, the Crow's Nest Pass and Vancouver Island, respectively. It is known that at least one operator in the adjoining State of Washington has expressed himself favourably towards reciprocity, but it must be expected that most of the mine owners in that State selling coal to the public will support continuance of the existing duty, especially in the admitted circumstance that British Columbia coal is of much better quality than the bulk of that mined in Washington.

Eastern Washington and Idaho, on the other hand, will co-operate to secure the removal of customs duty

on coal, for they look to the Crow's Nest Pass mines; and those of the adjacent parts of Alberta for their chief supply of coal. In this connection it may be noted that James J. Hill, chairman of the board of directors of the Great Northern Railway, addressing a number of the business men of Spokane, a city of about 100,000 people and the inland capital of the State of Washington, said to them last November: "One of Spokane's greatest needs is cheap coal. There are no extensive coal fields nearer than British Columbia. Coal coming into the United States carries a duty of 67 cents a ton. Get that removed and good domestic coal can be delivered in Spokane in carload lots for less than \$5 per ton. It should be retailed at \$1 profit, which would make coal here \$6. Cheaper coal than at present is absolutely necessary for the development of manufacturing. Spokane is getting too big to burn pine slabs."

Much similar advocacy of reciprocal arrangements for free coal might be added, but more than enough has been written and quoted to indicate that, far from being disposed of by the recent decision of the United States legislature to maintain a comparatively high duty on coal, the question has not yet been widely nor actively taken up. It is hoped the foregoing information will in some measure prove of service to those who shall sooner or later undertake a persistent campaign in favour of free coal for both Canada and the United States.

#### THE BRITISH MINT ANNUAL REPORT.

The thirty-ninth annual report of the Deputy-Master and Comptroller of the Mint for the year 1908 was published on July 7th.

It sets forth that the demands for Imperial coins exhibited a considerable decline. About 92 millions of such coins were struck, a fall of over 36 millions from 1907. The number of coins struck for colonies showed an increase over the previous year. In all nearly 126½ million pieces were struck in the operative department, of the value of 15½ million pounds.

Gold bullion, weighing 2,171,962,178 ozs standard, of the value of £8,457,077 14s 7d, was imported into the Mint for coinage during the year. The value of light gold coin received for recoinage was £3,300,000, and its weight 838,463,890 ozs.

The gold coin issued during the year was as follows: Sovereigns, £12,600,000; half-sovereigns, £2,000,000—total, £14,600,000.

New gold coin was received at the Bank of England from Australia during 1908 amounting to £593,150. The total amount of light gold coin received from the Bank of England during the year was £3,300,000.

The gold coins received and weighed at the Bank of England during the year amounted to 54,553,704 pieces, as compared with 53,233,708 in 1907, and the percentage of light, both in sovereigns and half sovereigns, the latter more particularly, was higher than in the previous year. The increase in the amounts of sovereigns accepted as light still continues, and the large number of half sovereigns withdrawn in 1907 and 1908, due to the large issues made in 1892-1893, is in accordance with expectation.

The silver coin issued during the year amounted to £815,397 (exclusive of Maundy money) as against a total of £2,019,471 in 1907. The denominations of the silver coinage were half-crowns, 210,020; florins, 266,850; shillings, 142,342; sixpences, 117,170; threepenny pieces, 79,015.

The total number of silver coins issued during the year (excluding Maundy money) was 18,203,500, as against 37,255,570 in 1907. Of these the number issued for circulation in the United Kingdom was 7,155,200, comprising 2,969,360 of the larger denominations (2s 6d, 2s), and 4,185,840 of the smaller (1s, 6d, 3d), or 41.50 and 58.50 per cent. respectively.

The issue of Imperial bronze coin in 1908 reached the total of £155,580, a falling off of \$71,970 from the large issue of the previous year. Particulars of each denomination issued are given below:—

Denominations.	Wt. (tons).	No. of pieces.	Value.
Pence . . . . .	282.2	30,345,600	£126,440
Halfpence . . . . .	64.9	11,644,800	24,260
Farthings . . . . .	13.1	4,684,800	4,880
Totals . . . . .	360.2	46,675,200	£155,580

The amount issued in the United Kingdom, £138,135, was distributed as follows: £510 to the Bank of England, £45,545 to London applicants and £92,030 to the provinces. The shipments to the colonies amounted to a total of £17,445. The smaller issues are accounted for by the contraction in trade.

#### CANADIAN PATENTS.

Below will be found a list of patents issued by the Canadian Patent Office on July 6th, 1909, relating to mining and metallurgy, and furnished by Fetherstonhaugh & Co., Ottawa, Russell S. Smart, Resident.

119220. W. Scheurmann, Newark-on-Trent, England, air and gas pumps.

119222. J. J. Manning, J. W. Stephenson, Toledo, Ohio, methods of making castings, National Malleable Castings Co.

119,240. A. G. Betts, Troy, N.Y., processes of treating arsenical ores and speisses.

119257. J. C. Clancy, N.Y., treatment of ores bearing precious metals.

119259. W. H. Connell, Pittsburg, Pa., manufacture of compound ingots.

119260. T. H. Crittall, Bramtree, Essex, Eng., machinery for manufacturing expanded metal.

119282. E. W. Wynne, Liverpool, Eng., refining petroleum oil.

119321. D. W. Rowlands, Minersville, Pa., drills.

Below will be found a list of patents issued by the Canadian Patent Office on June 29th, 1909, relating to mining and metallurgy, and furnished by Fetherstonhaugh & Co., Ottawa, Russell S. Smart, Resident.

119107. W. H. Robson and H. J. Stobart, Stafford, Eng., vapour burners, The Chance Bros., Ltd.

119109. J. Noad, East Ham, Essex, Eng., the treatment of hydrocarbon oils and the like for the production of volatile spirit, Patent Hydrocarbon, Ltd., London, Eng.

119110. C. T. Snedekor, Chicago, Ill., processes for softening mineral bearing ores, C. T. Snedekor, W. E. Fry.

11958. G. L. Fogler, Pittsburg, Pa., processes of reducing ores, Fogler Heat & Reduction Co.

119184. Solomon Frank, Frankfurt-on-the-Main, Germany, methods of treating zinc.

119188. H. H. Hughes, Springfield, Mo., revolving furnaces for volatilizing ores.

119192. J. F. Monnot, New York City, apparatus for producing compound metal bodies.

#### GOVERNMENT VALUATION OF COAL LANDS.

In the year 1906 the United States Government withdrew from sale 66,000,000 acres of public coal lands. Previous to that year such lands had been sold for \$10 or \$20 an acre, according to their distance from a railroad. A presidential order provided that henceforward coal lands should be classified and evaluated by the U. S. Geological Survey.

The scheme of valuation determined by the Survey is as follows: Anthracite and coking bituminous coals are valued at 2 to 3 cents per ton. High-grade non-coking coals are valued at 1 to 2 cents per ton. High-grade sub-bituminous and low-grade bituminous coals are valued at 1/2 to 1 cent per ton. Low-grade sub-bituminous coals and lignites are valued at the minimum price fixed by law—\$10 and \$20 per acre. The tonnage is conservatively estimated at figures that should always be exceeded by actual recovery.

Provision is made whereby the price of coal lands may be increased for special reasons.

## BOOK REVIEWS.

**Handbook for Field Geologists.** By C. W. Hayes, Ph.D., Chief Geologist, United States Geological Survey. Second edition, thoroughly revised, 150 pages, 18 figures. Morocco, \$1.50 net (6 6 net). John Wiley & Sons, New York—Renouf Publishing Co., 61 Union Avenue, Montreal, 1909.

As Dr. Hayes puts it, this book is intended "to insure thoroughness and system, not to relieve the observer of the necessity for thought."

Part I., entitled "General Instructions," is a précis of the requirements, preparations, equipment, and methods of field geology.

Referring to the qualifications that a field geologist should possess, Dr. Hayes writes thus: "The first qualification is a good physique and a strong constitution. . . . The second is adaptability. Few occupations

present so wide a diversity in conditions under which work must be carried on. . . . His surroundings may vary all the way from the luxuries of a summer resort hotel to the bare necessities that he can pack on his back, and he must be able to adapt himself with equal readiness to either extreme. . . . A geologist must possess a practical knowledge of horsemanship, of boating, and of general woodcraft, so that he will be equally at home in the saddle, in the canoe, or on foot in a trackless forest."

Special academic training is also a necessity. Dr. Hayes defines geology, not as a special science, but as the application of a number of special sciences to the solution of a particular class of problems. The best preparation, therefore, is a thorough grounding in the fundamental sciences, particularly chemistry, physics, zoology, and botany. Mathematics and modern languages are also essential.

"Second in importance only to a thorough grounding in the physical sciences," says Dr. Hayes, "is ability to write clear and concise English." Here we can hardly agree with the author. Surely ability to write well in English is as essential, if not more essential, than any other requirement.

