

# THE CANADIAN MINING JOURNAL

THE OFFICIAL ORGAN OF THE CANADIAN MINING INSTITUTE

VOL. I, No. 12, New Series

TORONTO and MONTREAL, September 1, 1907

Old Series, Volume xxviii, No. 14

## The Canadian Mining Journal

With which is incorporated the  
"CANADIAN MINING REVIEW"

Devoted to Mining, Metallurgy and Allied Industries in Canada

Published fortnightly by the

**MINES PUBLISHING CO., LIMITED**

*Head Offices* - Confederation Life Building, Toronto,  
and 171 St. James Street, Montreal.

*Branch Offices* Halifax, Victoria, and London, Eng.

*Editor:*

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

*Associate Editor*, H. MORTIMER-LAMB, Secy. C.M. Inst.

*Business Manager* - - - J. J. HARPELL, B.A.

*Circulation Manager* - - - A. P. DONNELLY, B.A.

**SUBSCRIPTIONS**—Payable in advance, \$2.00 a year of 24 numbers, including postage in Canada. In all other countries, including postage, \$3.00 a year.

Advertising copy should reach the Toronto Office by the 8th, for the issues of the 15th of each month, and by the 23rd for the issues of the first of the following month. If proof is required, the copy should be sent so that the accepted proof will reach the Toronto Office by the above dates.

### SPECIAL CONTRIBUTORS

**GEOLOGY:** Dr. Frank D. Adams, McGill University; Dr. A. E. Barlow, late of Geological Survey of Canada; Professor Willett G. Miller, Provincial Geologist of Ontario; Dr. J. E. Woodman, Dalhousie University, Halifax, N.S.

**CHEMISTRY:** Dr. W. L. Goodwin, Director School of Mining, Kingston, Ontario; Milton Hersey, M.Sc., Official Analyst Province of Quebec.

**MINERALOGY:** Professor W. Nicol School of Mining, Kingston, Ontario.

**MINING:** S. S. Fowler, M. E., Nelson, B. C.; Fred erick Keffer, M.E., Anaconda, B.C.; A. B. Willmott, M.E., Sault Ste. Marie, Ont.; J. C. Gwillim, M.E., School of Mining, Kingston, Ont.; J. Bonsall Porter, M.E., McGill University; John E. Hardman, M.E., Montreal; Fritz Cirkel, M.E., Montreal; Dr. E. Gilpin, Department of Mines, Halifax, N.S.; George W. Stuart, M.E., Truro, N.S.

**METALLURGY:** Hiram W. Hixon, M.E., Mond Nickel Company, Victoria Mines, Ontario; Stafford F. Kirkpatrick, School of Mining, Kingston, Ontario; A. P. Scott, Dominion Iron & Steel Co., Cape Breton.

**COAL:** Hon. Robert Drummond, Stellarton, N.S.

**NATURAL OIL AND GAS:** Eugene Coste, M.E., Toronto, Ont.

**CEMENT:** Manley Baker, M.A., School of Mining, Kingston, Ont.

### CONTENTS

	PAGE.
Editorial .....	353
Reflections on Secrecy in Arts.....	355
Westphalian Collieries.....	358
Ankylostomiasis .....	362
Mischief of it .....	364
Copper Deposits of Nevada.....	365
British 8 Hour Bill.....	366
New Dept. of Mines .....	367
Mining Laboratory, School Mining, Kingston .....	369
Reviews .....	372
Miscellaneous .....	373
Correspondence .....	375
Mining News.....	381
Statistics .....	383

### FOLLY

The Canadian public is now being edified by the spectacle of two large corporations fighting out a quarrel in court. Until very recently it was hoped that the Dominion Iron & Steel Company's offer to settle the squabble out of court would have been accepted by its powerful antagonist. But the proffered good offices of would-be mediators were rejected and litigation was resorted to.

It is patent to all those who have followed the history of the Dominion Iron & Steel Company, that it is unable to stand the enormous expenditure entailed by such a suit. Nothing but sheer desperation could have justified its Executive in seeking the arbitrament of the law. An adverse decision will assuredly cripple it for many years to come.

With the Dominion Coal Company the case is different. It is a rich and successful corporation. It can survive total defeat, but not without feeling it severely.

These considerations, however, have nothing to do with the equity of the case.

Some months ago, or even at the initial stage of the disagreement, it should have been, in all reason, quite possible to have arrived at a compromise satisfactory to both of the contending parties. But apparently the actual outbreak of hostilities was precluded by a series of petty personal encounters. In the preliminary interchange of ultimata, decorum and moderation were forgotten and the difference at once became dangerously akin to a personal quarrel. The subsequent course of events has not weakened this impression.

Here, then, we see two of Nova Scotia's most important industries, each the natural ally of the other, engaged in a costly and dangerous struggle, because two or more of the chief officers of each could not sacrifice their personal pride.

We have freely condemned the labour organizations when they have recklessly precipitated industrial warfare. In what terms shall we characterize the men whose lack of the spirit of good citizenship has made possible this lawsuit?

The Federal Government is elaborating legislation which will, when perfected by experience, largely dispense with strikes and lock-outs. If such legislation is necessary to protect the country, all the more necessary is a law which will prevent the owners of public utilities, the operators of subsidized industries, from indulging in internecine war at the expense of the community.

We still pray that, even at the eleventh hour, the feud will be patched up. It is a hopeful sign that one of the litigants has voluntarily offered to submit the matter to any disinterested referee.

Thousands of dollars have been absolutely wasted,

worse than wasted, in proving and disproving a speculative geological point, in establishing and denying the metallurgical value of a certain class of coal. If money is so readily available for these futile purposes, why should not equal amounts have been long ago directed into construction and expansion?

### THE ALBERTA COAL COMMISSION AND THE BRITISH EIGHT-HOUR BILL.

Recognizing the imminent danger of a recurrence in the West of last winter's coal famine, the Alberta Provincial Government appointed a commission to inquire into the conditions of the production and marketing of coal and to make recommendations as to the necessary measures for the prevention of fuel-shortages in the future. The report of the commission has been handed in. The salient points are as follows:

1. That the government endeavour to induce individuals and companies to store coal during the summer for use in winter, and to keep a reserve supply on hand.
2. That legislation be passed in regard to the erection and licensing of storage warehouses, which would enable agents and dealers to purchase and store coal during the summer.
3. That the necessary measures be adopted to compel railways to furnish cars for the prompt handling of coal. The principle of reciprocal demurrage is recommended in the event of other means failing.
4. That where mine operators experience difficulty in securing the construction of sidings, each case should be investigated, and if the construction be practicable, the Provincial Government should join the operator in presenting his case to the Railway Commission.

Having dealt thus with the question of fuel supply and transportation, the commission makes certain other recommendations for the improvement of the conditions of the miners. Principal among these are:

That the inspection of the ventilating equipments be more rigid.

That the erection of bath-houses for the use of the miners be made compulsory.

That the minimum age of employees be sixteen years.

That the distance between openings to a mine be not less than one hundred feet.

That provision be made for the rapid and cheap settlement of questions of damages.

Upon the "eight-hour day," the commission's report does not touch. It is stated that the Provincial Minister of Works has promised the introduction of legislation making the eight-hour day compulsory.

The commission has done well to avoid a definitive expression of opinion upon the "eight-hour" problem. The experiment of such a working day is presently to be tried in England. The Albertan Government will lose nothing if it defers action until the result of the British experiment can be noted.

The government "Eight Hours" Bill, which was intro-

duced into the British House of Commons on August 1st, date on, only the eight-hour day, bank to bank, is to be made legal the nine-hour day for eighteen months, from January 1st, 1908, to June 30th, 1909. From the latter permitted. The shift will be measured from when the first man leaves the surface until the first man comes to the surface, and from the last man down until the last man up. Limiting clauses are inserted, providing for an extension of the day in times of war or of industrial stringency. For this purpose the Ministers of the Crown are clothed with discretionary powers. The bill will not become law until next session. The full text will be found on another page.

### A PERSECUTED PRESIDENT

The University of Toronto's newly appointed President has undergone a trial so severe, so dangerous and so soul-disturbing, that if he survives without permanent injuries he is a fortunate man.

Nova Scotians are not temperamentally demonstrative. This fact makes their outburst of appreciation (adulation, we had almost written) all the more remarkable. They have feted and feasted Dr. Falconer. They have told him, in language calculated to induce abnormal cephalic expansion in the ordinary or garden variety of man, that in his own proper person he embodies all the cardinal virtues, most of the graces, and a large slice of human culture and knowledge. Dr. Falconer is, however, a modest man. When the early morning brings its cooler counsels, he will realize that it were suicidal to attempt to live up to Nova Scotia's seraphic ideal. It will also dawn upon him that no ordinarily sinful professor could afford to be associated with such a flawless paragon.

However and however, we hope—we know—that the new President has limitations, even weaknesses, not mentioned in the specifications used by Nova Scotia when she so fervently set about constructing her ideal Falconer. We know that Dr. Falconer is a cool-headed, strong, kindly and cultivated man. Already he has done most valuable work in educational spheres. His influence has been profoundly felt in the Presbyterian Church. With the help of his Toronto confreres, success is assured him.

We find ourselves falling constantly into the irritating habit of giving advice—a dangerous thing for all concerned. But, nevertheless, we cannot refrain from exhorting President Falconer to keep a paternal eye upon his Department of Mining Engineering. So far as we are concerned, he may slight Exegesis, he may neglect Church History, Hebrew he may delete, Dogma may fall into innocuous desuetude—not a murmur will be heard from us. But the everlasting principles of smelting, the mutable practice of mining, the mysteries of mineralogy, the divine dubieties of geology, the sempiternal canons of chemistry, must never be overlooked.

**THE WEST—ITS FUEL SUPPLY.**

Experience teaches—but governments learn more slowly than individuals. During last winter the Western Provinces hung for months on the perilous brink of a fuel famine. Newspaper reports gave harrowing details of privation and suffering. Often these stories were exaggerated. Sometimes they were untrue. But there is ample evidence that throughout the whole Canadian West the fuel shortage was seriously felt.

Indications are not lacking that the approaching cold season will bring with it conditions similar to those of last winter. Labor troubles, transportation difficulties, a rapidly increasing population, and the demands of expanding industries make the danger of a fuel famine more than possible. But even were the possibility of a coal shortage remote, and not, as we have reason to believe it to be, imminent, it would be only prudent for the Federal and Provincial Governments to take very precaution against a recurrence of such a condition of affairs as obtained last winter.

The railroads are busily safeguarding their own fuel supplies. They should be, and must be, held accountable if, through negligence or through inefficiency, they are unable to meet the reasonable demands of the people. But the volume and continuity of the fuel supply is as completely dependent upon the miners themselves as upon any other factor. A strike can work more havoc than the indifference or inability of all the railway systems together. The right to strike, when the comfort,

may, the lives, of thousands of human beings, and the welfare of an enormous commonwealth may be imperilled, may well be controlled by the Federal authorities.

It may here be remarked that, so far, the Lemieux Act has been a negative, rather than a positive, blessing. To give it greater efficacy, revision and additions are necessary. It is now hardly more than a tentative attempt at practical arbitration. In principle it is sound; in practice it appears somewhat weak. It may become necessary for the Dominion Government to amend the Act radically. If, however, hot-headed operators and contumacious workmen are set upon quarreling, the final remedy is government ownership and operation of the coal mines. Meanwhile, the Western fuel situation must be met. The responsibility of meeting it rests primarily upon the government and the railroads.

**EDITORIAL NOTES**

Talc and soapstone have been steadily increasing in value during the past decade. Hastings County, Ontario, has the only large producing mine in Canada.

The importation of sulphur into the United States has decreased by over fifty per cent. in the last three years. In 1900 the exported sulphur from Sicily to the United States stood at 162,505 tons. In 1906 this had fallen to 41,283 tons. Meanwhile there has been a steady growth in the consumption, importation and production of pyrite. This movement is of great significance to the holders of pyrite properties in Canada.

**SOME REFLECTIONS ON SECRECY IN THE ARTS.**

Dr. James Douglas

(Continued from August 15)

Faraday's mind was too absorbed in wonderment and almost religious fervor as the secrets of nature revealed themselves, to be captious, and to waste his energies in defining exactly what he had done, or in defending his discoveries and great conceptions from supposed infringement by other scholars. He never forgot, despite his wonderful original work, that generally the great investigators only lay the keystone in the arch which many less gifted workers have been erecting stone by stone. He did not consider it any detraction from his honor that he merely crowned the structure, but had not built it from the foundation. In fact, they are the greatest among the great who appreciate this limitation and recognize what they are to others. It is they who enjoy the beatitude of the meek, for in the highest sense they inherit the earth, seeing that they are endowed by the Creator with some feeble insight into the very secrets of earth and heaven. They know that these secrets are but the laws and phenomena of nature, which we through our ignorance and prejudice are slow in understanding, but which would soon cease to be secrets, if we could only disabuse our minds of false conceptions, and see facts as facts instead of as arguments for our theories.

Faraday felt, as every true disciple of science should feel, that when we penetrate to the discovery of even the least important of the facts of nature, we are unveiling one of God's gifts to humanity, and if so, we have no right to draw the curtain over it and conceal it again from God's children in order that we may make money out of it. Looked at from this point of view, may we not question the right to buy men's thoughts, and when through their thoughts we have unravelled some of nature's secrets, and learnt something to our profit, use our power to impose secrecy? Are we not enslaving a human mind, and can any slavery be worse? A natural phenomenon or force, one so understood that it can be controlled, is it not as much a gift of God as rain and sunlight and therefore part of the heritage of all mankind? Corporate wealth and corporate energy are doing much for mankind, despite the fact that of corporate shortcomings we hear just now more than we do of corporate benefactions. But corporate influence will have reached its most beneficent development when the wealth and activity and masterful management of the able men who wield it are united to the knowledge and skill of their technical staff, in not only discovering but

publishing the truths of nature, which they may be agents in discovering. Nor are we over-sanguine in believing that this high aspiration if carried into practice would not interfere with the lower motive of their existence—money-making.

Nor is Sir Michael Faraday the only scientific worker in the field of practical science who has given the results of his labor unreservedly to the world. It is almost invidious to single out instances when so many distinguished men and such a multitude of obscure toilers are working at the intricate problems of technology from sheer attachment to truth and without any thought of gain. But three notable names may be mentioned, as representative of this noble army of the unselfish, our own Prof. Henry, Dr. Roentgen, and that devoted couple, whom we rank as one, for they as husband and wife were as devotedly in love of one another as they were one in love of science—Mons. and Madame Curie. The Roentgen Ray may have needed no patents, or patentable devices, or any business organization to push its beneficial applications, especially in the alleviation of suffering humanity, but it would not have been difficult to concoct patents had Dr. Roentgen, before describing his discoveries, wished to make money out of them.

And could the practical resources of radial activity be measured by dollars, what a fortune the bereaved widow would reap! But Prof. Roentgen enjoys a better harvest than royalties, and Madame Curie would not exchange for a mountain of gold the world's admiration and its reverence for her husband's memory.

But to descend to a lower plane. If it is the fact that technical science has progressed of late with such unwonted speed through the co-operation of many workers, and that this co-operation has been made possible by the publication and exchange of ideas and experiences in the technical and scientific journals, would not our progress be even more rapid and thorough if all barriers of secrecy were broken down and every encouragement were given to our technical workers not only to describe in print and by conference their notions and their actual experiments? This is the attitude of some of our large concerns, but unfortunately it is not that of all. It is impossible to compare the efficiency of works whose gates are fast shut, and where obscurity and secrecy are imposed and practiced, with those to which free admission is granted and where freedom of information is encouraged. But the following reflections force themselves upon us in this connection. We know that very few technical papers issue from certain establishments, that on their officials silence is imposed, and that to these inquisitive visitors are politely but peremptorily refused admission. There are not many such, but they are and have been very successful. But suppose that in imitation of their practice and regulations, all were tempted to adopt it, and thus the same policy became universal, what a sudden paralysis of industry would follow. Our secretaries would find it difficult to fill even their shrunken volumes of transactions with papers worth printing; our students would have to content themselves with what antiquated learning their professors could supply them with, for there would be no more summer classes for practical work in mines, smelters and electrical factories, and the professors themselves would have to learn from old books. Every manufacturer and smelter would be obliged to bribe his neighbor's workmen and tempt away his neighbor's superintendents for information. As a result before long the very workers which now find it so profitable or think they do, to tap their friends' stock of knowledge and experience, and

give nothing in return, would be driven in upon their own resources, and probably not then find them so complete as they imagine. Of course I am supposing an impossibility, because the spirit of intellectual freedom in our professions is too strong and too widespread to submit to such a tyranny and because before such darkness of ignorance had settled down on our great industries, the most pronounced advocates of secrecy would feel and acknowledge what the ultimate consequences of concealment are, and would become reformers. Today they may have valuable secrets, as valuable as Sir Henry's method of making plate glass and bronze powder, and it may pay them to conceal them from their competitors, as long as they are admitted freely to their competitors' open shops, but even this is doubtful. For the spirit of secrecy is intimately allied with the spirit of suspicion and distrust, and the mind which is always suspecting is closed tight against the admission of liberal impressions. Being jealous of others, it is prejudiced against their suggestions, and correspondingly prejudiced in favor of its own preconceptions. Progress, therefore, ceases.

This is a temper of mind foreign to a new country like this, whose special industries have not been established long enough to wear grooves of rigid practice and sink into ruts of self-satisfied indifference. About the best correction we can apply to the growth of dry rot is the banishment of secrecy. A curious instance of its blighting influence is seen in some of the older, not the newer, industries of the old world. The iron and steel works of Europe have not kept pace with ours in size and production, but the ironmaster of Great Britain and Germany in coke-making and in blast furnace economies, and in steel-making processes, have been our teacher. Nor have they been shy of communicating their improvements, nor through jealousy of our success, slow in adopting ours. No nobler monument of international comity exists than the seventy volumes of the Proceedings of the Iron and Steel Institute. And with few exceptions the iron and steel works of England, Scotland and Germany and France are open to any accredited worker in the same domain. But before England was conspicuous as a maker of iron, she was famous the world over for her copper and tin production. But what between self-conceit and the inbred habits of trade secrecy, her copper smelting industry has fallen from its high estate. And it is not accidental, but linked as closely as any effect with its cause, that this decline is in great part the result of habits of secrecy which grew with the growth of age. At Swansea every gate to the smelting works is guarded, and as a result it has been difficult for thought to escape out as for suggestions to find their way in. She should still enjoy the prominence which her skilled labor, splendid coal and commanding maritime situation put within her reach, but she has preferred clinging to her secrets behind closed doors rather than going out into the world in search of new business as well as technical methods, and inviting the world to enter and exchange ideas. And that notwithstanding that the first practical application of electrolysis to metals was made in England by Elkinton, and that the Vivians adopted the Manhes method before Farrel introduced it into this country. But what feeble use they have made of these great improvements. The Atlantic separates continents, but it does not delimit the operation of laws. And therefore what is baneful in its effects in Europe is not likely to be beneficial here.

In political life vitality is maintained only when every man takes his full share as a debater in the dis-

discussion of political questions, and as a voter in the determination of state affairs. So in scientific and technical matters, the banishment of deceit, mystery and jealousy, and the freest admission of daylight through the most unreserved diffusion of information, through the press and by personal intercourse, will instill into the whole body of workers a feeling of healthy rivalry which, while stimulating their mental activity, will correspondingly benefit the financial interests of their employers.

I have supposed an extreme case—that the example set by our few secretive establishments is followed by all. Let me imagine a more probable issue, which I believe such a fellowship of knowledge and experience as Mr. Carnegie asks the United States Engineering Societies to cultivate by presenting us with our home in Thirtieth street, will bring about, viz., that it will come to be appreciated by all our technical manufacturers that they will gain and not lose by encouraging their technical staff to study their neighbor's methods and throwing open their establishments to the free criticism of their competitors in trade. What will result? Nothing but gain, I believe, to all whose wisdom and means have enabled them to provide themselves with the raw material of manufacture on advantageous terms and to locate their works or factories at localities favorable for economical operation. Loss only to those who in any case should go out of business because they have failed to secure the conditions essential to success. But above all, advantage to the public, which after all is the finality we should always keep in view. How can these two conditions—financial success and public approval—be best attained. Unquestionably by mutual help and the most unreserved publicity. Take any branch of industry. No intelligent worker in that branch claims that he and his staff have attained either the utmost economy in operation or thorough acquaintance with all the reactions which enter into the processes which he practices. He knows that there are hundreds of others, intelligent and well-informed, all eagerly at work on the solution of the same problem. Some may be a little cleverer than others, and some may have made a little more progress in certain lines than their co-workers. But this discrepancy will not necessarily continue, for the clever fellow is picked up by rival works, and the secret so carefully guarded leaks out, and therefore the disturbed average of paid ability and of the stock of knowledge is restored.

