1896.
NEW ZEALAND.

REPORTS OF WARDENS AND OTHER OFFICERS ON GOLDFIELDS.

Presented to both Houses of the General Assembly by Command of His Excellency.

No. 1.

Mr. Warden BUSH to the UNDER-SECRETARY for MINES, Wellington.

SIR,— Warden's Office, Whangarei, 20th March, 1896.

I have the honour to furnish the usual annual report on the Puhipuhi field, and, in doing so, to state that it affords me very much pleasure to draw your attention to the fact of a revival in mining on this field, since which there have been thirteen mining leases applied for (special claims and licensed holdings), which cover an area of 1,230 acres. Four of these special claims have been granted, and are now held by a registered company, called "The British Gold and Silver Mining Company (No Liability)." This company has had between thirty and forty men working on their mine during the last three months preparing tramway, cutting timber, and overhauling battery, &c. The company also has some 200 tons of ore ready for treatment as soon as sufficient water-power can be obtained for working the battery. The present unexceptionally dry season has caused a deficiency of water, this summer being the driest the oldest settlers can remember in this district. The other special claims have not been granted, being delayed through non-completion of plans.

One mineral-prospecting license has been granted to an applicant, who, though working continuously, has not yet succeeded in locating the cinnabar lode for which he is searching. There are applications pending in connection with the above for battery-site, dams, water-race, &c.

It is intended to work these mines more or less under the guidance of Mr. Andrew Gordon French, mining engineer and metallurgist, who spent several months on the Puhipuhi fields last winter, thoroughly testing the same, and reported the results of his work as follows:—

"The prevailing rocks are dioritic bluestone quartzites, rhyolites, and tufaceous sandstones. Through the three latter classes of rock the silver-bearing quartz occurs in well-defined reefs, running from 2ft. to 5ft. in width, which carry the paying ore in rich shoots at intervals along the lines of reefs, as is usual in silver-lodes of this class. They are closely related to the silver-ores of the most common occurrence in Mexico, where, by the way, poorer ores than these are worked with good profits.

"I am perfectly satisfied with the quality of the Puhipuhi ore, and with the quantity of the two mines held by you—the Prospectors' Claim and the Waipu—and, generally speaking, with the field as a whole; but I must emphasize what I have formerly said, that 100 acres is too small for silver, and you should endeavour to obtain 200 acres additional, so that the new shoots of ore could be developed as the others get worked down too deep to follow.

"The conformation of the ground is very favourable for cheap mining, as the gulches are deep, and allow a great vertical height of backs before water-level is reached. The position of the battery is well chosen, as it is downhill from nearly every part of the field. The quality of the country-rock for working is of the best description, being mostly soft sandstone on one side or another of the lode, and can be worked with pick and gad for the most part. The ore runs to an average of about 25oz. of silver and 5dwt. of gold per ton, although by hand-picking very much richer ore could be sorted out; but, as stone of 15oz. or 16oz. of silver will pay to work, there would be no advantage in sorting out anything but the poorest stone.

"The ore at Puhipuhi has a peculiarity, strongly marked, which in the past rendered it too difficult to treat—namely, the presence of tellurium, selenium, and other volatile elements, which cause silver and gold to volatilise when the ore is heated even to a temperature below redness.

"The mines, in my opinion, when opened a few years ago were skilfully worked. Justice was done to the ore at the battery as far as was then possible, but owing to the necessity to put the ore through the kiln to prepare it for the battery at least one-third of its silver and gold went into the air in fumes. The difficulty is now overcome by the introduction of an invention which