Good advice is given on page 5, touching the relation of the geologist to the public. It is generally advisable to take the necessary time and trouble to explain to any one making serious inquiry exactly what is the object of the work. . . . The opportunity to educate the people of a region in which work is being done to an appreciation of the nature and importance of geologic surveys should be utilized so far as possible."

Preparation for field work is next touched upon. General directions for attacking different kinds of field work are given. Next, the field output is inventoried. This section is practical and instructive. The mint ration adopted officially by the U. S. Geological Survey is printed in full. Field observations, measurements of various kinds, determination of faults, are described and illustrated. Methods of making field notes, sketches, traverse notes, and so on, and directions as to the use of chemical analyses, mine surveys, and mineral collections, are noted fully.

In Part II., after general summaries of field observations to be made by the geologist in igneous, sedimentary, and metamorphic rocks, on structural geology, on glacial deposits, and on oil and gas fields, twelve exhaustive schedules appear. These are intended to guide the geologist in securing completeness and system in making and recording observations. The first four schedules have to do with pure geology, the remainder with applied geology. Together they constitute an invaluable guide, the matured result of experience and discussion.

An appendix contains a list of official surveys relating to all parts of North America.

Seldom has it been our good fortune to review so useful a little volume as this "Handbook for Field Geologists." Its usefulness should not be confined to professional geologists. It should be in the hands of all mining men and all investors. It would thus become an invaluable link between the public and that much-misunderstood person, the field-geologist.

**Through the Yukon and Alaska.** By T. A. Rickard, Editor of the Mining and Scientific Press and The Mining Magazine. 175 illustrations, \$2.50 postpaid. Mining and Scientific Press, 667 Howard Street, San Francisco, 1909.

This is the record of a journey through Yukon Territory and the District of Alaska during the summer of 1908, of "the pleasures and tribulations of a voyage of 8,250 miles, in the course of which 18 different vessels were boarded, and 18 different kinds of canned vegetables were broached."

The volume is dedicated charmingly and touchingly to Mr. Rickard's small son, John. We shall not refrain from quoting the last verse:—

"God give you grace and make you strong  
To rise above all meaner things;  
And be your life as sweet a song  
As that your mother sings."

Written for the general reader, "Through the Yukon and Alaska" is non-technical throughout. Nevertheless, its pages are profitable for technical and non-

technical readers alike. Interesting bits of history are interwoven through the narrative. The reader is treated to vivid descriptions of scenery, mining camps, living conditions, river travel, and all the distinctive features of existence in the far North. The author's direct, vivid, nervous style carries us swingingly from chapter to chapter. Every chapter gives fresh evidence that Mr. Rickard enjoyed the journey hugely, and every chapter is superbly vital.

A lesser man, we doubt not, filled to supersaturation with the charm and majesty of the North, would exude superlatives and dithyrambs. But Mr. Rickard, barring one or two flights into rhetoric, has held himself well in hand.

In manner, matter, and arrangement "Through the Yukon and Alaska" is the best of Mr. Rickard's literary offspring. It possesses coherence. It shows evidence of sustained care and shrewd workmanship. The author's style is not exuberant; neither is it meagre. Nor is it studiously balanced. It is simply and spontaneously natural—the pleasant product of good taste, keen observation, and enthusiasm.

**The Canadian Annual Review of Public Affairs—1908—**  
by J. Castell Hopkins. Eighth year of issue—illustrated—The Annual Review Publishing Company, Toronto—1909.

This volume is an improvement upon its predecessors. Dominion public affairs are interestingly sketched. Political movements, provincial developments, transportation interests, financial and insurance conditions, literature, journalism, art, and many incidental of the year are teated.

Considerable space is assigned to the mining industry. This we are glad to note.

As a summary of the history of Canada for the past year, Mr. Hopkins' volume has a distinct place. It should be read by everyone.

#### PERSONAL AND GENERAL.

Messrs. Moore and Scollan have opened an office at 43 King St. W., Toronto, for the purpose of carrying on their business as power engineers.

Mr. S. B. Belden has been promoted to the position of Sales Manager in the Mining Machinery Department of The Jeffrey Mfg. Co. with headquarters at Columbus, O. Mr. Belden, who has for a great many years been manager of the Pittsburg Office of the Jeffrey Company, succeeds in this position Mr. R. G. Hutchins, Vice-President, whose resignation has recently been accepted.

The following appointments have been made to the Staff of the Nova Scotia Technical College, Halifax, N. S. :

To be Professor of Civil Engineering: Mr. T. S. Hewardine, A. B., S. B., C. E., University of Illinois. '04. Professor of Mathematics and Civil Engineering at McKendree College, Lebanon, Illinois.

To be Professor of Electrical Engineering : Mr. R. R. Keely, E. E., M. M.E., Cornell, '00, for the past three years Chief Engineer of the City of Edmonton, Alberta.

To be Instructor in Mining and Metallurgy: Gerald F. Murphy, B.Ce., in Mining Engineering, Dalhousie College, Halifax, who, for the past year, has been tak

ing a post graduate course in Mining at Columbus University, New York.

Mr. R. W. Brock, in a recent paper before the Canadian Mining Institute, emphasizes the need of a connecting link between the prospector and the purchaser, and advocates the filing of statements by the staker, corroborated by an assayer or engineer at mining recorders' offices, local institutes and boards of trade. All of this should be arranged on some scheme to avoid expense to the prospector. Where there is an opening some firm will soon seize the opportunity, and this has been done by "Mines Inspection, Limited." They have started their career with the Gowganda camp, making reliable reports, not only affording capital a systematic means of doing business, but also helping the prospector with advice as to the value of his property, and helping to develop his claims. It can readily be seen that the benefit that will accrue to the company will be the information thus gathered. At present they are contracting for mining work, and are selling claims, thus meeting their current expenses.

## Correspondence.

Editor Canadian Mining Journal:

Sir,—In your issue of May 15th last you give a summary of coal mining in Alberta for the year 1908, and, doubtless unintentionally, your correspondent has omitted even mentioning "The Edmonton Standard Coal Company, Limited," collieries at Edmonton. The same error occurred in the report in the "Mining and Metallurgical Industries of Canada" for 1907 and 1908, to which I called the attention of the Hon. W. Templeman, Minister of the Department of Mines at Ottawa, by letter dated March 31st, 1909, to the effect that on page 279 of the report of the "Coal Mining in Alberta" no reference whatever to the output of "The Edmonton Standard Coal Company, Limited," notwithstanding that the pay-roll for 1907 and 1908 amounted to over \$108,000, the largest pay-roll in the vicinity of Edmonton. The Hon. Minister made reply, regretting the omission, and enclosed a letter from Eugene Haanel, Director of Mines, dated Ottawa, April 2nd, 1909, regretting the mistake and assuring that it was unintentional, and enclosing a letter from Theo. Denis, who stated that the "name of the Edmonton Standard Coal Company, Limited, was omitted in the report on the mining and metallurgical industries of Canada through an oversight, and was attributable to a clerical error." "Although I must own this is a serious one. The Edmonton Standard Coal Company, Limited, is one of the largest producers of the Edmonton district, and their predecessors, the City Coal Company, were among the first ones in that field to mine coal by means of a shaft, and for that reason alone deserve special mention." Further: "That we are aware of the importance of the Standard Coal Company is proved by the fact that it is included in our office list of 'Important Canadian Collieries,' and that a sample of several tons of their coal was collected last summer by an officer of the Mines Branch for the tests of Canadian coals now being carried on by us, and in the report of this work the Edmonton Standard Coal Company will figure with the other important coal mines of Canada."

There are two seams of coal on the company's property (which is the nearest colliery to Edmonton), a 5-foot and a 4-foot seam, which competent engineers

estimate to contain over five million tons. At the present time the company are operating the wider of the two seams, and are producing an average of 100 tons per day. The quality of the coal is superior to all other coal in the Edmonton district, and in a test of nine other mines competing for the city of Edmonton contract for power purposes the "Edmonton Standard" graded the highest, and was taken as a standard to grade the rest.

The contracts of the Provincial Government for public buildings, and the Edmonton School Board contracts and a portion of the city contract, have recently been awarded to the Edmonton Standard Coal Company, Limited, showing most conclusively, Mr. Editor, that it is one of the most important collieries at Edmonton.

I have no doubt you will give space in your valuable and well-edited Journal to correct the report regarding the coal mining in Alberta, and the injustice unintentionally done to "The Edmonton Standard Coal Company, Limited."

Yours truly,  
H. MUNROE,  
Sec.-Treas.

Editor Canadian Mining Journal:

Dear Sir,—In your issue of July 15th, you make mention of a new stope surveying instrument invented by Mr. Tonnesen, of the East Rand Proprietary Mines, Limited.

As a surveyor, I welcome anything which can lighten the burden of the unfortunate individual whose duty it is to measure stopes; but I must object to your statement that friction over such measurements was the main cause of the late strike on the Rand. It was dragged in, after the strike had begun, on various platforms as an additional grievance; but it never was a main issue.

