

## APPENDIX No. 1

Q. I understand you to say that as a Canadian and a zealous public officer, you hope and dream and believe that bauxite will be discovered in Canada?—A. I hope it will be.

Q. But so far as your own knowledge at the moment is concerned you do not know of any?—A. No, but I would expect it to be found somewhere in Canada.

Q. What leads you to form that expectation?—A. Because we have in this country almost all the known minerals.

Q. It is just a dream you have?—A. No, it is not a dream; we have the geological conditions under which it may be found, and where it may be looked for.

*By the Hon. Mr. Domville:*

Q. Have we the basaltic formation in Canada?—A. Yes.

Q. Is bauxite the erosion of that?—A. I am not prepared to answer that question—what do I understand from that?

Q. The breaking away of it and forming of it into clay beds.—A. I am not prepared to answer that question.

*By the Chairman:*

Q. I think I noticed that you were rather inclined to the opinion that aluminium could be manufactured from some of those clays without the use of bauxite?—A. Yes.

*By Mr. Foster:*

Q. I understood you to say that aluminium could be made economically and profitably from pyrophyllite?—A. I did not say so, because I do not know at all; but I do not see why it could not be if it is as high in alumina as the senator says.

Q. But you do not know from your own knowledge?—A. No, I said so.

*By the Hon. Mr. Sullivan:*

Q. After the metal is extracted there is no other compound that could be more easily removed that could be put to economic uses?—A. An alloy of aluminium?

Q. No, I do not mean an alloy, but any compound from the ore?—A. No, I do not know of any.

Dr. HAANEL, Superintendent of Mines in the Department of the Interior, being called, was examined by the chairman as follows:—

Q. Will you please give your titles?—A. I am a Doctor of Philosophy of Breslau University, in Germany, and for about sixteen years was professor of chemistry and mineralogy and geology in Victoria University, Cobourg, afterwards professor of physics in Syracuse University, and a charter member of the Royal Society of Canada.

Q. The committee has asked you to come here to see if we can find evidence of the existence of alumina or clays and to learn if possible, if there is any economical way, either by using the present system or discovering some new system of separating the alumina from the ores we have in Canada?—A. As has been stated before, aluminum is made from alumina; that is to say, whatever ore is made use of, it is first converted into alumina.

Q. That is an oxide?—A. Yes,  $Al_2O_3$ . It then afterwards remains to get rid of the oxygen. There are two ways of doing that—in fact there are three ways—either the alumina may be mixed with carbon and heated to such an extent that the oxygen will combine with the carbon and allow the aluminum to be set free, or sodium may be made use of for the purpose of combining with the oxygen of the  $Al_2O_3$  and allowing the aluminium to go free. The third method is that of electrolysis of the alumina. For that purpose a bath is required which will dissolve the alumina and an electric current is allowed to pass into that liquid, aluminum will then deposit on the cathode, and the oxygen will disappear from the alumina. I have here a piece of aluminum which was