As I have said—with certain reservations, and by special permission—many of our larger establishments in all or certain departments are freely open to each other's technical officers; but instead of being admitted by sufferance, they should be invited in with full liberty to study processes and test machines, for assuredly the host would benefit as much as the guests from the discussion which would follow such unreserved exchange of ideas and comparisons of appliances and methods.

I have also referred to certain limitations to publicity. One undoubtedly is costs. Under our present economic system, no manufacturer or miner or metallurgist cares to give away his costs, and that for very obvious reasons. What they are may be inferred, but professional courtesy forbids direct inquiry into that delicate subject. This restriction, however, need not interfere with unstinted technical freedom of intercourse. There is, moreover, another judicious limitation to publicity. Most of our largest concerns are incorporated and financed as joint stock organizations, in which thousands of technically ignorant and helpless shareholders are interested, and unquestionably indis-

criminate admission to works and mines must be refused, for unfortunately there are visitors who, if admitted, after the visit would tell remarkable stories, from actual observation, with the view to affect the value of stocks. But such restrictions do not affect the main proposition that mercantile concerns of every class depending for success on technical knowledge and skill would gain by the removal of restraint on their technical staff.

I am not blind to the fact that the same object is sought to be attained by the consolidation of many works under one organization, or by the encouragement of friendly financial co-operation among even competing companies; but this tendency to consolidation has not yet succeeded in obliterating competition and will not as long as there are active, intelligent men in our midst who prefer to rule rather to be ruled, and to manage their own business rather than have it managed for them.

On the benefits or disadvantages of the present movement towards consolidation of works and the combination of capital in large industrial undertakings there is, and will be of course, considerable diversity of opinion. That competition is wasteful and is encumbered with other evils few will deny, that it has a keenly stimulating effect all will admit. Yet it remains to be determined whether a board of absentee managers and paid officials will be a compensating substitute for the ambitions, personal pride and tireless energy and skill of the individuals who have built up great works which they may have seen perhaps reluctantly absorbed into the combination. But one dangerous tendency will almost inevitably creep in. The larger the combination grows, the more sensitive will the management be, lest business and trade secrets be revealed by subordinate officers. The imposition therefore of strict rules of silence on all except those in supreme command is likely to result. If the absorption of any one class of our national resources should pass under the control of any one organization, the technical knowledge necessary to the development of this particular resource would be of interest to that organization alone, and the risks of publicity, and therefore the evils of secrecy, would become a merely academic question. Under our present undeveloped system this dangerous point probably will not be reached, for state socialism, to which concentration steadily approaches, would be the inevitable alternative and would be adopted before the other alternative had been attained. But it must be to the management of those enormous consolidations a grave consideration how they can give such latitude to the members of their staff as will produce that healthy self-reliance which comes from freedom of speech and freedom of opinion without endangering the tremendous financial interests for which they are responsible. But public opinion has been consulted and placated and therefore would it not be safer and better for the interests of their shareholders to adopt the policy of freedom which I have outlined? For the growing public anxiety, amounting to animosity and suspicion against our big corporations would be allayed if it was apparent that the technical officials of the small concern had at least the right of knowing what the big concern was doing, and the big official did not arrogate to himself the possession of exclusive knowledge and exclusive skill. From the point of view of public policy, the question is one well worthy of consideration, for it is coming about that not only railroads, as public highways, but all large corporations utilizing the country's natural products and converting them into necessary objects of trade, will pass under closer legislative scrut-

iny and public criticism in the future than they have in the past.

Unquestionably dangers can be foreseen as arising out of these great industrial aggregations—not only of capital but of industrial energy—dangers technical, social and political. There are also great possibilities of good. One of the benefits may justly be claimed to reside in the large funds that are available for and are devoted to technical research, and from which the public secures benefit indirectly—even when the results are not published. But if we could banish secrecy; and every industrial establishment of any magnitude, which is in its own interest carrying on technical research, should encourage its technical staff to confer freely with the members of every other technical staff, would not the sciences and are progress far more rapidly than if even one large organization should control any one industry? All

our principal metallurgical and chemical concerns have laboratories, and carry on investigations and make experiments, generally on a large working scale, and therefore is not the advancement of science and technology better attained in a number of such laboratories than if there were fewer or only one? There is keener competition of wits when many brains are working independently. The friction of honest, active rivalry is a force not to be despised. The stimulus of ambition, and the still higher stimulus of love of truth, is sure to be stronger when men are free and not impelled by purely sordid motives. The air in such laboratories is freer and purer than where men are working under the stifling atmosphere of secrecy. I believe that such consolidation of mind and high motives would carry us further and faster along the road of human progress than all the trusts could appropriate for the advancement of technical knowledge.

## WESTPHALIAN COLLIERIES

### Impressions of a two days' visit.

(By Our Special Correspondent.)

*Illustrations used with permission of the publishers of "Gluckauf."*

The amount of actual data that it is possible to collect in a two days' visit is small, but the general impressions of a cis-atlantic miner on his first visit to the Westphalian coalfield, may interest the readers of THE CANADIAN MINING JOURNAL, if only from a point of view of comparison with mining methods on this side.

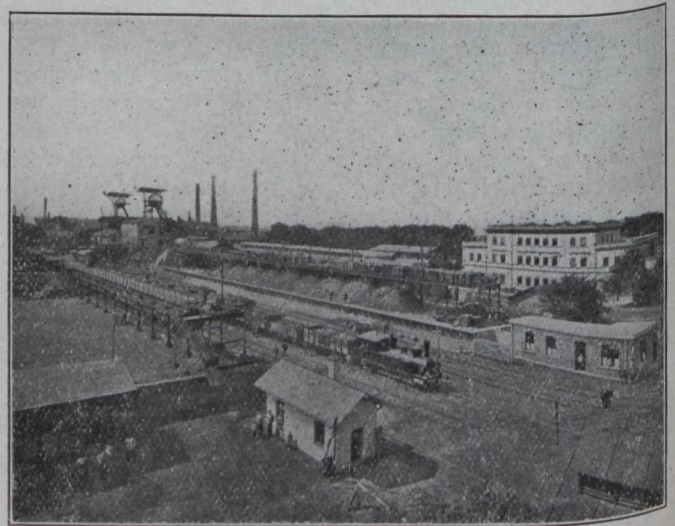
The busiest portion of the Westphalian coalfield lies within the triangle made by the cities of Düsseldorf, Cologne and Dortmund on the western shores of the Rhine. In this comparatively small section is to be found a very numerous and thriving industrial population engaged in coal mining, iron and steel making, and all the various subsidiary industries to be found in connection with these staples. The district includes the town of Bochum, with its famous Mining School, Essen, with its enormous Krupp Works, and the towns of Gelsenkirchen, Herne and Crefeld. Unlike so many coalfields, owing to the fact that the coal measures are overlaid largely by alluvial beds deposited by Father Rhine, the land is a fat one, and the farms and gardens encroach almost on to the colliery grounds. The Westphalians are a big and jovial race, and stoutly maintain that there is no country like their own, and no land where the "wine is so good, or the women so fair."

The mining industry of the Ruhr district is of comparatively modern development, its beginnings dating back only to the seventies. To-day, however, the Ruhr district supplies 60 per cent. of the total coal, which in 1906 was over 130,000,000 tons, exclusive of 56,000,000 tons of brown coal or lignite. Everywhere in Westphalia one is confronted by signs of an industrial prosperity and expansion that is almost amazing, even to one accustomed to the way they do things in Canada.

After the obvious newness and growth of the mining industry, one is impressed by the extraordinarily lavish expenditure made by the colliery companies on their surface erections and layouts generally. The word "extraordinary" is used advisedly, and the conditions must be seen to be realized. Even when one is actually on the ground one has a distinct feeling of unreality, and feels

as though the whole thing were a "fairy tale." To a person accustomed to the strictly utilitarian policy and the careful expenditure of American and English coal operators, the methods of the German coal owners are astounding, to put the case mildly.

The ability of the German collieries to make such large expenditure is largely due to the huge coal trust known as the Rhenish Westphalian Coal Syndicate,



Head Office—Rheinlbe.

which corporation absolutely controls the Ruhr market. This syndicate controls 80 companies, and in 1906 produced 76,631,431, or 90 per cent. of the total output of the Ruhr district. The policy of its directorate is to allocate at the beginning of each year to each colliery under its control a given output. It operates to the fullest possible extent such collieries as are profitable to work, and reduces the output of the less profitable collieries to a minimum, compensating them according to a fixed sliding scale rate. The operations of the trust have resulted in large profits for the syndicated col-

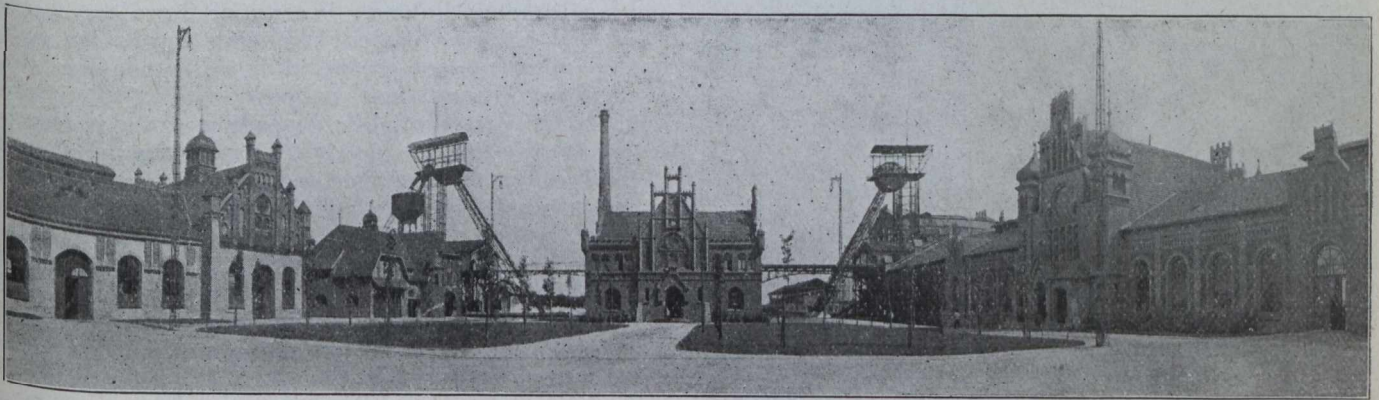
neries, and its policy is never cheese-paring where results are anticipated.

The natural conditions under which coal is mined in Westphalia are by no means so easy as obtain on this side of the water, and we should not attempt to work seams such as are very generally and profitably worked in many European mines. A large number of the German seams are steep, and the mining methods pursued necessitate a great deal of cross measure drifting, ladderways, chutes, etc., expensive features that we are not very much bothered with in this continent of big coal seams. The seams are mostly thin, and some of them exceedingly dirty and "brassy."

The generally dirty and impure conditions of German coals has caused the Germans to become pioneers in coal-washing, and their product is washed and sorted for the market with great care. In some of the collieries there the whole run of mine output goes directly from the pit mouth into the washer.

he obtains his lamp from the lamp house, and any materials or tools he requires from the store room. Then he proceeds to the shaft, never being exposed to the weather after he enters the hall. Similarly, returning from work he is not liable to catch cold in his heated condition. He goes directly to the wash house, where he speedily cleanses himself, thanks to the strong pressure of the warm shower bath. He dries himself on the benches provided for this purpose and goes out of the colliery grounds fully dressed. The workmen provide their own soap and towels, and are required to take home their pit clothes for cleansing at stated intervals. The wash house is free from any objectionable odor, and is kept very clean. A separate bathing place is provided for boys under the age of eighteen.

The left wing contains the colliery shops, and near them are the stables and the fire station, where horses and fire fighting appliances are kept in instant readiness. Behind the air shaft, which is connected with the main



View of Zollern Colliery No. 2, Showing Main Entrance.

A typical Westphalian colliery is Zollern II., one of the mines of the Gelsenkirchen Company. The illustrations accompanying are reproduced by permission of the editors of *Glückauf*, the leading mining journal in Germany, and they will convey some idea of the elaborateness of German layouts. Referring to the large photograph of Zollern II. in detail (see Fig. 1), in the centre will be noticed the general executive office, the inside of which is no less elaborate than the outside. To the right hand is the main drawing shaft, with its fine steel head-gear and the shelter roof over the pulleys. This head-gear is typical of those found all through Westphalia. The whole of the right wing is under one roof, which includes the shaft also. The wing consists of a storehouse for small materials, lamp room, "lohnhalle" or pay hall, and a wash house (waschkäue). The latter is a feature of all Westphalian collieries, and one rarely sees a dirty workman on the public streets. The lohnhalle is a lofty and roomy building, which can be heated if required. It is used as a waiting room generally, where the workmen are protected from the weather at meal times, pay days and shift changing. A door opens from this hall into the wash house. This is a huge building with concrete floor provided with runnels and grates for the waste water. The walls are tiled, and the place is well lighted. There are 75 shower baths, provided with hot and cold water, so arranged that the temperature of the shower can be adjusted to please the user. Depending from the roof are numerous cords, counter-balanced, and passing over pulleys in the roof. On coming to work the miner divests himself of his clean clothes, lets down his pit garb, which has been suspended in a current of hot air near the roof since his last shift, and hoists his clean clothes in their places. After dressing

drawing shaft by an overhead trestle of rather ornamental design, is the closet convenience, which has been adopted at all German collieries since the spread of ankylostomiasis. Thanks to sanitary measures of this kind, to the wash houses and the underground closets provided, not only is ankylostomiasis on the decrease, but other contagious diseases, such as miners' ophthalmia, are less prevalent.

The "maschinenhalle" is distinctive of Westphalian collieries, all the more important machinery of the colliery being assembled in one large building of an expensive and very often artistic design and treatment.

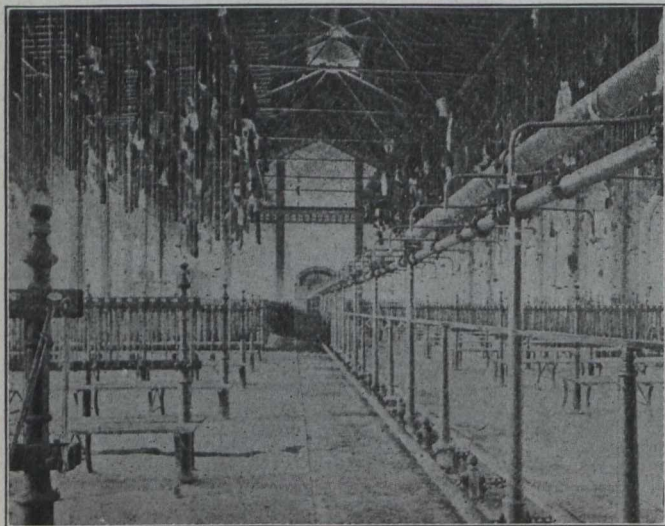
At Zollern II., the "maschinenhalle" has a floor space of 2,000 square yards, and contains the following machinery:—Three duplicate triple expansion horizontal steam engines, with direct coupled direct current dynamos. Only one of these units is in use at one time, the engines run at 90 revolutions, the flywheel is 20 feet diameter, weighing 32 tons, and the horse-power is 1,500 normal, 1,950 maximum. The generators are 500 volts, normal 1,100 and maximum 1,450 kw. The most important piece of machinery that derives its power from these generators is the winding engine, built by Siemens & Halske, for hoisting by the Koepe system. An Ilgner compensating or equalizing set is a feature of this winding installation, and it is said to obviate to a very marked extent the fluctuation in the load which is a principal objection to electric winding in deep shafts. The Ilgner machine at Zollern consists of a 300 h.p. direct current motor and a direct current dynamo, lying on either side of a massive cast steel flywheel 12 feet in diameter and weighing 40 tons, all three rotating with a common axle. The motor is fed from the main transmission and its voltage is kept constant at 500 volts. The power for

the winding motor is generated by the dynamo on the other side of the flywheel. The enormous energy stored up in the massive flywheel is used to help the engine over the peak of the load, while keeping the drain on the main transmission at an almost constant figure. It is the intention of the management to duplicate the present winding engine, and space has been reserved for this in the "maschinenhalle."

In the middle of the building are two electrically driven air compressors. Each compressor will deliver 2,300 cubic feet of air per minute at 130 revolutions.

The colliery is lighted from the main transmission by two transformers, situated near the compressors.

As may be seen from the illustrations, the building is worthy of the machinery. The floor and walls are tiled throughout, the windows are of stained glass, and everything is in keeping. The entrance to the "maschinen-



Interior of Wash House.

halle" was designed by a prominent architect, and to one accustomed to more sober methods nothing could be less like a colliery engine house than this elaborate erection. But after all, is there not some justification for the German viewpoint? When the writer expressed his astonishment at one of these "maschinenhalles" to a German engineer, this gentleman said: "What does it matter when you spend \$1,000,000 in machinery if you spend a few hundreds to make it look nice?" He said his experience had shown that the workmen respected themselves more and looked to their machinery with more zeal and care than when it was housed in poor and cheap buildings. When entering some of these buildings the writer found himself unconsciously taking off his hat.

The remainder of the Zollern layout calls for no particular mention. The fans are electrically driven, and give 210,000 cubic feet of air at 192 revolutions and 4 inch w. g. There is the usual washery, and retort oven plant with by-product recovery plant. One might mention that there is no noticeable effluvia from the sulphate houses at these recovery plants, and as may be seen from the illustrations it is possible to farm in their immediate vicinity.

The Zollern plant is designed for an output of 2,000 tons a day with a force of 2,000 men. To Canadian ideas this is a small yield per man, but it is not possible to institute an exact comparison in this respect, as our seams are so much thicker and easier to work.

The above description, though necessarily very incomplete in a general article of this kind, is typical of most of the collieries controlled by the syndicate.

Over and above the elaboration of the strictly productive part of the German colliery plants, one is impressed by the attention that is devoted to the prevention of accidents and what might be termed the humanitarianism of their policy, as evinced by the rescue stations, hospitals, etc., that one sees everywhere.

At the Shamrock colliery, Herne, we were shown over the accident room. The chief director at Shamrock is Herr G. A. Meyer, the gentlemen who led the Westphalian rescue corps at the Courrières explosion. Herr Meyer is well known in mining circles, both in his own country and in England, and has always taken a great interest in every form of life-saving apparatus. He is himself the patentee of the "Shamrock" apparatus which was used at Courrières. We were shown over the accident room by the colliery policeman, a very stout and genial person in full military uniform, who was most anxious we should understand everything, and was evidently an enthusiast in his work. The room is entirely tiled with glazed white tiles, both floor and walls, and is adequately lighted. It contains three large baths, fitted with the most modern plumbing devices for washing and spraying, and an operating and bandaging table. A small crane runs along the roof with a two-way motion, so that the stretcher depending from it can be placed in any desired position. By an arrangement of strips forming the stretcher proper an injured man can be transferred from the mine stretcher with the minimum of motion. He can then be suspended over the bath, and washed, then moved over to the bandaging table and splinted as desired, and finally deposited in the ambulance, all with the least possible jarring or movement that would be likely to cause pain to an injured man. We were told that our policeman friend was such an expert in bandaging that the doctors never or rarely found it necessary to remove his bandages on the admission of the patient.

The place was almost ostentatiously clean, everything white and shining. Cupboards along the walls contained all necessary antiseptics, elastic and other bandages, special wire splints for specific injuries, restoratives, wines and spirits, surgical instruments, etc. One felt that everything possible was provided for injured workmen, and that nothing was left undone for their comfort. The place would be a credit to any metropolitan hospital.

Our correspondent also visited the Rheinelbe collieries, at Gelsenkirchen (see illustration). This colliery is possibly more elaborate than Zollern, as it is newer. It is one of sixteen collieries belonging to the Gelsenkirchener Bergwerks Aktien Gesellschaft.

Here we saw the "feuerwacht" or fire station. This building is better equipped than the fire station of many cities. We inspected first of all the rescue station, which consisted of a room fitted with several score breathing apparatus. Along the corridor was posted up the names of the members of the corps that were detailed for duty that day, should occasion arise. Connected with this room was a practising gallery, arranged to represent as nearly as possible underground conditions, which could be filled with noxious gases, enabling men to practise the wearing of breathing apparatus under conditions as nearly as possible actual. The practising gallery is fitted with windows by which the work of those practising can be watched from the corridor.

Outside the rescue station we saw a fully equipped diver practising in a huge tank filled with water. He had three men in uniform to attend to his air supply.

Then we saw the fire station proper, and our corres-



pondent was the first person from Canada to sign the visitors' book, a circumstance that necessitated considerable drinking of healths. In the fire station office were all sorts of electric alarms, telephones, tickers and tape machines, communicating with all parts of the Rheinelbe colliery itself above and below ground, and with the town of Gelsenkirchen and the other collieries of the district. The equipment of the station comprises a fine fire engine, chemical engine, hose reels, ladder cart, etc. The stable held eight horses, two in constant readiness. The firemen are always on duty and sleep on the premises. The superintendent, a very courteous young German in full uniform, was showing us round when the alarm rang in from Gelsenkirchen, and although our presence was a hindrance, the brigade turned out in thirty-four seconds.