The cause of the strike was the repatriation of the Chinese, whereby tens of thousands of labourers employed in stoping were withdrawn, and their places had necessarily to be taken by white men running rock drills, in the absence of native labour to replace the Chinese. To make the white man efficient enough to do this economically, it was necessary for him to run three or more rock drills, and this the miners refused to do; hence the strike.

It is worthy of note that this very same question of running three drills each caused strikes at two mines on each of which I was at the time surveyor, one on the Village Main Reef in 1902 and the other at the New Kleinfontein in 1905. In each case the miners were compelled to give in, and on going back to work found they could make far more money with three drills than with two, which up to that time had been the number supervised by each miner.

In laying the blame for the strike on the surveyors I think you are doing less than justice to a class of men who, while doing as a rule more work, and more disagreeable work, than anyone else engaged in the administration of mines, invariably come in for whatever kicks may be going around.

In all my experience as a mine surveyor I have invariably found that those men who "grouse" persistently at their measurement were the "never-sweats," the "born-tireds" and the wasters generally. I never met a really good rock drill men who grumbled, except in jest at the "— surveyor." I remain,

Yours truly,  
J. D. RAMSAY.

### THE BIRTH OF AN IDEA.

Editor Canadian Mining Journal:

Sir,—In your issue of June 1st, under the heading of "Petroleum and Oils," you say: "Somehow we are led to believe that there may be a faint adumbration of truth in what Mr. Coste tells us." Pluck up your heart, Mr. Editor, and do not shrink back as if with pain from the thought that perhaps a new idea may enter in. If there are any theories of organic origin lodged in your brain, you are quite safe in casting them into the outer darkness where they belong. Take a trip down through the natural gas and oil fields of Ontario, and you will see that the organic theory is not worthy of even serious consideration. There are no carbonaceous strata from the surface down to the Archaean granite. There are no coal beds within hundreds of miles. Perhaps the gas was distilled from the coal of Ohio and migrated laterally like the Canada goose (*Branta Canadensis*) several hundred miles, in preference to escaping vertically through a thousand feet or so of rock. This theory may develop a difficult international question like the seal trouble in the Pacific Ocean. Our neighbours may claim that as the stuff had its birth or orig-

inated in their territory, it belongs to them. Down with the vegetarians or organists! Fiat lux.

Yours truly,

J. M. SLICKENSIDES.

The Editor:

Sir,—In your issue of July 15th, I note your item, "Buildings of the Badger Mine were totally destroyed by fire." I know that the item was published inadvertently, but it is misleading and unfortunate. We did lose our water tank and some of the old original log camp buildings. The new plant, which was erected this winter, was covered with galvanized iron, and, while we had a close call and are a little inconvenienced as a result of the fire, the actual loss is inconsequential, and we were able to resume our work as usual next day after the fire.

Yours truly,

BADGER MINES CO., LIMITED.

Per C. H. Bunker, Pres.

## INDUSTRIAL NOTES.

### WESTINGHOUSE ELECTRIC MINE INSTALLATIONS.

Among some recent notable installations of electrical machinery by the Westinghouse Electric & Manufacturing Company in the mining territory of several Western States there may be noted the following:—

The new blower-house of the Washoe Smelter of the Anaconda Copper Mining Company, at Anaconda, Mont., contains four 600 horsepower motors driving Root blowers, and two additional 600 horsepower slow-speed motors driving high-pressure air compressors for pneumatic-locomotive service.

The turbine plant of the Helena Power Transmission Company, Butte, Mont., is a Westinghouse installation. This supplies the local Butte mines in parallel with a 70,000-volt, 85-mile transmission line, and has performed some remarkable overload and emergency service.

The pumping station at the Leonard mine of the Boston & Mantana C. C. & S. M. Company, 1,200 feet underground, contains two 300 horsepower couples of two 150 horsepower motors, each direct-connected to Nordberg pumps and supplemented by a similar 150 horsepower motor driving an Aldrich pump. The station, 1,200 feet underground, is about 20 feet high, is lighted by arc lamps, and has a complete switchboard installation.

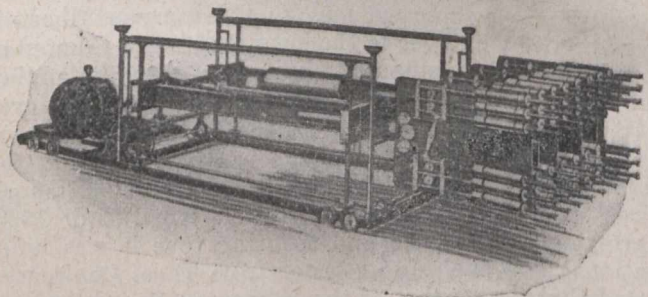
The semi-automatic relay-controlled hoist of the Modoc mine of the Anaconda Copper Mining Co., Butte, Mont., is also an interesting recent installation of the Westinghouse Company.

### THE BENNETT TUNNEL MACHINE.

This new tunnel machine, as will be seen from the accompanying cut, operates simultaneously a set of 48 air drills. It is claimed that the jar and recoil of the ordinary air-drill are completely done away with. Work is continuous. No explosives are used. The face

of a tunnel is drilled, broken, and cleared in one continuous operation. Space does not permit of a complete description of this ingenious contrivance. Further details will appear later.

Although apparently complicated, the machine is exceedingly simple in principle and operation. It is adjustable and flexible. Any number of drills can be



used up to the maximum. The power requirements for a 48-drill machine is 75 horsepower. One machine is being tried out successfully in Denver, Col.

Capt. A. H. Swarthout is the Canadian representative of the Ontario Bennett Tunnel Machine Co., Ltd. His headquarters are in Toronto.

The Westinghouse Electric & Manufacturing Company, Pittsburg, Pa., has issued a handsomely printed little booklet describing the applications of its line of numerous illustrations scattered through the pages suggest many time and labor saving uses for these efficient little power devices; among these are the motor-driven adding machine, mailing machine, eraser, graphophone, envelope sealer, vacuum cleaner, buffing and polishing wheel, blower, sign-flasher, box-covering machine, hand drill, hack saw, coffee grinder, etc., applications selected at random from the large number



of uses where the electric motor provides the ideal power. The booklet, "Westinghouse Electric Motors for the Office, Store and Shop," will be sent on request.

W. F. Stanley & Co., Ltd., Great Turnstile, Holborn, London, W.C., are the manufacturers of Barnard's Co-ordinate spiral slide rule. They have just issued a book of instructions that is a complete guide to the use of this very necessary instrument. The user is able to perform with speed and accuracy, multiplication, division, proportion, continuous fractions, powers, roots, and logarithms. Moreover, the natural and logarithmic

values of trigonometrical functions of any angle can be determined with precision.

The Sullivan Machinery Company has installed a branch office at Australasia Chambers, Martin Place, Sydney, New South Wales, to further the sale of its air compressors, rock and diamond drills, coal cutters, etc., in the Australasian commonwealths. Its establishment is due to the growing importance of the mining industry in that field. The new office is in charge of Mr. Geo. R. Mair.

## SPECIAL CORRESPONDENCE

### NOVA SCOTIA.

**Glace Bay, July 20.—The Glace Bay Strike.**—It is scarcely a correct use of words to refer to the present labour troubles at Glace Bay as a "strike." The cessation of work by the adherents of the United Mine Workers, and the intimidation of hundreds of other men who wish to work, has not arisen out of the struggle of legitimate trade unionism against oppressive capitalism. It is not one incident out of the many that daily occur in the never-ending struggle of the proletariat against plutocracy that is as old as time and will still be waging when our civilization and our race is but a memory. Many of the deluded men who have gone on strike believe otherwise, and are honest in their belief, not realizing that they are the miserable victims of men whose mouths are filled with lies.

The Glace Bay trouble is but one of those struggles that will arise from time to time throughout this Dominion as each centre of industry and population has to decide whether Canada shall assimilate the stranger within her gates and make of him a law-abiding citizen of the Empire, or whether the stranger shall oust the sons of this young nation, and impose his customs upon us. It is strange that such a struggle should be centered in a portion of the Dominion where the people are known for their insularity and the tenacity of their opinions.

