

# REPORT

ON

# THE OTAGO GOLD FIELDS.

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PRESENTED TO BOTH HOUSES OF THE GENERAL ASSEMBLY BY COMMAND OF HIS  
EXCELLENCY.

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AUCKLAND.

1863.



# R E P O R T

ON THE

## GOLD FIELDS OF OTAGO, NEW ZEALAND.

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THE SUPERINTENDENT OF OTAGO TO THE HONORABLE THE COLONIAL SECRETARY.

Superintendent's Office,  
Dunedin, 7th November, 1863.

SIR,—

Herewith I have the honor to forward a Report of the Discovery, Progress, and present condition of the Otago Gold Fields, and to request that His Excellency will be pleased to cause the same to be laid on the table of the General Assembly.

I have also the honor to draw Your Excellency's attention to the circumstance that no action has hitherto been taken, to place the Imperial Government in possession of accurate information respecting the Gold Fields of this Province, so that although upwards of one million ounces of gold have already been reported since the discovery of Tuapeka in 1861, it does not appear that any official recognition of these discoveries has yet been made. The only information which has been accessible to the population of the mother country has been derived from the Colonial press, and principally from that of Australia, which (for obvious reasons) has always endeavoured to represent the Gold Fields of New Zealand as of little value.

It seems, therefore, extremely desirable in the interest of the Colony at large, and of this Province in particular, that the weight of official authority should be given to a reliable account of our Gold Fields, such as I believe to be afforded by the accompanying Report, which has been prepared by Vincent Pyke, Esq., the Secretary to the Gold Fields Department.

Should His Excellency concur with these views, I beg leave to suggest that a copy of this Report may be forwarded to Her Majesty's Principal Secretary of State for the Colonies, together with such remarks thereon as His Excellency may think fit to offer.

I have, &c.,

J. HYDE HARRIS,  
Superintendent.

The Honorable the Colonial Secretary, Auckland.

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VINCENT PYKE, ESQ., TO THE SUPERINTENDENT OF OTAGO.

SIR,—

I do myself the honor to forward the following Report on the discovery, progress, condition, and prospects of the Gold Fields of this Province.

### I.—PROGRESS OF DISCOVERY.

1. It is difficult to say positively when or by whom gold was first discovered in Otago. That the Maories were aware of its existence before the arrival of the European colonists is an undoubted fact. I have been informed by Mr. Palmer, of Moeraki Bush, that, many years prior to the settlement of the Province, he was assured by the Native Chief Tuawaiki that "plenty firro," or yellow stone, such as that of which the seals of the white men were made, could be

obtained in the interior of the island, and the country of the Upper Molyneux or Clutha River was particularly indicated as a gold-bearing locality.

Search for Gold in Clutha River.

2. At a later period, other Natives confirmed these statements; and at least one party of settlers attempted to discover the El Dorado asserted to exist. Mr. Thomas B. Archibald, of the Pomahaka, has kindly favored me with a letter, dated 29th September, 1862, from which I make the following extract respecting this expedition, in which that gentleman was himself an active agent:—

Mr. Archibald's statement.

“Nearly all the Maori residents at the Molyneux at the time of our excursion were strangers, having been only a few years in the place. There were only a man and a woman who knew the country between the mouth of the River and the Lakes. The man, Raki Raki, had resided on the Wakatipu Lake, but had left many years ago. He left a brother, who had two wives, behind, and who, he said, were the only Maories in the interior. He told me he once picked up a piece of ‘simon’ (gold) about the size of a small potato on the banks of the Molyneux, but did not know its value, and he threw it into the river. They told us they had seen the small ‘simon’ on the sides of the river, where three canoes had been lying. On seeing a small sample of gold (which, I think, Mr. Meredith brought down from Tasmania, about the beginning of 1852) the Natives were more convinced we should find it in the sands of the Molyneux. As some of us were on the eve of starting for Australia, we thought we would give the river a trial first, more especially as we had the services of a Californian miner, who had left a whaling vessel in the Bay. We made a party of five, and started up the river, in March, 1852, in a whaleboat which I brought from Dunedin. We prospected the bars and banks of the river, as far as a creek now named the Beaumont. As none of us knew anything about gold-seeking, except the American, and getting nothing more than the color, we resolved to return, after having nearly a three weeks’ cruise, the more so as the river seemed a succession of rapids, which it was difficult to get the boat through. If our Californian miner had been the practical hand he represented himself to be, I have no doubt we would have been successful at least in getting a good prospect.”

Gold found by settlers.

3. Gold was also found in various parts of the Province by the settlers themselves, but the fact was either suppressed, as likely to produce mischievous results, or neglected, as of trivial import. I have been shown a small quantity of fine, scaly gold, which was procured in 1853, in the neighbourhood of the remarkable chert rocks known as the Fortifications.\*

First official Report, 1856.

4. The first official intimation of the discovery of auriferous deposits in Otago appears to have emanated from Mr. C. W. Ligar, formerly Surveyor, or Surveyor-General of New Zealand, and who now holds the same office in the Colony of Victoria. A letter written by that gentleman in 1856 to the then Superintendent Captain Cargill, contains the following passage:—“In my recent visit to the south part of the Province of Otago, I found gold very generally distributed in the gravel and sand of the Mataura River, at Tuturau; and from the geological character of the district, I am of opinion that a remunerative gold-field exists in the neighbourhood.”

Prospecting discouraged.

5. No effort was ever made to test the value of this discovery. Indeed, the policy of the Government at that period appears to have been adverse to the encouragement of what is termed “prospecting;” for the then Superintendent, in his address to the Provincial Council (December, 1856), commenting upon Mr. Ligar’s statement, observes that—

“In no circumstances would it be advisable to allow a searcher to go upon a run without leave of the lessee, or upon a Native reserve without leave of the Natives.”

Rumours.

6. Still, from time to time, vague rumours were circulated of gold being found in the mountain streams, and individuals occasionally brought into Dunedin small quantities of the precious metals. These circumstances, however, attracted very little attention, for the sufficient reason that the “finds” were inconsiderable. The Chief Surveyor, Mr. Thompson, in his Report on the Reconnaissance Survey of the Southern Districts, states that “the existence of gold is undoubted,” but adds,—

“I have nowhere yet known of individual success at the occupation of gold washing or digging as a business, nor have I seen above the small fraction of an ounce in the hands of any one.”

Mr. Thompson tried the sands and rocks for gold in various localities without success; but when it is considered that his only implements were knives and pannikins, this result is not surprising. However, on the Waiau River, near the Limestone Gorge, one of his assistants obtained a single speck, the residue of the sands consisting of black grains, probably magnetic iron, “and a few small crystals not unlike the garnet.”

Waiau River.

7. More ample confirmation of the presence of gold was at hand. In the months of October and November, 1857, and during the early part of 1858, Mr. Alexander Garvie, late Assistant Surveyor, executed a reconnaissance survey of the South-eastern Districts, and in his very full and complete report he remarks that—

“The eastern portion, from the coast to the Manuherikia, appears to be composed almost entirely of rocks belonging to the mica-schist systems. Towards the south-west, clay, slate, and altered rocks appear, as at Tapanui, the lower part of the Pomahaka, and the Clutha, below the Tuapeka. \* \* \* Traces of gold were found in the gravel of several of the streams and rivers. The trials were all made on the very surface, at such odd times as would not interrupt the proper work of the survey, by one of the party who happened to have previously visited the Australian gold-fields. The gold found was in every case small and scaly, varying from the

Garvie's Report, 1857-8.

\* It is in this locality that the West Taieri gold-field is situated.

smallest specks to about the roughness of bran. *It was found in the Clutha River, above the junction of the Manuherikia, and in the Tuapeka stream, in sufficient quantities to make it probable that it would pay to work if set about in the proper manner, with some wholesale system of washing, such as sluicing.* \* \* \* \* Specks were also found in the Manuherikia, Pomahaka, and Waitahuna. \* \* \* Along with the gold was found black sand, in some places fine, and resembling emery; in other places coarser, and sometimes in square block crystals."

8. This announcement, important as it now appears, was unheeded at the time, and it was reserved for Mr. Gabriel Read and Messrs. Hartley and Reilly to develop the hidden treasures, of which Mr. Garvie undoubtedly intimated the presence, although he was probably unaware of the importance of his discovery. Announcement unheeded.

9. In a foot-note attached to Mr. Garvie's report, the Chief Surveyor states that the best sample of gold which had then been brought into town was found in the south branch of the Tokomairiro River. "This sample," adds Mr. Thompson, "indicates a workable gold-field." The locality referred to is now known as the Woolshed Diggings, where a native of Bombay, named Edward Peters, was in the habit of obtaining small quantities of gold from sands of the River. Peters also obtained gold from a gully on Davy and Bowler's run, near the north bank of the Tuapeka River, and consequently not far from Gabriel's Gully. The Tokomairiro.

10. In the same year, 1858, the Chief Surveyor discovered gold in the Lindis River, a circumstance to which he publicly referred in a lecture subsequently delivered at Dunedin. Traces of gold were found shortly after in the sands of a small stream which enters the sea near the township of Hampden on the Moeraki Beach. Lindis, 1858.

11. But notwithstanding these accumulated proofs of the distribution of gold throughout the Province, no systematic search was prosecuted until 1861, when some men who were engaged on the new road which the Government was forming across the run of Mr. McLean to the pastoral districts beyond the Lindis Pass, in the Dunstan Mountains, accidentally struck upon a deposit of the precious metal. This occurred towards the end of March, and a small rush immediately set in. Although fair prospects were obtained, the general yield was not very encouraging. The field was therefore pronounced a failure, and the greater part of the miners returned. But even to the present date the neighbourhood of the Lindis Pass continues to be wrought, not altogether unsuccessfully, for gold. Lindis Diggings, 1861.