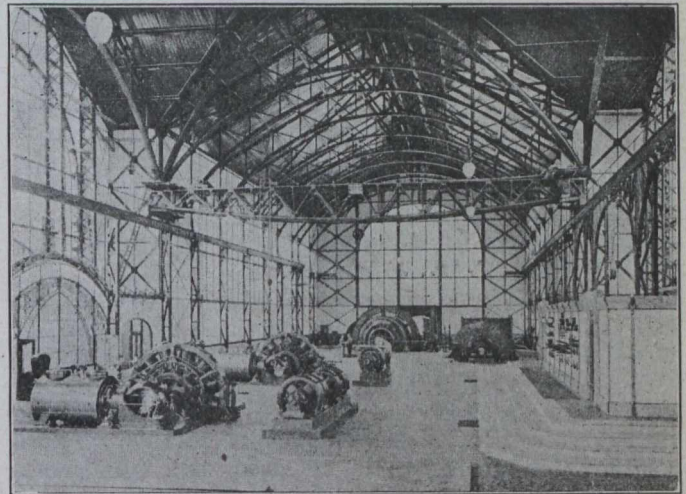
This fire department is maintained entirely by the Colliery Company itself, and is duplicated at every colliery of this particular corporation. In the case of a colliery fire or explosion the united brigades of a district turn out, as they did at the Reden explosion, where over 180 trained men equipped with breathing apparatus and various rescue appliances responded to the alarm.

The Gelsenkirchen Company are also very careful of the welfare of their workpeople. All the houses have large gardens and are well built of stone and brick. The officials' houses are three storey buildings, the equivalent of a \$30 or \$35 Canadian house rented by the month. They also have large gardens fully enclosed. The company provide also an infant school for the children of their workpeople, hospital and recreation grounds. The officials have their casino, where wines and beer are sold and billiards and other amusements provided. The average wage of the workmen employed by this company is M. 4.36 per shift, and about M. 1,300 per year. The company employs over 21,000 men, and raise annually about five and one-half million tons. With all their elaborate layouts they pay dividends of from 12 per cent. to 15 per cent.

There is no lack of amusement around the collieries, the "Theatre" and "Bierhalle" being much frequented, as are also the various mining schools and lectures. Teetotalers are unknown in Westphalia, and indeed the existence of such being is regarded there with some incredulity. How differently two nationalities may regard the same subject may be gathered from a remark overheard by the writer when seated in the official casino at Rheinelbe colliery. After clinking glasses all round with about a dozen of the officials of this colliery, and giving to each the orthodox greeting of "Prosit," we discussed the customs of our two races, and one of our guides was at much pains to explain to his compatriots that "der Herr" drank no wine in his own country, and that in Canada it was quite possible to refrain from drinking with one's friends, and "yet be respected." And this statement evoked a pitying smile all around the table. Yet can it be said that there is less drunkenness around our Canadian mines than there is in Westphalia? From what we saw there drunkenness is rare indeed. With the German to drink is a normal daily habit, and he does not indulge in abnormal excesses.

The German colliery owners are quite as ready to scrap out-of-date machinery in order to adopt newer and better devices as our friends across the line. In the matter of economics in colliery consumption in particular, their policy is progressive. At most collieries, some, if not all, of the boilers are heated by superfluous gases from the coke ovens. Latterly great attention has been devoted to electric power generated by gas engines, fed by puri-

fied waste oven gases and gas producers. At Zollern exhaust steam turbines are being used with marked economy. Recently when considering the provision of more power, it was found that there was available for the purpose of driving an exhaust steam turbine about 35,000 pounds of exhaust steam, coming from a compound fan engine with 22 inch cylinders, and two compound winding engines having 36 inch and 51 inch cylinders respectively. This exhaust now actuates a turbine connected to a 900 kw. dynamo. The result of a recent test reported in *Glückauf* gave figures as follows:—Amp. 596, volts 1,121, kw. 1,112, with an expenditure of steam per kilowatt hour of 31.6 pounds. This was of course in conjunction with a central condensing plant. Condensing plants are to be found at practically all the Westphalian collieries. With coke oven gas fired boilers and condensing plants there is very little smoke or steam around these collieries.



Interior of Power House.

Our correspondent met with every courtesy during his short visit. Although everybody was exceedingly busy, yet at every colliery someone was found who devoted his whole attention to us while we were there. It was rarely that we did not find somebody who would speak English, and the linguistic abilities of the German engineers is surprising when one considers how severe have been their studies along purely technical lines. We saw evidences everywhere of the high technical education of the mining community generally, both officials and workmen. The excellence of German technical education is, however, such an admitted fact that it is unnecessary to enlarge upon it here. A very striking feature of the collieries is their general neat and tidy appearance. They looked all of them as though the Board of Directors were expected at any time to make inspection. The workmen also were neatly and sensibly garbed, and of good physique. How much of this is due to their military training would be an interesting question. On enquiring whether the military service required of every man affected adversely the industrial situation we were answered with a smile, and assured that its effect was quite otherwise, and that much of the present industrial success of the German people is to be attributed to the habits of order and discipline inculcated by military life. Certainly discipline and order seem to be the first considerations in any German works. Perhaps, to Canadian ideas, they push these ideals too prominently into the foreground, but results have been obtained, and there are quite a few things to learn over in the Fatherland.

## ANKYLOSTOMIASIS

## "Miner's Anemia."

BY F. W. GRAY.

(Continued from August 15)

## WESTPHALIA.

Ankylostomiasis has been known to exist in the mines of Westphalia since 1886, and during the years 1892 to 1895 enquiries were being made at the instance of the German Department of Mines, but no further steps were at that time deemed necessary than the examination of foreign miners, more especially those who came from the brickfields of Gelgium, and a superficial examination of the underground employes for facial signs of anemia at the various mines by a medical officer as the men filed past on pay days. That there was no reason for alarm will be gathered from the figures following. Up to 1899 these show a steady decrease in the number of cases, but it will be noted that a very rapid rise took place in 1900:—

1898—107 cases in 16 mines, equals 6.4 per 10,000.  
 1897—113 cases in 32 mines equals 6.2 per 10,000.  
 1898—99 cases in 24 mines equals 4.9 per 10,000.  
 1899—94 cases in 27 mines equals 4.4 per 10,000.  
 1900—275 cases in 42 mines equals 11.7 per 10,000.  
 1901—1,030 cases in 65 mines equals 40.6 per 10,000.  
 1902—1,355 cases in 69 mines equals 52.9 per 10,000  
 (first 9 months only).

It is very generally admitted that the introduction by the Government in the early part of 1900 of compulsory water sprinkling in all dusty and fiery mines explains to a very large extent this sudden increase in the extent of the infection. The object of the sprinkling order was to lessen the danger of fire and dust explosions, which in the past had caused the loss of many lives, and this object was achieved. The order was very thoroughly carried out, pipes being laid all over the mines, provided at convenient distances with spraying nozzles which distributed water in the form of a fine dust. Before and after every shot the working places were sprayed most effectively, and the whole mine was filled with moisture. Some persons deny that the sprinkling order was altogether responsible for the sudden increase, but their exact coincidence is at least significant. The majority of the coal seams in Westphalia have a very high pitch, and one result of spraying was that the surplus water flowed back into the levels, carrying with it in a diluted state portions of any fecal matter with which it came into contact. Dr. Tenholt (the Chief Medical Officer of the Knappschafts-Verein), stated before the Berlin Conference of 1903 his belief that the increase in the number of cases was due to the sprinkling, which diluted and distributed the faeces and acted as a vehicle to carry the ova to every part of the mine, besides providing the moisture so necessary for the development of the larva from the egg. Further, the surplus water in many instances drained into a central sump, and was used over again for sprinkling, with the result that the eggs and larvae were distributed broadcast over the mine, thoroughly infecting it in every part.

The oversight and general responsibility for the general health of the miners of Westphalia is vested in the hands of a body known as the Knappschafts-Verein, which is a compulsory provident society under Govern-

ment supervision. It is supported by contributions from the miners and by grants from the coal operators, and has its own medical officers. At the urgent request of the coal operators, who were justly alarmed at the serious spread of the infection, this body in 1902 appointed a special Commission, who have since been actively engaged in fighting the disease. They formulated rules and inaugurated a vigorous campaign of education and prevention. The use of sump water in sprinkling was forbidden, and arrangements were made for extended medical examinations of the personnel at the infected collieries. Up to the time when the Commission took over the general direction of the measures adopted for the extirpation of the infection, the medical examinations, as before mentioned, had been made on pay days and were very superficial. Such persons as the eye of the doctor picked out as showing anemic symptoms were sent to the hospital for examination and treatment. It began, however, to be realized that this procedure was not sufficiently far-reaching, and that while the distinction between "worm-sick" and "worm-carriers" was absolutely correct from a clinical point of view, the worm-carrier, even though apparently healthy, was a focus of infection, and a menace to the health of those who worked with him. The Board of Mines at Dortmund issued an order calling upon the coal owners to arrange for a microscopical examination of the faeces of at least 20 per cent. of the underground force, and where infection was known to exist or was revealed by this partial examination the faeces of every person employed underground were to be separately examined. By this means it was hoped to obtain an exact knowledge of the extent of the infection. One of the many difficulties to be overcome was the provision of a sufficient number of examiners, as owing to the similarity between the eggs of the ankylostome and those of other intestinal worms a special training was necessary before the microscopists became expert, and it was further found that 50 slides a day was all that one man could examine, owing to the very exacting nature of the work. It is hardly necessary to enlarge on the elaborate organization and apparatus required, and the enormous amount of not over-pleasant work that this task involved, but the results obtained fully justified the undertaking. Official figures, given in "Gluckauf" in November, 1903, showed that out of a total of 188,730 men in the Dortmund district 17,161 or 9.09 per cent. were the victims of ankylostome infection, the percentage of infected men to the total employed underground ranging at different collieries from 2 per cent. to 28 per cent.

In order to afford these men proper treatment portable hospitals were provided by the Knappschafts-Verein at the various collieries. To these hospitals were sent all those men whose dejecta contained worm eggs. They were put through a course of treatment with extract of male fern, and about 97 per cent. have been discharged from the hospital as cured. Before being allowed to resume work underground these men must hold a certificate that they are worm-free, and present themselves for another examination within six weeks. In a

small percentage of the cases treated—1.5 per cent.—the extract of male fern has failed to drive out all the worms, and as further doses might endanger the health of the men they are discharged "uncured," and not being allowed to work underground must find surface employment.

Adequate closet accommodation underground is enjoined by law on all mine owners. The closets are usually iron pails, strongly made with tightly fitting lids, and often fitted with ingenious arrangements to prevent the soiling of the seat. Any man who defecates in the mine and does not use the closet provided, is, if discovered, sent to prison without the option of a fine. The pails are looked after and kept clean by men specially detailed to do this work. In the night time these men collect and load the pails on to special trucks, on which they are despatched to the surface, where the pails are emptied, washed out with hot water, and finally sterilized in a steam cylinder before being sent down below ground again. At some Westphalian collieries the management have provided water closets of a rather elaborate nature on the surface for the use of the employes before descending the mine. This commendable innovation has been found to work satisfactorily in practice, and is becoming more general.

Numerous attempts have been made to disinfect the mines by the use of such substances as lime, carbolic acid, permanganate of potash, sulphuric acid, etc., but without success. The disinfection of a mine whose various roadways total up to perhaps one hundred miles is obviously impracticable, not only on the score of the cost, but because in order to be effective the disinfectant must be applied at least daily. Further, the encapsulated larva is very difficult to kill, and can live for twenty-four hours in a 1 in 500 solution of corrosive sublimate. Those substances would effectively kill the eggs and larvae are mostly inadmissible in the confined airways of a mine on account of their corrosive nature, and their strong odor, and it being finally realized that attempts to disinfect the roadways of a mine were quite fruitless the idea was abandoned entirely, all efforts being concentrated on the prevention of the entrance of new infection.

Thanks to the severe measures adopted and the energy displayed in their promulgation, the Westphalian epidemic has now been got into very manageable limits, and will be steadily stamped out, although it will be probably several years before it can be regarded as extirpated. Probably in no other country could such drastic laws be enforced as were passed in Germany in regard to this disease. Considerable dissatisfaction was aroused among the miners, whose freedom was restricted by the necessary measures taken to limit the infection by preventing men from moving round from one colliery to another, who also suffered pecuniarily and not a little pleasant ordeal, and several hot discussions took place between the Social Democratic side of the House and the Government benches with regard to the methods of the doctors and the Knappschafts-Verein. The Government were fortunate in being able to avail themselves of the organization of the Knappschafts-Verein, on whom indeed the bulk of the work fell. The cost of each single cure averaged about 80 marks, and the Knappschaft expended something like three millions of marks. But how effective the measures were may be judged from the fact that the number of worm-carriers has been

reduced from 18,000 at the end of 1903 to 2,500 at the beginning of 1905, and it was hoped by the end of 1905 to have reduced the number to nothing. What the actual monetary loss due to the epidemic amounts to it is impossible to say, but when the loss in output of coal and in wages is added to the amount spent on hospitals, relief funds, medical equipment and sanitary arrangements, the total must necessarily be a very large one. The sum of three million marks mentioned as having been spent by the Knappschaft does not include the private outlay of the coal companies, which, in the case of some of the larger concerns, has exceeded a quarter of a million of marks.

#### BELGIUM.

Cases of ankylostomiasis were reported in 1884, and in 1885 several men were found to be infected who had worked in the St. Gothard Tunnel. From 1884 to 1898 ninety-two cases were treated in the Liege Hospital. More cases becoming known, steps were taken in 1898 by the president of the Medical Commission at Liege to determine the extent of the infection by a microscopical investigation, to decide on preventive measures and to endeavor to educate the workpeople by means of lectures and literature. The Commission immediately ran up against the fact that they had no authority to demand assistance in their work or samples of dejecta for microscopical examination, and in most cases no facilities were extended to them, either by the coal owners or the workpeople. The Commission then issued literature warning the miners against the grave results that followed unsanitary habits underground, and requested that the men should not leave their excretions in the mines, but both their warnings and requests were ignored. In spite of this lack of encouragement, however, the Commission were able to examine 15 per cent. to 20 per cent. of the underground workmen at 72 collieries. Of these collieries 49 were found to be infested and 23 immune. In some of the mines the infection was very severe, going as high as 75 per cent. of the underground force. The Belgian Government have taken practically no action, being afraid of the opposition of the miners and their Socialistic leaders. An attempt to introduce closets underground had to be abandoned in view of the determined resistance of the miners. The subject of ankylostomiasis was discussed at great length by the International Congress of Hygiene, which met at Brussels in 1903, and was attended by the most eminent medical authorities. Resolutions were adopted recommending various compulsory measures, but in view of the apathy of the mine owners and the ignorant opposition of the miners, little had been done at that time in this direction, a state of affairs in marked contrast to the strong action of the responsible authorities in the neighboring coal field of Westphalia.

At the present time, however, a much better condition exists in the Liege Basin, due almost altogether to the labors of the "Dispensaire du Mineurs," an organization that was created in 1903, and, largely under the direction of Dr. Malvoz, has steadily fought ankylostomiasis with gratifying results. The object of the dispensaries was first of all to protect the miner against ankylostomiasis, and for this purpose to educate him and his family in hygienic principles, to assist those who were sick, and to improve the sanitary conditions of the mines. The following table will give some idea of the work undertaken and accomplished by Dr. Malvoz and his colleagues in the last four years.

	1903	1904	1905	1906	Total
Ankylostomiasis treated in the dispensaries.	210	806	1,324	1,573	3,903
Microscopical examinations of dejecta . .	1,570	10,840	21,088	22,188	55,706

The number of "worm-carriers" has also fallen from 27 per cent. in 1902 to 9 per cent. at the end of December, 1906, and it is thought that at the present time not more than 5 per cent. of the underground workers in the Liege Basin are infected.

No man, who under microscopical examination of his faeces was found to be a worm-carrier, was allowed to descend the pit until he had undergone successful treatment, and had been proved by at least three microscopical examinations spread over a certain period to be "worm-free." As in Westphalia, it was found necessary to remove from the mines all worm-carriers, who, although they might be in apparently good health, were yet disseminators of infection.

It is interesting to note that these microscopical examinations have proved that miners are particularly affected by intestinal worms, as not only ankylostome eggs, but the ova of oxyuris, ascaris, taenia and other intestinal parasites are found in great variety.

#### FRANCE.

In the French coal fields the disease has not assumed the aggravated form that it has taken in Westphalia and the Liege Basin, but it has probably been existent in a mild form for a long time. The peculiar anemia which manifested itself in 1802 at the Anzin mines is described in a monograph by Manouvriez, and there can be very little doubt from the exact correspondence of the symptoms that this anemia was due to ankylostomiasis. The rapid extension of the disease in the neighboring countries alarmed the French authorities, and in 1902 an official enquiry was instituted under the direction of Dr. Calmette. The work was divided into two sections, the first comprising the coal fields of the north and Pas-de-Calais, and the second the coal fields in the Loire Basin. At the beginning of 1905 sixty mines had been examined in the first named district, at thirty-two of which infected men were found. The proportion of worm-carriers was 1.8 per cent., 10 per cent. being exceeded in three mines only. The results of the enquiry in the Basin of the Loire are not as yet published, but the infection is more general than in the first district, the mines of which are comparatively cold and dry.

The labors of the two Commissions have met with ready assistance from the coal operators, and it is not probable the infection will be allowed to spread any further; the authorities being fully alive to the gravity of the situation.

(To be Continued)

*The Industrial Advocate* develops a suggestion made by Mr. A. A. Hayward regarding Government help in exploiting the gold mines of Nova Scotia. The Government's offer of a cash subsidy to encourage the sinking of deep shafts has not had the desired effect. Mr. Hayward has come forward with the proposal that the Government subsidize, not shaft-sinking, but cross-cutting. The idea is particularly applicable to the gold deposits of Nova Scotia. The Local Government may well give it more than "serious consideration."

## THE MISCHIEF OF IT.

(LONDON LETTER)

To those engaged in the exploitation of Ontario's mineralized areas, the feeling of London is a matter of concern. Not that the aloofness of the city is irremediable. Not that Throgmorton and Lombard streets are irreconcilable, because of opportunities missed by default. Not that money is unavailable for meritorious ventures. To the contrary, there are funds awaiting supplicants, but in all my experience I have never observed so much indifference; and the cause is attributable to those who erred in their estimates of the extent of public credulity and receptivity.

London is a singular combination of recklessness and reserve. It has paid for its experience at the uttermost ends of the universe when it would have been more profitable to speculate within the colonial circle. Vast sums have been squandered, more have netted returns up to expectations, the reserves of to-day are very great indeed, underwriting and overwriting are as easy of accomplishment as ever; but mining is at a discount. Canada will have to dress its exhibits differently. Instead of printed pictures in the form of script, it is incumbent on all those engaged in developing Northern Ontario fields, to offer something more substantial than hypothetical prospectuses.

It may be somewhat immaterial that existing misconceptions arise out of studied misrepresentations said to emanate from those who would create a bargain counter period for Cobalt properites. This, with ill-advised and unwarranted attempts at promotion, undoubtedly has engendered distrust. None the less has it become urgently necessary for scientific men and technical journals to admonish Toronto miners and embryonic millionaires as to the folly of cheapening their projects, discrediting them in fact, by peddling paper at "job lot prices." Where there is proof of ore reserves or substantial prospects, capital can be provided, and it is the absence of this and the species of rough riding resorted to that causes financiers of the world's metropolis to prefer railroad and government issues, and very often industrial enterprises more risky than mining. Debentures carrying 4½ per cent. and offered at 93 or 94 are regarded with suspicion, while the same at 97 or 98 are absorbed with complacent avidity. Cobalt shares at a premium would require less formal introduction than if they were tendered away below parity, hence you have to reckon with those who malign your mining country and those who choose to discredit what already is discredited by its "clearance sales" prices.

A time will come when London will not be quite so skeptical. How soon will depend upon those who cater for the best buyers, not merely for those who seek a gamble. Unfortunately the fomenting of doubt has placed power in the hands of London journals identified with bucket-shops or worse, and this is a sample of the weekly paragraph of palpable purpose:

"Larder Central Gold Fields.—R. P. E. (Birmingham).—We thank you for the advertisement cutting of this Canadian wild cat from the Birmingham *Daily Mail*. We hope none of our readers will be induced to send money to Messrs. — 'Fiscal Agents—Bank, Toronto.'"

In all directions other than mining Canada's credit is gilt-edged. Cobalt's credit can be equally so—if.

ALEX. GRAY.

# THE GENESIS OF THE COPPER DEPOSITS OF YERINGTON, NEVADA.

BY E. P. JENNINGS, Salt Lake City, Utah.