Probably there never was a strike in Canada that had less justification. The Dominion Coal Company are now dealing with the first strike in their history, and, in fact, there has only been one strike of any consequence in the coal mines of Cape Breton since 1868. The Canadian press, with the exception of one ephemeral and intermittent broadsheet that has made its appearance on perhaps a dozen occasions, has with one voice condemned the action of the United Mine Workers. Some provincial newspapers that have assiduously fanned the agitation for months past are now trying to lay the fire they have caused, much to the bewilderment of those simple people who believe what they read in the newspapers. All shades of public opinion, religious, political, and commercial, unite in deploring this strike as a national calamity. Nevertheless, a very large amount of misapprehension exists as to the true magnitude of the trouble. The vastness of the Dominion Coal Company's enterprise has so impressed itself on the public that it is assumed that any labour trouble that seriously affects its operations must have behind it the support of a large and determined body of men. This, however, is not the case. The United Mine Workers are in a decided minority of the Coal Company's employees, and their determination is a mixture of desperation and American money. At the end of the second week of the strike two-thirds of the Coal Company's employees are working, and many of them have risked and are risking their lives, voluntarily, to protect what they conceive to be their company's interests and their own. Before the strike the U. M. W. A. publicly announced in the newspapers that they were about to call out 95 per cent. of the Coal

Company's employees. On the first day of the strike the output of the company's mines was just about half a normal output, and the number of men that absented themselves was well under two thousand. Taking into consideration the number of men who were waiting to see how things would develop, it is safe to assume that the actual number of strikers did not exceed 1,700, which is generally supposed to be approximately the number of U. M. W. A. men in the Coal Company's employ. The day following was marked by disgraceful and riotous scenes. Men were beaten, stripped naked, assailed by the most opprobrious epithets imaginable, and things were said and done that deserve the most emphatic and sternest condemnation. As a result men were intimidated from coming to work, and we in Glace Bay witnessed the terrorizing of a community of ten or twelve thousand people by a body of persons who did not represent ten per cent. of the population.

The situation was not improved by the Mayor of Glace Bay, who applied a very extraordinary remedy for the amelioration of such intolerable conditions. This gentleman accepted the offer of the U. M. W. A. leaders to furnish him with a number of special constables to be sworn in to keep the peace, and a considerable number of the strikers were sworn in as special constables, in which position they played the dual role of pickets and policemen, a condition of affairs that has surely never been paralleled in any British municipality. The result of this peculiar civic action was such as might have been expected. These U. M. W. A. constables proceeded to arrest the special constables of the Coal Company, and the singular scene was several times witnessed of the Coal Company's officials being arrested and haled before a magistrate by some half-grown hobbledehoy clothed with a brief authority by the Chief Magistrate of the municipality. It was well that the populace saw the undoubted humour of the situation, otherwise it would have been intolerable. These appointments were after several days revoked by the Police Committee, upon which the Deputy Mayor and another councillor took upon themselves to re-make the appointments, which were speedily cancelled once more by the Police Committee. By this time no one knew how things stood, and the townspeople ceased to take any serious interest in the farce.

On the 7th of July it was seen that the civic authorities were utterly incapable of dealing with or appreciating the gravity of the situation, and following the refusal of the Mayor to ask for the protection of the active militia, the County Court Judge on the advice of the High Sheriff and the Warden of the county requisitioned the Department of Militia for the aid of the military, and they were sent from Halifax immediately. The presence of 500 soldiers has without doubt averted bloodshed and much destruction of property, and immediately after their arrival men commenced to report for work in increasing numbers. The outputs have crept up day by day, until they have

exceeded that obtained on the first day of the strike before the U. M. W. A. had introduced the little pleasantries which have rendered it necessary to have military protection.

The United Mine Workers have evidently a keen desire to control the mines of the Dominion Coal Company. At the Glace Bay Hotel, which during the past fortnight has provided rest and refreshments for the leaders of the opposing forces, and a horde of newspaper reporters, the U. M. W. A. have five of their officers from the United States, assisted by a clerical force of two female clerks and a male clerk. The business of these gentlemen in Cape Breton is to lead and supervise the campaign of an American labour union in its attack on one of the most important industries of Canada, in the attempt of a foreign union to usurp and destroy a Canadian union, which was in existence and was doing a good work many years before the U. M. W. A. had emerged from the womb of time. A gentleman prominent in American governmental circles, who has made a special study of industrial conditions on this continent, recently stated that the U. M. W. A. were very anxious to control the eastern mines of Canada in order to be able to neutralize them whenever a strike was considered necessary in the bituminous coal fields of the United States. This, and this only, is the reason for the presence of these U. M. W. A. gentlemen in Glace Bay. Their efforts will fail; must fail, in fact, because American domination in any shape is something that Canada will not tolerate. Annexation was once a live issue in the Dominion. It is now dead as Moses. Labour legislation and labour organization always lags a decade or two behind the general progress of our race, but when the time comes—and it is not far distant—when Canada chooses between international trade unionism, or, in other words, domination of Canadian unionism by that of the United States, and national trade unionism—when that time comes, the national spirit will assert itself. All attempts to dam back the rising tide of nationalism in the Dominion are futile, nay puerile, and remind one of Mrs. Partington and her broom. But these gentlemen do not care. They draw good fat pay for their efforts. The scale of U. M. W. A. relief in Cape Breton is \$2 per week per man, with \$1 for his wife and 50 cents for each child. This would just about liquidate the cost of one day's bed and board at the Glace Bay Hotel. When the strike has dragged out to its foregone conclusion these gentlemen will hie back to their own land, with undiminished paunches—and we may add, undiminished gall,—and will leave the poor victims of their campaign of falsehood to tighten their waist-belts and mourn their impaired finances.

The favourite expression used towards those men who are at work by the strikers is that of "scab." It is an expression that is more insulting than pointed. We venture the opinion that the scabbiest kind of scab is the man who is a turn-coat and a renegade to his written obligations. One of the signatories to the existing two years' agreement between the Coal Company and its workmen is Daniel MacDougall the Local President of the U. M. W. A. in Cape Breton. People who go back on their written obligations are usually known in this country as "quitters." The two years' agreement referred to stipulated that the rates and conditions agreed to remain in force for two years, or until 31st December, 1909. Recognition of the United Mine Workers would mean a change in conditions. Mr. MacDougall, who has had a considerable experience as a quick-change artist, may be able to explain how the Coal Company could recognise the U.M.W.A. and at the same time keep good faith with the P.W.A. and its workmen generally. We cannot, and we never yet met anyone who could.

One interesting result of the past two weeks' events has been to prove how thoroughly unreliable the statements of the U.M.W.A. leaders are, and have been. For a long time past the local newspapers have given a wide license to the U.M.W.A. and have published their claims in good faith. During the two weeks that have just gone, however, even the most indulgent newspaper men have had to confess that they were unable to place

any reliance on the statements given to them by the U.M.W.A. For example, Mr. Harry Bousfield, a gentleman whose accomplishments in the gentle art of stuffing newspaper men are not excelled by any of his colleagues, stated that the Coal Company could not possibly have produced more than 1,600 tons of coal on a certain day, unless they had transported it by aviation. As a matter of fact the Coal Company's output on that day was over 6,000 tons. No. 1 Colliery has so far been operated on a quite normal basis since the strike. The workmen there are P.W.A. men almost entirely, and the strike does not exist at No. 1 Colliery. Nevertheless the U.M.W.A. declared to all and sundry that the number of workmen employed there was not over 145 men. However that may be the mine that produced over 1800 tons of coal as a daily output, which would mean that so small a force as mentioned by the U.M.W. would have to "hustle some." To be exact, No. 1 had over 600 men. After a little more of this it was felt that in whatever else the U.M.W. was lacking, its capacity for prevarication was unstinted.

The result of the strike has never been in doubt. At the time of writing men are returning to work in greater numbers every day, and new men are coming in from the outside. One interesting feature has been that many of the younger men whose homes are in the country districts of Cape Breton, and who went home when the strike was called, speedily came back. In many instances the "old man" failed to understand why his son should have quit a lucrative employment at the beck of American agitators, and in more than one instance these young men have come back to work with a flea in the ear. Exactly two weeks after the commencement of the strike the Coal Company put on cars the not inconsiderable tonnage of 9,000 tons, to which total Dominion No. 1 contributed over 2,000 tons and Reserve over 1,100 tons. As we have previously had occasion to remark, the older mines, where the population is even yet largely composed of native born Canadians, have shown very little falling off in output, and the disaffection is chiefly confined to the newer mines such as No. 2 and No. 6, where the workmen are of all nationalities.

The pinch of need has not yet been felt, as the pay which was disbursed on the 17th was one of the largest in the Company's history. There are many poor wives and children, however, in homes across the water who will feel the pangs of hunger, for their husbands have been grossly ill-treated and deceived by the American leaders. These men have been prevented from working by the direst threats, the true significance of which their imperfect understanding of English does not enable them to perceive, and dread prevents them from giving the information which would enable the law to deal with these cowardly blackguards. These men have been told that if they work they will be remembered hereafter. They are told that things may be all right so long as the militia is here, "but you wait till afterwards." Many of them are going in mortal fear of their lives, and their plight is a pious one. Never at any rate in Nova Scotia has such shameful and wholesale intimidation been resorted to. The U.M.W.A. have imported interpreters from the mining districts of the States, who for months past have been instilling into the minds of these unlettered foreigners the awful consequences of thwarting the will of the U.M.W.A.

We ventured to forecast some two years ago that the coming of the U.M.W.A. into Nova Scotia meant "the bomb and the gatling, illegal trial and anarchy, and other choice flowers of American unionism." This forecast has been fulfilled to the letter, and, despite the attempts of certain interested parties to minimize the disorders which took place here, it was only the wise action of the authorities in sending us the militia, and the manner in which the troops have since been handled, that has saved us from scenes approaching civil war. The greatest honour is due to the loyal men of the Company, the railway men, the pier men, and in fact all the better element of the Company's personnel for the manner in which they have stood at

their posts. These men will see this thing through, and they deserve the thanks of the nation.