12. Scarcely had the brief excitement consequent on the Lindis discoveries subsided when it was revived by information of a more determinate character. In June a letter was received by his Honor the Superintendent from Mr. Gabriel Read, announcing the discovery of what is now the Tuapeka Gold-field. I make the following extract from Mr. Read's letter:— Discovery of the Tuapeka.

"Tokomairiro, 4th June, 1861.

"To Major Richardson, &c.,—

"Sir,—I take the liberty of troubling you with a short report on the result of a gold prospecting tour which I commenced about a fortnight since, and which occupied me about ten days. During that period I travelled inland about thirty-five miles, and examined the ravines and tributaries of the Waitahuna and Tuapeka Rivers.

"My equipment consisted of a tent, blanket, and spade, tin dish, butcher's knife, and about a week's supply of provisions. I examined a large area of country, and washed pans of earth in different localities. I found at many places prospects which would hold out a certainty that men with the proper tools would be munificently remunerated; and in one place for ten hours' work with pan and butcher's knife I was enabled to collect about seven ounces of gold."

13. A portion of Mr. Read's statement found its way into the public press, and numbers of persons of all classes flocked to the scene of the discovery—the now world-famed "Gabriel's Gully." The results were highly satisfactory. The first gold escort, in August, brought down 5,056 ounces. The excitement soon became intense. Thousands were bitten by the gold fever, and abandoned their ordinary pursuits to "try their luck" at the diggings. The contagion spread to the adjacent Provinces, to the Northern Island, and finally to Victoria and the Australian Colonies; and the rush to Otago soon assumed enormous proportions. Then commenced one of those startling revolutions which, under the direction of an all-wise Providence, is everywhere wrought out by the discovery of gold. In 1860 only 69 vessels were entered inwards. In the following year 256 vessels, many of them of large tonnage, arrived at the port; and the population computed in December, 1860, at 12,691, had increased by December, 1861, to 30,269 souls. Gabriel's Gully.

14. Wetherstone's and Monroe's Gullies were shortly afterwards opened up by the miners; and in the month of July another rich Gold-field was discovered in the Waitahuna stream by Mr. Gabriel Read, accompanied by Captain Baldwin and Mr. Cargill. The first dishful of earth, washed by Captain Baldwin, yielded a quarter of an ounce; the next, washed by Gabriel Read, yielded half an ounce. The place was "rushed" by about 500 men, who speedily deserted it, and declared the Waitahuna to be a "duffer." For some time there were only three parties on the field. On 1st September there were about 200, and on the 30th 4,000 men were at work there and doing well. Since then its prosperity has been continuous. Rush to Otago.

15. In the month of September there occurred one of those feverish reactionary movements, which would appear to be necessarily consequent on every new "rush." The world-famous gold fields of Balaarat, Bendigo, and Ararat, in Victoria, were all rushed and deserted as unprofitable when first opened up. The senseless panic which hurried thousands from Otago in 1861, is only another illustration of the same general rule. Many who hastened to seek sudden fortune at Other gullies.

Re-action.

Tuapeka were utterly unprovided for the purpose; and numbers, deterred by the gloomy tales of unsuccessful diggers, never even quitted the vicinity of the jetty at Dunedin until they re-embarked for Melbourne. At this juncture the Government issued a Proclamation (September 28) in which the peculiar features of the gold fields, and the difficulties attendant on mining operations in Otago, were fairly and honestly pointed out, and exaggerated statements were denounced as "likely to be productive of much suffering." His Honor Major Richardson, Superintendent of Otago, asserted in this document the existence of a valuable gold field, of considerable extent, capable of "affording remunerative wages to a large population," and avowed the confidence of the Government in the auriferous capabilities of the Province as a highly remunerative field for capital and labour, at the same time deprecating the inconsiderate influx of persons from other colonies, and cautioning intending immigrants to act with greater prudence. The result was a temporary diminution of immigration; but there is no doubt that the gold fields progressed all the more favourably from the consequent absence of undue excitement. A sufficient number of miners remained to test the ground, and in the month of November the escorts attained an aggregate of 73,904 ounces, affording indubitable evidence of the capacity of Otago to afford remunerative employment to a large mining population.

Major Richardson's  
Proclamation.

Waipori.

15. Early in the year 1862 further discoveries of auriferous deposits were made on the Waipori River and its tributaries, and also on the Woolshed Creek, a branch of the Tokomairiro River.

Alarm at the winter.

17. With the approach of winter came first a cessation of immigration, and then a gradual exodus from the Province. The Victorian miners were alarmed at the prospect of a rigorous season in a district where fuel is scarce, and the population consequently sustained considerable diminution, until in July (mid-winter) the total number of persons resident on the gold fields was estimated by the Commissioner at about 7,000 persons, of whom probably only two thirds were actually engaged in mining, the remainder being principally women and children, and store-keepers and their *employés*. Many professed their intention to return in the spring; others, deceived by the appearance of the country, so different to what their Australian experiences taught them to consider as auriferous, entertained the fallacious idea that the mines were exhausted. Those who remained certainly had no reason to regret having done so, for the minimum yield of gold in any one month (that of July) as evidenced by the escort returns, independently of the quantities brought down by private hand, was 10,557 ounces, which, at current rates would give average of about £2 10s. per week for each miner.

Mount Highlay.

18. Some discoveries of smaller extent, yet promising great results hereafter, were made during the winter months. The first of these was at Timbrell's Gully, under Mount Highlay. Deepdell Creek, a branch of the Shag River. Filly-burn, a branch of the Taicri, and Murphy's Gully, on Run 109, all in the neighbourhood of the Mount, were successfully prospected. Gold was also found at Coal Creek, on the head waters of the Shag River. These localities constitute what is known as the Highlay Gold Field.

Manuherikia Valley,  
&c.

19. More recently a party of miners were discovered working on the Dunstan Stream, near its junction with the Manuherikia; and in a Report on the Reconnaissance Survey of the North Western Districts, Mr. McKerron stated that gold had been found by a shepherd between Lake Hawea and Lake Wanaka, on Quartz Creek, a small tributary of the Clutha River.

Discovery of Dun-  
stan.

20. Still at the end of July, no new field of equal magnitude with the earlier discoveries had been developed; but in the following month two Californian miners named Hartley and Reilly, lodged at the office of the Chief Gold Receiver in Dunedin, 1,047 ounces of gold. The locality whence this treasure had been obtained they refused to divulge, until the Government had guaranteed to them a reward of £2000, conditionally on 16,000 ounces being brought down by escort within three months. These terms having been accepted, they stated that the scene of their labours was on that portion of the Clutha River which is situated between the junction of the Manuherikia and that of the Kawarau.

The rush to Dunstan.

21. No sooner was this information made public than a rush of unprecedented magnitude occurred. Without waiting for any confirmation of the prospectors' statements, thousands hastened to the new field. Clerks resigned their situations, and mechanics quitted their work. On the older gold fields, miners deserted payable claims, and for a brief period Tuapeka and Waitahuna were nearly deserted. That a reaction should occur was inevitable. It was hastened in this instance by the scarcity of provisions, principally bread-stuffs, which of course could not be procured in a remote district in sufficiently large quantities to feed an extensive population. Two shillings and sixpence was readily paid for a pound of flour; other stores were retailed at proportionate rates, and wood for making cradles sold at fabulous prices, as much as £3 having been paid for an old gin case.

Result.

22. Much disappointment was caused by the peculiar character of the workings; even the experienced miners of Australia and Tuapeka were unaccustomed to regard the bed of a rapid and turbulent river as the repository of gold. Many returned to Dunedin with even greater haste than that with which they had rashly quitted it. Those who remained, however, quickly overcame the novelty of the position, and their labours were amply rewarded by the auriferous treasure which they extracted from the sands of the modern Pactolus. The banks of the river on either side became occupied by a numerous population, whose tents gradually extended from above the confluence of the Kawarau to below the gorges of the Beaumont Burn, a distance of nearly seventy miles. Others tested the Manuherikia; and perhaps the most valuable and productive claims in the district were those at and near the junction of this stream with the Clutha.

Localities of Dunstan

23. The auriferous country discovered by Messrs. Hartley and Reilly is at the Western base of

the Dunstan Mountains. It has, therefore, received the name of the Dunstan Gold Field, which more nearly indicates its precise locality than any other.

24. In September another discovery was communicated to the Provincial Government by Mr. James Lamb, one of a party of six Victorian miners, who brought to Dunedin about 28 ounces of coarse nuggetty gold, obtained at Moa Creek, on the Nokomai River, itself a branch of the Mataura. Contiguous to this creek there is a large extent of auriferous country, bordering on the Nokomai, and extending over the dividing range through the valley of the Nevis to the Kawarau River, throughout the whole of which parties of miners are working with satisfactory results. The Dunstan, Nokomai, and Wakatipu Gold Fields are therefore united by a continuous series of gold workings. Discovery of Nokomai.

25. Before the close of the year 70,000 ounces were transmitted by escort from the Dunstan Gold Fields, but this was not all derived from the river workings. Towards the end of September, the Clutha, flooded by the melting of the snow in the far distant mountains, whence its sources are derived, covered the beaches, and drove the miners from their claims. Then they began to explore the surrounding country, and numerous rich gullies were discovered amidst the ravines of the Carrick Ranges. One of the first and most important of these was Conroy's Gully, so called after the name of its discoverer. Produce of Dunstan.  
Flooding of River.  
Conroy's.

26. The Carricks, a bold and lofty chain of mountains, separate the Dunstan Gold Field from the valley of the Nevis, the latter being comprised within the boundaries of the Nokomai district. Three miners, crossing this range, discovered payable auriferous ground on the Western watershed, near the short track to the scene of Lamb's discovery at Moa Creek. In one day with a shovel and tin dish, they obtained two ounces of rough gold, and immediately reported the circumstance to the Warden at Dunstan. As usual a rush took place. Some exceedingly rich finds were obtained, and the locality received the name of Potter's Gully, in honor of one of the prospectors. Nevis Valley.  
Potter's.

