

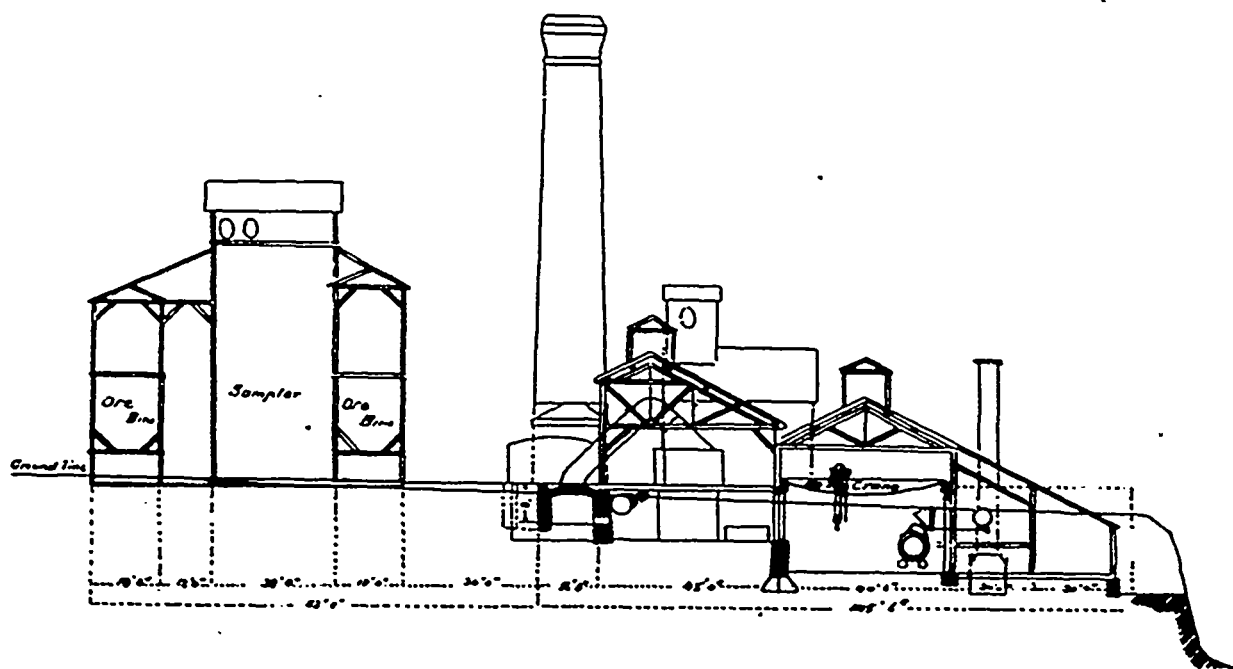
in position for use in case of need. A swinging spout admits of the sampled ore being shot into any of the storage bins for delivery to the furnaces, or into a separate bin for tramming to the roast yard.

Beyond the sample mill is the brick-making plant, a recent addition, the installation of which is nearly completed. This comprises a Chambers (Philadelphia) No. 7 brick machine, described as one of the largest made, and having a capacity of 60,000 to 70,000 bricks per day; two Scott's patent elevating brick cars, to take the trays of bricks off the racks without other handling; and all requisite accessories. The dimensions of the building housing this plant are 72 by 35 ft., and of the adjoining dry shed, 104 by 78 ft. Both structures are constructed of similar material to that of the sample mill building. In the dry shed, overhead in the gable, are four sets of steam coils, in all about 5,000 ft. of 1-in. iron pipe encased

ties of which will be received regularly from the concentrating mill at the Britannia mines, raw ore fines, flue dust, etc.

The roast yard is adjacent to the ore bins, brick-making plant, etc. The method of burning ore here is that usually employed at smelters, the roast piles being built up about temporary trestles. The removal of the roast yard a short distance south of its present location is planned, so that men working about the furnaces and converters may not be troubled by the sulphurous fumes from the roast heaps when the wind blows from the landward side of the works.

The coke track is between the storage bins and the furnace building. The dust chamber, which is below the level of this space, is 200 ft. long, 10 ft. wide and 12 ft. high, with an expansion chamber 24 by 40 ft. and 20 ft. high; it is connected with a circular brick smoke stack 120 ft. high and 12 ft. in diameter, in-



Elevation of Britannia Smelting Co's Smelting Works.

in a wooden box; these will heat the air, which will be drawn between and over them by a No. 6 Sturtevant fan, operated by a 10-h.p. electric motor, and be discharged into a 12-in. galvanised iron main. Six-inch branch pipes, perforated every 18 in. with  $\frac{3}{8}$ -in. holes, running the full length of the tracks, will distribute hot air under and among the bricks. There will be 18 car tracks in the dry shed with room for the tiers of bricks on trays between the tracks. Steam for the coils will be supplied by a 100-h.p. boiler, installed in a building, 18 by 35 ft., erected at a lower level. From the dry shed part of the bricks will be transferred to the roast yard, for roasting in heaps or kilns—as found most advantageous—with raw ore, and part to the furnaces, the charging floor of which is on the same level as that of the dry shed, for smelting without roasting. The material to be made into bricks will be concentrate, large quan-

ties of which will be received regularly from the concentrating mill at the Britannia mines, raw ore fines, flue dust, etc.

The furnace building is 73 ft. long by 45 ft. wide, the charging floor being on a level with the roof of the dust chamber, and within 50 ft. of the nearest of the storage bins. There are in this building three furnaces, the smallest being a 65-ton cupola for remelting matte and the two larger a water-jacketted stack with a capacity of about 350 tons a day and a Garretson furnace of 200 tons capacity. The last-mentioned is designed to effect both smelting and converting in one operation, but it does not yet appear to have overcome all the difficulties to continuous success in this direction, consequently it is used for ordinary smelting. The former is 42 in. wide by 160 in. long, inside dimensions at tuyeres of which there are nine on each side of 6 in. diameter. The