**Sydney.**—The backbone of the Glace Bay strike is broken. The Dominion Coal Co.'s shipments are steadily approaching the normal.

**Halifax.**—A large stamp mill, situated at Caribou, Halifax County, was burned to the ground early in July.

### QUEBEC.

In the case of the Eagle Mining Co. vs. Klipstein et al., judgment was given last week for the plaintiff. Cate, White & Wells, attorneys for plaintiff.

This was a case where defendants, having bought a mining property, making one payment down, defaulted on the deferred payments, and for no visible cause, having made no practical effort to mine (although that is immaterial). Plaintiff claimed that, so long as defendant was solvent, payments must be made as agreed, the defendant having no option to return the property; that the clause in such deeds which so many wrongly so interpret, is solely for the benefit of the vendor in case the buyer is insolvent, when the property reverts to vendor without action. Judgment with costs sustains this.

C. A. French and Dr. Mooney have engaged R. D. Morrison to superintend the erection of buildings for the Marsboro Gold Mining Co. The Mill property has been bought, and stamping machinery is being put in.

The St. Onge Syndicate has bought from N. S. Parker and D. T. P. Shaw an asbestos property near Mansonville, Que., for \$50,000.

Professors Dresser and Bell, of Montreal, inspected the Norton Copper Mine at Suffield, June 21.

A narrow vein of quartz carrying molybdenite was recently found in Southeastern Quebec, between granite walls; not of commercial value, but of interest as an ore rare in the province.

The Goleonda Gold Mining Co. has its boarding-house nearly completed, and work on the property is proceeding favorably. It is probable that the order for machinery will be placed in Sherbrooke.

Mr. J. F. Mackenzie, of Montreal, accompanied by Mr. Wm. Marshall, of Toronto, spent a day on the property of the Compton Gold Dredging Co., in which Mr. Marshall has become interested. The financing of the enterprise is now proceeding favorably, and it is probable that a dredge will be installed this season. Mr. Mackenzie will go to New York next week in this connection. Mr. Marshall left Wednesday afternoon to look over some mining property in Nova Scotia.

### ONTARIO.

**Cobalt.**—A great deal of interest is being displayed in South Lorraine this summer, and throughout the whole of the district there is an air of activity that speaks well for the future of that section. On practically every property within a radius of two miles of Loon Lake work is being done, and as a consequence many discoveries, principally cobalt, have been made. Cobalt appears to be the principal mineral of the district, but in practically every case values in silver can be obtained on the surface. The general direction of the veins is northeast and southwest. The diabase is the best producing formation, but many important discoveries have also been made in the Keewatin, particularly when near a contact. Unlike the Cobalt camp, work up to date in the Huronian conglomerate has shown that formation to contain little of value. During the summer there will be a large increase in the amount of development being done, and if the same success is attained as has followed the work up to date, the district of South Lorraine promises to be one of the best outside of Cobalt. On the Great Northern claim only about 25 per cent. of the surface has been prospected,

and ten veins have been found. Two of these are aplite, with an average width of about three inches, while the rest are calcite, some of them carrying nickel and cobalt. Considerable diamond drilling is also being done. There is one shaft on the property, which is down a distance of fifty feet, and a 3-inch vein is showing in the bottom.

The south half of the Haileybury Silver H. R. 16 claim recently purchased by New York and Buffalo people is now known as the Magna Canadian. At the 70-foot level of the shaft a drift is being driven to the south on a 5-inch vein of calcite carrying small values in silver.

The new plant at the Keeley mine started running about the first of July, and it is working very satisfactorily. It is a suction gas producer of 220 horsepower capacity, and supplies power for the whole plant. The main shaft is now down to a depth of 130 feet, and at that point a station is being cut. On the west side of the property the new No. 3 shaft is down 50 feet on a large vein of cobalt. A force of 30 men is employed.

At the Wettlauffer, the new machinery is also running, and as a consequence development work is being done on a more extensive scale. The shaft is now down over 85 feet, and at the 60-foot level a station has been cut and a drift started on the vein discovered last fall on the surface. Another vein has been cut 30 feet to the south by a cross-cut from the station. In the bottom of the shaft the vein shows 6 inches of high-grade ore. At present there are 40 men employed on the property, but this force will be largely augmented in the near future. New camp buildings to accommodate 100 men are being erected.

The Harris-Lorrain syndicate, whose holdings consist of 20 claims, are getting ready to do a large amount of work. On the property G. F. 12 camps are being put in shape so that development work can be started on six claims in the northern section. On claim H. R. 88 a small 20 horsepower plant has been installed. In order to continue sinking, air will probably be obtained from one of the neighboring mines. The shaft is now down over 30 feet on a calcite and cobalt vein. This company are also developing their properties to the west of Ox Bow Lake, and on one of the claims there a shaft is being sunk.

The shaft on the Currie property is down 100 feet, and from the bottom a drift has been started on the vein. The vein was traced for some distance on the surface, where it had a width of from 2 to 5 inches.

At the Beaver Lake mine the shaft is down 90 feet, and drifts have been run north and south on the vein. There is 25 inches of vein matter, consisting of calcite and cobalt with some silver value.

Since the alteration in the mining laws of the Province of Quebec there has been a great increase in the interest manifested by prospectors, and it is quite apparent, from the number going in, that the country will be well explored. During the month of June fifty prospecting parties passed through Ville Marie. Mr. E. Boisseau, who has a property on Lot 5 of the south range of Favre Township, is putting in a small plant. A shaft will be sunk on a 5-inch vein of cobalt, said to contain good silver values.

The four diamond drills and one churn drill working on the big nickel deposit at mileage 222 of the T. & N. O. Railway, for the International Nickel Company, have been taken off. It is understood that the results attained were very satisfactory.

The diamond drilling has been stopped at the Alexandria Mine. Two calcite veins carrying good silver values were cut by the drill. The shaft will be sunk from the 125 to the 200 foot level, and from the lower level a cross-cut will be started to catch the new leads.

On the property of the Cobalt Leasers at Peterson Lake the diamond drill working there went through the diabase into underlying conglomerate.

The Hydraulic Company at Ragged Chutes have one of the intake shafts completed, and on the other one there is still 100

feet of work to be done. The outlet shaft is completed, and in the tunnel there is about 400 feet of work remaining before the two headings will connect. About five and one-half miles of the main pipe has been welded, and when it is finished four separate gangs will start the loop of 12-inch pipe which will encircle the district.

The big fire which wiped out the northern part of the town, has given the La Rose, Chambers-Ferland and Nipissing Companies, who own the land, the long-desired opportunity to prospect this territory. The Nipissing has had over 100 men at work trenching, and the work is almost completed. Proper surveys are being made of this section, and the ground will be laid out into building lots, with wider streets. Much-needed building restrictions will also be enforced.

The Nova Scotia has been having an unusual run of luck lately, several veins having been found within a week. The first important discovery, known as the Bilsky vein, was found near the manager's house, and it is one of the finest surface discoveries in the camp. While stripping this vein, two other cross-veins were located. At the junction of one, the more important of these, with the main vein, a shaft has been started. Subsequently two other discoveries were made, one distant about 75 feet and the other 190 feet from the Bilsky vein. All of these are high-grade ore. An interesting feature of the discovery of the Bilsky vein is the fact that it was crossed by a trench dug several years ago. At that time the prospectors had no knowledge of it.

The Nipissing Central Railroad Company, who are building the electric line between the towns of Cobalt, Haileybury and New Liskeard have had a large number of men working on the right of way, and a few days ago 100 more were started. The company expects to have the line completed to North Cobalt by the first of October. The section between Haileybury and New Liskeard will probably not be built this year. There is considerable difficulty experienced by the company in settling the matter of the right of way. The line has to run over the property of some of the mining companies, and so far no agreement has been reached by the different parties interested as to what the rental should be for using the land of the mining companies. It is altogether likely that the courts will have to be appealed to, to appoint an arbitrator, who will settle the question.

From one of the shafts on the Farah property a cross-cut is being driven at the 100-foot level to tap the "Blacksmith" vein, that in the open cut showed good silver values.

During the next week the Silver Cliff mine will ship a car each of high-grade and second-grade ore. The mine will now be put upon a regular shipping basis.

Recent development on the 195-foot level of the Cobalt Lake mine has proved the vein found to the west of No. 6 shaft to be a little better than three inches in width of high-grade ore.