27. About the same time several gullies were opened up in the Umbrella Ranges, and on the banks of Waikaia—a tributary of the Matawia,—a permanent gold-field of some extent was also discovered. It is worthy of note that shortly after the discovery of Tuapeka, Mr. Reid reported the existence of gold on the Wendon and other streams, but little note was taken of it at the time. There was indeed a small "rush" to what was termed the Blue Mountains in the early part of 1862, but the prospectors failed to discover a remunerative gold-field, and the development of an extensive tract of auriferous country was thus reserved for a later period. Umbrellas and Waikaia.

28. Discoveries of greater importance were shortly after made. In the month of October it was rumoured that a miner named Fox had found a gold-field of surpassing richness in some remote and unexplored region, and this rumour was confirmed by the statements made by Fox himself during a brief visit to the Dunstan township. Numbers went out in quest of the new field, but for a time their researches were baffled, and the disappointed miners began to regard the report as a delusion. One party, however, whilst roaming through the country on this errand, accidentally lighted upon auriferous deposits of considerable value and extent. The scene of this discovery was the Cardrona Creek, a tributary of the Upper Clutha; and the attendant circumstances are thus narrated in a letter addressed to the Warden of the Dunstan gold-field, by Michael Grogan, one of the fortunate prospectors:—"On the 9th November, whilst a crowd of diggers were camped on the banks of the Cardrona, Mullins and myself took a walk to see how that part of the country looked, and in walking along the river, where what I call a slide had occurred, there had been a track formed by the cattle. I being a little further up the creek, sat down until he came up, and he immediately told me that some person must have lost some gold, and produced about four pennyweights that he got on the cattle track. We still continued up the creek, until we thought it time to return to our camping ground; and on our way back he showed me the place, and on searching for more we could get none; and from the appearance of the black soil we certainly thought that it must have been lost by Fox or some person. Cardrona.  
Grogan's discovery.

\* \* \* \* \*

On Tuesday, the 11th, after receiving some information as to whereabouts Fox was working, myself and mates were a-head of the others; and on coming to this place I took my 'swag' and laid it on the bank. 'There,' said I, 'is where the gold was got.' Then I walked to the spot, and on breaking up the surface, the first thing that I discovered was a bit of about three dwts.; and that afternoon we nuggetted out 9 oz. 6 dwts. 12 grs., which all hands which were there could see."

29. An expression used by Grogan, in referring to the site of this discovery, accurately describes the appearance of the locality, and accounts for the peculiar circumstances under which the discovery was made. The valley of the Cardrona is characterised by a series of "slides" or landslips, by some of which the lower strata have been projected to the surface in the form of debris. It was in this that Mullins first observed the gold, which, having been washed bare by the water that oozed from the hillside, was lying bright and clean about shoulder high. Landslips.

30. A number of people hastened to the new field; but in the meantime Fox had been tracked to his haunts, and the fame of the Cardrona was quickly eclipsed by the greater attractions of what was termed "Fox's rush." At the time Dr. Hector, the Government geologist, was on a tour through the country, and he happened to be a spectator of Grogan's discovery. Following up the Cardrona to its source, he crossed the Crown Ranges, on the western side of which he came upon Fox's party, and about forty others, quietly working in a secluded gorge of the Arrow River. A few days after Dr. Hector's visit, a large party of miners, pursuing the same track, observed the smoke of the camp fires, and following the clue thus given, suddenly presented them-

selves on the scene of operations. Secrecy was no longer possible. The news was quickly circulated throughout the province, and an extensive migration from other fields ensued. The Arrow and its tributary gullies were thoroughly prospected, and large quantities of the precious metal rewarded the toil and industry of the miners.

McGregor.

31. The association of Fox's name with this rush has caused him to be generally regarded as the discoverer of the Arrow gold-field. I am informed, however, that such was not the case. The first person who became acquainted with the auriferous capabilities of the locality was Mr. McGregor. He commenced mining operations on the 4th October, and five days later Fox tracked him to the spot. But even McGregor rather developed than discovered the field. The real discoverer was the well known Maori Jack, who obtained a fine sample of gold from the same stream in May, 1861.

Maori Jack.

Shotover & Arthur's Beach.

32. The attention of the miners was next turned to the Shotover, a considerable stream, or rather mountain torrent, the head-waters of which take their rise under the Black Peak, near the shores of Lake Wanaka. The fortunate prospector was Mr. Thomas Arthur, who, with three mates, obtained 200 ounces of gold in eight days, by washing the sands of the river beach. No secret was made of the discovery, and miners flocked from all parts to secure a share of the rich spoils.

Moak and Moonlight.

33. The passage up the river was impracticable, owing to the lofty and precipitous rocks which hem in the channel on either side. But nothing daunted the hardy adventurers who had invaded the hitherto unexplored solitudes of this remote region. Armed with picks and shovels, they climbed the rugged mountains—some of which attain an altitude of 7,000 feet above the level of the sea—their gaunt sides seamed with dangerous ravines, and their summits clothed in perpetual snow,—and wrested the auriferous treasures of nature from the wild glens where probably human foot had never ventured before. Thus the rich locality known as Moak Creek, and its tributary Moonlight, were attained by surmounting the very crest of Ben Lomond.

Maori Point.

34. Higher up the Shotover numerous rich gullies were discovered, principally on the Western Watershed; and the beaches of the river itself were successfully prospected for a distance of more than thirty miles, the miners crossing the adjacent ranges, and descending to the stream wherever it was found practicable to do so. One of these beaches is known by the appropriate name of "Maori Point," owing to its discovery by two natives of the North Island, Dan Ellison, a half-caste, and Zachariah Haeroa, a full Maori. As these men were travelling along the Eastern bank of the river they found some Europeans working with great success in a secluded gorge. On the opposite shore was a beach of unusually promising appearance, occupying a bend of the stream, over which the rocky cliffs rose perpendicularly to the height of more than five hundred feet. Tempting as this spot was to the practised eyes of the miners, none of them would venture to breast the impetuous torrent. The Maoris, however, boldly plunged into the river, and succeeded to reach the Western bank; but a dog which followed them was carried away by the current, and drifted down to a rocky point, where it remained. Dan went to its assistance; and observing some particles of gold in the crevices of the rocks, he commenced to search the sandy beach beneath, from which, with the aid of Zachariah, he gathered twenty-five pounds weight (300 ozs.) of the precious metal before nightfall. A systematic investigation of the locality ensued, and resulted in the discovery of valuable and extensive auriferous deposits.

Skipper's.

35. Other gullies and beaches further up the river were shortly afterwards opened up. The richest and most considerable of the former is Skipper's Gully, which, with its numerous tributaries, may be said to constitute a Gold Field of itself. Beyond this the river has been prospected nearly to its sources, but of that portion of the district even yet we possess very little reliable information.

Simpson's, Bucklerburn, &c.

36. The shores of Lake Wakatipu itself have also been explored; and on the Northern Watershed of the West arm, and the Eastern Watershed of the North arm of this the greatest of our inland seas, several famous gullies have been discovered, as Few's Creek, Simpson's, the Bucklerburn, and others of less note. Still more recently mining adventure has progressed in the direction of Mount Macintosh (the Earnslaw of the Maps), and on the Rees River, and its Eastern tributaries, a considerable extent of payable ground has been struck.

Tallaburn.

37. In March, 1863, and the following months, several small gullies were discovered near Mr. Gardiner's station, on the Tallaburn, at the Southern extremity of the Mount Benger Gold Field; but the yield from this locality has hitherto been insufficient to attract much attention. About the same time gold was discovered at Moa Creek, a tributary of the Poolburn.

Black's.

38. In April, a rush took place to the Manuherikia Valley, where a small Gold Field—found on the run of Mr. Black—afforded remunerative employment, for a time, to a considerable number of miners.

Campbell's.

39. More important discoveries were made in May. The first of these was at Campbell's Creek, which runs from the Obelisk towards the Mataura, on the Western side of the Carrick Ranges. This Creek is reported to be nine miles in length, and to present most promising indications of the presence of auriferous treasure; but the workings are situated high up in the mountains, and the winter season has consequently been unfavorable to its development.

Mount Ida Gold Field.

40. The next discovery was that of the Mount Ida Gold Field. On the 20th May, a miner named William Parker, and his mates, found payable prospects on the Hogburn, a small stream which takes its rise in Mount Ida, and joins the Taieri River above the Lake. A large population has been attracted to this field, which is represented by the official report as being in a very prosperous condition. Several contiguous Creeks have recently been tried with success; and there is a fair prospect of the district becoming a permanent Gold Field.\*

\* Since this was written the first escort has arrived from Mount Ida with the very respectable freight of 4,320 ounces.



41. In June new workings were reported as having been discovered on some of the branches of the Serpentine Creek, a western tributary of the Taieri. Later still—namely on the 15th July, an application was made to the Government by Simon Frazer for a prospecting claim on a creek which rises in Powder Hill, on the east bank of the Taieri, and about sixteen miles from Dunedin. The prospect obtained was at the rate of three dwts. to the tin dish, and a comparatively small rush has occurred in consequence. Serpentine.  
Frazer's.

42. This is the last discovery of importance that has been made to the date of my Report; but new ground has been opened continuously on every field, and every week still brings intelligence of some addition to the already extensive area over which gold has been proved to exist in payable quantities.

