

of this was derived from the hydraulic operations of the Dominion Gold Fields, Ltd., near Beauceville. From recent reports this amount will be largely exceeded during 1912.

No chromite was mined during 1911. Shipments to the amount of 197 tons, valued at \$2,469, were made from stock piles.

The small charcoal blast-furnace at Drummondville was the only furnace in blast during the year. Here 665 tons of pig iron, valued at \$17,280, were produced.

Mica mining was considerably more active than in 1911. The total value of the mined product was \$76,428, an increase of \$24,527 over the year 1910.

The shipments of phosphate (apatite), totalled 595 tons, valued at \$5,832. No phosphate properties were operated. The mineral was won as a by-product of mica.

Graphite mining showed a marked improvement. The mineral value of the milled product in 1910 was \$15,896; whereas in 1911 the total value was \$33,613, and during the current year it will probably be much higher.

The quarrying of building materials and the manufacture of brick and cement attracted considerably more attention last year than 1910. The total value of cement, lime, limestone, brick, marble and granite was 20 per cent. greater in 1911 than in the previous year. The figure reported is \$4,925,401, a very substantial sum.

Mining accidents are reported upon by Mr. J. H. Valiquette, who is the Denis' assistant. 7,846 men were employed in mining and quarrying in the province during 1911. Of these, 3,686 were engaged in metalliferous, asbestos, or mica mines; and the remainder in quarries, clay-pits, and brickyards. Only four fatal accidents were recorded—three in the asbestos mines, and one in a stone quarry. Taking 3,686 as the number of men employed in mining proper, the proportion is 0.77 per thousand employed; while for the men employed in stone quarries and clay pits the rate of fatalities is only 0.24 per thousand. The corresponding figures for 1910 were 2.26 and 1.14 respectively. Thus the showing for 1911 is remarkably satisfactory. Mr. Valiquette ascribes the low rate partly to luck, and partly to improved methods of handling, using, and storing explosives.

A report by Mr. Valiquette on the stone quarries being operated in the vicinity of Montreal, a description by Prof. E. Dulieux, of some titaniferous iron ore deposits on the north shore of the Gulf of St. Lawrence, a report on the magnetic sands of the same region also by Prof. Dulieux, and a report on the geology of the Keekeek and Kewagama regions by Dr. J. Ansten Bancroft, are comprised in the volume.

It is patent that the Quebec Mines Branch is doing its utmost to collect and disseminate information as to the mineral resources of the province. The Annual

Report is in itself the best kind of evidence that the branch is alive to its duty. It is quite out of the question, however, to suppose that Mr. Denis, with one assistant, can do all, or half, of what is needed. The Government should have no hesitation in giving their hard working Superintendent of Mines an adequate staff.

### CANADIAN MICA.

Mr. Hugh S. de Schmid, an official of the Mines Branch, Ottawa, is the author of a new monograph on Canadian mica. This publication takes the place of Mr. Fritz Cirkel's "Mica: Its Occurrence, Exploitation, and Uses," issued seven years ago. Using the same title, and purporting to be a second edition of Mr. Cirkel's work, Mr. de Schmid's volume is fuller and more comprehensive than its predecessor.

The value of Canadian mica produced in 1910 is estimated at \$143,409. More than one-third of this total is to be credited to the Lacey mine, Sydenham, Ont., owned and operated by the General Electric Company. The remainder is mined in small quantities by numerous private operators, mainly in Quebec. The peculiar conditions that obtain in the mica market offer inducements only to the small investor.

The report under consideration covers amply the whole field of mica mining in Canada. Mr. de Schmid's analysis of the situation is timely and suggestive. We shall mention here certain conditions that limit the industry.

During his tour of the mica districts three years ago, Mr. de Schmid visited 250 prospects and mines. Of these, 213 were not operating, 138 had not been worked for two years. It is quite obvious, of course, that the majority of these mines and prospects can be worked only on a small scale, and are profitable only when the market is active. Hence the business is carried on sporadically. The operator who can afford to store his mica waits for the market to improve. The prospector who depends upon immediate returns, works only when he can sell at a profit.

The average cost of mining and preparing one ton of thumb-trimmed mica is estimated by Mr. Cirkel at \$179. This figure does not include charges for prospecting and exploring; but it is probably exact enough to provide a fair basis of computation.

The value of Canada's annual production of mica is, roughly, \$150,000, this estimate being made at the mine. The export value is about twice this sum. The stated price per hundredweight ranges between \$19 and \$59. But, owing to the lack of systematic grading, the market is unsatisfactory, both to the Canadian shipper and to the purchaser. Hence there is given the Indian mica an advantage that need not necessarily obtain.