

over another series of Frue vanners. This process of fine crushing appears somewhat complicated, but the idea was to crush very fine to make a high concentrate. They succeeded in obtaining 25.15 per cent., whilst the tailings went 0.53 per cent. (See Plate VII. of mill.)

Having obtained the concentrates, it was necessary to find a market for them, and this meant heavy freight and smelter charges. Therefore it is quite apparent that if blister copper could be produced the bulk of the ore, not only of this property but of the neighborhood, could be cheaply smelted, as they do not contain anything deleterious in the shape of zinc, arsenic, etc.

In order to do this a customs smelter should be built, so that the siliceous ores of our property might be mixed with the ores containing lime and iron, to form a suitable mixture for economic

present date, it may be stated in conclusion that since the first Exhibition in Hyde Park, London, England, 1851, to the St. Louis Exhibition in 1904, exhibits from these mines have gained medals for the display of ore, etc.

The high price of copper must have been a great inducement for the first owners of the property, as the following will show:—

	Per ton
1853.....	£136-16-0
1854.....	£140- 2-0
1855.....	£141-10-0
1858.....	£140- 0-0

To-day the market price is £102 per ton. Is it possible that we are again approaching a period of high prices, when the present company, with modern appliances and easy transportation,

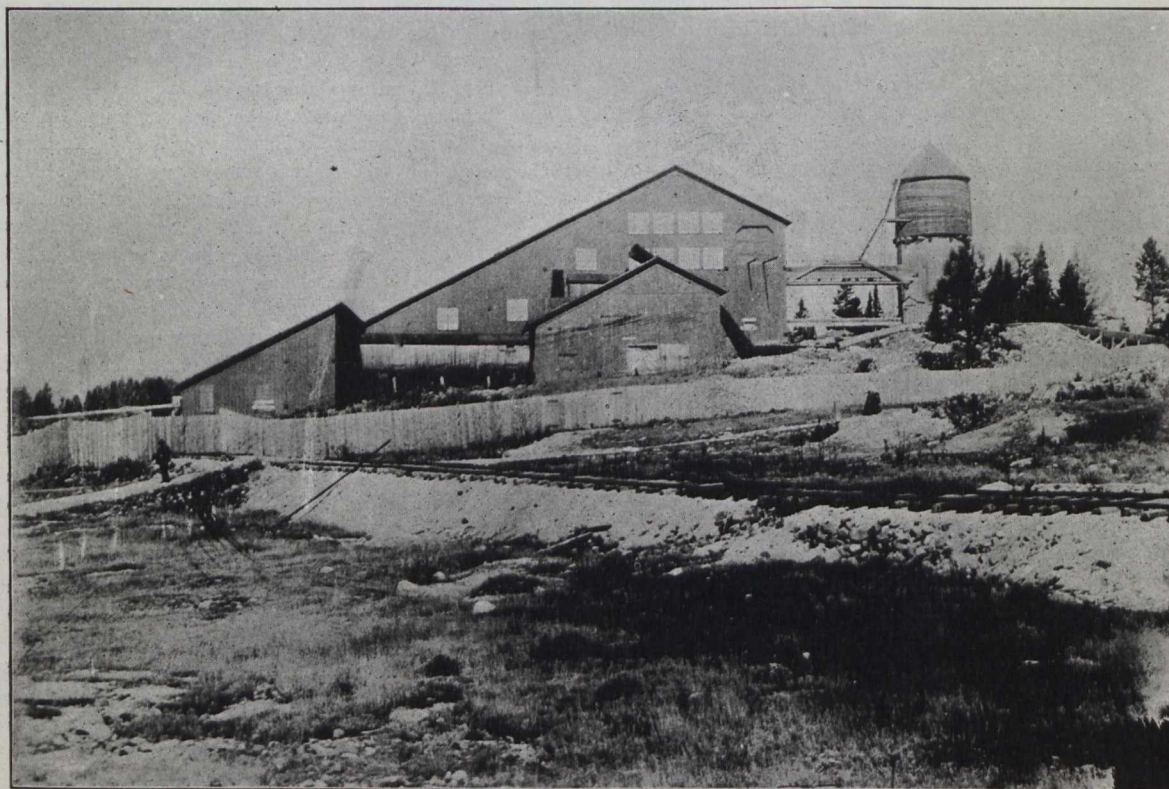


PLATE VII.—East End of 400-ton Mill. The Copper Mining & Smelting Company of Ontario, Limited, Bruce Mines, 1906.

smelting. The district is traversed by the Canadian Pacific Railway from Sudbury to Sault Ste. Marie, and bounded on the south by Lake Huron. Freight on coke and coal from the United States is low, and if it is settled that coal for coking purposes can be introduced free of the present duty of 53 cents per ton of 2,000 pounds, another industry would be added to the national wealth. In the event of the Provincial Government granting a bonus on refined copper, capital might be induced to erect a refinery, this, indeed, being the programme which the Copper Mining & Smelting Company of Ontario have seriously considered. The Governments, both Dominion and Provincial, have voted subsidies to the Bruce Mines & Algoma Railway, which traverses the property from south to north, and this, if pushed on to the C. P. R. main line at Chapleau, and thence on to the Grand Trunk Railway, now in course of construction, would open out great wealth in timber and mineral, and tap the great Clay Belt. But nothing is being done. Aid to improve existing roads and make new ones would be highly beneficial, as the writer is of the opinion that the solution of the whole problem of making copper mining a great success may be found in the erection of local smelters.

Having thus brought the history of Bruce Mines up to the

will reap greater benefits than were ever derived by former shareholders at the highest point of their prosperity.

The writer has purposely not dwelt at length on the geological features of the area, as the report now in course of preparation by Messrs. Ingall and Denis, of the staff of the Geological Survey of Canada, embodying, as it does, the work of two years in this neighborhood, will, when published by the Department (a preliminary report having already appeared in 1904*), afford a far more complete generalization than can here be attempted.

By a series of careful experiments it has been established that the corrosion of iron is not caused by the presence of carbon dioxide in the atmosphere, but by oxygen in conjunction with water. While carbon dioxide is not essential, it may accelerate the reaction.

The amphibole group of minerals are of similar composition to the pyroxenes. Trimolite, actinolite and hornblende are the chief members of this group. The fibrous minerals, asbestos and amianthus, are varieties of trimolite and actinolite. Hornblende forms a rock by itself and is an essential constituent of diorite, syenite, andesite, gabbro, and many crystalline schists.