At the meeting of the directors of the Nova Scotia held at the mine on July 15, it was decided to commence at once the erection of the new mill. Mr. Kirby, who designed the mill and worked out the process, will remain to take charge of the construction. The cost is estimated at \$100,000, and the building will be located close to No. 3 shaft house. The building itself will be 222 feet long and 84 feet wide. The building of this mill will be followed with keen interest by the operators of the camp, as it will be a very wide departure from the concentrators that have already been erected. The process will consist of crushing, amalgamation and cyaniding. A mill test of the ore has been made in Nevada. No concentrating tables will be used in the mill, although provision will be made for their installation if they are found necessary. The capacity of the mill is estimated at 90 tons per day. The product from the plates and the zinc boxes will be shipped from the mine in the form of bullion. Twenty 1,650-pound stamps will be installed.

The meetings held between the representatives of the Nipissing Central Railway and the mining companies regarding the right of way for the new electric road, have so far been

without results. The difficulty rises out of the rental asked by the companies, and it is altogether likely that the courts will be appealed to, to appoint an arbitrator.

The Maple Leaf Syndicate, Limited, is a new company recently organized in England for the purpose of taking over fourteen claims in the townships of Brewster and Corkhill. The head office of the new company is at Walbrook, London, E. C., and the promoters have raised the sum of \$50,000 to carry on the development work.

The contract for building the wagon road from Elk Lake to Gowganda has been let to the firm of Blair & McClelland, of New Liskeard. A good deal of difficulty was encountered by the department in placing this contract, as three contractors refused to do the work. As a consequence their deposits, amounting to \$2,600, were forfeited.

In the course of stoping on the main vein of the City of Cobalt, a shoot of high-grade ore about five inches in width was encountered. The Company proposes to carry on the exploration work on the surface by means of a diamond drill.

A rich surface find has been made in the north-west corner of the Hargraves property. The ore body is about six inches in width.

Work will very shortly be resumed on the property of the Townsite Mining Company. The capital necessary to carry on the work has been raised in England.

A new vein has been found on the 112 ft. level of the Kerr Lake Majestic at a point about 85 feet to the north of the shaft. The vein matter consists of cobalt with small silver values. It is understood that the Lewisohns of New York have acquired control of the Kerr Lake Majestic, which adjoins the Kerr Lake, a property also controlled by them. They have also recently purchased the Michael claim, located on the east side of Cross Lake. So far but little work has been done on the latter property as it has been in litigation for about three years.

It is understood that La Rose has made arrangements to sell their big dump on the property adjoining the Right of Way.

While excavating for the new addition to the concentrator of the Coniagas a new vein was discovered. This company is running a trench up Prospect Avenue, one of the main streets of the town, in order to try to locate a vein reported to be in that section.

The petition, asking for an injunction to compel the directors of the Crown Reserve to stop the payment of dividends until the 231 shares now in dispute receive dividends along with the rest of the shares, has been dismissed. The statement for the six months ending June 30th shows a surplus of \$549,259. During that period there was a total of 1878 feet of development work done, and over \$40,000 was expended in new buildings and equipment.

The second asking for tenders for the mining lands of the Gilles Limit resulted in the sale of twelve lots aggregating 195 acres. As 283 acres were sold before, this leaves 392 acres still remaining in the hands of the Department. It is understood that another sale will take place later on.

#### BRITISH COLUMBIA.

Rossland.—As the directors of the Le Roi Mining Co. are in convention at London it is expected that word will be sent here to begin work at the Le Roi Mine any day now.

The Blue Bird Mining Co., through the managing director, Mr. Lyman Carter, has acquired the lease which Whitford and Jenkins had on the mine. It is the intention of the Company to work the property itself, and a thorough plan of development will be worked out if some preliminary work that is being done turns out well. It is the intention to sink a double compartment shaft and open up the property at depth. At this writing, there is a quantity of ore at the mine awaiting shipment. Carbonate ore has been opened up on the Blue Bird that with a little sorting has returned about \$80 per ton. As there are several veins

on the surface of the Blue Bird, some of which appear to be offshoots of the main vein, it is expected that ore will be found in greater quantity as depth is attained.

Among the steady shippers to the Trail smelter, aside from the Centre Star group and Le Roi Two at Rossland, are the following mines: Snowshoe, St. Eugene, Silver Cup, Silver King, Granite, Yankee Girl, Richmond-Eureka, North Star, etc., etc.

The shaft on the Hattie Brown is now down over 75 feet, the vein showing up about six feet wide at this point. Recent assays give returns of \$49 per ton.

A meeting of the board of directors of the B. C. Mining & Development Co. was held during the past week. Dr. G. A. Ulerick was present from Chicago. The doctor is here for the purpose of discussing ways and means for the starting of work on the company's copper claims on St. Mary's river. A prominent engineer has made a report on the property and the outlook is favorable.

Le Roi 2, Ltd., continues to work along with the usual good results. During May, the confirmed report shows, 2168 tons of first class ore was sent to Trail smelter, from which the smelter receipts were \$48,349, or something over \$22 per ton, which is close to the yearly average. Eighty-two tons of concentrate returned \$41.44 per ton. According to average figures for this mine, the profits were approximately \$24,000; a good profit on the tonnage shipped, for this camp particularly. The yearly report of the Le Roi Two shows up very well as it has no big steam-air compressing plant to write depreciation off as one or two of the other local companies have. This concern produces air for drilling and clearing the mine from a neighboring plant and does its hoisting, etc., by electricity from the Bonnington Falls plant.

**Nelson.**—After nearly seven years of litigation the famous apex case of Star Mining & Milling Co. vs. Bryon N. White & Co. has come to an end in the Privy Council. The appeal of the White Company was refused, which leaves the decision as it left the Supreme Court of Canada, in favor of the plaintiff. The White Co. mined considerable ore from a vein which dipped into Star ground, but which to all appearances apexed on the claims owned by the first-named company. The vein, if it was one vein, was faulted at depth, being found again after some work through barren ground. The point of contention in the recent case was whether or not the ore in the ledge on the Star ground apexed on the property of the B. N. White Co., and from the decision of the Court it would appear the latter conclusion is arrived at from the evidence submitted.

An ore body of value was opened up at the St. Eugene last week. This property continues to look well underground. Shipments to the Trail smelter run from 550 to 700 tons per week; while the mill and concentrator is running steadily.

A new tunnel is to be started on the Aurora property across Moyie Lake from the St. Eugene. There is a quantity of ore on the ground ready for shipment.

The Gold Note, a property near the Granite, shipped out four tons of high grade ore recently. It is planned to work the property all season.

Mining is particularly lively in the Salmo section this year. There are quite a number of prospectors in the hills, and active work is being done on many of the small mines. The Arlington is sending out a steady tonnage of \$65 ore, and there are 45 men working at the Second Relief where the mill is treating nearly 150 tons per week.

**Phoenix.**—A change has been made in the directorate of the B. C. Copper Co., which, it is anticipated, will mean even greater progress for this company in the future than has been the case in the past. Mr. Adolph Lewisohn, of New York, taking

advantage of the comparatively low price at which the stock of this company could be bought while the market was so quiet, has acquired a big interest in the concern, and has been made a director. The present outlook for the Copper Company is good. It has been possible to land copper in New York at 8c per lb. this year, and the company's mines at Deadwood, Wellington, Central, etc., have big quantities of ore in them ready for stopping, and will soon have much-needed railway facilities; that is, the latter two camps. Now that the Alberta coal strike has been settled, it is likely that the International Coal & Coke Company will soon commence to ship fuel to the Copper Company at Greenwood. It is a difficult matter to say, however, just when operations will be resumed, as the Greenwood Miners' Union has declared a strike against the B. C. Copper Company for alleged non-recognition of that body and discrimination against its members. No doubt the Copper Company would have resumed work as soon as there was sufficient fuel on hand, had it not been for this last affair. As it is, if some amicable arrangement is not made, there may be more or less difficulty in getting a full quota of first-class miners.

Another one of the promising mines in Franklin camp has been bonded. This time it is the McKinley group, which has been taken over by G. A. McLeod and associates, of Spokane, Wash. With the completion of the railway to Franklin camp the McKinley, Maple Leaf and other mines of that district will come rapidly to the shipping list.

A body of excellent copper ore has been opened up on the claims of the Columbia Copper Mining Co., Friday Creek. Some of the ore carries as high as 15 per cent. copper, with some gold. The ore has been pierced for 34 feet on one side of Friday Creek and a tunnel driven 71 feet on the opposite side.

The Greenwood-Phoenix tunnel has been driven 170 feet to date, the drilling being done by hand work. It is expected, however, that the compressor now in place at the mouth of the adit will be furnishing power in a few days.

A. B. Clabon, managing director of the Kingston Gold-Copper Mining Co., visited the property at Hedley last week. It is very likely that a compressor and power drills will be installed at the property in the near future, as development has reached a stage that would seem to warrant such action.

Among the names of newly registered companies in this province appears the title of the New Dominion Copper Co., capitalized at \$1,000,000 in shares of \$5 each. This is a smaller capitalization than was at first proposed by the reorganization committee, i.e., \$1,250,000. It is hoped that the mines of the New Dominion Company will be working by August 1st. A new Greenwood concern that is driving a parallel tunnel to the Phoenix-Greenwood tunnel into the high-grade hill at Greenwood is the Argo Mining & Tunnel Co., with a capitalization of \$125,000 in 25c shares.

