

duct which would average about 15 per cent. of corundum. This practice was continued until the latter part of 1903, the high grade cobbled product being shipped to the United States for further concentration.

At the end of 1902, the new mill for this company was completed, and high grade, grain corundum was then produced and shipped. The practice adopted was that in use in the corundum mills of North Carolina and Georgia, the crushed rock going to mullers to separate the corundum from the micaceous and decomposition products associated with it. The fines were thus washed away and only the coarser material, after being dried and sized, was concentrated.

The large mill for the Canada Corundum Company was started in January, 1903, and about a year was required to build and equip it. It had a capacity of about 200 tons per day of corundum rock, with a production of between 10 and 12 tons of graded grain corundum daily.

In this same year a detailed contour survey of the southern side of Robillard mountain was made by Mr. John A. Baker, the whole of this slope being denuded of trees. This enabled an accurate mapping of the various outcrops of corundum-bearing rocks, noting any peculiarities of composition, and especially of the presence and relative abundance of corundum. This mining geological work was done by Mr. Alex. Longwell.

In the spring of 1904 the mill of the Ontario Corundum Company was destroyed by fire, but before the end of the year another and larger mill was designed and constructed in which the principle of concentration by dry methods was adopted. The Armstrong property (lot 14, concession 14, Carlow) was operated as a quarry for corundum by the Ontario Corundum Company until June 1, 1905.

The Imperial Corundum Wheel Company, with head office at Buffalo, N.Y., did some preliminary mining development work on lot 13, concession 1, of Mont eagle township. The material secured was sorted by hand and the high grade product thus obtained was shipped to Springfield, where it was further concentrated.

The Ashland Emery and Corundum Company were the successors of the Ontario Corundum Company, beginning operations on January 1, 1906. During this year they prospected several locations for corundum in the vicinity of their mill at Burgess Mines, especially at John Armstrong's hill, on lot 10, concession 15, of Carlow. In view of this and the difficulties attending transport, shipments were small and irregular.

During 1906 the Canada Corundum Company, under the managership of Mr. H. E. T. Haultain, did considerable prospecting and some stripping on certain lots in the first and second concessions of the township of Mont eagle on the southeast side of the York river. Most of the production for 1906, which amounted to 2,914 tons of grain corundum, valued at \$262,448, must be credited to the Canada Corundum Company. Both the Canada Corundum Company and the Ashland Emery and Corundum Company were operating in 1907, the former company producing a considerable tonnage, while at the same time endeavoring to sell the large amount which they had in stock in their warehouses. The latter company in this interval was prospecting besides making some mill runs. A few shipments were made, but mining operations were conducted on a small scale. About the beginning of the year

1908, the Canada Corundum Company ceased operations owing to over-production and the small demand of the market for graded grain corundum. Throughout the year the company was busy trying to sell this great surplus product.

Manufacturers Corundum Company.—In 1909 the Manufacturers Corundum Company acquired the mines and mills of the Canada Corundum Company, and also in the following year the concentrating plant and the properties of the Ashland Emery and Corundum Company. Mr. D. A. Brebner, with headquarters at Toronto, is manager, with Mr. E. B. Clark as assistant manager at Craigmont.

In addition to the corundum quarries at Craigmont, a considerable tonnage has been secured from the corundum deposits immediately north of Grady lake, on lots 14 and 15, concession 16, and at present from lot 10, concession 15, of Carlow township (John Armstrong's hill). Until the total destruction by fire in February, 1913, the operations of the Manufacturers Corundum Company and the consequent production have both been maintained on a large scale, but the burning of their mill will bring about a serious curtailment in their activity, as under the most favorable conditions the capacity of this mill at Burgess Mine cannot be made to exceed 3 tons daily of graded cleaned corundum, operated at its maximum capacity. Furthermore there must be an undue loss, resulting from the crowding of the material and the imperfection of the method in use which is a combination of the wet and dry process.

Progress made.—The corundum industry of Canada, as represented by the operations of the companies, an epitome of whose history has just been related, has made very substantial progress in spite of very many disadvantages. Most of these difficulties were in a manner inherent and peculiar to the product sought to be exploited. Perhaps the most serious disability from which the industry at first suffered, related to its concentration and preparation for market, but closely related adverse conditions affected the selling of the refined article when brought to the high standard aimed at and reached. Almost from its inception it had a worthy competitor in carborundum and a little later alundum, and both of these artificial abrasives have in many fields successfully challenged the superiority of the natural substance. In spite, however, of this very serious competition, there is a steady and a very insistent demand for corundum, which may be regarded and with good reason, as preferable to all other abrasives in certain classes of work. In spite of the very substantial assistance from a practical point of view of the Ontario Bureau of Mines, which in the first place not only directed and controlled the prospecting for corundum, and the concentration of corundum-bearing rock, but helped by their expressed faith in the industry, in the final financial arrangements, the industry had a very small beginning, although its subsequent growth was both rapid and steady. As discovered and first described, the mode of occurrence and geological association of corundum in Hastings were believed to be unique, and it soon became evident that the problems attending its concentration were not only in many respects novel, but likely to prove very complex before corundum of the purity desired could be produced.

Transportation, at first sight apparently simple and inexpensive, proved on experience to be unduly costly and for the most part inadequate. The local labor