(Toronto Meeting, 1907.)

The Yerington Copper Deposits in Lyon County, Nevada, 40 miles southeast of the famous Comstock Lode, present many interesting features, both from commercial and geological viewpoints.

The Mason Valley Mountains, in which the mines are located, are a small north-south range about 25 miles long and 3 to 6 miles wide, with a maximum elevation of 6,500 feet above sea level and 2,000 feet above the valley of the Walker River.

The core of this range is intrusive granite, exposed in the higher peaks and in the deeper canyons where the erosion has been greatest, but covered by metamorphosed sedimentary strata on both the eastern and western slopes. Late rhyolite flows occur along the eastern base of the mountain.

The intrusive granite is a coarse-grained mixture of feldspar, quartz, hornblende and biotite, becoming porphyritic in structure near the contacts.

Resting on this granite are beds of rock several hundred feet in thickness composed of the lime-alumina garnet, grossularite, graduating into andralite by the partial replacement of the alumina and lime by iron.

A partial analysis gave the following results:—

SiO <sub>2</sub> .....	36.2
Fe <sub>2</sub> O <sub>3</sub> .....	27.2
Al <sub>2</sub> O <sub>3</sub> .....	12.7
CaO .....	22.7
MgO .....	.4

This rock varies in texture from a compact mass to a coarse crystalline aggregate of a cinnamon-brown color.

Thick beds of white to gray crystalline limestones cover portions of the garnet rock, but their original area has been greatly reduced by erosion.

An extensive series of metamorphic rocks also occur, whose greatest development is on the west side of the range, where they have a nearly vertical dip and a thickness of 3,000 feet. This series is unconformable with the garnet and limestone on the western slope and separated from them by a fault which has dropped this later series into its present position. These rocks are not as well developed on the eastern side and their relation to the garnet-lime series is obscure.

In composition they range from silicified limes to microscopic aggregates of tremolite, lime-silicates and biotite, and probably were lime shales and slates originally.

The eastern foot hills are covered by late flows of rhyolite that have no connection with the ore deposition.

The structure is complicated by a system of folding and faulting older than the granite intrusion, also by faulting after the mineralization. The effects of this faulting will be considered later.

Copper ore occurs in the garnet rock as an impregnation throughout portions of its mass and as richer concentrations in fractures and shear zones; also as bedded veins in the marbled limestones.

The effect of the folding and fracturing of the strata previous to the granite intrusion has been to localize, in a degree, the deposition of the ore in the garnet rock along these fracture zones, giving the deposits the ap-

pearance of fissure veins filled with chalcopyrite disseminated in a garnet or garnet-epidote gangue, which has a laminated structure parallel to the boundaries of the fractured zone.

On either side of these fissures the garnet rock is more or less impregnated with chalcopyrite, but separated in some cases by a narrow rib of barren epidote 2 to 3 feet thick.

The lower boundary of the ore is the granite, as shown in the Bluestone Mine on the eastern side of the range, where the contact is well exposed; chalcopyrite in a garnet-epidote gangue resting directly on the barren intrusive rock.

The marbled limestone, which, in places covers the garnet rock, contains bedded veins filled with oxidized copper ore in a quartz and calcite gangue.

At water level, which in one case occurs at a depth of 600 feet, pyrite and chalcopyrite begin to appear, replacing the oxidized ore.

The mines have not been sufficiently developed to show the relation of the ore in the limestone with the ore of the garnet shear zones, but that there is some connection is very probable.

The original minerals of the ore deposits are chalcopyrite and pyrite which have been oxidized and partly leached, forming in the upper enrichment zone, malachite, azurite and chrysocolla, and covellite as a coating, or chalcopyrite in the upper sulphide zone. Bornite and chalcocite occur as secondary sulphides in a few instances.

These ore occurrences can be classed as contact-metamorphic deposits, but differing from the ordinary type in which the ore occurs as irregular masses near the contact; this difference being due to the pre-existing fissures which confined the ore-bearing waters in channels of great vertical extent; aside from these local concentrations the garnet is impregnated with a low grade copper ore.

Where the fissures were more open they were filled by the molten magma, forming dikes of granite-porphyry.

As mentioned before, the mine developments are not of sufficient extent to connect the limestone ore bodies with those contained in the garnet, but it is difficult to avoid the conclusion that in depth the two classes of ore bodies will connect, forming a continuous lode, whose lower boundary is the granite and with its apex in the limestone.

If this view is confirmed by later work, the deposits will be of great interest as illustrating the genesis of ore bodies due to the action of intrusive rock masses, the magmatic waters of which have mineralized certain pre-existing fissures, and, together with the heat derived from the molten magma, have converted certain sedimentary beds into garnet rock containing more or less disseminated ore and other beds, in a higher horizon, into marble, and also filling fractures parallel to the bedding of this marbled limestone with copper ore.

It is not possible at the present time to determine how much of the rock metamorphism is due to the heating effects of the intrusive and how much to the introduc-

tion of new compounds by the waters of the molten magma, but we can assume that the ore is due to these waters and that the rock metamorphism was largely caused by the action of heat, supplemented by the chemical action of the water, as the garnet is more or less impregnated with ore, showing its permeability to these solutions which undoubtedly contained other mineralizers that contributed to the formation of the garnet.

The limestones, which occur at a higher horizon, have probably been altered by the action of heat alone, as they contain no ore, except in the fissures.

The district is being developed rapidly; one mine having a million tons of ore in sight, and in two years' time it is expected to become a copper producer on a large scale.

### THE BRITISH EIGHT-HOUR "BILL"

I.—(1) Subject to the provisions of this Act a workman shall not be below ground in a mine for the purpose of his work and of going to and from his work, or be allowed to be below ground for that purpose, for more than the time fixed by this section during any consecutive twenty-four hours.

(2) The time fixed by this section is, during the period beginning on the commencement of this Act and ending on the thirtieth day of June, nineteen hundred and nine, nine hours, and thereafter eight hours.

(3) No contravention of the foregoing provisions shall be deemed to take place:—(a) In the case of a workman working in a shift, if the period between the times at which the first workman in the shift leaves the surface and the first workman in the shift returns to the surface, and the period between the times at which the last workman in the shift leaves the surface and the last workman in the shift returns to the surface, do not exceed the time fixed by this section; or (b) in the case of any workman who is below ground for the purpose of rendering assistance in the event of accident, or for meeting any danger, or for dealing with any emergency or exceptional work which requires to be dealt with without interruption in order to avoid serious interference with ordinary work in the mine.

(4) The owner, agent, or manager of every mine shall fix for each shift of workmen in the mine the time at which the lowering of the men to the mine is to commence and to be completed, and the time at which the raising of the men from the mine is to commence and to be completed, in such a manner that every workman shall have the opportunity of returning to the surface without contravention of the foregoing provisions of this section, and shall post at the pit head a conspicuous notice of the times so fixed, and shall make all arrangements necessary for the observance of those times in lowering and raising the men.

(5) The interval between the times fixed for the commencement and for the completion of the lowering and raising of each shift of workmen to and from the mine shall be such time not exceeding the time reasonably required for the purpose, as may be approved by the inspector.

(6) A repairing shift of workmen may, notwithstanding the provisions of this section, for the purpose of avoiding work on Sunday, commence their period of work on Saturday before twenty-four hours have elapsed since the commencement of their last period of work, so long as at least eight hours have elapsed since the termination thereof.

(7) For the purpose of this Act, the expression "workman" means any person employed in a mine

below ground, who is not an official of the mine or a furnace-man, onsetter, horsekeeper, or pumpman; and any body of workmen whose hours for beginning and terminating work in the mine are approximately the same shall be deemed to be a shift of workmen.

II.—(1) The owner, agent, or manager of every mine shall appoint persons to direct at the pit head the lowering and raising of men to and from the mine, and shall cause a register to be kept in the form prescribed by the Secretary of State, and containing the particulars prescribed by him with respect to the times at which men are lowered into and raised from the mine, and the cases in which any man is below ground for more than the time fixed by this Act, and the cause thereof.

(2) The workmen in a mine may, at their own cost, appoint and station one or more persons, whether holding the office of checkweigher or not, to be at the pit head at all times when workmen are to be lowered or raised, for the purpose of observing the times of lowering and raising, and the provisions of the Coal Mines Regulation Acts, 1887 to 1905, relating to the checkweigher, and to the relations of the owner, agent, or manager of the mine to the checkweigher, shall, so far as applicable, apply to any person so appointed as they apply to the checkweigher, with the substitution, as respects appointment, of the workmen in the mine for the persons who under those Acts are entitled to appoint a checkweigher.

(3) If any person makes a false entry in the register which is to be kept under this section, or causes or permits any such false entry to be made, he shall be liable on summary conviction in respect of each offence to a fine not exceeding five pounds.

III.—(1) The time fixed by this Act as the time during which the workmen in a mine may be below ground for the purpose of their work and of going to and from their work may be extended as respects any mine by the owner, agent, or manager of the mine, on not more than sixty days in any calendar year by not more than one hour a day, and on any day on which an extension of time is made in accordance with this section as respects any mine, the time as so extended shall be substituted for the purposes of this Act as respects that mine for the time as fixed by this Act.

(2) The owner, agent, or manager of every mine shall cause a register to be kept in such manner as the Secretary of State may direct of the cases in which any extension of time has been given under this section, and the register shall be open to inspection by the inspector.

IV. His Majesty may, in the event of war or of imminent national danger or great emergency, or in the event of any grave economic disturbance due to the demand for coal exceeding the supply available at the time, by Order in Council suspend the operation of this Act to such extent and for such period as may be named in the Order, either as respects all coal mines or any class of coal mines.

V. In the application of this Act to mines which are entered otherwise than by a shaft, and to workmen who are not lowered to or raised from the mine by means of machinery, the admission of men to the mine shall be substituted for the lowering of men to the mine, and the return of men from the mine shall be substituted for the raising of men from the mine, and such times as may be determined by the owner, agent, or manager of the mine, with the approval of the inspector, as the times properly corresponding to the times fixed for the commencement and completion of the lowering

and raising of workmen to and from the mine, shall be substituted for the times so fixed.

VI.—(1) If any person contravenes or fails to comply with or permits any person to contravene or fail to comply with any provision of this Act for which a special penalty is not provided, he shall be guilty of an offence against this Act, and in the event of such contravention or non-compliance by any person whomsoever, the owner, agent, or manager of the mine shall each be guilty of an offence under this Act. Provided that:—(a) In the event of any such contravention or non-compliance on the part of a workman, the owner, agent, or manager of the mine shall not be guilty of an offence if he proves that he has taken all reasonable means to prevent the contravention or non-compliance; and (b) a workman shall not be guilty of an offence under this Act in the case of any failure to return to the surface within the time limited by this Act if he proves that without default on his part he was prevented from returning to the surface owing to means not being available for the purpose.

(2) A person guilty of an offence under this Act shall in respect of each offence be liable, on summary conviction, if he is the owner, agent, or manager of the mine, to a fine not exceeding two pounds, and in any other case to a fine not exceeding ten shillings.

(3) If a workman is below ground for a longer period during any consecutive twenty-four hours than the time fixed by this Act he shall be deemed to have been below ground in contravention of this Act unless the contrary is proved.

VII.—(1) This Act shall, except where the contrary intention appears, apply to all mines to which the Coal Mines Regulation Acts, 1887 to 1905, apply.

(2) This Act shall come into operation on the first day of January, nineteen hundred and eight.

(3) This Act may be cited as the Coal Mines Regulation Act, 1907, and shall be construed as one with the Coal Mines Regulation Acts, 1887 to 1905, and this Act and those Acts may be cited together as the Coal Mines Regulation Acts, 1887 to 1907.

## NEW DEPARTMENT OF MINES.

Dr. Haanel's appointment to the Directorship.

BY H. MORTIMER-LAMB.

Brief reference was recently made in these columns to the Act of Parliament creating a Federal Department of Mines, under the direction of the Hon. Wm. Templeman as Minister, a gentleman who is keenly alive to the requirements of the industry. The establishment of this department, the need of which had for some years past been repeatedly brought to the attention of Government, is a matter for much congratulation, and the satisfaction generally expressed that the step has at length been taken is not less enthusiastic by reason of the fact that the actual administrative and executive work of the Department has been entrusted to men of exceptional ability and experience.

The qualities that eminently entitled Mr. A. P. Low to his appointment to the head of the Survey will serve him in equal stead in the performance of his new and more responsible duties as Deputy Minister. In this work, however, he will have the advantage of the strong support of a gentleman who for the past six years has not only made a special study of the development of methods for promoting the interests of mining in the Dominion, but during his tenure of office as Dominion Superintendent of Mines has already, by the economic value of the reports issued under his instruction and the importance of the research work in electro-metallurgy which he has inaugurated, done great service for the mineral industry of Canada. We refer, of course, to Dr. Eugene Haanel, whose appointment to the Directorship of Mines we chronicled recently.

Dr. Haanel was born in Breslau, the capital of Silesia, Germany, on May 24th, 1841, in which centre he received his early education, graduating from the Gymnasium, in the classical course in 1858. Shortly afterwards he paid his first visit to the United States. He saw service in the Civil War, of which he was a veteran, and after was elected to the Chair of Modern Languages in Adrian College at Adrian, Michigan. Subsequently he taught modern languages and philosophy at Hillsdale College.

In 1867, Dr. Haanel was elected Professor of Natural Sciences in Albion College. During his residence at this institution, a period of four years, he labored with characteristic energy and zeal for the improvement of his department of the University, with the result that before he left it had become the largest and most adequately equipped of the institution. While at Albion he received the degree of Master of Arts from Ohio University.

At the close of his fourth year at Albion Dr. Haanel finding his health very much impaired from over work returned to Germany, where he graduated from Breslau University as Doctor of Philosophy, with the degree "magna cum laude" in the following subjects: Geology, Mineralogy, Chemistry and Physics.

Immediately upon the completion of his university course, Dr. Haanel returned to America and joined the staff of Victoria University, Cobourg, Ontario, as Professor of Natural Sciences, and lecturing for the first six years on the subjects of Geology, Mineralogy, Chemistry and Physics, after which on the appointment of one of his students, Dr. A. P. Coleman, to the Chair of Geology in Victoria University, he confined his attention to Mineralogy and Physics only. Later he was appointed Dean of the Science Department and Director of Faraday Hall, the first Science Hall in Canada, the erection of which was carried on under Dr. Haanel's supervision and direction.

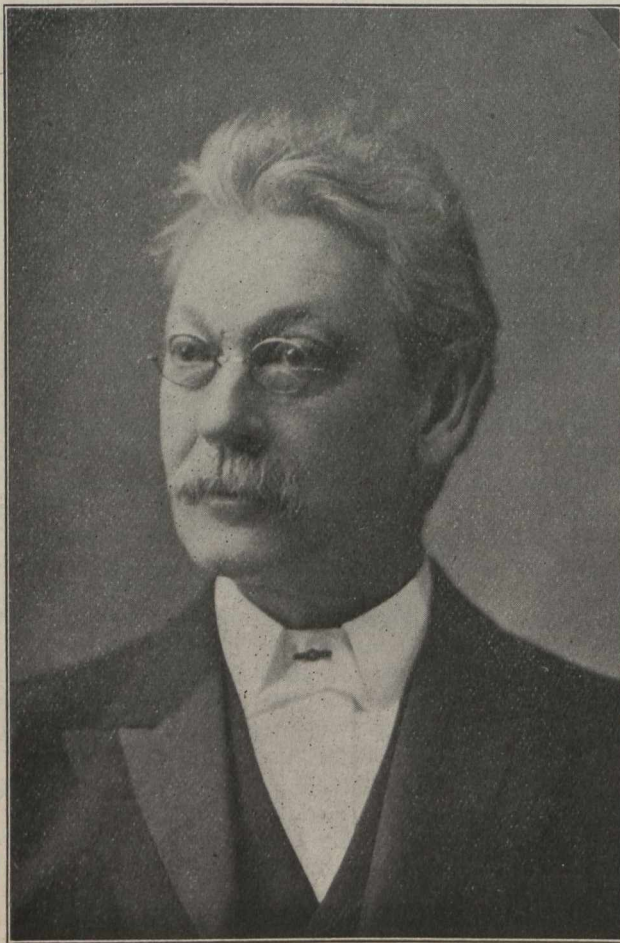
During the term of his professorship at Victoria University, Dr. Haanel found time to undertake some original research work in connection with blowpipe analysis, his results being printed in a series of papers entitled, "Hydriodic Acid as a Blow Pipe Reagent and Gypsum Tablets as a Support Superior to Charcoal," and published in the Transactions of the Royal Society of Canada, of which he was a charter member.

In 1888 Dr. Haanel was invited to accept the Chair of Physics in Syracuse University, and upon the removal of Victoria University to Toronto, accepted the

invitation in preference to a Professorship at Toronto University proffered at the same time. When he assumed his duties at this University, however, he found the equipment of the Department very inadequate, but ultimately with his aid it came to rank in this respect with the best provided institutions in the country.

In 1901 Dr. Haanel resigned his Professorship to accept the appointment of Superintendent of Mines for Canada, offered him by the Hon. Clifford Sifton, then Minister of the Interior, and also, by the way, a former student under Dr. Haanel.

Few men have won such regard and esteem from their associates as has the new Director of Mines. Thus on the subject of his Canadian appointment, the Syra-



Dr. Eugene Haanel.

cuse *Post-Standard* remarks in a leading article: "In choosing a scientist as Superintendent of Mines of the Dominion of Canada, no man more worthy from past record and present ability could have been selected. . . . In a tribute paid Dr. Haanel upon the conclusion of fourteen years of service as a Professor in Victoria University some years ago it was said that probably no other person had done so much to give science its due importance in the university education of Canada as this man. He entered Syracuse University twelve years ago when the Department of Physics was small and poorly equipped; he will leave the University in possession of one of the finest and most complete departments that can be found in any educational institution in the country." And the Chancellor of the University wrote: "I congratulate you and I congratulate the Government of Canada upon securing a man so eminent among scholars, so thoroughly filled with science and dominated by its genius and, who . . .

adds to his scientific knowledge, acquaintance with mechanical arts and with affairs, an acquisition indispensable to the important office to which you have been appointed."

Upon coming to Canada Dr. Haanel proceeded at once to initiate a work of importance. The Klondike excitement was then in full swing and our energetic neighbors to the south were putting forth every effort to secure the bulk of the trade resulting therefrom. And they were succeeding largely by reason of the fact that there was a United States assay office at Seattle, where without any difficulty or trouble the miner might take his gold and convert it into currency without being heavily mulcted in charges. Hence the Superintendent of Mines established a Government Assay Office in Vancouver, and also arranged with the provincial authorities for like facilities at the capital, and in consequence the stream of gold was considerably diverted into Canadian channels.

His next important work was the production of the monograph "On the Location and Examination of Magnetic Ore Deposits by Magneto-metric Measurements." This method of locating magnetic ore bodies has been most successfully adopted in Sweden and it should prove of extraordinary value and utility in this country where the conditions are not dissimilar. We understand, meanwhile, that the instruments will be largely used for determining the extent of ore bodies by the engineers to whom has been entrusted the task of reporting for the Department on the iron resources of the Dominion.

Possibly, however, Dr. Haanel's greatest achievement from an economic standpoint is the work resulting from his investigations of the application of electro-thermic processes for the smelting of iron ores and steel as applied to conditions existing in Canada. In 1903 he was appointed Chairman of a Commission which went to Europe to enquire into the different processes in use there. A full and most valuable report giving the result of these investigations was published the following year and attracted widespread interest and attention, while later the Government authorized the setting up of an experimental plant at Sault Ste. Marie, where a series of very successful tests was carried out under the direction of Dr. Haanel in the autumn and winter of 1906, the results being published in the report recently issued. The future will determine the commercial potentialities of electric smelting in Canada, but in the opinion of many competent to express an opinion it will ultimately revolutionize existing methods and be the means of turning to profitable account the large iron resources of Ontario and Central Canada, which are now to all intents and purposes lying idle.

Among other important publications issued from the Superintendent of Mines' office may be mentioned, a report on "The Mining Conditions in the Yukon Territory" (1902); a report on the "Shales and Clays of Manitoba," and "Monographs on Mica and Asbestos," and the valuable report of the commission last year on zinc in British Columbia.

The programme for this year's work in connection with the new Department of Mines is of a very comprehensive nature and will include a Monograph on Canadian Graphite, a report on the Peat Industry of Europe with a view to affording information to Canadian producers; a report on Iron Occurrences in Eastern Canada, and last, but not least, a manual of general information covering the field of mining endeavor in the Dominion and containing a directory of mining companies operating properties, descriptions of mining



and metallurgical plants and statistics of production and other useful data.

Dr. Haanel is a member of the following institutions: Physical Society, Canadian Royal Society, Canadian Mining Institute, Faraday Society, and North of England Institute of Mining and Mechanical Engineers.

