The World's Nickel Industry SEEKS TO LIMIT and Canada's Share in it

Reasons Why Canada Must Refine Her Own Nickel.

By NICKELAS CANUCK

The World has done well to educate the public on the nickel industry. As uestion in Canadian economics it is of first importance; and since nickel is essential in modern navies and armaments, it is an imperial question also.

To make this a little plainer to the reader, let us present more facts about the uses of nickel and Canada's relation to the world's output of this remarkable metal. As the Chinese were the first to use paper, gunpowder and other manufactures, so were they the first to make use of nickel.

An alloy of nickel, copper and zinc, called pack-fong, has been used in China from time immemorial; but modern discoveries and the advance of chemistry and other sciences have increased the uses of nickel wonderfully in the last few years, and these uses will multiply yet more. Two of its qualities will ensure this development: First, when alloyed with most metals it increases their strength, toughness and durability; and second, it is rust-proof, and to a great extent acid-proof. Its firstmed qualities have rendered possible the flying machine, the automobile, as well as the modern pattleship, the submarine and modern armaments. Its second quality has rendered practicable the manipulation of many chemicals and industrial products that could not before be made, or only at great cost. It will be seen at once that a a law of this kind be applied for at the metal which will resist water and steam, and to a great extent acids, will greatly extend the scope of hundreds of special industries; and since an alloy of only 2% to 31/4 per cent, of nickel in steel will give it such increased strength that it has already ced ordinary steel in structural work, it becomes clear that for the purposes of modern industry no metal is so essential as nickel. And yet, so far, the chief actual use of the bulk of the world's nickel output is in making engines for human slaughter. In actual ratio from four-fifths to nine-tenths of the world's output goes into armor plate and ships' plates and guns and other equipment for war on sea and land.

What are the sources of nickel? Roughly speaking, three-fourths of the world's supply is mined in Canada; and it is a remarkable fact, concerning another mineral product used also very largely in the arts of war and peace, that about the same proportion of the world's supply of asbestos is mined in Canada, and in neither case has advantage been taken of our situation to develop to their logical conclusion the industries dependent upon the raw material.

The chief nickel-bearing area of Canada is in the Sudbury district of Ontario, and as he desires to get the opinions of lies in the form of a great basin, 36 miles long by 16 miles wide, in the shape of a boat, with its bow pointing to the northeast. In view of the actual contour of the surface outcrop and the financial results to the mining companies and the armor plate firms who exploit them, it might be compared to a huge water melon, the nickeliferous rocks of the area representing the rind of the melon. On one mine alone in this region 35,000,000 tons of ore have been proved. The cobalt-silver ores of the Cobalt region also contain an average of 1.47 per cent. of nickel, and the the nickel is not paid for in the output of these ores the amount of refined metal from Cobalt amounts to 600 tons a year.

The next and only large source of nickel is the French penal colony of New Caledonia, 900 miles from the coast of Australia. Here the ores are found in narrow bands, not more than half-a-mile long and mixed with waste rock and red clay. It occurs mostly in mountain heights and the work of stripping off the clay and getting the ore down to the coast and finally the long ocean voyages are obstacles to the competition of these mines.

Limited deposits of nickel are found in Europe. Prussia and Saxony are the chief sources in Germany, and it is to be recalled that one alloy is known as German silver. No figures are allowed to be given of the German output and we only know that the deposits are not large, nor the output increasing. Finland, Sweden and Norway produce nickel. The Norwegian is the chief of these, but the ore only yields 14 to 24 per cent, of metal and Norway's contribution to the world's output has become negligible since the recent development of the Canadian and New Caledonia mines. There was a recent discovery in the Greek island of Lokris, near Athens, but not much is known of its extent. Small quantities have been found in Australia and not long since deposits have been discovered in Cape Colony, which may prove important. In the United States limited deposits have at various times been found in Pennsylvania, Virginia, North Carolina, Missouri and Oregon, but none of these are promising, owing to the low grade of the ores. Small quantities have been found in Cuba, the only further source in America.

