

early months of the war is now producing much greater quantities of nickel-copper matte than ever in its history. There are more men employed at the mines and smelters, wages have been increased and the operating companies are making greater profits.

British Columbia's great copper mines are now being drawn upon at a rate which will help to make up for the falling off in the early months of the war. At Trail the production of gold, lead and copper has been increased and plant is being installed for the refining of copper matte.

The increase in gold production in Ontario in 1915 will be very large. The output in 1914 was \$5,529,767, while the total for this year will be about \$8,000,000.

The great improvement in the mining industry in 1915 augurs well for 1916. A year ago prices of most metals were still low and many seemed afraid or doubtful of the future. To-day high prices are the rule, and the demand is increasing. Confidence in the future is becoming more general. The signs all point to 1916 being a big year in the mining industry in spite of, and partially because of, the war.

It is a pleasure to be able to record such improvement as has taken place during 1915 and to so anticipate the future, for never was there greater need of production being large. The desirability of increasing production of grain during the war has appealed both to the agricultural population and to the people generally. The average person knows less about mining than about farming, and is not so likely to appreciate the fact that mining is a basic industry on which we can depend for the maintenance of our country's credit. It would be very desirable if the public could be made to realize that increase in Canada's mineral production is important for the general welfare. It does not mean only increased profits for operating companies. It means increased employment at good wages, increased markets for manufactures and farm products. Moreover, the production of minerals, whether profitable to the operators or not, is a direct contribution to the wealth of the nation. Why leave gold in the ground when it would command such high rates of interest as obtain in these days?

## COAL MINING IN AMERICA AND EUROPE

Very considerable interest has been created in mining circles in Great Britain by a paper read before the North of England Institute of Mining Engineers by Samuel Dean, in which Mr. Dean argues that the principal reason why America leads in the production of coal per man employed is because large capacity mine cars are used in the United States.

The Engineering Supplement of the London Times comments as follows, dealing with the question, of course, from an English point of view:

"In this country mine cars, or tubs, of about 1,000 lb. capacity are in general use, while in the anthracite

regions of Pennsylvania the capacity ranges from two to five tons, with an average of about three and a half tons. The best American cars are fitted with roller-bearings, and spring draught-gear, which reduce the heavy load at starting and the amount of draw bar pull due to friction. Another cause of the high production per man in America is the extensive use there of coal-cutting machinery. In 1913 more than half of the total amount of coal mined in America was machine-cut. Constant improvement is being made in the type and details of coal-cutting machinery, and the once popular pick or punching machine appears to be giving place to the turret or overcutting machine, and the shortwall or continuous cutter. The latest improvement is said to be a combined cutting and loading machine. Electricity is the favorite motive power in American coal mines, and it is used with less restriction than in England; notably, the use of electric trolley locomotives is permitted. Notwithstanding the vaunted thoroughness and efficiency of German methods, the average output of coal per man in Germany is only 300 tons, as compared with 760 tons in America. In this connection, Mr. Dean points to the significant fact that coal-cutting machinery is in its infancy in Germany and mine cars are ridiculously small. Considering the proverbial deliberation and caution with which radical changes are made in this country, it is highly improbable that any considerable or rapid revolution will take place in our mining methods. Changes, however, there must be, and it is wise that in making them, we avail ourselves of the experiences of other countries."

In comparing the production of coal per man employed as between the United States figures and those of Great Britain and Continental countries, however, allowance must be made for the extraordinarily favorable natural conditions under which coal is mined in the United States. In the coal regions of that country the coal seams are in many instances very thick, but slightly inclined, clean and free from dirt bands, with an analysis varying within narrow limits, favorably situated for haulage and drainage, and persistent over very large tracts of country. Nowhere, perhaps, in the world can coal be so easily and conveniently mined as in some parts of the United States. In Great Britain, on the other hand, the thickest and best seams are to a large extent exhausted, and coal is being mined from thin seams, in many instances at a great depth. Inferior seams are being also worked, scientific preparation of the coal by screening and washing being relied upon to produce a marketable fuel. What is true in this regard of Great Britain is true in a greater degree of Germany. The coal-seams of that country are notably impure, and occur in seams that are much contorted, presenting problems that would cause much worry to those who have had nothing more difficult to tackle than the problems say of the Pennsylvania coalfield. It is the "brassy" impure nature of the German coals that has forced the Germans to be pioneers in the washing and preparation of coal. It is therefore rather a misleading statement to remark, as the Times writer does, that "notwithstanding