It may be safely said, in conclusion, that under the direction of such men as Mr. A. P. Low and Dr. Haanel, the new Mines Department will speedily become of the greatest possible value to the industry. Since the Act passed there has ceased to be a danger, at one time imminent, of the duplication of effort arising from two departments of the Civil Service under dis-

associated heads engaging in duties of a very similar nature and practically working to the same end. Meanwhile the office of the Mines' Department has been moved to the Thistle Building in Ottawa, pending the completion of the new Government buildings in which permanent quarters will be established. The original plans for this building were drawn by Dr. Haanel, but subsequently changed by the architect to conform with other requirements, such as space for the museum and National Picture Gallery. It is proposed nevertheless to devote ample room in the building for laboratory purposes, and suitable equipment is also to be provided for carrying on metallurgical tests and experiments on a considerable scale.

## THE MINING AND METALLURGICAL LABORATORY

School of Mining, Kingston, Ontario.

G. J. MCKAY.

The School of Mining is a College of Applied Science and is affiliated with Queen's University, which confers the degrees on the graduates. Courses are given in Mining, Civil, Electrical, Mechanical and Sanitary Engineering, and in Geology, Minerology and Chemistry. Each course covers a period of four sessions.

milling and concentrating machinery is of the most approved pattern. A complete assay and chemical laboratory occupies part of the building, and is used in connection with the mill work only. Fourth year students in Mining and Metallurgy receive their practical training here.



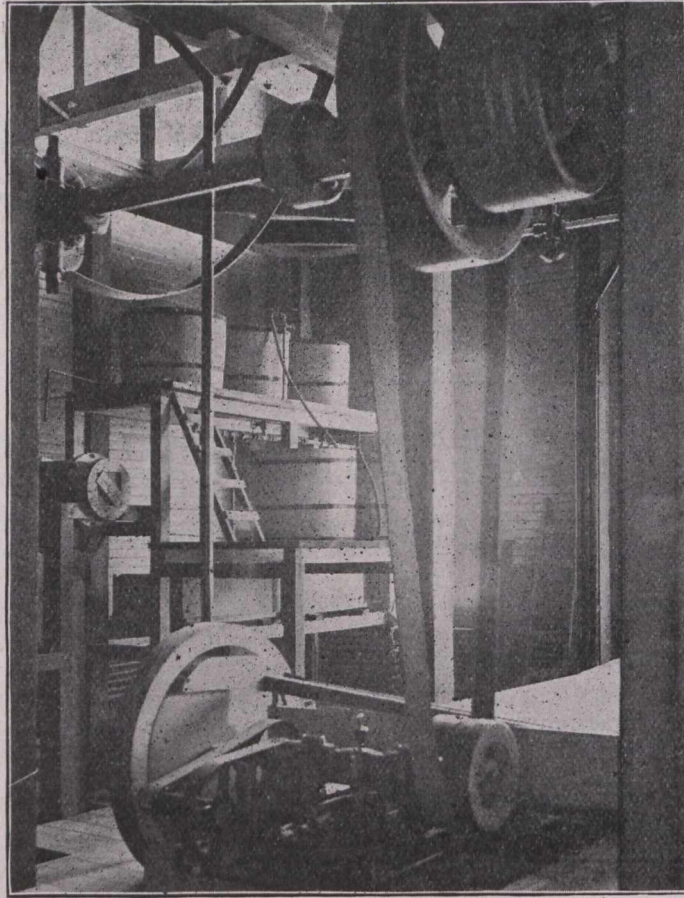
Mining Laboratory, Kingston School of Mining.

The oldest and best developed course in the School is that in Mining and Metallurgy. This department is under the direction of Prof. J. C. Gwillim, M.E., and Prof. S. F. Kirkpatrick, M.Sc., both graduate of McGill University, and men of wide experience in their respective departments.

The part of the School that is of most interest to mining men is the Mining and Metallurgy Laboratory. Visitors are surprised to see the amount of machinery and apparatus that is in use in this building. The

They are given practice in the treatment of gold and silver ores by stamp milling and amalgamation, cyaniding and chlorination; and the concentration of ores by the jig, the Frue Vanner, the Wilfley table, the slime table, and the magnetic separator.

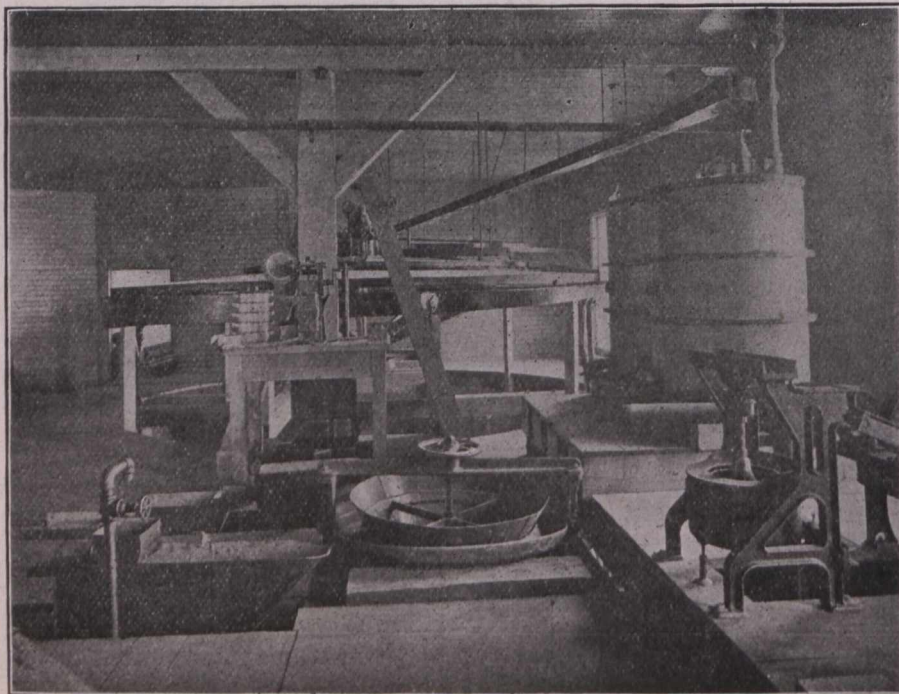
During each session, up to the Christmas vacation, the work is confined to the treatment of gold and silver ores. The whole of each Friday and the morning of each Saturday are given up to this work entirely. Crushing, sizing, sampling and assaying are first practiced.



Wilfley Table and Cyanide Plant—Mining Laboratory.

A Blake crusher, a pair of rolls, a Krupp ball mill, a tube mill and a cone grinder are used for crushing and pulverizing the ores. Then mill runs are made on quantities of ore of a ton or more, and saving is made by amalgamation and by concentration of tailings on the

Wilfley table, the tailings being caught and the slimes settled in spitzkasten and slime boxes. The concentrates are treated by different processes to find the best method of recovering the values, and the tailings and slimes are treated by chlorination or cyaniding. All this work is



Classifiers and Slime Table—Mining Laboratory.

checked by assays, and thorough laboratory cyaniding and chlorination tests always precede the treatment of tailings and slimes.

The plant for the gold and silver runs consists of a five stamp battery of 850 pound stamps, with mortar and apron amalgamation plates, a Wilfley table, a Frue Vanner, a Spitzkasten, slime boxes, a silver amalgamation pan and settler, and a complete cyaniding outfit. During last session two mill runs of Larder Lake ore were made, and a ton of refractory Temagami ore was treated.

The work during the last half of the session is confined to the concentration of different kinds of ore on the jigs, Wilfley table, Frue Vanner, etc. Last session quartz-copper ores, zinc-lead ores and magnetic iron ores were experimented with. Assays were made to find what size and what method of treatment gave the best results in each case. For large runs, besides the concentrates already mentioned, a Colorado Iron Works classifier, an Evans jig and a Hartz jig are used.

In the Metallurgical department complete analyses of smelting ores are made, charges are calculated, and small furnace runs are put through. For this purpose there is a small blast furnace and two reverberatory furnaces.

A steam engine is employed to operate the heavier machinery, while the lighter are driven by electric motors. Power is obtained from the central heating and lighting plant of the University.

As there is no customs ore testing plant in the Province capable of handling large quantities, it was decided to keep the laboratory open throughout the summer. It was believed that this would fill a long-felt want in Eastern Canada. The work is under the direction of Prof. S. F. Kirkpatrick, and a graduate of the School has been engaged as assistant.

The following classes of work are undertaken: Stamp mill amalgamation, followed by concentration; preliminary cyanide tests of small quantities of ore, concentrates, and tailings; complete cyanide reports on the availability of that process for treating the product; concentration tests by one or more methods on lead and copper ores; crushing and sampling large quantities of ore to insure accurate sample for assay; complete analyses and reports on the smelting qualities of ores, etc.

Persons contemplating erecting a plant to handle any kind of ore might find it profitable to have preliminary tests made at such a laboratory in order to know what kind of treatment was best suited to their ore. Owners of gold properties would receive more definite and satisfactory information from the treatment and actual bullion returns of a ton or more of their ore than they could obtain from any number of assays.

### OBITUARY

The death occurred at Halifax on the 28th ultimo, of Mr. T. R. Gue, president of the Acadia Power Company, and of the Dominion Electrical Works. Mr. Gue was a native of the State of New York, but came to Canada some thirty years ago and was appointed secretary of the Hamilton Powder Company in Montreal. He has resided in Halifax for the past eight years. Mr. Gue had a wide circle of friends and acquaintances in the Province of Quebec and in the Maritime Provinces, and he was universally liked and respected. He was one of the oldest members of the Canadian Mining Institute.

### PLATINUM IN NEW ZEALAND

In view of the falling off in the supply of platinum from Russia, the chief source of production, and the steadily increasing demand for the metal, the report, recorded in Bulletin No. 1 of the New Zealand Geological Survey, that platinum has been discovered in the Hokitika district of that colony, is of possible economic interest. Further, the manner in which the mineral occurs, in quartz veins close to the Pounamu belt of magnesian eruptive rocks, is of considerable scientific interest, as apart from the fact that platinum is not frequently found *in situ*, when found in its native zones in New Zealand it usually occurs actually in the magnesian eruptive rocks.

The only recorded occurrence of platinum in New Zealand was observed by Mr. T. A. Pond (*Trans. New Zealand Inst.*, 1882), who stated that gold, silver, platinum and iridium was found in quartz obtained from a depth of from 540 to 600 feet in the Queen of Beauty shaft at Thames, Eew Zealand.

Platinum has been found in the present instance in the two veins where in the most important of which the white semi-vitreous platiniferous quartz occurs in lenticular seams intercalated with the country rock, which consist of a dark shaley phyllite. Assays of two samples of this quartz yielded the follows results:

- 1—Platinum, 3 dwts., 8 grs.; ag., 1 oz., 4 dwts., 9 grs.
- 2—Platinum, 1 dwt., 2 grs.; ag., 7 dwts., 13 grs.

In the second locality the platinum occurs in a bedded quartz vein, which attains a maximum width of about a foot, and is enclosed in banded schists. The vein contains a small proportion of pyrite and chalcopyrite.

The physical condition of the metals in the above samples has not yet been determined, but it is to be noted that in each case the silver accompanies the platinum in the ratio of 7 to 1, suggesting a combination of the two metals.

Platinum has been found in place in Canada, but except in the case of the Sudbury sperrylite, and which in limited quantities is recovered and marketed as a by-product from the nickel-copper ores, the deposits containing the mineral have not been turned to commercial account. At another locality in Ontario, near Wabigoon, Rainy River, platinum was reported to have been found two or three years ago in some of the eruptive rocks there.

In British Columbia, from the Similkameen, sent for analysis to Messrs. Baker & Company, of Newark, N.J., returned very satisfactory platinum values, although it is understood the Provincial Assayer of British Columbia failed to obtain results. Prof. Kemp, however, found traces of platinum in the granite, more or less decomposed, on Siwash Creek, a tributary of the Tula-meen. From the evidence, it seems clear that platinum is not confined to the basic eruptions. This is pointed out by Dr. C. W. Dickson, who has especially investigated the subject.

In this issue our representative in the West summarizes the car shortage situation. Allusion is made to the failure of the C. P. R. to live up to its promises. Our correspondents' facts are incontrovertible. We are glad to be able to publish the clear, straightforward statement of an actual observer. Upon the various phases of fuel transportation in the West we shall have more to say presently.

### TINSTONE IN NORTHERN NIGERIA

In the last number of the Bulletin of the Imperial Institute a brief description appears of the alluvial tinstone deposits of Northern Nigeria. The deposits occur in the south-west part of the province of Bauchi, near the river Delime, which flows north-east towards Lake Tchad. The tin-bearing alluvium, as far as is known, is restricted to the plateaux of Tilde, Rukuba, Jos and Ngell. The rocks of the Tilde and Rukuba plateaux consist of soft felspathic gneisses which are often garnetiferous, and are cut by veins of muscovite-pegmatite. Dykes of basalt and dolerite are also of frequent occurrence. The rock composing the plateaux of Jos and Ngell is a reddish biotite-granite, passing into a quartz-porphery on the margin.

Although tinstone has hitherto been found only in the gravels, lumps of tinstone, more or less angular in shape and having a granitic matrix, have been discovered in the neighborhood of Jos. This has led to the supposition that the tinstone is probably disseminated in the red granites, with lodes in the neighborhood of the coarse material.

The tinstone is very irregularly distributed in the gravel, the yield in adjoining pits varying from 10 lbs. or less, up to 100 lbs. per ton. Metallic tin is frequently found in small quantities in the sands and gravels of the river Delime. It probably represents material smelted by the natives and subsequently thrown into the gravel with rejected slags.

The "black tin" obtained by washing the gravels is seldom pure tinstone. A separation made by an electromagnet gave the following results:

Ilmenite, garnet, about 20 per cent.

Monazite, about 5 per cent.

Tinstone with some zircon, rutile, quartz, about 74 per cent.

The Niger Company in 1905 applied for mining licenses in certain selected areas with a staff of four Europeans, and some 200 native laborers, and large stores, offices and native houses constantly employed; they are now steadily progressing. The fuel used is entirely wood charcoal.

### BOOK REVIEWS

The Copper Mines of the World, by Walter Harvey Weed, illustrated, New York and London, Hill Publishing Company, 1907, pp. 375, 9 inches by 6 inches. Price \$4.00 postpaid.

In this volume the author has carefully and thoroughly, presented a bird's eye view of the salient features of the geology of the principal copper deposits of the world, and has then added descriptions of the principal copper mines of the world. A series of maps gives a clear idea of the actual location of each of the more important copper districts in the old and new worlds. The mineralogy and geology of copper are discussed in separate chapters in a manner succinct and satisfactory. Cross-sections and plans of leading mines in Europe, Africa, Australia and America, illustrate successive chapters. The book is most evidently the result of a very large amount of discriminating labor and careful editing. The volume is a much needed addition to the literature of copper.

The Mineral Industry—its statistics, technology, and trade during 1906—edited by Walter Renton Ingalls, volume XV. Hill Publishing Company, 505 Pearl street, New York, pp. 954, 9 inches by 6 inches.

The annual volume of "The Mineral Industry" is

too well known to require any introduction to the mining public. Summarizing as it does the whole growth and condition of mineral production in the United States, its value as a work of reference cannot be over-estimated. The contributors to the volume are men of the highest rank. Each important mineral and metal is dealt with by a specialist. The world's mineral production is tabulated. Most interesting of all the sections is that on the progress in ore dressing and coal washing in 1906. Robert H. Richards and Charles E. Locke are responsible for this contribution. As a resume of the latest developments in these two important subjects it is invaluable. It contains among other subjects a digest of ball and tube mill practice. No mining man should neglect securing one of these volumes. It is most obviously a necessity.

The Canadian Annual Review of Public Affairs, 1906, by J. Castell Hopkins, The Annual Review Publishing Company, Toronto, Ont., pp. 659, 8½ inches by 6 inches.

In thirty-two pages of this bulky volume the progress and conditions of mining in Canada during 1906 are traced. In all the Review is a well designed record of Canadian public growth. It is clearly printed and fully illustrated.

Public Roads, Their Improvement and Maintenance, by E. R. Buckley, Ph.D., Director and State Geologist, Missouri Bureau of Geology and Mines.

The subject of good public and private roads is one of prime importance to the Canadian mine-operator. In many districts corduroy roads are the only highways available for the transportation of heavy freight to isolated mines. Every bad road implies loss of energy and waste of material, time and money. There is crying need of road improvement in New Ontario. In Nova Scotia lack of cheap transportation has closed down or prevented the development of a number of otherwise workable mines. This official publication is a practical and exhaustive treatment of the subject and will make good reading for our road-makers.

Dredging for Gold in California, by D'Arcy Weatherbe. First edition. The Mining and Scientific Press, San Francisco, 1907, pp. 217, 8½ inches by 6 inches, 106 illustrations. Price \$4.00.

Introductorily the author acknowledges the suggestions and help of many writers, operators and others, who have put material at his disposal. Owing to Mr. Weatherbe's absence in South America, Mr. T. A. Rickard edited the book. The result is a clear, attractive and creditable volume.

In arrangement a logical sequence is followed. The order of subjects is: 1st, Prospecting dredging ground. 2nd, Dredging machines. 3rd, Operation. 4th, The metallurgy of dredging. 5th, Costs. 6th, The horticultural question. 7th, General. The volume closes with a series of contributions and discussions by J. H. Curle, G. L. Holmes, T. A. Rickard and C. W. Purington.

The subject of gold dredging is one which is daily growing in importance. In the Yukon and British Columbia and in the new provinces large fields await the pioneer. Mr. Weatherbe's book is thus timely. Moreover the average mining man is singularly ignorant of both the possibilities and limitations of this branch of gold winning. The volume should prove a source of help to operators and a very valuable addition to every mining engineer's library.

Senator Jaffray and other members of the Board of the Crow's Nest Pass Coal Company, left Toronto towards the close of July on a visit of inspection of the company's collieries at Fernie, B.C.

## EXCHANGES

The Mining Journal, August 3, continues its series of papers on "The Systematic Treatment of Metalliferous Waste."

The Iron and Coal Trades Review, August 9, opens with a paper on "The methods adopted in the Hungarian Government steel works for avoiding piping in steel ingots." Interesting data are given as to the use of Thermit.

In the Mining World, August 17, Woolsey McA. Johnson describes the Kelly mine, New Mexico, and treatment of its ores. The zinc carbonates of this camp carry only one-tenth of one per cent, sulphur, and no silicate of zinc. The silica in the carbonate is combined

The Engineering and Mining Journal, August 17, opens with, "The Nomenclature of Modern Placer Mining," by J. P. Hutchins. The Briton Ferry Works of the Cape Copper Company, South Wales, is described in another article by Edward Walker. It is here that

An illustrated article on "Pioche, Nevada," appears in the Mining and Scientific Press, August 10. Pioche, a mining camp of Eastern Nevada, flourished and prospered in the early seventies. It fell upon evil days after 1875. Now it is to be connected with the rest of world by railroad. Large bodies of low grade ore, commercially valueless under the conditions of thirty years ago, will be opened up.

the Tilt Cove ores are smelted.

The Journal of the Chemical, Metallurgical and Mining Society of South Africa, June, has a practical and suggestive paper on "The Utilization of Waste Heat in Slimes Settlement," by A. Salkinson. By the use of exhaust steam and pump, Mr. Salkinson effected a increase of capacity of 20 per cent. in his cyanide plant and brought his extraction up from 91.192 per cent. to 92.887 per cent.

Economic Geology for June begins with "Concentration of Gold in the Klondike," by J. B. Tyrrell. Referring to the quantity of rock washed down by eroding and transporting agencies, Mr. Tyrrell computes the time necessary for the removal of 900 feet of surface, as approximately 3,600,000 years. "A thickness of 900 feet over an area of 800 square miles would equal a mass of 136 cubic miles or 1,600,000,000,000 tons of rock. This is therefore the quantity of rock that was removed by denudation, and from which 10,000,000 ounces of gold was washed and concentrated into the Klondike placers, and it represents an average gold content of 0.003 grains or 0.013 cents to the ton of the original rock in place. It is thus seen that the Klondike district owes its phenomenally rich placers not to the wearing down of highly mineralized gold-bearing veins or lodes, but rather to the favorable conditions of long continued and uninterrupted concentration from a great mass of rock that contained only very minute quantities of gold."

The second article in Economic Geology for June is entitled, "On the Microstructure of Nickeliferous Pyrrhotites." The authors are Prof. W. Campbell, of Columbia, and Mr. C. W. Knight, assistant geologist of Ontario. In this metallographic examination of nickel ores from widely separated localities, many points of similarity were found. Pyrrhotite, pentlandite and chalcopyrite were found to compose the ore, having a sequence of origin in the above order. The two last named sulphides are closely associated and have a habit in common. All of the ore bodies are associated with basic eruptives. The writers do not favor the theory of magmatic segregation.