The tunnel on the E. P. U. claim near Greenwood is now in the hill over 1,300 feet. It is expected by the operators, a Greenwood syndicate of mining men, that the ledge will be encountered any day now.

The plant at the Jewel mine, Long Lake, is to be augmented. It is thought that the new concentrating process the company has adopted will prove a success on Jewel ore. There are large quantities of concentrating ore in the mine.

**Vancouver.**—Placer gold has been found in the sands of Seymour Creek near here. Ground has been located on the creek by an old Australian prospector and others, and from 10c to 20c per pan is being obtained.

Samples running from \$26 to \$258 in gold have been taken from a ledge near Lillooet Lake that is nearly 300 feet wide. An Indian made the find. Several locations have been made, and further work will be done and average assays taken.

## GENERAL MINING NEWS.

### ONTARIO.

**Sulphide.**—Pyrite mining is becoming increasingly active. Two new concerns are now operating.

**Madoc.**—The Geo. H. Gillespie Tale Company is soon to double its grinding plant. Its product is now being shipped to Europe in addition to supplying the Canadian market.

**Cobalt.**—The Buffalo Mines, Limited, has placed at the disposal of the Cobalt civic authorities the tank and pumping apparatus installed at the Buffalo mine. This generous offer is much appreciated.

The Coniagas plant is soon to have 30 stamps added. This will make a total of 60 stamps.

**Sturgeon Lake.**—Numerous reports of gold finds are heard. Authentic news is lacking. The Provincial Government is to send Mr. E. S. Moore to the district before the summer is over.

### BRITISH COLUMBIA.

**Rossland.**—A considerable body of low grade ore has been found on the sixteenth level of the Centre Star mine, shipping

ore, 14 feet wide, has been encountered on the sixth level. The big ore shoot on the ninth level of the War Eagle has been opened up west from the crosscut.

**Trail.**—On Friday, July 9th, the smelter of the Consolidated smelted 250 tons of lead ore and produced 130 tons of bullion in 24 hours. This beats all previous Canadian records.

**Nelson, July 10.**—the amalgamation of the British Columbia Copper Company and the Dominion Copper Company, with the mines and the smelters at Greenwood, is definitely announced from the East.

The strike situation on the properties of the first named company remains unchanged.

The holidays interfered with the week's output, and the shipments appended in detail are below the average.

### YUKON

**Dawson.**—The first stamp mill erected in the vicinity of Dawson is soon to be in operation. It is a two-stamp mill, and is to be placed on the Lone Star property.

## MINING NEWS OF THE WORLD.

### GREAT BRITAIN

The eleventh hour agreement between the South Wales operators and miners, ratified by the Miners' Federation of Great Britain, was announced on July 1st.

After two hours' deliberation the following report was supplied to the press:—"The deputation appointed from the Federation to assist the South Wales workmen's representatives in their negotiations with the owners tendered a report of the joint meeting held at Cardiff yesterday, at which the following terms were adopted:—"The workmen's representatives having declared that it is not their intention to prevent the mutual introduction of any new method which may lead to the better working of the pits, due regard being had for safety and economical working, it was agreed that the owners shall have freedom to propose any method of working their collieries without being met with the objection that their doing so is a breach of custom of the Conciliation Board agreement, and the workmen allege that the proposed method of working is a source of extra danger to the workmen employed at the colliery. This question, in the event of a failure to agree at the colliery, shall be referred to the decision of an experienced and disinterested person to be agreed upon by the owners and workmen's representatives on the Conciliation Board, or failing such agreement, to an experienced and disinterested person to be appointed by the Home Secretary—the owners and workmen to be at liberty to call evidence before the person agreed upon or to be appointed. Any further objection to be brought before the Conciliation Board in the usual way, and the Board shall either decide the matter or report failure to decide within two months from the date of reference.""

The conference decided, having heard the report of the deputation and the terms of the agreement, to adopt the same as satisfactory, and thanked the representatives for their services in the matter.

A discussion afterwards took place upon an application received by the miners in Scotland for a 12 1-2 per cent. reduction in their wages, a joint meeting to consider which is to be held in Glasgow on Wednesday next. After discussion the following resolution was unanimously adopted:—

"That this conference hears with deep regret that the Scotch coal owners are pressing for a reduction of 12 1-2 per cent, in the

workmen's wages in Scotland. And we hereby adhere to our previous decision to resist any such reduction. In the event of the employers pressing their claim we empower the officials hereby to call a special conference with a view to deciding whether rule 20 shall be put in force to resist any such reduction."

Rule 20, it may be explained, empowers the Federation to take a ballot of the whole of the miners in the United Kingdom as to whether the men shall hand in their notices and support the affected miners by causing a national stoppage.

### RUSSIA

The estimated gross production of crude oil by the Baker Russian Petroleum Company for the week ended June 26th, was 2,569 tons.

### SOUTH AFRICA

Mr. R.S. Holland, the British Board of Trade Commissioner, has completed his investigations of the Witwatersrand mining industry. Mr. Holland, in an interview, pointed out that German manufacturers had their representatives in the field, and that British manufacturers would have to follow suit. The opportunity of large business in mining machinery was exceedingly good.

The half-year's dividend distribution of Rand mining concerns amounts to £4,542,494. Including mines in outlying districts the total amount is £4,592,695. These dividend payments represent 6s. 1½d. of every sovereign won.

In the course of a speech at the Goerz annual meeting, recently held at Johannesburg, Mr. Francke mentioned that the charge for blasting gelatine—the form of explosive most used by the mines—which in 1908 was 52s 6d per case, has been reduced to 45s per case practically all round; and as regards water, legislation was contemplated with a view to enabling the Rand Water Board to cut down its rate of 3s per 1,000 gallons to a price in the neighbourhood of 1s. 3d. It is quite clear that such a reduction by the Rand Water Board will serve as a standard for the price of water for mining operations from other sources as well. Another matter affecting the unskilled labour question has been taken in hand—namely, the selections of a stope drill of

light weight. Drilling in stopes has so far to a great extent been carried out by the manual labour of the natives, but if a suitable drill can be manufactured this work can be done by mechanical force and a large number of natives set free for other work. The trials now proceeding by the Chamber of Mines in conjunction with the Government are not yet concluded, but it can already be stated that the prospects of obtaining a practical and useful stope drill are favourable.

**UNITED STATES**

An appeal is to be taken in the action of Bliss vs the Washoe Company (the smoke case.) An injunction to close the Anaconda smelter was refused the farmers of Deer Lodge valley. The appeal is against this refusal.

The Butte mining companies are experimenting with electric power as a substitute for steam in transportation. The change is expected to reduce costs by one-third of a cent per pound of copper.

**MEXICO**

The announcement from the oil fields of Mexico of the large new company for developing the oilfields has attracted considerable interest. It concerns the future position and work of Messrs. Pearson and Son (Oilfields Department), and, if correct, exceeds in importance all news which has recently come to hand from this great centre or petroleum excitement and activity. The concessions cover the holdings of the Pearson Oilfield Department north and west of an imaginary line drawn at about 19 degrees long west from Washington, and extending from Vera Cruz (in an almost direct line south) to Puerto Angel, on the Pacific Ocean, in the Senate of Oaxaca. They include the Dos Bocas field, the scene of the famous burning oil fountain, and certain rights Messrs. Pearson & Son have acquired by contract from the Oilfields of Mexico Company. The Compania Mexicana de Petroleo El Aguila, Mexican in charter, operations

and character, will confine their interests to developing, exploiting and marketing home products in Mexico; they will not only produce and market the product of the fields north and west of the imaginary line drawn from Vera Cruz to Puerto Angel, but they will also market in Mexico the products of the fields south and east of the line and in the States of Vera Cruz and of Oaxaca, on the Isthmus of Tehuantepec, and the States of Tabasco, Chiapas, Campeche and Yucatan.

The old company of Messrs. Pearson & Son (Oil Fields Department) will produce, refine and export only, and will go out of the Mexican market, both wholesale and retail. Messrs. Pearson & Son are interested in the Compania Mexicana de Petroleo El Aguila as shareholders. For the present, however, the most productive fields owned by Messrs. Pearsons, lying south of the imaginary line, continue in the possession of that firm, leaving them with the refinery at Minatitlan and a large number of producing wells on the isthmus. Later accounts state that, while the capital of the new company is £5,000,000, not £3,000,000 as at first announced, it is a fact that all the shareholders are multi-millionaires and control unlimited finance. One of the directors is Colonel Diaz, Jr., son of President Diaz. The company's lands are 3,000,000 acres in extent, and great refinery and pipe line extension schemes and new property acquisitions are being talked about.

