

passed in favour of phosphate rock from Montana. The Consolidated Mining and Smelting Company has three big mines over there from which it draws its supplies for making Canadian phosphatic fertilizers. In the east, there is a great deal of apatite, (tri-calcium phosphate) distributed in many small deposits in the Gatineau-Lievre district, and Bedford and Burgess townships in eastern Ontario. Production of apatite is an industry that has gone on for many years, but I do not think that in any one year since 1910 was there much more than a thousand tons production, and we require roughly—I speak subject to correction by Mr. Peart—300,000 tons of phosphate in Canada for our fertilizer requirements. Indeed, that is hardly enough. Apatite as a source of phosphate is very expensive. It occurs with other minerals, commonly mica, and sometimes is obtained as a by-product of mica mining. The entire Canadian production is at present taken by the Electric Reduction Company at Buckingham for the making of elemental phosphorus, baking powder and other phosphorus products. So there is no great source of phosphate in our apatite deposits.

For a number of years we have known of deposits of titanium-iron ore along the Saguenay river near Arvida. They have in the past been of interest mainly as sources of titanium, but in some parts of these deposits is a lot of this phosphate mineral, apatite. Most of the work done to date on these deposits has been in connection with the iron and titanium, and we have not looked greatly into the phosphate possibilities, but we propose to look into it from that angle very shortly, and we shall have some further information in a month or so's time.

That pretty well disposes of the phosphate, except for the slags. In Nova Scotia at the plant of Dominion Steel and Coal Corporation they use a high-phosphorus iron ore which comes from Newfoundland, and there is quite a content of phosphate in the slag. A plant is being built to utilize this basic slag for its phosphate content, and to provide at the same time a source of lime for the soil. That is a Nova Scotia government project.

The potash situation in Canada has been dealt with by Mr. Cole.

There is a great deal of sulphur goes into fertilizers; in fact I think they account for by far the greatest use of sulphur, either as elemental sulphur or as sulphuric acid, on this continent. We have no native sulphur in Canada, but we have large resources of sulphates and sulphides, that is minerals in which sulphur is combined with other materials. In connection with the smelter at Trail, everybody has heard of the fume problem out there years ago. That was turned to good account by recovering sulphur compounds from those fumes. It was the sulphur compounds that did the damage; and now Trail is a great source of sulphuric acid for fertilizers. Noranda mine has a lot of pyrites, iron sulphide, in its ore. They are recovering this pyrites, and have been selling it for years as a source of sulphur. It is also available at Waite Amulet and at the Britannia mine of Britannia Mining and Smelting Company. Pyrites is a great source of sulphur in Europe, particularly in Spain, Italy and Germany. In Germany it is utilized a great deal. We have possibilities in Canada of our pyrites supplying large quantities of sulphur. Then, down in the maritimes, we have huge beds of gypsum and anhydrite. Gypsum is calcium sulphate with some water in it; and anhydrite, is the straight calcium sulphate. Anhydrite is not used at present to any extent. There is now a proposal to use it as a source of sulphur, mixing it with phosphates that are brought up from Florida. This proposal has very real possibilities. You have a by-product there of Portland cement. The success of the whole thing depends largely on the selling of the Portland cement. If you cannot sell the Portland cement by-product it is not economic in competition with supplies that can be brought in from the United States.