The Sudbury ores vary in richness, ranging from 2 per cent. to 15 per cent. They will probably average 21/2 to 41/2 per cent. of nickel, besides copper and other ing on University avenue. The buildminerals, with which they are mixed. These mixtures were for years a difficulty in reduction of the ores, but the difficulties have been overcome, and in one case the combination is an advantage in the production of a remarkable metal known as Monell metal, named after Monell, the president of the International Nickel Co. The Monell alloy is of a silver-white appearance, takes a brilliant polish, can be rolled or cast like copper, bronze or steel, is stronger than either steel or bronze, yet as smells will be completely stopped. He flexible as copper when rolled in sheets, and so ductile that wire can be drawn out to one 4000th of an inch, so that it is as pliable as silk thread. This is an alloy of nickel and copper and it is singular that the ore of one region of Sudbury gives the very proportions for this alloy, so that it can be smelted direct without separate treatment. It is worthy of note that the Creighton Mine of Sudbury, which is the largest single mine in the world, has the high average of 4.68 per cent, of nickel and 1.65 per cent. of copper in its ores. Regarding the Sudbury deposits, Prof. A. P. Coleman. who has examined these regions thoroly, says that in the southern range alone, the nickel cruptive is over three miles wide and, with an average dip of 30 deg., each mile of the sheet would contain 4,400,000,000 tons of rock in which the workable metal might be 2,500,000 tons per mile.

From these facts the reader can make the deduction that the world depends on Canada for its supply of nickel, taking into account all its known sources. But to get another measure of Canada's predominance in this material, let us take the recent development of the industry. A German metallurgical authority estimated that in 1906 the world's production of refined nickel was 14,300 metric tons (a metric ton is 2,204 lbs.), of which the mines of Ontario produced 10,776 metric tons. Now in 1912 the world's estimated production of the refined metal was 26,500 metric tons, of which Ontario supplied 22,421 tons. The significance of this is that Ontario has in this period contributed to the world's increase. 11,645 metric tons, while all other countries put together have only contributed 555 tons to the world's increase. A further fact is that while the output of Ontario has increased, as indicated, the sports of New Caledonia-the next largest source-have in recent years remained stationary.

Why the navies of the world are dependent on Canada will appear from a few elementary considerations. To get the same strength of armor with ordinary steel a warship would require plates at least ten times as thick as with nickel steel. This would add so seriously to the weight of the ship and would so reduce (1st) her coaling capacity, (2nd) net tonnage, (3rd) speed, that no approach could be attained to the present efficiency of ships in any one of these directions, because no other known metal and no alloy yet introduced can give the required results. The same effects that apply to battleships apply with added force to submarines, to destroyers, to light cruisers, as well as to the internal equipment of each of these types of war craft. On the other hand, the increased strength imparted to guns and to the mechanical devices for handling them, as well as to their projectiles, torpedoes, etc., by the introduction of nickel alloys counts as strongly on the offensive as on the defensive side. so that it may truly be said nickel is the one essential element in modern war equip-Now, the statistics given elsewhere, show that the great bulk of the world's production of nickel-let us say, four-fifths-goes into armament, and of this total production more than three-fourths comes from Canada. Hence it follows from these ratios that it is in the power of Canada to stop the increase in the world's armaments by her control of the nickel output. If Russia, by legislative edict, has stopped the drinking of vodka thruout a vast empire and made a drinking nation sober, why cannot the Canadian Government by a flat check the armament insanity?

This can only be effectually done by controlling the refining processes within our own borders. No promise or undertaking of a company operating outside of Canada can be relied on to restrict the export, for the reason that the offer of high prices will always enable a belligerent country to get it thru a neutral, by indirect and covert means. From the statistics published the other day it appears that the United States exports of refined nickel cutsoff from Germany and Italy under the arrangement with the International Nickel Company since the war have been more than counterbalanced by the unusual increase in the imports from "other countries." In the ten months to Oct. 31, these "other countries" imported from the United States nearly 11,000,000 lbs., whereas the normal imports of Germany the year before were 2,527,000 lbs., and of Germany and Italy combined, 3,850,000 lbs. Those who have studied history know how ineffectual were Napoleon's decrees and embargoes on trade. It is only because Canada has a virtual monopoly of the amount of nickel needed in armaments that we could make this effective, and then only by, first, limiting the output. and, second, designating its destination.