Three excellent papers are contained in Mines and

Minerals for August. "Notes on Hydraulic Mining," with special reference to the Cariboo District, B.C., and Yukon Territory. In the course of the paper the impression that the Cariboo working season is limited to a few months is corrected. Actual washing operations are carried on for about 200 days each year. Prof. F. W. Traphagen writes on "The Treatment of Zinc Ores." He notes that the use of oil concentration has not been applied on a commercial scale in the State of Colorado. Briefly the ore is roasted with some coal admixed, zinc is reduced, volatilized, again oxidized and together with the lead sulphate formed at the same time, carried to the bag-house. The cinder from the "roasters," ore from various sources, limestones for flux and the necessary fuel, are smelted in a low-column blast furnace operating with a hot top.

"Colliery Warnings" is the title of a leading article in the Colliery Guardian, August 9. The writer carefully sums up various opinions regarding the relation of barometric movements to colliery disasters. He advises the adoption of a system of warnings of the approach of cyclonic disturbances, which are known to travel in a definite path and with a definite velocity. "Forewarned of the probable track of one of these atmospheric eddies, collieries lying in or near its path would be in a position to adopt precautionary measures." It is mentioned that both England and America make very little use of the aid of the modern science of weather forecasts, despite the general admission by mining engineers that atmospheric influences are certainly capable of setting up in a mine a state of things, which, even if it does not produce an explosion, is favorable to the establishment of critical conditions.

## PERSONAL AND GENERAL

Mr. Gallagher, of the Hamilton Power Company, at present convalescing in Tadoussac, Que., will soon return to his post. He is already much improved in health.

Mr. Hugo Kellegren, of Clarkson, Wash., one of the directors of the Washington, Idaho & Oregon Reduction Co., controlling the patents in Montana, Washington and Idaho, for a new method of ore reduction, is visiting Rossland and inspecting the smelting works of the district.

At a periodical clean-up of one of the dredges operating in the Yukon the following strange collection of articles was found in the sluice box: Two Russian bronze icons; eight American pennies; 100 pounds of unexploded cartridges; 120 pounds of nails; an alarm clock; a saw set; two Masonic charms; an opal scarf pin; knives, forks, keys, locks, native bismuth, cassiterites, stanites, magnetic octohedrons, bushels of black sand and several nuggets worth over \$10 each. The last item caused some surprise, as it had been generally supposed that the gold in this particular basin was of fine quality.

The manufacture of Portland cement is becoming a very important industry in the Province of Alberta, where the demand considerably exceeds the supply. In consequence the capacity of existing plants is being largely increased, while other factories are in course of erection. One of the largest of these is a new factory at Exshaw, which, it is said, will be the most completely equipped plant in America; while the supply of raw material in the vicinity is practically inexhaustible.

Mr. J. A. Whittier, manager of the Goodenough mines, Sandon, B.C., has returned home after wintering in California.

Mr. J. E. McAllister, general manager of the B. C. Copper Co. has returned to Greenwood from a visit to Eastern Canada.

Mr. A. P. Low, Deputy Minister of Mines, left Ottawa on the 8th inst. for the West, where he will visit the several mining districts of Alberta and British Columbia.

Mr. E. Brydon-Jack, until recently professor of civil engineering at Dalhousie University, Halifax, N.S., has accepted the chair of Civil Engineering at the University of Manitoba, Winnipeg.

Some important new discoveries of coal are reported to have been made in the Eagle Lake district of Alberta, and the Provincial Inspector, Mr. Frank B. Smith, is now engaged in making an examination of the area.

Mr. R. W. Brock, after reporting on the Larder Lake District for the Ontario Government, has returned to British Columbia to continue work for the Geological Survey of Canada in the Lardeau and Rossland districts.

In a recent interview, Mr. M. M. Johnson, chief engineer of the Dominion Copper Co., is reported to have stated that the best average costs at the Boundary Falls plant for a month's run was \$1.51. This is higher than other averages in the district, but Mr. Johnson stated that Dominion costs are by no means yet down to a minimum.

Mr. G. L. Holmes, of San Francisco, contributes an interesting letter which appears in the *Engineering and Mining Journal* of August 10th, on the subject of "Platinum in the Yukon." The writer suggests that the reported discovery of platinum bearing sands on the Hootalingna river, should be received with the utmost caution, since the investigations carried out by himself and another mining engineer in 1900 in the locality mentioned, proved practically resultless. The company Mr. Roberts represented held a lease on a tract 80 to 85 miles above the mouth of the river, and prospecting was carried on at every bar for about ten miles below the last camp. The samples obtained all contained traces of gold, but none of them showed platinum. The greatest amount of black sand found in any one place was about half an ounce in twenty pounds of original gravel, which would signify that at least 300 lbs. of gravel would be required to yield 15 oz. of black sand. This last statement is made to controvert the report that 15 oz. of black sand from 200 lbs. of gravel had yielded 0.7 grams of platinum.

It is satisfactory to note that immediate steps are to be taken for the establishment of a mining engineering college, to be in large measure associated with McGill University. Thus at a recent meeting at Vancouver of members of the Royal Institution for the Advancement of Learning, it was announced that a lease for a site had been obtained from the Government and that a building would be erected thereon to cost in the neighborhood of \$100,000. Already endowments have been provided for four chairs, namely a Chair of Mining and Chemistry by the Hon. James Dunsmuir, Lieutenant-Governor of British Columbia; a Chair of Civil Engineering endowed by Mr. A. C. Flumerfelt, a director of the Granby and of the International Coal Companies; a Chair of Pure and Applied Mathematics, endowed by Mr. F. Carter-Cotton, editor of the *Vancouver News-Advertiser*, and a Chair of Modern Languages, endowed by McGill University graduates resident in British Columbia. A summer school for instruction in the field is also to be established in one of the mining districts of the province.

Mr. S. S. Raymond, general manager of the Britannia Smelting Co., Crofton, B.C., is visiting the Coast on a tour of inspection.

Mr. R. H. Stewart, manager of the War Eagle and Centre Star mines at Rossland, B.C., is spending a month's holiday in Ottawa.

Mr. A. B. W. Hodges, local manager of the Granby Consolidated M. & S. Co., has been spending a brief holiday at Hayden Lake.

Mr. T. R. Weeks, for three years Messrs. Guggenheims' mining engineer, recently inspected the Hanson Consolidated silver mines at Cobalt.

Mr. Montague Davys, a resident in the Kootenays of nineteen years' standing, where also he has large mining interests, is leaving Nelson shortly to reside in England.

Mr. H. Mortimer-Lamb, secretary of the Canadian Mining Institute, left Montreal on the 20th inst., for the west, where he expects to spend six weeks visiting the mining sections of Alberta and British Columbia.

For the fiscal year ending June 30th, Kootenay lead production, on which, subject to conditions, a bounty is paid by the Dominion Government, was 23,754 tons, the lowest in four years. Of this total, 18,494 tons were consigned to Europe and American and the balance to the Orient. The most important producing mine was the St. Eugene, which contributed 14,719 to the year's yield.

According to a report furnished the American Iron and Steel Association by manufacturers, Canada's production of pig iron during the first six months of 1907 was 270,100 tons, a slight decrease as compared with the return for the corresponding period of 1906. With the operation of other plants now completed it is reasonable to expect that ere the close of the year the deficiency shall have been more than made good. On June the 30th, there were ten furnaces in the Dominion in blast, while four were idle for the time being.

In a recent report the United States vice-consul at Dawson refers to the change now taking place in mining methods in the Yukon, and more especially in the vicinity of Dawson, where dredging is entirely replacing the work of individual miners. This has, of course, had the effect of not only depopulating the creeks but has also hit tradesmen and merchants in the town somewhat severely, since the demand for supplies and provisions by miners has been considerably curtailed. On the other hand the change in conditions has and is proving beneficial to the small mine holder who has now the opportunity of selling at a fair price a property which would scarcely pay to work by the old methods of wood fire or steam thawing. It has, moreover, created activity in the staking of unoccupied ground which heretofore was not considered workable.

The output of copper from the Boundary District for the half year ending June 30th, is though relatively satisfactory, disappointing as compared with the 1906 figures. Thus during this period the two refineries in the United States to which the product is consigned, received in round figures fourteen million pounds, as compared with nearly eighteen million pounds for the first six months of 1906. The decrease of course is merely temporary, due largely to a shortage of railway cars and of coke for the smelters. Once these drawbacks are removed the output of the Boundary mines should continue to show a large increase, as it is proposed to enlarge the smelter at Grand Forks, while the Dominion Copper Co. is arranging to install converters and other wise increase the capacity of its smelting plant at Boundary Falls.

Mr. J. T. Hillis, managing director of the Hidden Creek Mining Co., operating properties near Port Simpson, B.C., is now residing in Vancouver, where offices have been established.

Mr. Stanley N. Graham, Superintendent of Mina El Favor, Jalisco, Mexico, is visiting Canada for a few weeks. Mr. Graham reports the El Favor as showing up high silver values.

Mr. D. A. McAulay, late assistant chief engineer of the Western Canadian Collieries Company, Blairmore, B.C., has been appointed chief engineer of the North Atlantic Collieries, Port Morien, Cape Breton.

The Hon. Robert Drummond returned from his trip over the water, and arrived in Sydney on the 12th August, where he will appear as a witness for the Coal Company in *Steel v. Coal*.

Mr. J. W. Frank, a mining engineer of Reno, Nevada, has recently returned from a visit to the oil fields on the Athabasca river in the interests of the British-American Oil Company, of Seattle. Mr. Frank speaks very enthusiastically of the potentialities of this field, and also refers to the occurrence of asphaltum in great quantity, which he believes may under more favorable conditions than at present existing be turned to commercial account.

Gold dredging on the Saskatchewan river has heretofore not been attended with any notable success; but apparently another attempt is to be made on a larger scale, and a dredge having a daily capacity of from 2,500 to 3,999 cu. yds. a day is being installed at Mud Creek by the Northey Dredging Company to operate over a distance of fifteen miles of river bed covered by the company's leases. It is stated that it is also hoped to recover platinum, of which there are fair prospects.

According to a tabulated statement published by the *Mining Reporter* (Denver), the mines of the United States and Canada paid the sum of \$17,767,788 during July. The largest individual dividend was that of the U. S. Steel Corporation which is credited with a distribution of over two and half millions, while the Anaconda Copper Co. follows next with a dividend payment of two million, one hundred thousand dollars. So far as Canada is concerned we note that our contemporary's returns are by no means complete.

An interesting drilling contest took place recently at Rossland between the members of the assaying and surveying staffs of the Centre Star mine. It is reported that great damages was done to the rock by both teams. However, the assayers managed to hit the head of the drill oftenest and won the match with a record of eight and five-eighth inches.

Mr. Shirley Davidson, who together with Miss Eileen Hingston, was drowned in the St. Lawrence at Varennes on the 3rd of August, was very well known around the collieries at Glace Bay. Mr. Davidson came to Cape Breton as electrical engineer for the Dominion Iron & Steel Co., and later he went with the Dominion Coal Co., as assistant engineer. He left the coal company in 1905 and at the time of his death was practising as a contracting engineer in partnership with Mr. P. von Aueberg, late the coal company's construction engineer. As far as the circumstances attending the accident can be surmised there can be little doubt that Mr. Davidson lost his life in the attempt to save Miss Hingston. Those who knew Shirley Davidson say this was just the sort of thing that he would do, and he will not soon be forgotten by his friends at Glace Bay and Sydney.

Mr. T. J. Smith, President of the Diamond Vale Coal Mines Limited, who is at present visiting Montreal, stated in the course of an interview, that in his opinion it will scarcely be possible, even with increased development, for the coal mines in the west to keep pace with the great and growing demand for fuel required for railway and smelter purposes in Alberta and British Columbia. A determined effort, notwithstanding, is being made to meet this demand, and in nearly every case the mines in a position to ship have increased their working forces. The Diamond Vale mines are situated in the Nicola district, to which a branch line of the C. P. R. has just been constructed. This will afford a market for the Nicola coal not only in the Kootenays, but at the Coast. It is interesting to note, according to Mr. Smith's statement, that heretofore coal used for blacksmithing purposes in British Columbia has been brought all the way from Cape Breton at a cost of \$18.50 a ton; but it is thought that this will no longer be necessary, since the Nicola coal is said to be quite suitable.

## CORRESPONDENCE

To the Editor, CANADIAN MINING JOURNAL.

Allow me to welcome THE CANADIAN MINING JOURNAL as an unexpected but powerful ally, and to thank you for the summary, in 15th July number of the discovery of the Klondike.

I have worked on this matter for eight years, or since hearing in 1899 Henderson's story of the discovery. I was then editor of *The Yukon Sun*, and believed, as now, that a Canadian should get credit for his work.

Of the many articles written by me for Ontario papers, nearly all have been returned with the intimation that the subject was not of interest now—not as interesting as Mrs. Jones' garden party, and what the guests wore.

Most of these papers prefer to copy (because they are cheap) the sensational lies concocted in Seattle, as news from Dawson "Alaska." When a Yukoner attempts to correct them they suppress his letter. Because of Carmac's residence in that city, the Seattle papers have made a determined effort to establish his claim to the title of discoverer.

To settle the matter for all time, I have during some years past secured letters from all the Commissioners (Governors) of the Yukon, and from the leading pioneers (from the latter affidavits) all giving Robert Henderson, of Pictou, Nova Scotia, the full credit.

These gentlemen are: Wm. Ogilvie, Hon. Jas. H. Ross, Fred. T. Congdon, W. W. B. McInnes; also from acting Commissioners Major Z. T. Wood and J. T. Lithgow, and from Dr. Alfred Thompson, M.P. for the Yukon.

The affidavits are from leading pioneers like Thos. W. Kirkpatrick, Thos. W. O'Brien, Alexander McDonald (King of the Klondike), Al. Day, Jas. McNamee, Wm. Lloyd, M. F. Thompson, Abram H. Anderson, Carlo Tilley, and others.

Mr. Wm. Ogilvie, a pioneer of 1887, 1905, etc., and by far the best authority on early Yukon history, writes me:—

"1st. Robert Henderson discovered gold on the Indian River fully a year before Carmac was on the Klondike in any way as a miner.

"2nd. Henderson discovered gold in the Klondike basin months before Carmac.

"3rd. It was through information and advice given him by Henderson that Carmac thought of visiting the Klondike as a miner.

"4th. To the above facts I have as my authority the narrative of both men, given me personally."

Carmac was invited by Henderson to leave his salmon fishing and Indian wife at Dawson, come up and stake on his new find on Hunker Gold-Bottom Creek. When Carmac was leaving, after staking, Henderson straightly charged him to test the gravel on Rabbit Creek (now Bonanza), and if he found anything, to send one of his Indian companions back, and Henderson would pay him (the Indian).

Carmac stumbled on the richest part of the Indian River—Klondike gold fields—already pretty well mapped out by Henderson's work and discoveries in both basins of the district, but his base ingratitude prevented Henderson from securing a rich claim as a reward for his years of solitary, dangerous and thankless work.

Henderson's reward for his pluck, tenacity and endurance, and for being instrumental in adding \$150,000,000 in gold to the world's supply, as well as giving Canada a world-wide advertisement, was as follows:—

1. He received a ghastly and almost fatal wound in his leg while prospecting all alone on the upper waters of the Indian River in 1895.

2. He was for a time deprived of the credit for the discovery of the Klondike because he did not become wealthy, while Carmac, without forethought or labor, did.

3. He was deprived of the credit of naming Hunker Creek, which he discovered and staked before Hunker saw it. Henderson's name of "Gold Bottom" still persists on its branch.

4. He was refused by the proper Government official the record of two discovery claims justly due him. He was allowed to stake one claim out of five properly applied for. The Department of the Interior, six years later, admitted the wrong.

5. He was refused, while still weak from a surgical operation on his injured leg, the ordinary courtesy of a proper extension of time, in which to represent his claim on Hunker, and had to sacrifice this rich claim for a song, or lose it altogether.

6. He was put off with excuses ("mislaidd book") in applying for a renewal for his Quartz Creek claim, until it lapsed and was lost to him.

7. He was, many years later, granted in compensation, the worthless right of staking four claims (2,000 feet) on any unoccupied Government ground, but when he found anything of that kind worth staking, he was always met with the statement that it was already applied for (in some cases for compensation).

8. By the financial aid of the writer he was sent to Ottawa to press his just claim, but had no show there. The Hon. Jas. H. Ross kindly secured him a temporary appointment on the mining staff in Yukon. The Department of the Interior saw to it that he receives, next to the charwomen, about the lowest Government salary in Dawson.

9. His valuable services have been freely availed of by the Government, and for two years past he has accompanied geologists on their trips up Pelly River, where Henderson believes there are rich placer gold diggings to be found.

When I took up the matter for Henderson through Lord Minto in 1900-01, the Department of the Interior

attempted to turn me down. How they succeeded will best be known by reading this extract of a letter from the said Department to the Hon. Jas. H. Ross, Commissioner of the Yukon, in May, 1902, after a full investigation of the matter:—

"The regulations in force for the year 1896 provided that no miner should receive a grant of more than one mining claim in the same locality, and that it was not until January, 1898, that provision was made in the regulations that the miner should receive a grant of only one claim in the same district, the boundaries of which were to be defined by the mining recorder.

"As the creeks upon which Mr. Henderson claims to have staked could scarce be considered as being in the same locality within the meaning of the regulations, and as the regulations at that time did not provide for the formation of mining districts, it has been decided that Mr. Henderson should be granted consideration in accord with the regulations in force at the time he staked and recorded.

"Please advise this Department of the consideration you think should be granted to Mr. Henderson for the loss alleged to have been sustained by him."

But that is about as far as the compensation has gone. And that is the usual manner in which brave, generous, indomitable and far-seeing pioneers like Robert Henderson, of Pictou, Nova Scotia, are treated by their fellows and by paternal Governments alike.

I shall be pleased to write you a brief account of his work in discovering the Klondike if you wish it.

Yours,

HENRY J. WOODSIDE.

Ottawa, Ont., Aug. 6th, 1907.

The Editor, The Canadian Mining Journal :

Sir,—I have read your "Suggestion" in the number of August 1st, regarding the advisability of uniting the offices of Secretary and Treasurer.

It seems to me that the objection to this is that people would say there was no check on the officer holding the dual office. So far as I am personally concerned, my opinion is that anything which increases the salary of the Secretary is advisable, because upon him and him solely, depends the extension of and stimulation in the Institute between sessions. An institute of this kind, which is active at only a limited period of the year, soon becomes forgotten unless a man of strong character, magnetism, ability and energy, like Dr. Raymond, of New York, stamps it with his own character. Undoubtedly the American Institute of Mining Engineers depends for its activity and prominence more upon Dr. Raymond than on all other influences combined.

A man understanding mining and the interests of mining, and of the character above mentioned, should be the Secretary; and, if necessary to make it an object, the Treasurer as well, although it seems to me that the Institute should pay a liberal salary to its Secretary, independent of the duties of Treasurer.

Without doubt, the mining interests of Canada are increasing so rapidly, and becoming so extensive, that a flourishing and powerful Mining Institute should exist. I do not know Mr. Lamb very well, but I fancy he is a man of ability, and is well fitted for the office he holds, and I for one, although a member who has not been active during



the past eight years, shall always be in favor of making the consideration sufficient to recompense him for all possible expenditure of time and money, and make it an object for him to be exceedingly active.

Yours very truly,

FRANK C. LORING.

To the Editor, The Canadian Mining Journal :

Dear Sir,—It is no doubt a matter of personal opinion as to how far your editorial of August 1st, entitled "Another Suggestion," was written in the spirit of fault-finding. When I first read it I certainly did not recognize any touch of personal criticism. The Canadian Mining Institute is young and its opportunities are growing very rapidly; no matter how efficient its individual officials may be its general plan of operations may well be open to criticism, and I for one would welcome your editorial as being timely and valuable even if it might be open to somewhat harsh interpretation.

There can be no question whatever about the Institute requiring the whole services and time of one man as Secretary, and in saying this I am making no criticism of the present Secretary, for whom I have a very warm personal regard. If the Institute cannot afford to command one man's whole time except by combining the two salaries of the Secretary and the Treasurer, I certainly think it goes without saying that the two offices should be held by one man. The only argument I can foresee against this is the personal argument as a result of the appreciation of Mr. Stevenson Brown's many years of valued work; but I am not discussing personalities, I would deal with this in the abstract. I would consider the Secretary by far the most important official of the Institute, more important than the President himself, for it is considered essential that the various widely separated mining centres of the Province be in turn represented in the official chair. The Secretary should belong to no centre, and consequently should act for all, and being more or less permanent in his position he can initiate and carry out plans and improvements requiring several years for their fulfilments. The present Secretary has been so intimately associated with the mining industry in Canada for so many years and in so many different parts that he is specially able to take a large general view. Everything that can be done to quicken his enthusiasm and strengthen his hand should most certainly be done.