43. The West Coast of Otago possesses the usual attractions of a *terra incognita* to the intrepid spirits who have embraced gold mining as an avocation. Many and various attempts have been made both by sea and land, to solve the mysteries of that region. In the month of January, a miner, named Caples, undertook a journey for this purpose. Starting alone, without gun or map, he crossed the mountains at the head of the Dart River, cutting steps in the glaciers with a shovel, and descended the western watershed to a river which he named the "Hollyford." Driven back by the want of provisions, which compelled him to feed on "Maori rabbits," (Anglice, rats), Caples made a second attempt, and again succeeded in crossing the ranges near the sources of the Greenstone River. Thence he followed the course of the Hollyford down to its embouchure at Martin's Bay, which he finally reached on March 10th. During this journey, Caples carefully prospected the creeks and river beaches for gold. On one of the larger tributaries of the Hollyford (named by him "Pyke's Creek") he found "two coarse specks of gold in a soft quartz vein, on hard slate bottom, exposed between two boulders." He prosecuted the examination of this locality for two days, but failed to procure another particle; and he records that throughout the remainder of his expedition he could only obtain the "color." Other explorers have not been more successful. It would, however, be premature to declare the western slopes of the Great Dividing Range non-auriferous. Granite (or more probably, gneiss) and greenstone (the jade of commerce) appear to have been the prevalent rocks noticed by Caples; but he also reports the existence of clay-slate and quartz; and it is therefore just possible that our Gold-fields may yet extend to the West Coast. West Coast.  
Caples.

44. Subsequently to Caples' journey a Mr. Alabaster entered the Hollyford from the sea in a small schooner named the "Aquila," in which he succeeded in reaching the head of Lake McKerrow, and discovered another smaller lake at the head of Pyke's Creek, on the beaches of which he reports that he found "traces of gold." Alabaster.

45. Perhaps one of the most peculiar conditions under which gold has been developed in Otago, is presented by the coast workings, near the Township of Hampden on the Moeraki beach. Very fine but rough gold is there found amongst the detritus of the sea shore, intermixed with iron sand, fragments of crystals, and minute gems chiefly garnets and zoicons. Samples, tested by competent metallurgists, have yielded at the rate of from 50 to 100 ounces to the ton of sand. The quantities operated upon have been small, and the results are consequently indecisive but the particles of gold are generally diffused through the sand as to leave no doubt of its remunerative character if subjected to proper scientific treatment. These sands are found along the coast from the mouth of the Big Kauri stream to Vulcan Point, and similar deposits have been discovered beneath the soil in the adjacent creeks and gullies. Gold has also been discovered under similar circumstances on the sea coast near the mouth of the Clutha, with this difference that the fragmentary gems are absent and the gold itself is flatter and more waterworn than at Moeraki. Coast workings.

46. In connection with this branch of my Report, it may not be considered out of place to refer to the existence of other minerals. Iron has been found in almost every possible form and combination, freely interspersed with the sands of sea shore and the rivers, and largely diffused through the rocks. And recently a very extensive lode of pyritous copper ore, yielding by analysis, 24 per cent. of metallic copper, has been discovered in the vicinity of Ben Lomond, between Lake Wakatipu and Moak Creek. We may reasonably anticipate that in the progress of time, and as the interior of the Province is rendered more accessible by the construction of available roads, these hitherto undeveloped resources will contribute to the material prosperity of Otago. Iron and copper.

## II.—PRODUCE.

47. It is satisfactory to be able to report a considerable increase in the produce of the Otago Gold Fields during the year ending 31st July, 1863. The following Tables (for the particulars of which I am indebted to the Chief Gold Receiver) shew the comparative yields, as per Escort, for each month and quarter of the two years that have elapsed since Mr. Gabriel Read's famous discovery revealed the auriferous treasure of the Province:— Increased produc-  
tiveness.

REPORT ON THE

	1861-2.		1862-3.	
	ozs. dwts.	ozs. dwts.	ozs. dwts.	ozs. dwts.
<b>SPRING—</b>				
August .....	5,056	0	14,986	0
September .....	19,039	15	12,618	6
October .....	46,613	5	38,777	14
	70,709 0		66,382 0	
<b>SUMMER—</b>				
November .....	73,904	0	37,664	18
December .....	58,870	0	37,260	1
January .....	47,391	0	48,567	5
	180,165 0		123,492 4	
<b>AUTUMN—</b>				
February .....	42,473	0	72,311	14
March .....	32,202	5	46,691	12
April .....	22,862	10	70,010	12
	97,537 15		189,013 18	
<b>WINTER—</b>				
May .....	22,945	10	47,631	5
June .....	12,876	10	43,613	8
July .....	10,375	18	30,398	9
	46,197 18		121,643 2	
Total .....	394,609 13		500,531 4	

Permanent produc-  
tiveness.

48. It is noticeable that, whereas in the winter of 1862 the returns fell to a minimum, which excited general and serious apprehensions as to the permanent productiveness of the Gold Fields, the yield in the corresponding season of 1863 was nearly as large as in the summer; whilst in the autumn months of that year the Escort attained to an amount greater than that of any previous quarter.

Escort does not show  
total produce.

49. But the Record Returns by no means represent the total produce of the Gold Mines of Otago. The quantity exported to 31st July, 1862, amounted to 458,448 ozs. 18 dwts., and there remained in the hands of the Treasurer at that date, 4,787 ozs. 6 dwts., in all 463,236 ozs. 4 dwts. In the year ending 31st July, 1863, 514,385 ozs. 17 dwts. were exported from the port of Dunedin; and 9,240 ozs., the produce of Otago, from other ports in New Zealand. To these amounts must be added 23,657 ozs. 3 dwts., which at the above date was lodged in the Dunedin Treasury, in excess of the balance on hand on 31st July, 1862. The ascertained total produce of the last year is, therefore, 547,283 ounces. By adding this amount to the produce of 1861-2, we arrive at a grand total for the two years of 1,010,519 ounces. Calculating 24,000 ounces as a ton of gold, this gives 42 tons 210 lbs. troy of the estimated value of four millions forty-two thousand and eighty pounds sterling.

Additional quantity  
in the hands of the  
Banks and Private  
individuals.

50. Even this does not fully represent the produce of the Otago mines. By the courtesy of the managers of the various Banks in Dunedin, I have been enabled to ascertain that on the 31st July, 1863, 10,000 ounces were held by those establishments, besides a considerable quantity in the hands of country branches and gold buyers. The miners themselves are known to retain a large amount of gold in their possession; and on the whole, I feel assured that I am rather under than over the mark in assuming that 30,000 ounces have been obtained in addition to the quantity officially reported.

Relative yield and  
population.

51. When it is borne in mind that the whole of this treasure has been raised in the space of twenty-four months, by a mining population whose average number for the entire period is computed at about 12,000 souls, it is impossible to avoid recognizing the fact as one of the most splendid results ever attained in any gold producing country of ancient or modern times.

Otago Gold Fields  
little noticed by Bri-  
tish public and press.

52. It is a subject of general remark, that little, if any, notice is taken of the Otago Gold Fields, by the British public and Press. This is to be accounted for by the fact that to the great bulk of the inhabitants of the mother country the Province of Otago is almost unknown, and New Zealand itself is merely regarded as one of the Australian Colonies. This error is not confined to the illiterate, but is shared in, to a surprising degree, by the educated classes, including many prominent writers, and guides of popular opinion, who appear to be only slightly acquainted with the geography and progress of these settlements. This darkness time alone can dispel. Meantime the practice of exporting a very large proportion of the precious metal *via* Melbourne, is admirably calculated to foster delusion. From returns furnished by the Collector of Customs, I find that during the two years ending 31st July, 1863, only 215,583 ounces were forwarded direct to Great Britain, whilst 747,535 ounces, or four fifths of the total amount exported, were sent to Victoria and other Australian colonies.

Consequence of Otago  
gold being sent home  
by indirect routes.

53. The consequence is that the latter reaching Britain by indirect route, is regarded as Australian produce, and the Otago Gold Fields are not deemed of sufficient importance to warrant a special reference thereto even in official documents.

54. The quality and value of our gold produce is a subject of considerable importance. From information obligingly communicated by gentlemen connected with the banking establishments of the Province, I have been enabled to ascertain that the average fineness of Otago gold may fairly be stated as slightly over 22 carats. On this point the local assays closely tally with assays made in London, for I find that the average assays of ninety-nine bars of gold, as per London invoices (which I have been permitted to inspect), was 22 carats  $3\frac{5}{8}$  grains. The relative difference in the fineness of gold from various localities is very slight; the highest, Tuapeka, being 23.1, and the lowest, Nokomai, 22.1 $\frac{1}{2}$ . But there is, nevertheless, a considerable difference in value; for whilst there is a loss in melting of only 1 $\frac{1}{2}$  per cent. on the produce of the Dunstan Gold Field, the loss on gold from Tuapeka is rated at 4 per cent. Taking into consideration the quantities raised in the various Gold Fields, and comparing these with the results of actual assays, which have been placed at my disposal, it would appear that the average loss in melting is at the rate of about 3 per cent.

Quality and value of Otago gold.

55. There are marked differences in the gold produced from the various fields, so that the practised eye can almost detect at a glance the locality of any sample. That, for instance, obtained from the beaches of the Clutha River is fine and scaly, and in a lesser degree the same remark applies to the Tuapeka gold. The Wakatipu field is noted for large gold, generally smooth, and of a bright yellow colour, and some of the finest nuggets yet discovered have been found there. The gullies near Dunstan, in the Carrick Ranges and the valley of the Nevis produce heavy, shotty gold. In Meredith's Gully, near the Obelisk, some exceedingly beautiful specimens of gold have been obtained at an altitude of nearly 3,000 feet above the level of the sea. Many of these are chrystalized, and I have one now in my possession presenting the form of a perfect octahedron. Others have been so much moulded by nature as to bear a close resemblance to the imprint of minute leaves. The gold of Frazer's diggings, near Powder Hill Creek, differs from any that I have yet seen, it being large, rough, and of a reddish hue. Very large lumps or masses of gold have not been met with in Otago, the most considerable piece of which I have any knowledge weighing about fourteen ounces. Generally speaking the coarsest gold is found near the heads of gullies, and gradually becomes finer as the lower end is approached.

Marked difference in the gold from various fields.