roasted form, known as matte (from the French matte, signifying dull or dim), and single objection which the refiners can raise that cannot be dismissed as trivial men all of whom must be Varsity of this matte over 43,000,000 lbs. goes annually to the States and about 5,000,000 lbs. when the grave national interests involved are put in the balance. The cost of the graduates or undergraduates. Their The exports to the States are sent to the refining works of the International Nickel Co. in New Jersey, which company controls the Canadian Copper Co., one of the chief nickel mining companies of Sudbury. The British did not allow itself to be balked by the theories of those who claimed that governexports are handled chiefly by the Mond Nickel Co., who, after producing their ment control of the British railways was impractical, both technically and financially, matte in the Sudbury district, ship it to Clydach, Wales, for refining. These works but the government simply stepped in and took control, and are today doing the have been greatly enlarged. Each of these corporations refines by its own pro- impossible. So it must be with the nickel industry; and if the nickel corporations stepped into the managing cess, worked out after years of difficulties, overcome by patient experimenting. A will not willingly yield to the principle that Canadian resources must be subject to third process, known as the Hybinette-after a member of the Norwegian firm of the control of the Canadian people, then the government must expropriate the Hybinette, Borthen and Henriksen, who operate mines at Evje and refine at mines. By doing so the profits of the new developments will be found to yield a Kristiansand, Norway-is now being exploited in Canada by a company known as handsome return on the investment, and all to the advantage of the Canadian the Canadian Nickel Corporation, with a nominal capital of thirty million dollars. | people and the safety of the empire. With this process it is claimed that nickel can be produced 99 per cent, pure. There are about twenty mines that are, or have been, operated in the Sudbury region of which nine are of importance, and of which the companies operating them have an metal for nickel coinage, has no nickel coins in its own monetary system. aggregate capital of about a hundred million dollars.

stated that in the production of metal worth \$11.56 there would be a profit of \$4.96, a value of \$1,830,000. A Canadian nickel coinage should be issued and made from men for the 33rd battalion of the third after deducting all operating expenses. But the valuation on which this estimate nickel refined in Canada.

Only Once Last Year Was Infection Found by Analysts.

next session of the legislature.

In his campaign speeches Mayor-elect Church stated that he was not in favor of the budget for the following year being made up in December. Controller O'Neill is more or less of the same opinion, as he thinks it would be hard to estimate the civic revenue so far in advance, and it would mean the committing of the new council by the one preceding it. The controller has not taken any definite stand, however,

Six hundred and forty-five men are at present engaged in the different parks three days a week. This is part of the relief work of the parks depart-

Water Bad Once. Only once during the last twelve months was the water of Toronto in-fected, according to a statement made by Dr. Hastings yesterday. The last analysis made shows the water to be

Mayor Hocken does not think that a fair comparison in hydro rates can be made between Toronto and other cities, as the overhead charges are much greater here. The cost factor is the vital item in establishing rates. The mayor is in favor of adopting the Hamidea of a minimum monthly bill of 50 cents.

May Ask Recount. The many mistakes in the Yeomans-Hiltz recount has stirred up James Simpson, and it is stated that he will probably ask for a recount of the board of control ballots. Mr. Simpson was only 142 votes behind Controller-elect Mr. Simpson was Thompson, and he thinks that with so many gained in 2900 votes the recountover 46,000 votes should make quite a difference.

mission took out a permit yesterday for the erection of a six-storey build-

The smell from the abattoirs in thinks that the abattoirs will decide the question themselves by installing machinery to treat their sowege, and that much has already been done to prevent the nuisance. As a matter of fact the abattoirs are under federal jurisdiction and the city has as much reason to complain of conditions as those directly affected by the odors. Owing to the death of Mayor C. M.

Graham, of London, Mayor-elect Church becomes president of the Union of Canadian Municipalities. He was st year elected vice-president of that becomes president.

Oppose Annexations. In the near future Alderman Cam-eron will put a motion to the council asking that the council go on record as being opposed to any annexations during the year. Mr. Cameron has al-ways opposed the widespread annexation that has come before the council

of late years. In spite of the winter weather the work of harbor improvement goes ahead, and the plant is being kept in

There is some little difference of opinion as to whether there is to be the usual luncheon after the inaugur-al meeting of the city council Monday. The World was unable to get any definite information in this regard, except that if there is a lun-cleon it will not be paul for out of the Only a few of the members have call-

Alderman Cameron Will Move That Law Be Applied For.