You have touched upon a point of vital importance when you speak of doubling the membership within twelve months. It would be quite possible to double the membership and kill the usefulness of the Institute. This question of membership is one upon which I feel very strongly and it is one which requires perfectly plain, candid, outspoken discussion. There are two distinct types of institutions connected with engineering enterprise. The one is the select technical, the other the open, almost commercial, institution. The first is represented by the Institution of Civil Engineers and the Institution of Mining and Metallurgy. Members of these Institutions are all technical men of experience and good standing. They have a sealed certificate of membership which is practically a diploma and which to a large extent is a guarantee of good standing. Of

the other class the Institution of Mining Engineers and the American Institute of Mining Engineers are typical examples; almost anybody can obtain membership in these. It is an open question which of these types is the more valuable, but there is no question whatsoever of the very great value of the American Institute. The Canadian Mining Institute is neither one thing nor the other; it imitates the English idea of the ultra-select technical association by giving a large, red-sealed certificate of membership, on the other hand it has admitted almost anybody and everybody into membership. It is time that the Institute came out definitely and plainly in regard to this point. A move was made in this direction at the last general meeting by the amendment of the by-laws, arranging for Associate Members. This seems to me to be a rather hesitating attempt towards making this a select society based on the English pattern. I do not think this suits the present conditions. I am most certainly in favor of an open society, similar to a large extent to the American Institute, but though I am in favor of a more open membership I would draw a very hard, well-defined line as to who should not be members. Those interested in mining can be divided into two classes. Those seeking to make money out of the ground and those seeking to make money out of the public, and there is a very great gulf between these two classes. I would admit to full membership everybody seeking to make money out of the ground, who has a clean reputation, whether he is an ultra-technical metallurgist, a shareholder or a mucker, but I would keep out as rigidly as possible everybody seeking to make money out of the public. This would keep out almost all the brokers and almost all the promoters. There is a very small minority of promoters and brokers who would be valued members, but I would rather lose these than run chances of admitting the average broker or promoter. A medical association might better have the vendors of a fake patent medicine among its members than for us to have the wild-cat promoter and broker in our Mining Institute. It is always an unexplained wonder how the public tolerates these wild-cat promoters. Many hard-headed business and professional men who have all their life been building up and caring for their reputations, have allowed them to be prostituted in these wild-cat prospectuses. The average mine promoter is a procurer; he panders to the gambling spirit and he does not care whom he ruins so long as he can sell his stock. This type, and by far the largest number of mining company promoters belong to this type, should not, under any circumstances, be tolerated in a self-respecting association of business men. It is not necessary to have any special by-laws to keep these men out. The present by-laws are sufficient, and the action of recent councils has been in the right direction, but it behooves the present council to be still more careful in their choice of members.

I do not like the new by-laws admitting Associate Members. Let me illustrate by a special example: Under this new clause the business manager of a machinery supply house or of a powder manufacturing company would be an Associate Member with no power to vote, yet this class of men knows more of the mining industry throughout the country and has got the general welfare more at heart than any

technical mine manager or metallurgist. These business men probably will not write papers nor will they take much part in technical discussions, but their experience and training would be of very great value in all matters of general welfare. This is the type of men that I would welcome into the Institute.

The technical man cannot look to the Institute to promote or preserve the tone or standing of either the individual or the whole technical body. To expect this even in a small degree from the Institute is to narrowly circumscribe its work. Thanks very largely to the excellent choice of technical men in the Government departments the public has been, to a certain extent, educated to a respectful appreciation of the tone and standing of the technical man. Our Government mining men are only carrying out the traditions of their training, but their work is laying a good foundation. This work must be carried on by the individual technical man and not by the Mining Institute. The words of Dr. Raymond in connection with the American Institute fit our case exactly: "The pressing need of the hour was not the segregation of a select body, but the cordial co-operation of all the representatives of a great industry or group of industries."

Yours faithfully,

H. E. T. HAULTAIN.

Craigmont, Aug. 22nd, 1907.

To the Editor of The Canadian Mining Journal :

Sir,—I note in your last issue a letter from Mr. W. H. Prest, criticizing my remarks regarding the stealing of gold in Nova Scotia.

Mr. Prest is right in saying that I am far from wishing to blacken the character of Nova Scotian miners as a class, but the facts that I have stated have come from miners themselves, foremen and others, men in whom I have the greatest confidence.

My object in stating the facts so openly is that the subject has been kept comparatively quiet, and the matter of gold stealing has not become to any extent a matter of criminal record. If the census reports, to which Mr. Prest refers me, contained the desired information there would be no need for more to be said on the subject.

As to the phrase, "Miners' rights," I know from personal experience that such a custom prevailed recently in at least one district in Nova Scotia and I am informed on the authority of credible, experienced men, men who may not have spent 35 years of their lives in Nova Scotia, but who at least are still here, that the so-called "Miners' rights" were known in other parts of the Province, notably in two districts situated about equi-distant east and west of Halifax. I am surprised that Mr. Prest has not heard of these "Rights."

Mr. Prest must realize that his picture of the conditions on the stopes is hardly a fair one.

On a large vein, where the whole belt was handled together, such conditions might prevail; but as a

rule it was not such cases that furnished the greatest opportunity for stealing gold. It was in the small nuggety veins, where most of the gold occurred in specimens, such as that pictures on the cover of the last issue of the Journal, that most of the gold was stolen. In such cases the lode was, where possible, not mined until after the "working belt" had been removed, probably being scaffolded, when the quartz was shot down and shovelled to the shaft, often, as I have said, in a stream of water.

Why the idea of such a stream of water should conjure up visions of such immense pumping plants, I cannot imagine. The stream of water that a 4-inch "Jackhead" pump would handle would be quite sufficient to wash a lot of quartz lying as it would along the flat "underhand" stopes.

Yours very truly,

E. PERCY BROWN.

### THE OIL SHALES OF SCOTLAND

An American Consular report dwells upon the oil shales of Linlithgow and Edinburgh Counties. The production of oil shale from these counties in 1904 was 2,331,885 tons. From this shale were extracted:—Burning oil, 16,991,746 gallons; naphtha, 2,517,296 gallons; gas oil, 37,997 tons; lubricating oil, 39,476 tons; paraffin wax, 22,476 tons; sulphate of ammonia, 49,600 tons.

The workable seams occur in the upper of two subdivisions of the calciferous sandstone series. The upper, known as the oil shale group, is over 3,000 feet in thickness and contains in its higher parts beds of coal, usually of inferior quality, and, further down, about six main seams of oil shale, interstratified with beds of sandstone, shale, fireclay, marl, and estuarine limestone. The lower group, in which no oil shales of economic importance have yet been found, consists of white sandstone and shales passing downward into gray, green and red shales, clays, marls and sandstones, with beds of argillaceous limestone or cement or cement stone.

Good shale can, as a rule, be distinguished by its brown streak, toughness, and resistance to disintegration by the weather. Ordinary carbonaceous shale is more or less brittle and often gritty and weathers to clay or wind. Oil shale, on the other hand, resembles dark wood, and its quality is measured by the degree of facility with which it can be cut and curled up with the edge of a sharp knife. It is free from grittiness, and is often flexible as well as tough. In internal structure oil shale is minutely laminated, which is apparent in the "spent shale," after distillation, when it is thrown out in fragments composed of extremely thin sheets. It seems to be a general law that shales deteriorate with depth. The highest shale in the Scottish series is the richest in crude oil, supplying 130 gallons per ton, but only a few pounds of sulphate of ammonia, while the lowest shale yields only about 80 gallons per ton, but the sulphate of ammonia amounts to 60 pounds.

Mr. D. H. Pringle, formerly of the staff of the British American Trust Company, has been appointed general manager for the Galbraith Coal Company, the Alberta Coal & Coke Company, and the Alberta Fuel Company, with headquarters at Calgary, Alta.

## SPECIAL CORRESPONDENCE

### NOVA SCOTIA

Glance Bay.—The plebiscite, on the Scott Act was held on the 15th of August in Cape Breton County, and resulted in a majority of 1,000 against the retention of the Scott Act. The Nova Scotia License Act will automatically come into operation after the expiration of thirty days. It is a most stringent enactment, and unless altered will really act more as a prohibitive law than did the form of local option which is now repealed. The Provincial license law allows "off licenses" with certain restrictions, and licenses the sale of liquor to bona fide guests actually in the dining-room of hotels. It forbids the sale of liquor within certain limits of a tram line or colliery, and in the neighborhood of schools and churches. The vote just cast was very largely a religious one, the Presbyterians, Methodists and Baptists voting for the Act, and the Catholics and Church of England voting for license. Such a law must of course be inoperative, and it is to be hoped for the sake of our mining community that we shall get a workable and reasonably stringent law. Now that our legislators have the opportunity there will be no excuse if we do not get an act that will stop shebeening and secret drinking while providing protection for the inebriate and the minor. Glance Bay is not Utopia. It is a workaday place, and we want a workaday law that can be obeyed by the man in the street. We don't want to be left to the tender mercies of an unscrupulous brewing monopoly, and we don't want to live under the blue laws of an earnest but puritanical temperance party. Is there no golden mean?

We again commend this question to the consideration of the Provincial Workmen's Association, and we have reason to believe that if a concerted effort were made amongst the miners for the establishment of colliery reading rooms and recreative institutions along the lines of those established by the Colorado Fuel Co. before referred to in this Journal and for the passing of practical liquor laws it would receive the hearty support of the colliery corporations and the thinking men in the colliery districts generally.

In Sydney and the colliery districts there are little coteries of cultured people who have their reading circles and their literary and social societies, but for the great bulk of the laboring class absolutely no intellectual facilities of any kind are provided, outside of religious organizations, and the efforts of some earnest friends of technical education, who have received such feeble support that they have lost heart.

If the clergy and the P. W. A. would sink their religious, intellectual and political differences and take this matter seriously under advisement in the endeavor to provide for our mining and steel working population some refuge from the desolating boredom and intellectual stultification of so many of their lives, it would do more real good than libraries of prohibitory enactments and sermons. The P. W. A. and the

various church organizations do a vast amount of good as it is, but anyone who views the aimless parading of Charlotte Street in Sydney and the expectorating crowd who nightly gather around the tram corners in Glance Bay, cannot but be impressed by the fact that our people lack occupation for their leisure hours. There is a connection between the success of American correspondence schools and the acuteness of the liquor problem in the mining districts that we think points to a desire on the part of the workers for intellectual and recreative occupation that at present is either ungratified or perverted from its natural fruition.

Arising out of the fatal accident by which three men lost their lives on the 6th of July, two employees of the Nova Scotia Steel & Coal Company have been arrested on a charge of manslaughter, and no doubt an investigation of the causes that led up to the accident will follow. This procedure is perfectly regular and follows on the finding of the jury, and would call for no comment, were it not that the "Halifax Herald" again reflects on the intelligence and honesty of our Mines Department and the mining community of Nova Scotia generally.

The "Herald" writes: "Will the Government publish statistics of the number of men killed in Nova Scotia mines last year?" This is a surprising question, seeing that the Department of Mines of Nova Scotia have published such statistics annually since the early seventies, and such a question confirms our previous suspicion that the "Herald" writer doesn't quite know what he is talking about.

The "Herald" makes a comparison between the mines of Nova Scotia and the mines and railways of the United States, and comments as follows: "By the time a President and a General Manager of Nova Scotia railways or mines are arrested for the deaths of men in their employ, through the failure of other employees to do their duty, then our big corporations will begin to take notice."

We welcome this comparison, for in it we have nothing to suffer in Nova Scotia, but heaven forbid that we should ever imitate the mines and railways of the United States in the matter of fatal accidents. We hardly think it is necessary to do more than quote the "Herald's" statement if we quote with it official figures showing how Nova Scotia compares with the other mining centres of the world as to fatal accidents. The figures will speak for themselves. Nova Scotia, as province, has nothing to be ashamed of in this respect, and we may safely claim that in Cape Breton the percentage of fatal accidents to the tonnage produced is the lowest in the world. The figures which are compiled from the Report of the Mines Department of Nova Scotia for 1905, and from the Report of Foreign and Colonial Statistics, issued by the English Government and recently quoted in this Journal.

Statistics of Fatal Accidents in Mines, 1905:—

	Number of fatal Accidents.	No. of men employed in Mines.	Deaths per 1,000.	Tons Produced.	Tons per fatal Acc't.	Percentage of deaths per 10,000 tons Produced.
United States .....	2,160	626,000	3.45	356,454,000	165,000	.606 p.c.
Germany .....	1,123	548,000	2.05	173,811,000	154,773	.645 p.c.
Nova Scotia .....	20	10,870	1.86	5,050,420	250,000	.396 p.c.
Great Britain .....	1,138	843,000	1.35	239,918,000	210,800	.475 p.c.
France .....	182	175,000	1.04	35,928,000	200,000	.506 p.c.
Approx. tot'l for world	10,000	5,000,000	2.01	941,000,000	94,000	1.050 p.c.

It is a regrettable, but seemingly unavoidable fact that the mining of coal is everywhere alike attended by loss of life and limb, and the most careful supervision and care will not always prevent the occurrence of catastrophes, as witness the memorable explosion at Courrieres. This mine had been for

years regarded as a model of safety, and the efforts of its engineers to minimise the loss of life by falls of roof had everywhere met with approval, but destruction came unawares at the last, and in a form the least expected.

The "Herald" says that if its interesting programme were

carried out the "big corporations would begin to take notice." They have taken notice. In 1905 the collieries of the Dominion Coal Company produced roughly 3,190,000 tons, with only six fatal accidents. This is an average of one per thousand, and a production of 530,000 tons per death. We believe this is unique.

At the present moment there seems to be an organized attempt among the newspapers of this Province to give a "black eye" to our mining industry generally. It is an ill bird that fouls its own nest they say, and we protest against this kind of thing, for Nova Scotians should be proud of their mining industry. It is the basis of their wealth, and supplies a vast population with employment, and we cannot see why for purely political ends our newspapers should pursue the course they do. Nova Scotia miners as a class are physically and mentally the superior of their brothers on the other side of the Atlantic and in the United States. They earn good wages, their labor organizations so far have been free from the evils that have characterized miners' unions in other parts of this Continent. As workers they produce more coal per man than in the majority of the mines of Europe. The coal seams here are magnificent big clean seams with roofs of exceptionally strong nature, the seams are so regular that a fault is almost unknown, their extent is as yet to a large degree unknown, the mines are kept ventilated by vast currents of fresh air, the surface equipment of the collieries is superb, and for production, safety, and general efficiency Nova Scotian mines will bear comparison with any bituminous mines anywhere. These are the facts, but a stranger reading the jeremiads of some of our provincial press might be excused if he came to the conclusion that our mines were death traps, our coal seams of poor quality, and our miners and their officers lacking in ordinary intelligence.

#### ONTARIO

Cobalt.—An arrangement has been made by the Nipissing people whereby they are to dispose of the cobalt from their ore in Germany. It is also probable that Nipissing will erect a smelter in Cobalt.

On one car load of ore La Rose mine recently netted \$112,000.

Most of the mines, against which the Western Federation were most active, are working normally again. The Coniagas, Trethewey, Cobalt Lake, Buffalo, Nipissing and many others are doing full time. The obstructive tactics of the labor leaders are becoming more violent but less effective.

The Foster mine shipped a car of No. 1 ore early in August. It netted \$28,500. Development of the mine is being pushed. About eight months of stoping is blocked out.

Organizer Roadhouse, of the Western Federation, is scarcely worthy of passing notice. He has been using such intemperate language that the better class of miners are losing all sympathy with him and his cause. His flowers of cheap and nasty rhetoric need a dash of scent. He is fast becoming a public nuisance.

The report that the Colonial Mine would meet all the demands of the Union (as did its neighbor the King Edward) has not been confirmed.

The O'Brien Mine has 135 men working. This number includes the necessary skilled labor. Recently four good veins have been stripped.

The Provincial Government Mine has installed the first half of a twelve-drill compressor.

Mr. E. L. Fralick, engineer of the Cobalt Lake Mining Company, in his last report of progress, states that shaft No. 4 is down 92 feet. A level station has been started in this shaft at 86 feet and the drift is in 46 feet. Shaft No. 5 is down 95 feet. Here also a level has been started.

The Temiscaming Mining Company's shaft has been sunk seventy-eight feet. Drifting to the extent of ninety feet has been accomplished. The first shipment was a car of 21 tons, for which the shippers received over \$91,000. Two other cars were shipped last week.

#### ALBERTA.

Car shortage along Crow's Nest Pass.

Lille and Bellevue.—For lack of cars the company, having no place to store coal, knock off shifts and men leave, always the best men. Many of these men finding it no better in other coal mines, find work over ground or in quartz mines, and are permanently lost to coal mining.

Having no room to store screened coal, they cannot take out the slack coal, and consequently cannot keep the coke ovens running steadily. This again threatens the coke supply of the smelters.

Frank.—No complaint. The C. P. R. has contracted for total output and supplies sufficient cars.

Coleman.—The International Coal and Coke Co. have been hard hit. They were able to increase their hard hit. They were able to increase their output by doubling shifts. Before taking that step they asked the C. P. R. if they would furnish cars for increased output and were assured a steady supply. They went to extra expense, in doubling their shifts, which meant raising several men to "bosses" at increased wages. They advertised for more miners and got them. But when the output was increased the cars were not always supplied. The men were laid off for three days each in two successive weeks. Here again the men left and when cars came the company did not have the men. As a result the management never know what cars or what men to count on.

Michel, B.C.—Here, too, on the same assurances of cars from C. P. R., the Crow's Nest Pass Coal Co. put on a double shift with results similar to those at Coleman.

Coal Creek, B.C.—Here the Crow's Nest Pass Co. are helped out by the Great Northern Ry., and are not dependent on the C. P. R. The confidence thus promoted is reflected in the class of miners employed. They have the best class of miners along the Pass, including many married men who settle down here for their homes.

After talking with mine managers and C. P. R. agents, I conclude that the C. P. R. is partially responsible for shortage of fuel, coke and help. If they had no cars they could not be blamed. But that they have cars is evident from the fact that they assured the coal companies a definite supply right along. Moreover C. P. R. agents have told me that there are enough cars, but that the company gives preference to loaded cars over "empties," hauling the latter to the mines when they get time.

The Western newspapers are misleading on the car shortage question. In an interview in a Nelson paper, Vice-President McNichol, of the C. P. R., said there was no shortage. Similar interviews appear daily from other men. The facts are as stated above, and the outlook is that when the grain hauling starts, conditions will be worse. It is freely said that some smelters will close down next winter rather than hobble along as it seems now they will have to. If there is a fuel famine next winter it will not be due to lack of miners, but to lack of cars. The coal companies cannot store coal for future use nor get it out for dealers to store it.

The car shortage is not constant at any point, but is a constant menace, and the busy season for the railways is yet to come.

## GENERAL MINING NEWS

## NOVA SCOTIA.

Springhill, N.S.—The third week of the strike has brought no change. The Cumberland Coal and Railway Company has rechartered all its barges and tugs to outside parties, and has paid off its loaders at Parrsboro and St. John. The mine horses have been removed. In the improbable event of the mechanics joining the strikers, the Provincial Government has instructed Deputy Inspector Cameron to secure all the men necessary to keep the mines in safe running order.

Sydney.—The McKay Coal Mine now being opened up between Sydney and North Sydney, employs about forty men. The output, between 40 and 50 tons per day, is distributed along various points on the I. C. R. in Cape Breton.

Port Morien.—The Gowrie and Blockhouse collieries, recently taken over by the North Atlantic Collieries Limited, are being put into good shape. Overground the miners' cottages, the power house and bankhead, are being repaired. A pipe line of water supply is to be laid to Sand Lake. Under the supervision of P. J. Leslie, 200 feet will be added to the breakwater. The government dredge is deepening the approaches to the breakwater and the company's pier.

Halifax.—Sixty of the one hundred and thirty candidates who tried the mining examinations qualifying for the positions of manager, underground manager and overmen, have passed. Seventy of the candidates were from Cape Breton County. Thirty-three of these were successful. The other successful candidates were distributed thus: Eight from Inverness, eight from Pictou, and eleven from Cumberland. Six candidates passed the mine managers examination. Of these five came from Cape Breton and one from Cumberland.

Sydney.—No. 2 Blast Furnace of the Dominion Iron and Steel Co. was blown in on August 8th. On the afternoon of August 10th it was producing iron and was working in good shape.

## ONTARIO.

Sudbury.—It is reported that the Chapin syndicate has made a first payment of \$240,000 on the Whistle and other properties on the north nickle range. Mr. R. W. Demorest is in charge of the prospecting.

Sault Ste. Marie.—The contract for the construction of the short line of railway from the Algoma Central to the Superior Copper Company's mine, has been awarded to the O'Boyle Brothers Construction Company. The line will run for five miles in a westerly direction from the 38 mileage post of the Algoma Central. It will be completed in one year at a cost of about \$100,000. It is probable that the ore, to the amount of two hundred tons per day will be shipped to the new smelter of the Bruce Mines Company.