### III.—EFFECT OF DISCOVERIES.

56. The discoveries of the last two years have increased the population of Otago to a greater extent than would probably have occurred in many years under the ordinary conditions of the Province. The following tables detail the progress, nature, and direction of Immigration and Emigration during this period:—

Increase of population.

REPORT ON THE

YEAR ENDING 31st JULY, 1862.	GREAT BRITAIN.						AUSTRALIAN COLONIES.						COASTWISE.						TOTAL.					
	Adults.			Children.			Adults.			Children.			Adults.			Children.			Adults.			Children.		
	M.	F.		M.	F.		M.	F.		M.	F.		M.	F.		M.	F.		M.	F.		M.	F.	
Immigration	794	374	194	168	24,243	1,621	674	564	4,417	409	124	91	29,454	2,404	992	823								
Emigration	50	15	6	9	16,386	192	59	20	3,539	183	68	33	19,975	390	133	62								
Excess of Immigration	744	359	188	159	7,857	1,429	615	544	978	226	56	58	9,479	2,014	859	761								
Total Immigration	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total Emigration	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Balance in favour of Immigration	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Total Immigration 33,673  
 Total Emigration 20,560  
 Balance in favour of Immigration 13,113

GOLD FIELDS OF OTAGO.

YEAR ENDING 31ST JULY, 1863.	GREAT BRITAIN.				AUSTRALIAN COLONIES.				COASTWISE.				TOTAL.			
	Adults.		Children.		Adults.		Children.		Adults.		Children.		Adults.		Children.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Immigration	2,018	1,739	226	217	31,762	3,468	1,214	1,143	4,357	420	101	67	38,137	5,627	1,541	1,427
Emigration	71	23	9	10	7,303	334	72	48	2,299	286	90	54	9,673	643	171	112
Excess of Immigration	1,947	1,716	217	207	24,459	3,134	1,142	1,095	2,058	134	11	13	28,464	4,984	1,370	1,315
Total Immigration	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total Emigration	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Balance in favour of Immigration	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

TOTAL FOR THE TWO YEARS ENDING 31ST JULY, 1863.

Total Immigration	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total Emigration	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Balance in favour of Immigration	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Total Immigration	46,732
Total Emigration	10,599
Balance in favour of Immigration	36,133

Comparative statement of population.

57. It will be observed that there has been an increase to the population of Otago since the 1st August 1861 of nearly 50,000 souls, of whom 37,943 are male adults, and 6,998 female adults. Four-fifths of the total number or 40,275 persons of both sexes arrived from Australia; 5,537 from Britain and the remainder coastwise. The stream of immigration has been gradual, and steadily progressive; and the Province has thus escaped that utter dislocation of society which characterized the early gold discoveries of Australia. The largest influx in any one month occurred in March 1863, when 14,168 persons landed at Dunedin, and the greatest efflux took place in March 1862 when 5,136 persons quitted the Province. For the winter quarter of 1863 the additions to our population numbered only 1,262, of whom 1,102 are adult males. This is to be accounted for by the movements of Australian miners of whom 239 left Dunedin in excess of arrivals from the Australian Colonies. But there has been nothing approximating to the reactionary rush which ensued in 1852 when our mining population was absolutely scared out of the country by exaggerated reports of the severity of the winter season. The existence of large belts of timber on the Wakatipu field, and the discovery of extensive beds of lignite elsewhere, has done much to abate groundless fears on this score; and, moreover, the winter is now known to be most favourable to the pursuit of some descriptions of gold-mining. The foregoing tables elucidate the fact that in 1861-2 out of 24,243 men who arrived from Australia, 16,386 or three-fourths of that number returned thither; whilst in 1862-3, 31,762 men arrived from those colonies and only 7,303 or less than one-fourth returned. As our miners are principally old Australians this fact satisfactorily demonstrates the growing stability and value of the Otago Gold-fields.

Present population.

58. The present population of Otago may be estimated at about 65,000 souls. It appears from returns furnished by the Wardens and Mining Surveyors that there are 21,000 persons residing within the limits of the proclaimed Gold-fields. To this number must be added 3,000 who are located in various gullies beyond those boundaries, making a total of 24,000. It is computed that two-thirds of the whole or 16,000 are actually engaged in mining operations, the balance consisting of persons engaged in business and professional pursuits and of women and children. The average number of miners for the entire year may be set down at 14,000, and their average earnings at £164 per head. In making this calculation however, it must be borne in mind that gold by its very nature offers unusual facilities for evading the revenue and it is therefore not improbable that in spite of all precautions a higher estimate would be correct.

Effect of the gold discoveries.

59. The result of the gold discoveries has been to place Otago in the foremost rank amongst the Provinces of New Zealand. Since the commencement of 1861, her population has been quintupled, her resources incalculably enlarged; and her commerce has suddenly attained a magnitude, such as under the slow growth of ordinary colonization could scarcely have been anticipated for many decades. The Imports have increased seven fold, the Exports twenty fold, and the Customs revenue ten fold, as is evidenced by the subjoined table, compiled from returns supplied by the Collector of Customs, Charles Logie, Esq.

	Imports.	Exports.	Customs Revenue.		
	£	£	£	s.	d.
Year ending 30th June, 1861	339,637	124,972	32,981	7	3
Year ending 30th June, 1862	1,752,766	1,899,180	132,623	7	3
Year ending 30th June, 1863	2,472,097	2,104,109	214,406	0	0

The Provincial Revenue has sustained a corresponding increase, advancing from £62,764, the amount received for the year ending 30th June, 1861, to £239,651, for the corresponding period of 1862, and to £306,733 in 1863.

Advantages accruing from the gold discoveries.

60. Other material advantages have attended these discoveries. Only fifteen years have elapsed since the first settlers—the Pilgrim Fathers of Otago—landed at the Heads, and laid the foundations of the Province; but Dunedin has already assumed the dimensions of a city, and the agricultural villages are rapidly becoming important inland towns. Large townships have sprung up on the gold-fields, and only await the opening and sale of the lands to become the centres of thickly settled districts. In the distant wilderness, where only three years since an enterprising settler laboriously paddled his lonely raft along the shores of an unexplored lake—the large and important township of Queenstown has been established, and the solitary homestead of Mr. Rees is now the abode of a busy and energetic population. Although only seven month old, Queenstown already consists of several streets closely lined with numerous stores and hotels, with concert-rooms and a theatre for the votaries of pleasure, and with churches for the service of the Deity. It has a public Treasury for the safe custody of gold and the receipt of revenue, and a Court-house with its attendant functionaries, for the administration of justice. Jetties and Wharves are built out into the lake for the safe landing of passengers and merchandise; and three steamers, a schooner, and a small fleet of boats and cutters ply upon its waters. At Frankton—five miles distant—a large and commodious hospital has been erected; and at Dunstan and Tuapeka are other

hospitals; all supported, in part by Government subsidies, and in part by voluntary contributions. Altogether there are now eleven established Townships on the Otago gold-fields, exclusive of that which is being formed at Mount Ida. Next in importance to Queenstown are the Townships of Clyde and Alexandra on the Dunstan field; and after these Roxburgh on the Teviot, and Lawrence at old Tuapeka.

IV.—REVENUE AND EXPENDITURE.

61. The following tables show the amount of Revenue received directly from the gold-fields during the two years ending July 31st, 1863, and the expenditure for the same period on establishments and public works directly connected with the gold-fields:—

REVENUE OF THE OTAGO GOLD FIELDS.

YEAR ENDING 31ST JULY, 1862.	AMOUNT.		
	£	s.	d.
Export Duty ... ..	57,306	0	0
Miners' Rights and Business Licenses ... ..	18,492	15	0
Spirit Licenses ... ..	2,765	0	0
Fees, &c. ... ..	23	17	0
	£	78,587	12 0

YEAR ENDING 31ST JULY, 1863.	AMOUNT.		
	£	s.	d.
Export Duty ... ..	65,453	7	0
Miners' Rights and Business Licenses ... ..	24,898	0	0
Spirit Licenses ... ..	5,385	0	0
Fees, &c. ... ..	885	15	0
	£	96,622	2 0

Total Revenue for the two years, £175,209 14s. 0d.

EXPENDITURE ON THE OTAGO GOLD FIELDS.

YEAR ENDING 31ST JULY, 1862.	AMOUNT.		
	£	s.	d.
Gold Fields Department, Salaries and Contingencies ... ..	7,908	16	3
Escort Services, Police, &c. ... ..	14,862	15	6
Buildings, Gold Fields Department ... ..	2,940	8	8
Do., for Police ... ..	3,331	19	2
Do., for Hospitals ... ..	659	17	1
Maintenance of Hospitals ... ..	351	0	7
Reward to Gabriel Read for discovery of Tuapeka ... ..	1,000	0	0
Compensation for Runs at Tuapeka ... ..	4,216	0	0
	£	35,270	17 3

## REPORT ON THE

YEAR ENDING 31ST JULY, 1863.	AMOUNT.		
	£	s.	d.
Salaries and Contingencies of Gold Fields Department ...	11,058	1	0
Escort Service and Police ...	29,660	0	0
Road Works ...	19,053	11	6
Storm Water Channel at Wetherstone's ...	1,701	1	11
Buildings for Gold Fields Department ...	6,762	14	0
Do. for Police do. ...	5,944	17	0
Do. for Hospital do. ...	3,947	4	0
Maintenance of do. ...	1,123	2	9
Reward to Hartley and Reilly for discovery of Dunstan Gold Field	2,000	0	0
	£	81,250	12 2

Total Expenditure for the two years, £116,521 9s. 5d.

Estimated Revenue and Expenditure from and on account of the Gold Fields population.

62. Estimating the inhabitants of the Gold fields at two-fifths of the entire population, they may fairly be credited with a corresponding proportion of the ordinary Customs Revenue; but they must also be debited two-fifths of the general expenditure, inasmuch as they participate in an equal degree in the benefits accruing therefrom.

