Production and Disposal of Sulphur Gases.

Basing an estimate on the roasting of 250 to 300 tons of zinc concentrates and allowing for the sulphur that would be left in the roasted ore, about 75 to 90 tons of sulphur per day would be oxidized, producing twice this weight of sulphur dioxide or nearly two million cubic feet per day at the ordinary temperature and pressure.

Mr. Blaylock informs me that they will convert into sulphuric acid and recover at least 90 percent of the sulphur dioxide, and I understand from another source that as much as 96 percent of the sulphur in zinc roaster gases has been turned into sulphuric acid by the contact process. In view of possible troubles in the acid plant, and of the gas that escapes from the roasting furnaces, it will be safer to assume a recovery of 90 percent and to say that about 8 tons of sulphur per day may escape in the form of sulphur dioxide. This amount of sulphur, although apparently large, is very small in comparison with the many hundreds of tons that are thrown out every day by the large smelting plants at Trail, Noranda and Copper Cliff, and is comparable with the amount of sulphur set free in industrial areas of Montreal by the combustion of bituminous coal.

Assuming the furnace gases to contain seven or eight percent of sulphur dioxide, they might amount to more than one million cubic feet per hour. After passing through the sulphuric acid plant, they would contain less than seven tenths of one percent of sulphur dioxide. These gases would be discharged up a tall chimney to remove them as far as possible from the ground, and as they will be cool it will be necessary to employ a fan to drive them up the chimney, or else to heat them by burning coal before they enter the stack. The latter plan will probably be preferable, as the heated gases will tend to rise in the air after leaving the chimney and so will be more diluted before they reach the ground.

The conversion of even ninety percent of the sulphur dioxide into sulphuric acid depends on the efficient operation of the acid plant. In the event of a break-down of this plant a larger portion, or the whole, of the sulphur dioxide would be discharged into the air until the plant could be started again or the roasting furnaces could be closed down. In view particularly of the proximity of Macdonald Agricultural College, it may be desirable for the Company to install absorption towers into which the gases could be passed in the event of a break-down, to lessen the escape of sulphur dioxide until the roasting furnaces can be stopped.