

as to leave a very large margin of profit to capital, supposing that the whole yield had been obtained by means of paid labour. Phillips informs us that in the year 1863 there were 62,131 miners engaged in getting gold from the auriferous alluviums of Victoria, and the value of gold exported from the Colony was £6,508,264. Now, supposing that labourers could have been obtained at the rate of £2 a week, or £100 per annum, roughly speaking—a rate much lower than that at which it is possible to obtain workmen in the quartz mines of the same Colony—the cost would have been £6,213,100 for wages alone, leaving a very narrow profit to the employers. This is quite sufficient evidence to satisfy any one that alluvial diggings could not be worked through the instrumentality of paid labour. But even if this were not the case, the embarkation of capital in surface diggings, and the consequent advantage of systematic working, could have no effect in giving permanence to the field. All that would be achieved would possibly be a somewhat slower process of exhaustion, and a diminution of the percentage of loss.

It is obvious, then, that capital is practically excluded from a surface alluvial gold field, and, consequently, that the stability which it gives to any undertaking cannot here be brought about, inasmuch as a surface gold field cannot, from the nature of the case, last for more than a comparatively few years. To return then to the alluvial diggers, it is evident that capitalists cannot afford to keep them in any country even at a low rate of wages, and, consequently, that as alluvial diggers there is no hope of retaining them in the country. Now, we have before found that the majority of alluvial diggers are devoted to that one pursuit, and would refuse either to be employed by or to co-operate with capital in any other industry of a steadier character. Having no particular love for one country, they have no hesitation in moving away, as soon as they see a favourable opportunity. When the purpose for which they came has been attained, and the alluvial field exhausted, it is hopeless to think that a large proportion of them will be converted from the habits of years, as long as alluvial fields are to be found elsewhere. When the auriferous deposits of the world are exhausted, diggers will have to seek for another employment; as yet, however, two if not three continents known to be rich in gold remain comparatively untouched. The few who have been really fortunate in a country will frequently remain there, and turn their attention to deep placer and quartz mining; but those who have been unfortunate, or only moderately successful, are too glad to try their luck elsewhere. While they remain they give an immense stimulus to trade and colonization, by setting afloat large sums of money; and although there will be a depression on their departure, a considerable portion of the capital created will remain, and trade will never fall to its former dimensions.

In this light alone it appears to me can alluvial diggings be reasonably regarded as beneficial. Those who entertain any hope of rendering them a permanent industry must be disappointed. It may, indeed, be possible to substitute some other industry for that which is at an end, and the alluvial digging, though in itself it may be but a passing piece of fortune, may prove to be the forerunner of some species of employment which will give to the country a permanent mining population; but as far as the diggings and the diggers properly so called are concerned, as soon as the former are exhausted the bulk of the latter will leave us. New country alone will satisfy them.

I pass on, then, to consider what species of occupation it is probable will be found for a mining population in a country which has been previously worked by alluvial diggers.

PROBABILITY OF EXISTENCE OF GOLD MINES ON OR NEAR THE ALLUVIAL FIELDS OF NEW ZEALAND.

Up to this point I have spoken of surface diggings only, where nothing beyond the ordinary cradle is absolutely required by the miner to enable him to separate the gold from the wash dirt. We find, however, that on the three principal alluvial gold fields—exclusive of those of New Zealand—which have been opened in modern times, namely the Uralian, Californian, and Victorian, gold separated from its matrix, and therefore, in the alluvial form, has been discovered deep in the drift which overlies the bed rock, and often beneath strata of lava and the debris cast from extinct volcanoes. In order to reach these deposits, extensive workings, and the expenditure of a considerable amount of capital, become necessary. As an instance of the extent of the operations sometimes required in this species of mining, reference may be made to Phillips' account of the Maine Boys Tunnel, near Tuolumne County, California:—"Some idea," remarks this writer, "will be formed of the great Mining and Metallurgy of gold and silver, page 40. labour and expense of opening up a deposit of this kind, when it is stated that this tunnel was commenced in October, 1855, and that the pay gravel was not reached until March, 1860; the cost of working during this period having been about £9,500." There is therefore no impropriety in regarding the operations undertaken in these cases as belonging to a regular system of mining, and in drawing a distinction between alluvial digging and alluvial mining. On this latter industry many millions of dollars have been expended in California, both in the immediate working of the different mines, and also in forming aqueducts, often many miles in length, for the purpose of sluicing, and for use in the hydraulic process so commonly employed for cutting into and undermining the hills of alluvium. In Victoria, too, a similar expenditure has taken place, both in actual sinking and driving, and in obtaining a water supply. With regard to the latter, I learn from Mr. Phillips' work that in 1860 a first grant of £60,000 was appropriated by the Victorian Government, and that this was supplemented in 1861 by a further grant of £75,000. In both these countries, the yield of gold from this class of mines has been something unparalleled heretofore. That workings of this class can be regarded as permanent, I have no intention of affirming; compared, however, with the ordinary alluvial diggings, they offer stable investments for capital, and sure employment for labour. Of course the two classes of industry merge into each other, and the only real distinction which can be drawn is, that the one requires a preliminary outlay and the other does not. It stands to reason, however, that the former will offer a larger and more lasting industry than the latter, inasmuch as it has the detritus washed down during many ages to deal with; whereas surface diggings extend only to the deposits of the latest date.

I have found much difficulty in obtaining any detailed information as to the extent to which this species of mining has been followed on the alluvial gold fields of New Zealand. With respect to the Otago gold fields, a series of very useful reports is to be found in the Appendix to the Journals of the