WATER SUPPLY IS GOOD

On learning that there was no law making it a crime for a contractor to make a contribution to the campaign fund of any candidate for municipal honors, Ald. R. H. Cameron said yesterday that he was very much surprised, and that he would make a motion that whole thing arose out of the fact that James Simpson was handed \$200, which he turned over to Crown Attorney Cor-

No Stand Yet.

The Ontario Hydro-Electric Com-

body ,and according to the constitution

good shape for an early start in the spring. Some of the pile-driving will be done during the winter.
City Would Not Pay.

Right Now-Buy Furnishings

Stock Reducing Commences This Morning

For Men who wish to save money on furnishings of the best this is the most important news in today's paper.

You are offered your choice of the best

furnishings that money can buy at reductions such as we have quoted below. There is not a man in Toronto who can't find just the haberdashery he wants here. At every price you'll get an unequalled bargain. Remember Dunfield Sales are only held twice a year, the object being to reduce stocks so as not to carry anything over from one season to another.

ield" Label Scotch Zephyrs and English Oxfords, soft or stiff cuffs. This means every fancy shirt in the store that formerly sold at \$1.75 and \$2.00, for

1.35

BANDANAS

Beautiful Neck Scarfs in red and yellow and green and red. Regular price \$1.50,

Fancy and plain shades. Reg-

Crossbars and neat patterns. Regular price \$1.00 65c ular price 50c and

UNDERWEAR

and \$2.25 1.65 Regular price \$4.00 Regular price \$4,00 3.35

GLOVES

or gray shades. Regular price \$2.00 and \$2.25 . 1.65

PYJAMAS

all colors. Regular price \$2.50, for ... 1.85

merly sold for \$2.50 and \$3.00

White Neglige with self cords

- soft and stiff cuffs, best

known makes, soft or pleated

bosoms, were \$2.50 and \$3.00,

Dunfield & Co. Sale at 102 Yonge Up-Town 426 Yonge

take the oath of office, and these are | year's work opened up before breaking | members of last year's council that just happened to drop in. The official notification has not been sent out yet. Ald. John Cowan made his first vised He doesn't intend to make a high splash with notices of motion at the first meeting, but when the year's business gets under way he will be on the job.

Keeping At It.

Ald. Ryding doesn't intend to let der of the seats is O'Neill, Spence the abattoir question that is bothering his ward these days get cold. He says that he is going to try and have the mayor-elect live up to his campaign promises to have the smells put under promptly.

Present indications are that few i any notices of motion will be brought up at the inaugural meeting of the council. Most of the

feel that it is just as well to get the ed at the city clerk's office yet to was based was 30 cents a pound; whereas THE NEW YORK ENGINEERING AND MINING JOURNAL of that date quoted the market price of nickel at 45 to 50 cents per 1b. on contract sales and 55 cents on small lots of 100 to \$00 lbs. Then the dividends of the International Nickel Co. have increased from 3.8 per cent, in 1903 to an average of about 12 per cent, in the last three years. In 1911 it was 26.3 on its preferred and common stock combined. The actual cash distributed in dividends was upwards of four million dollars a year in both 1912 and 1913, besides a surplus of nearly a million dollars. The Mond Nickel Co. did lose money in its years of experimenting, but in recent years its dividends have been from 48 to 55 per cent.

on preferred shares and 16 per cent. on ordinary shares, These amazing profits and share values have been created by the rapidlycreasing uses of nickel, and especially because of the growth of naval armaments. and it is perfectly obvious that the refiners of the nickel are fn close business relations with the armor plate and armament firms, who are their largest customers Apart from any question of economics, this is an over-mastering reason why such an industry should be nationalized. Self-government is a nullity when a private corporation or group of corporations can defeat the national will by such means.

