

materially reduce the average cost of production and give a permanency to the industry which the present modes of working can never attain. The regularity and persistence of the bedded deposits, and of some of the veins, warrants the introduction of systematic mining by sinking, driving, and stoping, with the aid of proper machinery for drilling, as well as for hoisting and pumping. The careful dressing and selection of the apatite for the market is also an element of much importance in the exploitation of these deposits. The cost of labour in the apatite-producing districts is comparatively low, and there are great numbers of beds now superficially opened, upon which regular mining operations, conducted with skill and a judicious expenditure of capital, should prove remunerative. It must be added, that the areas in question have as yet been very partially explored, and that much remains to be discovered within them, and also, there is reason to believe, in outlying districts; so that in the near future the mining of apatite in Canada will, it is believed, become a very important industry."

With most of these remarks of Dr. Hunt's, I fully agree. But some of them are open to discussion. In his statement of the cost of extraction of apatite from the High Rock mines, he evidently omits the very important factor of interest upon the Phosphate of Lime Co.'s capital. I cannot state the amount of this capital positively, but believe that it is £100,000 stg. As it is an English corporation I suppose that five per cent. would be a fair rate of interest for this calculation. For an annual output of 5,000 tons of phosphate this would be a charge of exactly £1 per ton. Thus, the phosphate shipped from High Rock costs about \$12 at the railroad depot in Buckingham, instead of \$7. Freight by rail to Montreal is \$1.25 per ton. Cartage in Montreal from cars is 25c. to 75c. per ton. Harbour and port warden's dues are 11 cents per ton.

If shipped by barge down the Ottawa from the mouth of the Lièvre River to Montreal the cost is \$1 to \$1.50, according to despatch. The barges can be laid alongside of the ship. Thus the charges for cartage are saved. But this is probably counterbalanced to some extent by the possibility of claiming for demurrage on the part of the ship or else of the barges, if they are kept waiting.

The margin for profit for companies of large capital in this phosphate business is thus shown to be altogether too small to permit of reckless or ignorant management. Great skill is required to conduct mining operations in such a way as to guarantee the stability of the enterprise while providing punctual dividends. Any fool can extract phosphate from the surface of a phosphate-bearing belt of pyroxenite. But it requires a very skilful engineer to do it in such a manner as to afford some reasonable hopes of the work being continued profitably.

Margin of profit.