#### V.—PRESENT CONDITION OF THE GOLD FIELDS.

Evidences of the continued prosperity of the Gold Fields.

63. That the Gold-fields of Otago are in a state of unabated prosperity is a fact which is amply evidenced by the Escort Returns. Complaints of non-success are indeed occasionally heard, but it cannot be expected that all should be equally successful. Here, as elsewhere, some gather fortunes from Nature's golden stores, others only make wages, and some are unable to earn a living by their labours. "The race is not always to the swift, nor the battle to the strong." But gold is more generally distributed throughout the soil of Otago than in that of any other country: and notwithstanding instances of individual hardship, the industrious miner can, as a rule, usually obtain fair remuneration for his toil, with the chance of something better falling in his way.

Tuapeka.

64. The oldest if not the best developed of our Gold-fields is Tuapeka, which still maintains its position. The population of this field, including the districts of Waitahuna and Waipori, is now estimated at 3,100 of whom about 2,100 are actual miners. The following extract from the Report of Mr. Mining-Surveyor Drummond, affords a lucid description of mining operations thereon:—

"Nearly the whole of the mining operations carried on in this Gold-field have been confined to box or ground sluicing, and present a great similarity throughout. The sinking in the gullies and flats generally varies from six to twelve feet, and on the spurs from fourteen to twenty-two feet. The strata gone through generally consists of quartz and schist debris. The thickness of 'wastedirt' is from two to four feet in the gullies and from three to seven feet on the spurs. Where the water is heavy, and there are no means of cutting a tail-race, water-wheels have been erected, with Californian pumps attached. These seem to answer the purpose admirably, both at the Woolshed and the Tuapeka Flat, on which places about thirty are now in operation. At the 'Blue Spur' in Gabriel's Gully, hydraulic pressure is used for washing the earth down: the stream from which the water is brought for this purpose, being tapped near its source, and consequently at a high elevation, and conducted by means of ditches or 'races' to the scene of operations."

Mr. Drummond's report on the prospects of Tuapeka.

65. As Mr. Drummond has had considerable experience of gold workings, in his capacity of a Mining Surveyor both in Australia and Otago, his opinions on the condition and prospects of the Tuapeka Gold-field are of great value, and I therefore quote them in full:—

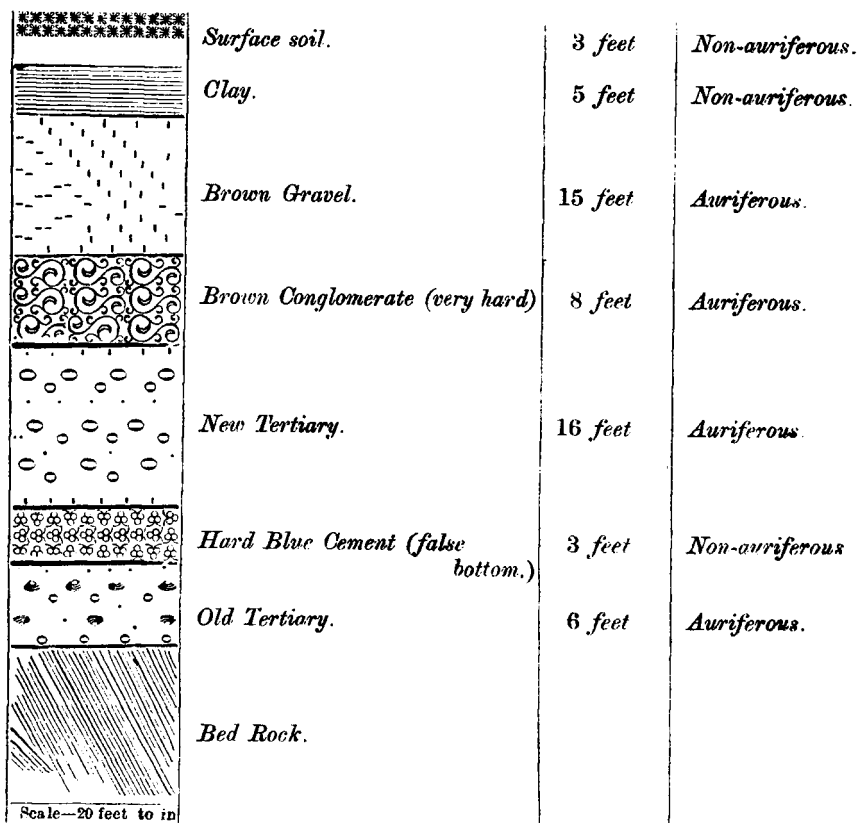
"I consider the prospects of this Gold-field are very much above the average of what, in Victoria, would be called 'payable ground,' and in no portion of it do I consider that the ground already opened can be regarded as worked out. Gabriel's, Munroe's and Wetherstone's alone still support a population of over 400 miners: the 'spurs' (of the ranges) are in a great measure intact, and a great proportion of the ground which is now being mined upon is only upon the false bottom. That a second bottom exists, has been proved at the Blue Spur, in Gabriel's Gully, at Wetherstone's tunnel, and in the deep shalt Waitahuna. I may state that a shaft has been sunk in one of the adjacent gullies to a depth of one hundred and fifty feet, and not bottomed.



“The different runs of gold from Wetherstone’s and adjacent gullies have not been traced further than Wetherstone’s Flat. The runs from Gabriel’s have not been traced further than about one mile below the junction. The run from Munroc’s Gully has not been traced further than its junction with the Tuapeka stream. Nearly the whole of the Tuapeka flat and spurs are unworked; and, as an instance of the auriferous nature of the township, I may state that during the formation of the road payable prospects were obtained from the gravel used for metal. At Waipori, gold can be obtained on almost any of the spurs, flats, or gullies, and some very good patches have been found. I am of opinion that the Waipori will yet yield large quantities of gold. At Waitahuna a large extent of ground still remains to be opened out; the runs of gold from Waitahuna and adjacent gullies have only been traced to near their junction with the Waitahuna stream. Only a small portion of the Waitahuna stream has been worked, and the river has only been partially tried. The three districts of this gold-field I consider as admirably adapted for sluicing purposes, for the following reasons, viz.: the favourable nature of the soil for sluicing, it being very gravelly; the ample supply of water, which, besides being used for sluicing purposes, is also used as a motive power; and the great natural facilities for erecting reservoirs at a comparatively small cost. The length of the head races at present cut I estimate at about one hundred and twenty miles, representing about two hundred sluice heads.”

66. Referring to Mr. Drummond’s remarks on the existence of “false bottoms,” I attach a sectional diagram showing the relative position and average thickness of the various strata found in the claim of the “Nelson Company” at the Blue Spur, in Gabriel’s Gully, and for which I am indebted to the courtesy of John Hughes, Esq., Member of the Provincial Council of Otago, and Manager of the Company’s Works:—

Mr. Drummond’s remarks on the existence of false bottoms.



Aggregate thickness of Auriferous Strata—45 feet

67. Instances of individual success are by no means unfrequent. Major Croker, the Warden of Gabriel’s District, reports that “Mining matters continue in a highly satisfactory state; as instances of which the following detailed statement of the operation of ten parties on the ‘spurs’ of Wetherstone’s are submitted:—

Instances of Individual success.

Number of Claim.	Number of Men Employed.	Depth of Sinking.	Depth of Washdirt.	Average amount of gold per week per man.	
				Ozs.	Dwts.
1	4	Feet. 20	Feet. 5	2	5
2	3	40	10	1	10
3	4	10	2	1	10
4	4	18	3	3	0
5	4	30	6	2	5
6	3	25	5	2	0
7	3	30	2	2	15
8	4	20	3	1	15
9	3	12	4	1	15
10	5	25	6	2	11

## Mr. Warden Worthington's Report.

68. Respecting the other districts of the Tuapeka field, Mr. Warden Worthington reports very favourably thus:—"The payable ground already discovered is capable of supporting a large population. There is good wages for the miner almost anywhere, with the prospect of dropping on a rich patch if he perseveres."

## Course of the known Gold Fields.

69. Extending northwards from Tuapeka, the known gold-fields continue in an unbroken line to a point about four miles above the junction of the Kawarau and the Clutha Rivers, and by the course of the former river to the Wakatipu: on the west by Nokomai and Switzer's to the Mataura, and on the east by the vallies of the Manuherikia and Ida Burn to the Mount Ida gold-field; from which the auriferous circle returns southward to within a few miles of Dunedin.

## Mount Benger Gold Field.

70. The Mount Benger gold-field, as proclaimed, is a long narrow strip of country connecting Tuapeka with the Dunstan. The workings are mostly confined to the river beaches, but several small gullies are being worked beyond the boundaries, near the Beaumont and Tallaburn. Mr. Mining Surveyor Coates reports:—

## Mr. Coates' Report on Mount Benger Gold Field.

"Notwithstanding that this gold-field possesses immense quantities of auriferous ground, its population is exceedingly scant, which circumstance seems difficult to account for, considering that claims generally in that district are represented as of a payable character. With the exception of a water-race, which has been conducted from the first gorge on the Teviot stream to the bank of the Clutha, through the Township, and three in operation on Miller's Flat, I have not seen the natural supply diverted."

## Mr. Warden Robinson's Report.

71. The population is stated, by Mr. Warden Robinson, at 1,100, of whom 950 are miners; and in a late report that officer thus refers to a new feature in the mining operations of the district:—

## Tunnelling.

"A novelty in this district is the introduction of tunnelling, for the purpose of getting at the auriferous deposits below the high banks of the river. The party that has introduced this improvement has already put in two tunnels about twenty feet in length each. They were afraid to drive further, and when they had finished one tunnel they filled it up with stones as solidly as they could before beginning the next. They have been so well satisfied with their prospects that they have applied for an extended claim, and propose obtaining timber to enable them to work on a large and systematic scale."

