

of smelting zinc there is no mystery about it, the process is simple, cheap and efficient and there is no necessity of indulging in any wild-cat experiments. Therefore, I hope that the minister will investigate the practical workings of the old processes that are in use to-day instead of taking up some innovation which has not been put to the practical test.

Mr. HUGHES. Why is it necessary to confine it to zinc alone? Have there not been great improvements made in the reduction of other ores in recent years, and are there not a great many ores more refractory than zinc? There are many gold ores that are refractory and are not easily reduced. Ores that a couple of years ago were positively irreducible are to-day being conveniently reduced, and cannot the same progress be made as to the development of the cyanide or some other processes? Why limit it to zinc?

Mr. TEMPLEMAN. There is no question as to the importance of the work to be done by private enterprise and possibly also by this government in developing more perfect methods of smelting all kinds of ores. There is a great deal yet to learn. As my hon. friend from North Simcoe (Mr. Currie) says, some important experiments have been carried on by private enterprise at an enormous expenditure and sometimes without any practical results as far as the determination of economical and satisfactory processes is concerned. It will be remembered that some years ago we laid aside \$2,500,000 to encourage the mining and smelting of lead ores, and there is still in the treasury unexpended of that money a little over \$1,000,000. Zinc and lead are very closely associated in the ore. They are chemically combined in some cases, but always very closely associated. A mine might start out to be a lead mine and turn into a zinc mine when they get to a certain depth. While we have endeavoured to encourage the production of lead, the presence of zinc in lead ores has been found to be a detriment, because in the process of smelting the zinc is lost to the extent of 8, 10 or 12 per cent. The process of smelting zinc is different from that of smelting lead, copper, silver or gold ore, the zinc being volatile and going out in vapour. It cannot be recovered afterwards. There is no zinc smelter in Canada. There are a number in the United States and a number in Europe. Where zinc ores are smelted lead is not usually present in the ore at all, but where lead and zinc are combined, according to the process in existence to-day, the zinc is penalized because of its presence. Lead is present in such enormous quantities in the ores in British Columbia that those interested in the industry are quite willing that the sum of \$50,000 which

we propose to expend should be taken out of the lead bounty fund and set apart for the encouragement of smelting zinc ores. This is not a new charge on the revenue, but it is the taking of money out of the lead bounty fund and setting it apart for investigations of the processes of smelting zinc.

Mr. HUGHES. Who is going to carry this work on?

Mr. TEMPLEMAN. The Department of Mines, under the direction of Dr. Haanel.

Mr. HUGHES. Why is there not a school of technology or a metallurgical institution established here at Ottawa where experiments of this character could be carried on? A person who has an idea that he has discovered a feasible process for reducing ores should be allowed to make experiments at such an institution without being called upon personally to bear the cost. Why should we not have an institution at Ottawa for encouraging the development of these processes?

Mr. TEMPLEMAN. I am hopeful that before long we will have an experimental station of that kind in Ottawa.

Mr. HUGHES. A big one?

Mr. TEMPLEMAN. Well, just as large as parliament is willing to justify. I hope in a few weeks we will be able to invite the members of parliament to visit that plant, and show them what can be done in producing a cheap fuel from peat.

Mr. HUGHES. You won't want the St. Lawrence power then?

Mr. TEMPLEMAN. We hope in combination with that plant in the same building to have a small plant for the purpose of carrying on metallurgical experiments just as my hon. friend has suggested. I am in full sympathy with his idea, and it is the intention of the department to accomplish results in that way. I hope that before another year we will have a small laboratory, probably on a small commercial scale to carry out these ideas.

Mr. SPROULE. The hon. gentleman promised that he would give us the result of the bounty payments, and to what extent advantage was taken of the lead bounty Act.

Mr. TEMPLEMAN. The result of the payment of the bounty for lead has been extremely satisfactory to the mining industry, and has not been a very heavy charge upon the country. The first lead bounty Act giving \$2,500,000 for the development of the zinc industry was passed about seven years ago.