Considerable conjecture is being indulged in with respect to the latest Mexican oil company and the concession recently granted to the Oil Fields of Mexico Company, and, although it is denied that any deal is pending between the two, business men anticipate that before long the Furber holdings will be acquired by the Compania Mexicana de Petroleo El Aguila. Nothing that is happening in petroleum centres on the other side of the Atlantic approaches in importance the conduct of Messrs. Pearsons in the oil fields of Mexico. Their investments are known to be considerable, certainly between £2,000,000 and £3,000,000, and they are still at war with Standard Oil interests.

**STATISTICS AND RETURNS.**

**COBALT ORE SHIPMENTS—WEEK ENDING JULY 3.**

Nipissing Mine, Am. Smltg. & R. Co., Denver....	65,874
Nipissing Mine, Am. Smltg. & R. Co., Denver....	65,599
Nipissing Mine, Can. Copper Co., Copper Cliff....	65,529
	—197,002
La Rose Mine, Can. Copper Co., Copper Cliff....	73,600
La Rose Mine, Am. Smltg. & R. Co., Denver.....	65,000
	—138,600
Crown Reserve, Am. Smltg. & R. Co., Denver....	58,600
Crown Reserve, Can. Copper Co., Copper Cliff....	60,265
	118,865
Coniagas Mine, Coniagas R. Co., Thorold.....	82,000
McKinley-Darragh, Am. Smltg. & R. Co., Perth Amboy..	57,700
Kerr Lake, Kerr Lake Mining Co., Copper Cliff.....	62,085
Peterson Lake, Am. Smltg. & R. Co., Perth Amboy....	40,570
Buffalo Mine, Can. Copper Co., Copper Cliff.....	44,621
O'Brien Mine, Deloro M. & R. Co., Deloro.....	63,998
T. & H. B., Deloro M. & R. Co., Deloro.....	62,000
Cobalt Lake, Am. Smltg. & R. Co., Denver.....	79,960
	—
Total.....	947,401

**COBALT ORE SHIPMENTS—WEEK ENDING JULY 17.**

There was a falling off last week both in the number of mines that shipped ore and in the weight of the output. Compared with eleven shippers of the past three weeks there were only eight, and the tonnage amounted to 443.21, or 30.49 tons less than a week ago. The total number of pounds shipped during the week was 886,420. Nipissing again headed the list with 259,110 pounds, and Crown Reserve and La Rose came next with

shipments close up to the two hundred thousand mark. All the others failed to ship over 65,000 pounds.

	Week ending July 17. Ore in lbs.	From Jan. 1, 1909. Ore in lbs.
Buffalo.....		
Cobalt Lake.....		658,178
Crown Reserve.....		79,960
Coniagas.....	188,320	3,167,837
Cobalt Central.....		924,630
Chambers-Ferland.....	38,700	539,766
City of Cobalt.....	60,000	779,440
Diamond.....		865,522
Kerr Lake.....		920,000
King Edward.....		1,173,216
La Rose.....		97,050
McKinley.....	151,000	6,710,053
Nipissing.....	64,420	1,057,806
Nancy Helen.....	259,110	7,493,083
O'Brien.....		83,400
Peterson Lake.....	63,870	1,354,616
Right of Way.....		241,110
Silver Queen.....		1,854,640
Temiskaming.....		255,275
Trethewey.....	61,000	1,405,960
T. & H. B.....		1,162,838
Muggley Consolidated.....		970,080
		72,900
Total for week.....	886,420	

**ORE SHIPMENTS AND SMELTER RECEIPTS IN SOUTH-EASTERN BRITISH COLUMBIA.**

Nelson, July 3.—Appended will be found the ore shipments and smelter receipts for the past week and year to date in tons:

Ore Shipments.		
Boundary—	Week.	Year.
Granby . . . . .	20,376	495,651
Snowshoe . . . . .	2,582	61,650
Golden Eagle . . . . .	60	330
Other mines . . . . .		140,624
<b>Total . . . . .</b>	<b>23,018</b>	<b>689,255</b>
Rossland—		
Centre Star . . . . .	4,541	84,854
Le Roi No. 2 . . . . .	640	15,414
Le Roi No. 2 (milled) . . . . .	260	6,600
Other mines . . . . .		9,486
<b>Total . . . . .</b>	<b>5,441</b>	<b>116,354</b>
Slocan-Kootenay—		
Queen (milled) . . . . .	420	10,710
Granite Poorman (milled) . . . . .	250	6,350
Whitewater Deep (milled) . . . . .	700	18,000
Kootenay Belle (milled) . . . . .	70	1,790
Second Relief (milled) . . . . .	145	3,700
Nugget (milled) . . . . .	110	2,810
Bluebell (milled) . . . . .	900	23,000
St. Eugene . . . . .	540	10,199
Silver Cup . . . . .	179	724
Silver King . . . . .	57	1,954
Belcher . . . . .	35	35
Granite Poorman . . . . .	31	258
Yankee Girl . . . . .	69	689
North Star . . . . .	94	506
Richmond Eureka . . . . .	32	1,715
Bluebell . . . . .	250	2,585
Other mines . . . . .		8,635
<b>Total . . . . .</b>	<b>3,882</b>	<b>93,660</b>

The total ore shipments for the week were 32,341 tons, and for the year to date 968,269 tons.

Smelter Receipts.		
	Week.	Year.
Total . . . . .	29,546	836,875

B. C. ORE SHIPMENTS—WEEK ENDING JULY 10.		
Boundary—	Week.	Year.
Total . . . . .	17,294	715,549
Rossland—		
Total . . . . .	4,383	120,737
Slocan-Kootenay—		
Total . . . . .	4,095	97,755
<b>Grand total . . . . .</b>	<b>25,772</b>	<b>934,041</b>

Smelter Receipts.		
	Week.	Year.
Granby, Grand Forks . . . . .	15,307	511,288
Trail . . . . .	7,811	195,439
Le Roi, Northport . . . . .		12,761
B. C. Copper, Greenwood . . . . .		140,505
<b>Total . . . . .</b>	<b>23,118</b>	<b>859,993</b>

Following are the figures of German consumption of foreign copper for the months January-May, 1909:—

Imports of copper . . . . . 65,956 tons  
 Exports of copper . . . . . 2,648 “

Consumption of copper . . . . . 63,308 “  
 as compared with consumption during the same period in 1908 of 68,893 tons.

Of the above quantity 60,353 tons were imported from the United States.—Reported by L. Vogelstein & Co., N. Y.

**TORONTO MARKETS.**

**Metals.**

July 23.—(Quotations from Canada Metal Co., Toronto.)

Spelter, 5¼ to 5½ cents per lb.

Lead, 3¼ to 3.5 cents per lb.

Antimony, 8 to 9 cents per lb.

Tin, 30½ cents per lb.

**Copper—**

Casting, 13.5 per lb.

Electrolytic, 13.75 cents per lb.

Ingot Brass—10 to 14 cents per lb.

Pig Iron—July 23.—(Quotations from Drummond, McCall & Co.):

Summerlee, No. 1, \$23 (f.o.b. Toronto).

Summerlee, No. 2, \$21.75 (f.o.b. Toronto).

Midland, No. 1, \$19.50 (f.o.b., Toronto).

**Coal—**

Anthracite, \$5.50 to \$6.75.

Bituminous, \$3.50 to \$4.50 for 1¼ inch lump.

**MARKET REPORTS.**

**Coke.**

July 30.—Connellsville coke, f.o.b. ovens—

Furnace coke, prompt, \$1.50—\$1.60 per ton.

Foundry coke, prompt, \$1.80—\$1.90 per ton.

**Metals.**

July 20.—Tin, straits, 29.125 cents.

Copper, prime lake, 13.375 cents.

Electrolytic copper, 12.80 to 12.90 cents.

Copper wire, 15 cents.

Lead, 4.30 to 4.35 cents.

Spelter, 5.425 cents.

Sheet zinc, 7.50 cents.

Antimony, Cookson's, 8.25 to 8.375 cents.

Aluminium, 21 to 24 cents.

Nickel, 40 to 47 cents.

Platinum, 22.50 to 23.50 per oz.

Bismuth, 1.75 per lb.

Quicksilver, \$43 to \$44 per 75 lb. flask.

**Silver Prices.**

	New York.	London.
	Pence.	Cents.
July 7 . . . . .	51½	23½
“ 8 . . . . .	51⅞	23 7-16
“ 9 . . . . .	51	23½
“ 10 . . . . .	51⅞	23 9-16
“ 12 . . . . .	51¼	23⅝
“ 13 . . . . .	51	23½
“ 14 . . . . .	50⅞	24 7-16
“ 15 . . . . .	51	23½
“ 16 . . . . .	51	23½
“ 17 . . . . .	50¾	23⅝
“ 19 . . . . .	50¾	23⅝
“ 20 . . . . .	51	23½
“ 21 . . . . .	51	23½

**MARKET NOTES.**

Silver.—Favourable news is cabled from India as to rains; but this is counterbalanced by the large stock of bar silver still on hand at Bombay, 9,900 bars. Stocks are still accumulating at Shanghai, and these may be moved to India if prices rise.