## Riverine Gold Fields.

72. In explanation of the Warden's remarks, it is requisite to give a brief general description of what may be termed the Riverine Gold-fields, meaning those situated on the banks of the Clutha. Like many of the other rivers of this Province, the Clutha possesses no true valley, but pours its waters through a succession of gorges cut transversely through the mountain ranges. Between these gorges there are wide open basins presenting the appearance of having formerly constituted a chain of lakes, before the erosive action of the waters upon the intervening barriers, reduced the channel to its existing level. These old lake beds are composed of loose drift, varying from 30 to 80, and sometimes 150 feet in depth, and are generally known by the name of "terraces" although that phrase is more peculiarly applicable to the remarkable elevations of the Manuherikia and Upper Clutha valleys, which closely resemble military earthworks with glacis-like slopes and surprisingly uniform surfaces. Under these terraces or banks, heavy gold has long been known to

exist; but it is only very recently that any but the most feeble attempts have been made to work them by tunnelling—a circumstance only to be accounted for by the scarcity of timber, which is necessary for the support of the super-incumbent earth.

73. Mining operations in the Dunstan Gold-field, inclusive of the Manuherikia district, may be divided into three classes viz.,—River beach workings, ordinary alluvial mining, and tunnelling. From the first, immense quantities of gold have been obtained, but the frequent rising of the river has rendered this branch of mining very intermittent and precarious. A machine has recently been invented for the purpose of dredging the bed of the Clutha itself, but it has not yet been practically tested. The following extracts are from the report of Mr. Mining Surveyor Coates:—

“Mining operations, in addition to ground and box sluicing, consist in tunnelling into the banks on either side of that part of the river between the township and the gorge, a distance of about five miles, and which description of mining has revealed the existence of the bed rock under a large area, and at levels in most instances above that of the river, together with other highly important information in reference to the future prosperity of that locality. From some tunnels worked under the bank at the north side of the river, and in the immediate vicinity of the township, gold, bearing a marked difference from that of any other portion of the district, has been obtained. Nuggets weighing from five to fifteen pennyweights have been occasionally found amongst the finer gold; from which circumstance, together with that of the rock bottom having been followed dipping gradually from the river, it is generally believed that a rich gutter exists at no great distance from the faces of the most extensive of these workings. For the purpose of striking the supposed lead a shaft has been sunk (Princess Alexandra) and bottomed at a depth of ninety-five feet, upon which about two feet of wash-dirt was found, yielding a prospect of ten grains to the tin-dish; but in consequence of the water which had to be contended with having been influenced by the rising and falling of the adjacent river, the prospectors determined upon suspending operations until the river subsided sufficiently to permit them to drive. The method of securing the shaft, although inapplicable in wet sinking, is nevertheless a valuable introduction, as instructive as it is novel, consisting of a framework or skeleton lining of timber, interlaced or plaited vertically and horizontally with New Zealand flax (*phormium tenax*). This structure, beyond a doubt, possesses many advantages where drift is not of too loose a nature, and under which condition, I consider that such a system of timbering would resist lateral compression, and the flax prevent detached stuff from falling upon the miners when at work. From the fact of the shaft having been satisfactorily bottomed, there can be no doubt of this new introduction coming into general use; and taking into consideration the extensive areas suitable to such method of sinking, together with the large supply of flax and small timber obtainable from the islands and banks of the Upper Clutha, this inexpensive mode of sinking will be a great advantage to mining generally in that neighbourhood.

“In the auriferous localities at the south side of the Kawarau River, comprising the valley of the Bannockburn, Smith's, Adam's, and Pipeclay Gullies, mining operations consist principally of sluicing, for which purpose the streams of those several gullies and lateral branches have been diverted, and subdivided sufficiently to give employment to a large number of miners.

“The late extension of the Dunstan gold-field has included in its auriferous localities a large extent of sluicing-ground upon the slopes and terraces on the east side of the Clutha, and extending from one to six miles above the junction of the Kawarau with that river.

“Besides the shaft in the vicinity of the township of Cromwell (Kawarau), which I have already mentioned, another has been sunk immediately under the slope of the Surface Hill, situated at the base of the Double-rock range. Having visited this shaft on the 23rd instant, I ascertained that a depth of one hundred and forty-three feet had been reached without water having been struck, and as yet no indication of bottom is perceptible in the drift which is being raised.

“Notwithstanding that mining operations generally have received a severe check from the unsatisfactory state of the rivers for the past three months, it is universally admitted that the necessity resulting from it has been the prime cause of prospectors surmounting the difficulties and privations arising from the physical features of the most rugged portions of the country to the west of the Clutha, thereby adding considerably to the previously known auriferous ground in that direction. Between the Nevis and the Clutha rivers, the vast extent of rude and elevated country, known as the Carrick ranges, has received a good prospecting, from which it has been ascertained that many spurs and saddles of, as well as a considerable number of gullies in this area of mountains, are auriferous; and it is the opinion of those who have been compelled by the severity of the weather to abandon those localities, that upon the return of mild weather a large population will be attracted thither. Nor is it less reasonable to consider, that an equally bright future may be predicted for other elevated portions of the district, the Dunstan ranges, between this township and the northern boundary of the Dunstan gold-field, having, under the most difficult circumstances, contributed considerably to the gold obtained on this field, during the months of March and April.”

74. Mr. Warden Keddell estimates the population of the Dunstan and Manuherikia districts at 4,400 souls, of whom 3,200 are miners. In a recent Report, that officer writes thus:—

“The principal attention of those miners who appear to have settled down permanently in the district, seems to be directed to sluicing workings. All the available streams have been diverted, and are now in use; and when the large tract of country payable under such a system of working is considered, there can be no doubt that for a very long time to come, hundreds of miners will find remunerative employment, independently of new discoveries.”

Classes of mining on the Dunstan Gold Field.

Mr. Coates' Report on Mining operations in Dunstan District.

Bannockburn, Smith's, and other gullies.

Extension of Dunstan Gold Field.

Shaft at Surface Hill.

Country between the Nevis and Clutha proved to be auriferous.

Sluice Workings.

Wakatipu Gold Field.

75. The Wakatipu gold-field is, without doubt, one of the richest and most extensive ever discovered. From personal observation I am justified in stating, that it contains an enormous acreage of payable alluvial workings. Gold is found in the river beds in such quantities as to place every other gold-field yet discovered in the shade. The Shotover itself is incalculably rich, and from its peculiar appearance, passing through deep gorges overhung by precipitous cliffs, it may be said to be a second Ballarat, devoid of any superincumbent soil. But the river itself is a more formidable guardian of its golden treasures than any quantity of rock or earth could be. To divert the waters and lay bare the bed of the torrent, has been the object with which much time and labour has been expended. It is difficult, under any circumstances, to form a new channel for a river so peculiarly situated, and this difficulty has been greatly increased by the heavy floods of the winter season, from which Otago is only now just emerging. Another serious drawback has originated in the indisposition of the claimholders to form associated companies, for the construction of flood races sufficiently strong and capacious to carry off the superabundant waters. But recent experiences have not been without their due effect, and the miners are now combining for this purpose in such numbers as to justify the belief that, by their joint labours, the common enemy will be kept within due bounds; and we may therefore reasonably expect that the coming season will develop the hitherto undeveloped treasures of this truly golden stream.

Upper Shotover.

76. During my recent visit to the Upper Shotover district, the remarkable richness of that locality was brought under my own observation. One party working in the river at Maori Point valued a disputed portion of ground, only five feet in width, by twelve feet in length, at £3,000, and subsequent events have proved that the estimate was not exaggerated. Another party was averaging two pounds weight per day from beach workings. And, in a third instance, one man, with the assistance of a hired labourer, was obtaining four ounces per diem from the river bed, by the rudest of appliances. At Carmichael's, above Skipper's, 6 lbs. 8 ozs. were obtained from a single dish of wash dirt; and a solitary miner, working with a cradle in the rotten slate, informed me that he could get from six pennyweights to half an ounce, and occasionally an ounce, per day by that process. These are facts that speak for themselves.

Mr. Wright's Report on the Wakatipu Gold Field.

77. Mr. Mining Surveyor Wright thus reports of the Wakatipu Field generally:—

"Very few places have been prospected within this district that have not been found to contain some traces of gold, which, although in many instances not rich enough to be considered payable according to the present state of mining matters, yet are sufficiently so to warrant the conclusion that many will ultimately be worked to profit.

Principal auriferous localities.

"The principal auriferous localities are—1st. The Shotover, including the Moak, Moonlight, Stoney, and Skippers, together with several minor creeks flowing into them, and into the river itself, Arthur's Point, Maori Point, and Skipper's being the most popular. 2nd. The Arrow, including the Twelve-mile Creek, Donnelly and Fox's Rushes, the latter, which is now the Arrow Township, being the centre of population. 3rd. The Cardrona and its tributaries. 4th. The head of the Lake, including the Buckleburn, the Donald's Simpson's, and the Five-mile.

Method of working.

"The workings were for some time carried on in the river beds and beaches, and were confined to washing the drift deposits by the most simple means, the Californian pump, cradle, shovel, and tin dish, being the only appliances in use. Many, however, who held river claims worked very successfully by wing dams, consisting of bags of sand laid into the stream, so as to cut off a portion of its bed, which, being drained by pumping, was paddocked out and passed through the cradle. This method of working is still carried on in all parts of the district. Most of the gold hitherto found has been obtained by these simple means.

Terrace workings.

