pig iron producer. Again, the low rates of duty on the larger sizes and sections of rolled steel shut out the Canadian mills from a large part of the field. Further, Canada is able now to supply less than one-half of the 200,000 tons of wire rods and wire products consumed within her boundaries.

The trade of Canada is growing rapidly. During the fiscal year ending March 31st, 1911, Canadian imports of certain steel and pig iron articles were valued at $18,482,683. This is a sum almost equal to the entire production of Canadian plants. It is set forth that this implies the payment by Canadian consumers of about $12,000,000 in wages to foreign workmen. This money, spent in employing Canadian workmen, in Canadian industries, would build up several industrial centres.

There is little virtue, apparently, in the "dumping" clause. A rigid tariff is required to prevent the wholesale demoralization of our markets when trade is depressed in the United States.

In short, the captains of the Canadian iron and steel industries believe strongly the establishment of those industries in an unassailable position is essential to the welfare of the country. They recognize that radical changes in the tariff will be the only final remedy. Meanwhile, until the Tariff Commission will have looked into the subject, the industry clamours for temporary relief in the form of renewed bounties.

With investments aggregating $100,000,000; with 22,000 workmen dependent upon the success of these enterprises, and with an annual pay-roll of $13,500,000, the Canadian ironmaster has some right to make known his needs.

Only by long and intimate examination of the whole matter will right adjustment he reached. Meanwhile we can see nothing to be lost and much to be gained in granting temporary aid to a threatened industry.

The iron and steel industries of Canada are what they have been made by general and special tariff provisions. Their past history must be taken into account in any present legislative enactments.

THE CONSULTING MINING ENGINEER.

Painfully frequent are the evidences of futility and misdirection in the expenditure of money and energy in every mining camp. Not only in the smaller prospects, but in larger mines, mines that are considered models of good management, one can detect signs of wasted time, energy, and funds.

Mining, careful and legitimate mining, has, at certain stages, enough inherent uncertainties. The superadded risk introduced by human folly, is ascribed most frequently to lack of luck. It is ascribable to no such thing. It is the removable cause of most of the losses that are written up against the business of mining.

The current belief that when three or four business men get together, incorporate a company, and hire a mine manager, they are capable of giving proper instructions as to how a mine should be worked, has a strong hold on the popular imagination. After the almost inevitable failure, the organizers usually claim that they have done the best they could, that they have not spared themselves. This is all well and good from the point of view of morals, from a commercial point of view it is nonsense. Failure has come because proper advice was not sought, or because the policy of the company was controlled by amateurs.

Now, instead of depending upon the wage-earner who opens up the property for them, if the small investors were to consult a **bona fide** mining engineer, or an economic geologist, weigh matters carefully with him, digest fully and discuss freely his recommendations, know why these recommendations are made, and generally develop the logic of the venture, there would be infinitely fewer heart-burnings and vain regrets.

It takes a trained expert to determine the right scale in which a mining property is to be developed. The man who has charge of actual mining operations usually has special qualifications. He may be an excellent miner, and he may or may not have that necessary sense of proportion that adjusts expenditure correctly. But he is very seldom blessed with a profound knowledge of geology. At nearly every phase of a mining venture's history geological diagnoses are required. Moreover the reports of every mine manager are the better for being checked up carefully. Exaggeration is a human and very common tendency. It will not prevail where an independent engineer is called in periodically to examine and advise. In other words, the close auditing of a mine's physical status is quite as necessary as the auditing of any commercial concern's affairs.

The average mine manager dislikes being subjected to the scrutiny of the technical man. There is no real ground for this feeling. No superintendent can honestly object to anything that renders his work more efficient. In no sense is he the inferior of the specialist. The superintendent is supposed to know his own field. His adviser specializes in one or two branches, and, unless he is charging exorbitant fees (which is remarkably seldom the case), there is no reason to object to his assistance. A close parallel is offered by the physician who calls upon the surgeon to help him. All professors have their highly specialized departments. The profession of mining is more complicated than most others.

The mining geological specialist arrogates to himself no intellectual superiority. His training fits him for a certain purpose. That purpose is to supplement the good work of the competent mine manager, and to help and guide the manager whose technical know-