

commencement of the mining of Britannia Mountain. The greatest problem in connection with the operations is the shortage of labor. There now are only approximately 850 men on the pay-roll, as against a normal pay-roll of 1,000. The company is planning to place its entire system of ore transportation underground.

#### Oil Prospecting in British Columbia.

Considerable interest is being taken in oil prospecting in British Columbia. Had it not been for the untimely death of Mr. B. T. Rogers, capitalist, of Vancouver, B.C., work would have gone forward in the sinking of a test hole at Burnaby, where there are oil seepages. It is reported by the Empire Oil and Natural Gas Co., Ltd., that a drill has been sunk to a depth of about 400 feet at Aldergrove, B.C., the latest log showing a sandy shale. There have been two companies organized at Vancouver, namely, the Boundary Bay Oil Company, Ltd., and the Burnaby Oil Co., Ltd. The former intends to test by drilling an area at Boundary Bay and the latter to carry out work at Vancouver Heights. The possibilities of Graham Island, of the Queen Charlotte group, also are engaging attention. It is understood that the Geological Survey Station proposes this summer to make a thorough examination of the Fraser Valley, so as to establish at what point a drill would be most likely to strike oil in commercial quantities.

#### Annual Report of Minister of Mines.

The annual report of the Minister of Mines of British Columbia for 1917 has been issued. It is the first to contain reports from the district mining engineers who were stationed in different sections of the Province during the past year. Figures given relating to production proved that the preliminary estimates published months ago were very close to the mark, the estimated production for the twelve months being \$37,182,500, as against a definitely established total of \$37,010,392.

Vancouver Island, B.C.—A considerable amount of ore is on the dump at the Monitor Mine, Alberni Canal, Vancouver Island, waiting shipping. Difficulty is being experienced in obtaining shipping facilities.

A spur is being built by the Sunloch Mining Company from its property to the Vancouver Island Power Company's tramway at Jordan River and arrangements are being made for the shipment of ore to the Tacoma Smelter.

Two shifts, with a total of 40 men, are being worked by the Cork Province Mine on the south fork of Kaslo Creek, B.C. There is a mill in operation.

Action is being taken by the officials of the Dominion National Park to stop mining operations within the park area in that section, which will interfere with plans in hand for the development of the Dunvegan group of claims situated on the divide between the Illecillewaet River and the head of Fish Creek. The operators consider this unfair as the claims were located about twenty-five years ago before the establishment of a park area.

#### PYRITES.

A recently published report by P. S. Smith, of the U.S. Geological Survey, on pyrites is, in part, as follows:—

The term pyrites is the indefinite general trade name for any of the iron sulphide minerals, such as pyrite, marcasite and pyrrhotite. Pyrite and marcasite when pure have identical chemical composition, namely, about 53 per cent. sulphur and 47 per cent. iron, but differ from each other in mode of crystallization. Pyrite forms cubical crystals, whereas marcasite forms tabular crystals. Pyrrhotite when pure contains about 40 per cent. sulphur and 60 per cent. iron, it is somewhat softer, tarnishes more readily than either pyrite or marcasite, and is magnetic, whereas the other minerals are not.

Pyrites is used mainly for the manufacture of sulphuric acid, and more than 1,250,000 long tons is consumed in the United States each year for this purpose. Pyrites, as commercially used, is generally referred to one of two classes, lump or fines. The lump ore, as its name implies, consists of pieces more than half an inch in diameter, with a certain allowable proportion of smaller particles, and is used in the condition in which it comes from the mine, with little more than a preliminary crushing and sorting, according to size. The fines consist of smaller particles and generally have been obtained by crushing the ore so small that the pyrites can be separated from worthless gangue by some mechanical process. They are also derived from ore that has disintegrated as a result of leaching. Owing to the different methods of treating these two kinds of pyrites for the extraction of their sulphur, they can not be used interchangeably. The lump ore commands somewhat higher prices than the fines, but, of course, it is more difficult to obtain a lump ore with as high a sulphur content as that of fines. As a result, only a few mines or parts of a mine can furnish lump ore and maintain a sufficient sulphur content, whereas suitable fines may be obtained even from deposits in which the pyrites is sparsely disseminated.

No definite lower limit can be placed on the proportion of sulphur that a pyritic ore must contain to be of commercial grade. In practice, however, material containing more than 40 per cent. of sulphur is specified, and practically none of the acid companies use material that carries less than 35 per cent. of sulphur.

Several elements or substances by no means rare in pyritic ores are objectionable as material to be used in the manufacture of sulphuric acid and decrease the value of the ore in which they occur, or they can be used only by means of special treatment.

Certain elements, arsenic and antimony, for instance, are poisonous and have a bad effect on the resulting acid, but some of the large fertilizer plants do not reject an ore containing less than 1 per cent. of arsenic. These elements are also injurious from a manufacturing standpoint, if the pyrites is used in plants making acid by the contact process, as they attack the platinum and cause it to lose its efficiency. According to Wilson, pyrites carrying more than 8 per cent. of copper can not be profitably employed in the manufacture of sulphuric acid. Carbonaceous material, such as the coal adhering to the pyrites or "coal brasses," is apparently heavily penalized by acid manufacturers because it yields acid of a dark color. This effect, however, should not prevent pyrites containing some material of this sort being used in making some low-grade acids for the manufacture of fertilizers and similar materials.