incident itself has committed the Government so completely that continued silence is as impossible as it is undignified.

## THE EVANS-STANSFIELD DIRECT STEEL PROCESS.

At the Canadian National Exhibition, the annual function that gives fame to Toronto, there was given an unusually interesting metallurgical demonstration. On the evening of Friday, September 8th, and during the morning and afternoon of Saturday, September 9th, Mr. J. W. Evans exhibited his electric furnace in actual operation.

Under the most adverse conditions, and handicapped by an almost total absence of facilities, Mr. Evans succeeded in reducing small quantities of titaniferous iron ore to steel of the best quality. The Friday test was begun with a cold furnace and with an uncontrolled current. Nevertheless, after five hours, the small charge of ore, amounting to less than 100 pounds, was reduced and clean ingots of steel were produced. The Saturday run was much more successful.

Mr. Evans has attacked manfully the problem of making steel direct from titanium-bearing iron ores. Ever since 1904, his time and energy have been unremittingly devoted to the development of a suitable furnace. With the aid of Dr. Stansfield he has evolved a plant that is, apparently, a commercial success.

This means much for Canada. There are many known deposits of titaniferous iron ore. No serious attempt has been made to utilize these. It is known that most of these ore bodies carry a small percentage of vanadium. Sometimes, also, nickel is one of the associated elements. As the electric furnace designed by Mr. Evans is strictly controllable, the desired proportions of titanium in the alloy can always be obtained. The steel inherits nearly all the vanadium and nickel.

Physically, the steel turned out from Mr. Evans' furnace is free from defect. Occluded gases are absent. There are no flaws, neither are there signs of segregation. The product appears to be thoroughly homogeneous. In effect it is a valuable steel alloy possessing all the attributes that are required for a high-speed tool steel.

Credit is due the Canadian National Exhibition and the Ontario Bureau of Mines for assisting Mr. Evans in making his public demonstration. Credit also is due to Mr. Evans for the plucky manner in which he has stuck to the discouraging task of making people believe that there is something in his invention. For more than seven years he has been engaged in perfecting his furnace. He has reached the stage at which he is ready to submit his claims to the most rigorous examination. Unlike the average inventor, he has made no appeal to the investing public, although his process has met the approval of all who have looked into it.

That the Canadian National Exhibition should have been the first Canadian corporation to enable the inventor to exhibit his process is gratifying. It is, incidentally, a sign that the directors will succeed in their aim. Sooner or later they will make the Exhibition an international event.

The example set by Mr. Evans should be followed by others. Among the vast crowds that throng the Exhibition annually are many who are interested in mining. A "process" exhibit is always instructive. No description can carry the same meaning to the reader. The person who once sees ore being crushed and treated has always a peg upon which to hang further information. The manufacturer of machinery who does not realize this is losing a supreme opportunity.

To return to our subject, if Mr. Evans has solved the riddle of cheap direct steel, and we believe that he has, he has placed a premium upon numerous hitherto worthless ore bodies in Ontario and Quebec.

## MINING IN QUEBEC DURING 1910.

A distinct improvement upon all its predecessors is the Annual Report of the Mines Branch of the Province of Quebec. Although the date of distribution has been very much delayed owing to causes beyond the control of the Department, yet it contains much material the timeliness of which is not impaired.

The total value of Quebec's mineral production during 1910 was $7,323,281, as compared with $5,552,062 during 1909 — an increase of $1,671,219. Mr. Denis attributes this increase in part to the more complete collection of data. Nevertheless, the greater part of it may be assigned to larger outputs. For instance, the value of asbestos produced during 1910 wes $2,667,829, as against $2,296,584 in the year 1909. The figure for cement was $1,954,646, as compared with $1,314,551; for brick, $906,375, as compared with $584,371; and for limestone $503,173, as compared with $457,143. Granite, marble, mica, and a few other minerals show gains. The grand total is by far the highest yet reached by the Province.

Asbestos mining was carried on very actively during the first seven months of the year. Slackening demand caused the production to fall during the remainder of the year. Mr. Denis explains that this condition is only temporary.

Titaniferous iron ore was mined for the first time since the year 1872. From the large bodies of this ore at St. Urbain, 3,596 tons were shipped. A quantity of this was used by the General Electric Company, at Lynn, Massachusetts, in connection with the manufacture of electrodes for arc lights. The titanic acid content is reported to have been from 45 per cent. to 50 per cent. The remainder of the St. Urbain shipments