The past development of the nickel refining industry in the U.S. by Canadian ores was a natural one; but its further development to the disadvantage of Canada and the whole empire presents a new problem, the only solution of which is the staff of the Fourth Artillery Brigade. Practically no nickel is yet refined in Canada, but it is shipped in a partially complete reduction of all Canadian nickel in Canadian refineries. There is not a The entire corps will consist of 19 transfer of works sufficient to begin on an adequate scale would be covered by the rank will be gunners. profits of a single year. When Great Britain found herself at war the government

Another reflection on our apathy is that Canada, which produces nearly all the United States, France, Switzerland, Brazil, Turkey and other countries use nickel coins extensively. The U. S. is now preparing 3-cent, 1-cent and 1/2-cent coins of As to profits, the Mond Nickel Co., in its prospectus announcing its extensions, nickel, and before the war Turkey was preparing to issue 330,000,000 nickel coins at Thomas for the enlistment

in with new tasks. Some of the members of council are against Ald. Wickett's proposal that the board of control should be chairmen of the different committees. Mayor Hocken signed bonds representing \$1,000,000 yesterday. The board of control seats in the council chamber have been allocated with Controller O'Neill in the first seat, indicating that his being chairman of the board is assured.

Foster, Thompson.

Three Men From Victoria College Leave Burwash Hall Today.

Leaving today for Exhibition camp Sergt. Robert Bennett, Sergt. Fred Henderson and Pte. Ross Taylor, three Varsity men, will go with the second contingent, and Bennett and Taylor expect to be on the firing line in France within three weeks. Henderson will be with the intelligence corps, which will consist of 19 men. The three students are third-year men at Victoria College. They leave Burwash Hall this morning. The faculty of forestry is sending a quota. Arch Trebilcock, Douglas its quota. German and Arnold M. Thurston were the three men from forestry who joined the intelligence and signaling

corps attached to

C. M. G. Purchase of the secondyear school is also a member of the second contingent. Thurston was associate editor of The Varsity during the last term, and he was to have position this year, but his departure has left the position vacant, and the staff are at present in a quandary

the headquarters

RECRUITING AT ST. THOMAS.

about appointing a successor

ST. THOMAS, Ont., Jan. 7 .-- Lieut. Col. W. J. Green has received orders from the militia department at Ottawa to open a recruiting office in St Canadian contingent,

Examine Permanent Causes of Unemployment for Means of Stopping It.

There was a full attendance of members at the first meeting of the On-bers at the first meeting of the On-"When we come to treat immigration" "When we come to treat immigration to the control making members to the control of the tario Unemployment Commission yes-terday afternoon. W. P. Gundy was an imperial problem we will bring to clected treasurer at the outset and G. Canada only such people as are best E. Jackson, secretary. Sir John Willi- fitted for the Dominion and as will best "This commission was appointed to tive results of their labour in this son made the following statement: examine into the permanent causes of country.

recurring unemployment in Ontarie and to recommend measures to mitigate or abolish the evil. I understand that the municipal bodies, boards of trade and commission is to devote itself wholly manufacturers' associations and to the question of unemployment and cularly the labor unions without whose not to questions or rates of wages. In any investigation that we may under-take we will not feel that we have any to add that this commission is nonright to expose the business of private partisan in character." irms to the public.

"The whole object will be to deter-nine the volume of unemployment, to consider its causes and if possible t suggest such measures as will ensure the certainty of a decent living fo every man or woman who is willing to work. If new sources of permanent employment can be discovered the pressure upon the labor market will be relieved, wages will be steadied and the general position of labor improved.
"Probably the commission will have tachment of Armenian volunteers had to consider existing relief methods and the bearing of immigration upon the unteers were given an enthusiastic reproblem of the cities. The volume of immigration should be adjusted to the ability of the country to absorb any influx of population. Ultimately it may be necessary to have a national and

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and national labor exchanges, co-operating to bring to the Dominion only such people as can improve their posi-tion here and of such character as the

"I trust that we will secure the

ARMENIAN VOLUNTEERS TO FIGHT FOR RUSSIA

Canadian Press Despatch. LONDON, Jan. 7, 8.40 p.m.-Reuter's Petrograd correspondent transmits a tachment of Armenian volunteers had

ception. The Armenian volunteers evidently are to serve with the Russian army in the campaign against Turkey.



TOD interesti

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Under to Red Cross Jessie Mcl ed choir of wood Ass evening at engaged S the voices parts of the 18 years of have not have not will also be McNab with voice each Saturuntil furth