Reports have come in to the effect that J. B. Miller has discovered a large deposit of nickel ore near Washington.

Cobalt.—The King Edward Mine and the Colonial have started work again. Both of these mines were shut down on account of the strike.

On the Trethewey mine a diamond drill is down 580 feet. Several veins, one of which is silver-bearing, have been cut.

A rich eighteen inch silver vein was recently cut on No. 1 shaft of the Buffalo mine.

Chief Justice Falconbridge on August 14th, granted an interim injunction, valid until August 29th, restraining Cobalt Branch 146, of the Western Federation of Miners, and certain of its officers and members, from interfering with the men employed by the Buffalo Company.

Bulletin No. 3 issued by the Foster Cobalt Mining Company is encouraging. Vein No. 6 has widened. Veins No. 5 and

8 are showing up strong at the 70-foot level. A car of No. 1 ore recently shipped netted \$28,500.

The machinery for the new concentrator plant of the Cobalt Central has been shipped. It is hoped that the plant will be in operation in October.

## ALBERTA.

A. C. Flumerfelt, President of the International Coal and Coke Company of Coleman, and of the Alberta Coal Company of Lundbreck, and N. H. Galer, vice-president and general manager of those companies are opening a new mine, the third coming under their control. They have organized the Royal Collieries Ltd., and have acquired the Barnes Mine, five miles from Lethbridge, together with 600 acres of coal land. The Barnes mine has heretofore been operated on a small scale. The new owners will install a large and modern plant.

Between eighty and ninety employees of the Alberta Railway and Irrigation Company, at their Galt Mines, Lethbridge, refused to go to work on August 12th. The men affected were the drivers, shiftmen and grippers. The drivers claimed that their time started when they harnessed their horses, while the company claims that their "working place" is where they hitch to the car in the mine. The men in striking acted against the advice of the union officials. The men returned to work on August 14th, pending an investigation.

## BRITISH COLUMBIA.

Boundary.—Six machine men were added to the force of the Cariboo-McKinney mine this week.

Both the Granby and the B. C. Copper Companies are operating their furnaces with practically no reserve of coke. Apparently the railways are quite unable to handle a sufficient and regular supply. The Dominion Copper is running smoothly.

The foundations for the fifth giant ore crusher to be installed by the Granby Company, are now complete. The crusher is being placed at their Gold Drop mine.

Cariboo.—The Thistle Mining Company began piping this season on May 9th. Until June 20th they ran double shift. After that date there was only enough water for a day shift. About 22,500 car loads was moved. A bank-blast of 4,000 pounds of black powder is to be put in this autumn and the shattered ground will be piped with the fall freshet water.

The bedrock clean up of the Alabama Hydraulic, on Mcsquito Creek, was over 400 ounces. The sluice flume is expected to yield from 30 to 50 ounces.

Phoenix.—A very serious cave-in occurred on the evening of August 12th at the Brooklyn mine of the Dominion Copper Company. The cave-in happened at 7 p.m., and, fortunately, there were no men in the mine at the time. The shaft is intact, but the ore-bunkers and waste-dump have dropped down below the 200-foot level. Shipping was delayed only a few days. No lives were lost.

Vancouver.—The Guggenheims have placed an order with a local firm for five hundred tons of general provisions to be shipped immediately to Dawson. The supplies are for their mining camps on the Klondike Creeks.

Mr. E. Lindeman, who was sent by the Federal Government to investigate the iron ore deposits of Vancouver Island, is on the west coast. He will make magnetic surveys of Sechut and Sareta, visiting also Kennedy Lake and Head Bay on Nootka Sound and Quatsino, and spending about a month around Barkley Sound. He will also make a trip to Texada Island.

Gold, silver and copper are reported on a mineral discovery at the confluence of the Skeena and Ecstall Rivers, near Port Essington.

Victoria.—The steamer Princess Beatrice brought to Ladysmith on August 14th, the first shipment of ore from the Queen Charlotte Islands, to the Tye smelter. She carried 300 tons of copper ore from the Ikeda Bay mine.

Ladysmith.—On account of the large increase in the smelting business, the Tye Copper Company's smelter at Ladysmith will probably be doubled in capacity. Shipments are received not only from Company's mine at Mount Sicker, but also from many mines in Alaska, the Yukon, and from other districts on the Pacific. From the Ikeda, and other mines on the Queen Charlotte Islands, shipments are expected.

## MINING NEWS OF THE WORLD

### UNITED STATES.

The report of the Calumet & Hecla Co. for the fiscal year ending April 30th has just been published. It states that during this period 46,949 tons of refined copper were marketed, while the assets are placed at \$8,757,444 and the liabilities at \$1,728,942, leaving a balance of \$7,028,942 to profit and loss. Dividends aggregating \$6,500,000 were paid during the year. The company in extending its field of operations has secured options to Nov. 20th, 1907 for the examination of the Mamainse and Pointe aux mine lands in Canada on the eastern shore of Lake Superior.

The Amalgamated Copper Co. has placed its stock on a regular 8 per cent. per annum basis. This rate was originally guaranteed but was probably not maintained in consequence of expensive law suits. The Company has paid to date since its incorporation in April, 1899, the large sum of \$52,618,504. The outstanding capital is \$153,877,900.

The Grant mine, in Washington, under option to the B. C. Copper Co. of Greenwood, B.C., is being actively operated and a 10-drill compressor has been installed with a view to increasing the monthly output to a thousand tons.

The coal production of the State of Wyoming for the year 1906 was, according to a recent report of the U. S. Geological Survey, 6,133,994 short tons, valued at \$8,013,523, a considerable increase over the preceding year. Wyoming now ranks second among the coal producing states of the Union in point of tonnage produced per man employed. The majority of the mines work ten hour shifts.

As a result of the labor troubles at Bisbee early in the year, and now like disturbances at Clifton, copper production from Arizona in 1907 is, it is thought, not likely to show an increase.

The annual report of the Utah Copper Co. now in course of preparation is likely to prove of great interest. This company is mining at a cost of 45 cents a ton, or with taxes and administrative charges added, not in excess of 68 cents, while it has fifteen miles of underground workings and forty million tons of 2 per cent. and sixty million tons of slightly lower grade copper ore blocked out.

The admission is made in the report of the Pennsylvania Department of Mines for 1906, that the increase in the number of inspectors has had no appreciable effect in decreasing the number of accidents in coal mines. In fact in comparison with other fields the reverse is shown to be the case.

### AUSTRALIA.

The affairs and finances of the Zinc Corporation appear to be in somewhat of a muddle. The Company purchased large stocks of Broken Hill tailings which it was expected could be profitably treated; and first the Potter process and then another method was tried without success and now the Elmore vacuum process is being tried. Meanwhile the company

has come to the end of its resources and proposes to issue new capital in the shape of preference shares.

Australia's mineral production in 1906 was valued at \$40,848,120, or an increase of nearly five and a half million dollars over the previous record achievement of 1905. The chief product, of course, was gold. Australia had produced to the end of 1906 minerals to the value of \$862,801,910 since mining was inaugurated in the Commonwealth. The number of persons employed in mining during the year was approximately 42,500.

Both cemeteries at Ballarat, says a correspondent, to the London Mining Journal, are located on lode-bearing bedrock, and under a slight capping of clay soil quartz lodes and veins are found. At Buninyong, oldest of resting places in the Ballarat district, where gold was first discovered in 1851, gold miners long ago sought a lead under the cemetery, while the old cemetery in Ballarat is right on the line of some quartz lodes proved to be very valuable. Recently during a funeral the mourners noticed gold in the gravel dug from the grave, and obtained permission to test some few hundred pounds of it in a mill. The sample yielded at the rate of 2 oz. to the ton. We fear, however, that this last story is just the least bit "tall."

### SOUTH AFRICA.

It is reported that at the present time the supply of native labor is actually greater than the demand for the mines of the Transvaal. The great trouble with the Kaffir as a miner is that, while he is tractable and willing, he will only remain at work for a comparatively short period of time, which of course seriously interferes with his becoming efficient. For years past the mines have attempted to instill into the natives the advantage of the piecework system, and it is in this direction that the greatest hope of rendering native labor efficient lies. Meanwhile it is satisfactory to learn that the strike of white miners on the Rand has been declared off, and the Government has induced mine owners to reengage many of the men on the old terms pending the report of the Mining Commission. Notwithstanding the strike a considerable increase in the mineral production of the Transvaal for the first six months of the present year is to be noted, the total value of the output for this period being placed at £30,729,831.

### CHINA.

In his report for 1906, the Commissioner of Customs at Tientsin states that the mines of the Chinese Mining and Engineering Company, while no longer the only source of coal supply in North China, continue to occupy the first place. The total output of these mines last year amounted to 958,675 tons, of which a large proportion was used on the railways.

### INDIA.

In Burma the only working coal mine is situated in the Shwebe district, and here operations were recently suspended. Excellent coal, however, is found in the Upper Chindwin district, but at present too far away from all lines of communication to be workable.

The gold production of India for the first six months of this year amounted to 268,211 ozs., as against 292,956 oz. for the corresponding period of 1906. Of the total, this year the Mysore Mines contributed 102,436 ozs.; and the Champion Reef 64,204 ozs.; the remainder being reported by the Oregon, Nundydroog and other mines.

RUSSIA.

The British Consul at St. Petersburg reports that the output of coal from the South of Russia for 1906 to have been 11,340,479 tons.

SWEDEN.

The condition of the Swedish iron market remains good, and the export continues to show satisfactory figures, which for the most descriptions exceed those of last year at the same time. The shipping of pig iron for January to May amounted to 34,000. Prices have kept at about the same level namely £5 10s. and £5 5s. per ton, f.o.b. shipping port, for iron of not more than 0.020 per cent. phosphorus.

STATISTICS AND RETURNS

On Shipments for the week ending Aug. 3rd, for the under-mentioned districts of British Columbia stand as follows:

	Week.	Year.
Boundary	30,567	675,234
Rossland	4,140	161,998
Slocan-Kootenay	3,025	76,746

The total shipments from the mines in the above districts for the past week were 37,732 tons and for the past week were 37,732 tons and for the year to date 913,978 tons.

For the week ending July 27th:—

	Week.	Year.
Boundary	37,573	644,667
Rossland	6,788	157,858
Slocan-Kootenay	2,987	71,721
Total	47,348	876,046

Following are the weekly shipments from Cobalt camp:—

	Ore in lbs. Week Ending Aug. 10.	Ore in lbs. Since Jan. 1st.
Buffalo	60,000	1,398,830
Nipissing	64,360	3,155,438
Silver Queen	176,000	652,157

The total shipments for the week were 300,360 pounds, or 150 tons.

Following are the weekly shipments from Cobalt camp, and those from January 1 to date:—

	Ore in lbs. Week Ending Aug. 17.	Ore in lbs. Since Jan. 1st.
Buffalo	60,000	1,458,830
Coniagas		4,080,180
Cobalt Central		101,360
Colonial		74,250
Drummond		44,090
Foster		192,350
Green-Meehan		196,780
Hudson Bay		45,170
Kerr Lake (Jacobs)		249,000
LaRose	43,000	978,302
McKinley		188,000
Nipissing	296,808	3,452,246
Nova Scotia		96,000
O'Brien		2,220,254
Red Rock		40,000
Right of Way		134,530
Silver Queen		652,157
Silver Leaf		43,518
Trethewey		1,346,018
Townsite		84,078
Temiskaming	119,011	229,011
University		61,383
Imperial Cobalt		37,530

The total shipments for the week were 518,819 pounds, or 259 tons.

The total shipments since Jan. 1, 1907, are now 15,935,845 pounds, or 7,968 tons. In 1904 the camp produced 158 tons, valued at \$136,217; in 1905, 2144 tons, valued at \$1,473,196; in 1906, 5129 tons, valued at \$3,900,000.

For the week ending August 10th the ore shipments in South Eastern British Columbia were seriously curtailed. The coke shortage has caused a temporary shut down, and the smelters are suffering from a congestion of ore. Following are the figures for the week:—

Shipments.	Week.	Year.
Boundary	31,560	706,794
East of Columbia River	2,640	79,350
Rossland	3,673	165,671

Total 37,873 tons 951,815 tons.

Smelter Receipts.

	Week.	Year.
Grand Forks	15,843	381,086
Greenwood	8,976	204,470
Boundary Falls	5,797	104,489
Trail	4,974	138,961
Nelson	25	10,048
Northport	155	61,762
Marysville	600	19,200

Total 36,370 tons 920,016 tons.

CROW'S NEST OUTPUT.

The output of the Crow's Nest collieries for the week ending Aug. 16 was 22,793 tons, a daily average of 3,799 tons.

New Dividends

NEW DIVIDENDS.

The directors of the Intercolonial Coal Mining Company, Limited, have declared a half-yearly dividend of 3½ per cent. on preferred and 3 per cent. on common, payable Sept. 2. In 1906 the company paid 7 per cent. on the preferred and 7 per cent. on the common.

Catalogues and other Publications Received

The International Metallurgical Company, El Paso, Texas, in a 15-page pamphlet advertise the "W. Townsend Smith Patent Improved Metallurgical and Cyanide Process and Apparatus." In a summary of advantages the following strong claims are made:—

1. A saving of 30 per cent. to 60 per cent. of the installation cost of a cyanide plant.
2. An increased extraction of gold and silver over any other process, with less time of agitation.

Elimination of stirrers, pumps, etc., saving in labor, large increase of capacity, saving in power, economy of room, elimination of filter presses are also among the good features of this new method. The process is certainly worthy of examination. If the manufacturers are able to substantiate their claims, they need have no fears for their success.

The Illustrated and Priced Catalogues of Assayers' and Chemists' Supplies for sale by the Denver Fire Clay Co., Denver, Colorado, U.S.A., 1907.

This catalogue describes the standard varieties of laboratory apparatus. Of especial interest are the muffles made by this company. Shape 4, with square sides, is a departure from the traditional muffle. Its design implies increased capacity and far greater convenience in removing and placing crucibles. The double-muffle assay furnaces are of particularly strong and simple construction. A fine range of button balances is illustrated.

Catalogue No. 6 C. "Stamp Milling Machinery," issued by the Colorado Iron Works Company, illustrates many types of mortars, and gives a description list of all necessities of the stamp-mill. 12 pages of the publication are devoted to an excellent article on "Gold Amalgamation."

A special catalogue (No. 20) published by the Ingersoll-Rand Company, 11 Broadway, New York, describes the Temple-Ingersoll Electric Air Rock Drill. This new device marks a radical departure from both the standard air drill and the hitherto tentatively accepted electric drill. It is free from the essential limitations of both. Its manufacturers claim that it has been thoroughly "tried out" under actual working conditions. If the machine lives up to its claims it will revolutionize the whole work of winning ore. So far its claims have received substantial endorsement from a considerable number of users in the United States. There will appear in the Canadian Mining Journal further information concerning this machine.

Bulletin No. 10 of the Cleveland Pneumatic Tool Company, Cleveland, O., tells of the "Cleveland" No. 10 and No. 20 Drills. No. 10 will drill holes up to 1½ inches in diameter and 4 feet in depth from six to twelve inches per minute. It weighs 20 pounds and uses 15 cubic feet of free air per minute. No. 20 weighs 23 pounds and requires 20 cubic feet of air. It drills holes up to 2 inches in diameter and 6 feet deep. "Cleveland" drills have no small, easily broken outside fittings, valves or locking devices.

### The Tye Copper Co., Limited.

The eighth ordinary general meeting of this company was held in London last month. The Chairman stated that during the year £12,532 had been spent in prospecting and development, and this and a further sum of £3,321, had been paid out of revenue. Maintenance, repairs and depreciation at the mine and shelter amounted to £4,789, only 10 per cent. having been written off for depreciation as 25 per cent. had been allowed on this account last year. The credit side of the profit and loss account explained itself and enabled the directors to recommend the payment of a dividend at the rate of 7½ per cent. per annum free of income tax. Although the "long looked for ore-body" had not yet been found, the local director, Mr. Clermont Liverston, is still hopeful that the search will succeed; while the company's smelting business had considerably improved from the opening up of copper mines in Alaska, the Yukon Territory and on the Pacific Coast. In view of this improvement the company has under serious consideration doubling the capacity of the smelting works at Ladysmith.

Output of the Dominion Coal Company for July was 312,815 tons, which was 14,000 tons than the output for June. This is how the year's figures look so far:

January	252,107
February	226,190
March	205,134
April	316,114
May	526,170
June	326,914
July	312,815

Total ..... 1,964,494

Output Dominion Coal Co. for the first fortnight of Aug.:

No. 1	20,400
No. 2	26,560
No. 3	15,020
No. 4	20,130
No. 5	28,320
No. 6	8,770
No. 8	9,810
No. 9	10,800
No. 10	3,660

143,470

The output for the first half of the month was small, several minor delays being experienced. The P. W. A. held their Annual Picnic at Sydney Mines on the 10th August, and the

collieries generally paid on the 9th. The amount of money disbursed through the pay rolls was the largest on record both at Sydney Mines and at Glace Bay. During the remaining portion of August the output will continue to improve, and will fully equal and possibly more than equal for the same period of last year.

### NEW DIVIDENDS.

The International Coke and Coal Company, Coleman, Alta., has declared a dividend of 1½ per cent., payable August 1st.

The British Columbia Copper Company, Limited, has declared its first regular quarterly dividend of 25 cents per share with an extra dividend of 15 cents per share, payable on September 4th. The company is capitalized at \$3,000,000 in shares of \$5 each. Of the shares there are 503,000 outstanding. The amount to be distributed is thus \$212,000.

### METAL ORE AND MINERAL MARKET.

- Aluminium, No. 1 grade ingots—45 to 47 cents per lb.
- Antimony—9 to 11½ cents per lb.
- Arsenic, white—7½ to 7¾ cents per lb.
- Barytes, crude—\$11.25 to \$14.75 per short ton.
- Bismuth, metal—\$1.50 to \$1.75 per lb.
- Cadmium, metal—\$1.30 to \$1.35 per lb.
- Carbons for drills—\$75 to \$85 per carat.
- Carborundum, powdered—8 cents per lb.
- Chromium, metal pure—80 cents per lb.
- Cobalt, f.o.b. Cobalt, Ont., unrefined—25 to 40 cents per lb.
- Corundum—7 to 10 cents per lb.
- Feldspar, ground—\$12 per short ton.
- Flourspar, lump—\$10 per short ton.
- Graphite, domestic—\$50 to \$150 per short ton.
- Gypsum, lump—\$4.50 per long ton.
- Infusorial earth, ground—\$15 to \$30 per ton.
- Lead—5.25 cents per lb.
- Manganese, pure metal—75 cents per lb.
- Mica, ground—\$50 to \$80 per short ton.
- Mica, scrap—\$15 per short ton.
- Molybdenum, pure—\$1.70 per lb.
- Molybdenite ore, 90 per cent. pure—\$4.50 to \$5.00 per unit.
- Nickel, metal—45 to 65 cents per lb.
- Platinum, ordinary metal—\$28 per ounce.
- Platinum, scrap—\$21.50 to \$22.50 per ounce.
- Pyrite—38 to 45 per cent. sulphur, lump ore, 10¼ to 11½ cents per unit.
- Quicksilver—\$40 to \$41 per 75 lb. flask.
- Sulphur—\$23 per long tin.
- Talc—\$18 to \$23.50 per tin.
- Tungsten, pure metal—\$1.25 per lb.
- Tunsten ore, 60 per cent. pure—\$9 per unit.
- Tin—37 cents per lb.

### MARKET NOTES.

- Spelter—Light demand and weak market. New York, 5.80 cents per lb.; London, £22 7s. per long ton.
- Lead—Market steady. New York, 5.25 cents per lb.; London, £19 13s. for Spanish lead.
- Tin—Prices still declining. New York, 37 cents per lb.; London, £164 10s. for spot.
- Copper—More business doing in copper. Market not yet recovered. New York, electrolytic, 18½ cents, lake 19½ cents per lb.; London, £78 for spot standard.
- Silver—Aug. 1, 69¾; Aug. 2, 69¾; Aug. 3, 69¾; Aug. 5, 69¾; Aug. 6, 69¾; Aug. 7, 69¾; Aug. 8, 69¾; Aug. 9, 69; Aug. 10, 68¾; Aug. 12, 68; Aug. 13, 67¾; Aug. 14; 69½.
- Mexican dollars—54½ cents. Sterling Exchange, \$4,865.
- Pig Iron—Pittsburg—Bessemer pig, \$22.50; No. 2 Foundry, \$23.80.
- Iron Ore—Bessemer, old range, \$5.00; Bessemer Mesabi, \$4.75; Non-Bessemer, Old Range, \$4.25; Silicious, non-Bessemer, \$2.50.
- Quicksilver—\$41 to \$42 per 75 lb. flask.