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The Future Development of the Mineral Resources of Canada.

Canada, one of the oldest and largest of the British Possessions, is forty times as big as England, but it has only about one fiftieth of the population of the Mother country, namely, 10,000,000 persons. As most of these people live in towns along the St. Lawrence valley, there are vast tracts of uninhabited and practically unprospected land. However, it seems that this is not to be, for long, as the population of the Dominion of Canada is growing rapidly. So quickly has it grown, that in forty years it has doubled itself, and there is no reason why it should not continue to do so in the future, as Canada has about fifty-three thousand immigrants annually. The climate of Canada is one of extremes and is very healthy and suitable for European occupation.

The country is rapidly developing, and, in the last 15 years has advanced from being the tenth to the fifth most important trading country in the world.

Forestry and agriculture are the oldest occupations, but the manufacturing industries have reached an importance that rivals that of the older pursuits and there is no reason why it should not surpass them within the next few years, so rapid has been its growth up to the present times. The future development of the minerals of Canada depends

on two things: (1) The cost of mining the minerals and their abundance

(2) The demand for them.

Let us first of all consider what minerals are to be found in the territory. British Columbia mines zinc, copper, coal and lead. Alberta produces coal, petroleum and gas.

Saskatchewan mines zinc.

Manitoba mines copper and zinc

Ontario produces gas, cobalt, copper, zinc, silver, gold, lead, iron and cement.

Quebec mines zinc, asbestos, and copper, while a great deal of the Canadian coal comes from Nova Scotia. At the same time there are many minerals produced by these mines as a by-product. e.g. Antimony, Arsenic, Manganese, mercury, Molybdenum, pyrite, platinum, titanium, Tungsten, Barite, Celestite, Corundum, epsomite, feldspar, Glauber's Salt, graphite, gypsum, mica, Sodium Carbonate, Sodium Sulphate and talc etc.

- (1) On glancing at a map showing the location of mines one notices a very significant fact, namely, that the mines (aside from placers) which have been, and which are, responsible for Canada's mineral production are all situated within a narrow belt, 100 miles or less in width, along the Southern boundary of the country—that is, contiguous to the first trans-continental railway—or they are adjacent to the Atlantic or Pacific coast. This statement must be qualified, ~~since~~ since it omits to take account of the silver and gold deposits of the Porcupine and Cobalt districts of Northern Ontario. The latter, however were actually discovered during the building of a railway, and this discovery, by attracting hundreds of prospectors to the district, was directly responsible for the finding, within a few years, of the gold deposits of Porcupine, less than 90 miles distant. These exceptions, therefore only lend point to what was inferred

above: that the present distribution of mines in Canada is almost entirely accidental, and, so far as inland mines are concerned, it has been determined by the chance of railway routes, which were selected for convenience and without any regard at all for the possibility of opening up mineralized areas. Geological evidence, at least, warrants the belief that, in the number and richness of its mineral deposits, this narrow southern fringe will prove little if any more than a fair average of the whole country.

The steadily growing annual mineral production, also, indicates that this belief is well founded, though, taken alone, figures have little real significance, and are no guarantee of similar expansion in the future. The increase might be due to greater and greater production from the same ~~same~~ mines or districts, and therefore at the expense of depletion, which might not be many steps removed from exhaustion. The remarkable feature of the growth of Canada's mineral industry, however, is that it has been due to a regular succession of discoveries, not merely of new deposits in old districts but of totally new districts. Thus, fully one-half of the value of the present mineral production comes from districts in which the mines had barely started production 10 years ago.

When one considers the vast extent of territory which can hardly be said to have been examined at all, one may reasonably conclude that new orebodies and new mining districts will continue to be discovered in the future with the same frequency as in the past.

From the standpoint of mining, Canada is a land of wonderful possibilities. No country in the world holds greater promise of reward for the prospector.

Notwithstanding the extreme youth of the industry, as a producer of minerals, Canada already stands high among the countries of the world. Mineral deposits

of one kind or another have been found in every province.

Canada produces 80% of the world's supply of nickel and asbestos, and it also produces great quantities of the following minerals: Silver, Copper, zinc, arsenic, gypsum, felspar and talc. It is the world's second largest producer of gold, lead, graphite and mica, added to this the coal reserves of Canada are estimated at 16% of the world's reserves.

From this it appears that there is almost untold wealth in the form of minerals, so we only have to consider the available markets. As stated before, Canada, in 1929, produced 80% of the world supply of nickel and asbestos. However, progress in this field ^{may not advance} so rapidly in the future as it has done in the past, owing to the marketing of Southern Rhodesian asbestos. This applies to nickel as well, for though there is an abundance of the mineral, it will be more difficult to find a steady market for it, as the almost certain less demand for nickel for armaments will have to be made good by developing new industries. However this is partly made good by the growing demand for nickel to be used in the manufacture of motor cars. The visible ore reserves, alone, assure the industry of a life to be measured by decades rather than by years. America is at present the chief importer of Canadian nickel and asbestos. China and the U.S.A each take about half of the silver production. Japan takes aluminum and lead, while Belgium and Germany each take about half of the zinc produced. The important trade relationships existing between the dominion of Canada and the United States of America is nearness and ease of transport and will keep the States, Canada's best market, but, as America has considerable mineral wealth herself, it is unlikely that the import of Canadian minerals into the States will grow to any great extent. However, the great manufacturing centres of Europe

and Japan will absorb many more times the quantity of the minerals which they are using at present, provided the cost of production is cheap as compared with other countries.

This is where Canada scores, as she has immense rivers which generate more than sufficient hydro-electric power. As these rivers never dry up, being continually fed by the snows from the mountains - trains in Canada haven't to cross arid waterless tracts of land. They are also the means of cheap transport.

With respect to coal, Canada has, what is estimated to be 16% of the world's coal reserves. Even so, however, it is much cheaper to import American coal rather than transport it the some 1500 miles Canadian coal has to go to reach the important manufacturing towns, but much ^{of the} coal is used locally.

Manufactures are at present almost equal in importance to the older industry of agriculture, but undoubtedly they will increase rapidly in the future. This will call for more metals, coal and other minerals, and, having such quantities of these in the country, mining will develop very quickly. Canada is at present noted for the manufacture of: Heavy machinery, Motor cars, farm implements, etc. and also for its canning industry. As these various occupations are growing rapidly they will demand more, and more metals. Thus the Canadian industry of mining is assured of a steady market in the Dominion itself.

There may be less demand for Canadian copper for a short while, owing to the import, by America, of Northern Rhodesian copper in preference, as the Americans own large interests in these mines. At present, however, the U.S.A. are still the chief importers of Canadian Copper. Taking every thing into consideration, there is no material reason why the future mineral prospects of Canada should not be remarkably promising.

William Sydney Stock.

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The following is a list^{of books.} from which passages were quoted
and general facts obtained:

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 - (1) 2 Transactions of the Institute of mines and Metallurgy
1924-25.
By. R.P.D. Graham.
 - 3 The Teachers World.
 - 4 The Pupils class-book of the Geography of the British Dominions.
By. E.J.S. Lay. F.R.G.S.
 5. Philips Large Print Atlas.
edited by. George Philip. F.R.G.S.
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