"Terrace workings are in many places proving highly remunerative, particularly on the Arrow, in the neighbourhood of Moak Creek; and, at the head of the Lake, various methods are resorted to for carrying on this class of mining according to the nature and extent of the auriferous deposit. It has been found to be a rule that the run of gold on the terraces is in a parallel direction to the rivers or creeks; these, when the wash is confined to the height of a few feet, and that immediately lying upon the bed rock, are generally worked by means of tunnelling, the drives being securely timbered; but, when the gold is more dispersed, so as not to form any distinct run, the terraces are frequently sluiced right away, the drifts being of so loose a nature as to be readily separated by the action of water. Sluicing is greatly carried on at Arthur's Point, and around the neighbourhood of Moak Creek, to which places, many long and very costly races have been cut. In places where timber is plentiful, shafts have been sunk, and the ground is being worked by driving.

Turning of the Shotover.

"The principal work, however, consists in the many attempts that have been made to divert the rivers from their natural beds, for the purpose of working them. In every breach where there was sufficient width to admit of a fresh channel being cut, the shareholders in the various claims united for that purpose, and several parties had successfully accomplished their task previous to the occurrence of the late floods. I regret to say that these unexpected catastrophes have, in most cases, proved fatal to the carrying out of these operations, and have, in almost every instance, obliterated all traces of the work. Some of the companies have recommenced, but the greater number are deferring till the season is more advanced. I have estimated that about fifty companies have been engaged during the last three months in this class of work, employing in the aggregate from fifteen to sixteen hundred men, and reckoning wages at £1 per day (the lowest that has to the present been given), added to the cost of tools and materials, I am not exaggerating the sum that has been thus spent, when I state that it has amounted to £150,000. Very little machinery has up to the present time been used in any class of mining operations, three or four simple water-wheels, for the purposes of drainage, comprising all. A large one,

about eighteen feet in diameter, is about to be erected on the Arrow, to drain the ground opposite the Gorge, which has proved too deep to be worked by ordinary means."

78. A peculiar phase in mining is thus reported by Mr. Warden Beetham, under date August 8th:—

"The debris washed down the river (Shotover) by the floods, is affording remunerative employment to great numbers of miners, who are engaged in cradling, earning, I believe, fair wages."

Debris washed down the Shotover.

79. This is a circumstance of frequent recurrence. The streams of that elevated region when swollen by heavy rains, bring down earth and debris from the surrounding mountains; and when the waters fall to their natural level, gold is found in considerable quantities amongst the accumulated drift.

Debris found to be auriferous.

80. Similar in many respects to the Shotover workings are those of the Arrow River—the scene of "Fox's Rush." The bed of the stream itself is known to contain extensive deposits of gold; but the difficulties experienced in diverting its course have hitherto prevented anything like systematic and continuous operation. In the adjacent flats and terraces also, the water percolating through the shingly soil is a great drawback to success; and it is evident that much of the best ground in this district can only be wrought to advantage by associated enterprise.

Arrow River workings.

81. Mr. Warden Beetham thus reports on this subject:—

"Many of the claims on the flat have struck heavy gold—as much as three dwts. to the tin dish (of wash dirt) having been obtained. Many of these claims will extend over twelve months working . . . The river claims have just recovered from the effects of the late flood. One of these was rebottomed on Wednesday last (1st July). Since that time up to Saturday (4th July) the holders have taken out 176 ounces. Six tin dishes were washed consecutively, each yielding twelve ounces weight. I mention this instance as having come under my immediate observation."

Mr. Warden Beetham's Report.

82. Further up the stream Bracken's Gully, Twelve mile, and other localities, continue to be profitably worked. Altogether the Arrow district, with an estimated population of less than 2,000 miners, has forwarded per Escort, during the late inclement winter, a monthly average of more than 6,000 ounces of gold.

Brackens's Gully, Twelve-mile, &c.

83. The various creeks and gullies on the shores of Lake Wakatipu have been comparatively but little worked, owing, no doubt in a great degree, to their remoteness from the townships, and the consequent difficulty of obtaining supplies. Many of these creeks have yielded excellent returns, and mining operations are steadily and satisfactorily progressing thereon. The workings are carried on both in the beds of the streams and in the terraces—many of the latter being more than three hundred feet above the level of the lake. Fine gold is obtained in the creeks, heavy gold in the terraces, and some handsome nuggets have been discovered. Two instances of individual success were reported to me on the ground; in one of which six miners obtained 700 ounces in six weeks, and in the other a party of four realized 400 ounces in eight weeks.

Creeks and Gullies on the shores of Lake Whakatipu.

84. At the Cardrona a population of about 300 miners are quietly working with fair average success. There is every probability of the valley of the Cardrona, which is 26 miles in length, being worked throughout the greater portion of its extent in the course of time; for the auriferous strata are by no means limited to the upper portion of the stream, where operations are now principally carried on.

Cardrona.

85. The total population of the Wakatipu Gold-fields, inclusive of the Arrow, Shotover, Cardrona, and Lake Diggings, is estimated by the Mining Surveyor at 7,265, of whom about 2,000 are engaged in trade and various callings and the remainder in mining.

Total population of Whakatipu Gold Field.

86. At Nokomai proper there is a population of about 200 miners, who are reported by Mr. Warden Wood to be "doing well." The principal workings are on the spurs of the ranges and in the terraces. In the Nevis valley several rich patches have been discovered, and large finds are still reported from Potter's Gully. I believe that this field will yet become the scene of very extensive mining operations. If a practicable road could be found from any central point to the Nevis the development of that district would be materially facilitated.

Nokomai.

87. The large tract of auriferous country which constitutes the basin or watershed of the Wakaia River has not yet been included within the limits of any Gold-field. There is abundant evidence to induce the belief that many of the tributary creeks and gullies will prove to be extensively and permanently rich. At present the workings are scattered over a large area near the western extremity of the Wakaia Valley. No rich finds have been reported, but all can earn moderate wages. The population is estimated at about 500 persons, of whom 460 are miners; and the amount of gold obtained weekly is stated by Mr. Warden Hickson at from 200 to 300 ounces.

Watershed of the Wakaia.

88. At the head of the Wakaia, near the Obelisk or Old Man Range, is Campbell's Gully, of which very little is yet certainly known. But that little is exceedingly favorable. The miners located there appear to be doing well; and heavy gold—apparently of a superior description—has been brought thence into Roxburgh (Teviot) and Alexandra (Manuherikia). It is confidently anticipated that when the return of summer renders the roads from these townships more accessible, a large population will migrate to Campbell's, and that numerous gullies in the same direction will be found to contain payable auriferous ground. The present population is variously estimated at from 300 to 500 souls.

Campbell's Gully.

89. The Mount Ida Gold Field embraces within its limits a vast number of streams, all of which have been proved to be auriferous. Its boundaries extend from the Manuherikia Pass to the Fillyburn, and include the old Highway Field. Hitherto mining operations have principally been carried on far down the Hogburn and continuous creeks. As the course of these is followed upwards, gold of a much rougher and heavier description is found; and I feel assured, from the

Mount Ida Gold Field.

nature of the country, that far richer deposits will yet be discovered nearer to their sources in the Mount Ida Ranges. Meanwhile a population of about 5,000 persons are energetically prospecting the country, and although no special instances of brilliant individual success have yet been reported, the escort returns prove in the most unmistakeable manner that the miners are very profitably engaged.

Area of proclaimed Gold Fields.

90. The proclaimed Gold Fields, as shewn in the map, have been calculated by Mr. W. F. Browne, of the Secretary's Office, to contain about Two-and-a-half million acres, thus distributed:—

Tuapeka Gold Field	...	...	...	328,560 acres
Mount Benger Gold Field	...	...	...	18,816 "
Dunstan Gold Field	...	...	...	199,680 "
Wakatipu Gold Field	...	...	...	1,351,680 "
Nokomai Gold Field	...	...	...	281,600 "
Mount Ida Gold Field	...	...	...	330,000 "

A considerable proportion of this area is actually auriferous, but any calculation on this head would be purely conjectural.

Workings outside proclaimed Gold Fields.

91. Beyond the proclaimed Gold-fields there are numberless workings, all more or less remunerative.

Fraser's Diggings.

92. One of the least known of these is Fraser's Diggings, at Powder Hill, which (owing perhaps to the peculiar perversity which renders distant objects most attractive) is little thought of, although situated in the immediate vicinity of Dunedin. A handsome nugget, weighing 2 ozs. 10 dwts., was recently brought in from this locality. The present mining population is estimated at about 150. The depth of sinking is from four to ten feet; and the thickness of washdirt from two to eight feet. The prospects obtained are represented as being above the average.

Quartz Reefs.

93. The Otago quartz reefs present appearances singularly diverse from those of Australia, inasmuch as the stone consists rather of recemented fragmentary quartz than of solid rock. Nevertheless, quartz mining may now be ranked amongst the established industries of our Gold-fields, several payable reefs having been discovered. Probably more attention will be paid to this branch of mining in future years.

Shetland Reef.

94. The oldest quartz workings in Otago are those of the Shetland Reef, at Waipori, where two companies are now established. One of these has been some time at work, with a battery of four heads of stamps, the motive power being water, the cheapness of which renders the outlay for machinery less, and the returns more remunerative than would be the case if steam power was required. In a report received from Mr. Warden Worthington, under date 16th May, that gentleman furnishes the following details:—

"The Shetland Reef, or rather that portion of it worked by the Otago Quartz Mining Company, seems to be getting richer the further they drive into it, as will be gathered from the list of returns, as follows, namely:—

1863.	Tons.	Cwt.	Ozs.	Dwts.	GRS.
January 14 ... ..	24	10	39	7	...
January 31 ... ..	24	...	38	6	18
February 14 ... ..	18	...	25	7	15
February 28 ... ..	18	...	20	15	12
March 14 ... ..	27	...	36	5	6
March 28 ... ..	36	...	48	17	12
April 25 ... ..	32	...	54	4	10
Total ...	179	10	263	4	1

The gold all comes from a drive of 150 feet, which follows the reef the whole way, and consequently the same returns test the auriferous nature of a much larger quantity of stone.

Thickness of Reef.

"The Company being fully satisfied that the returns justify them in increasing their machinery, are about to erect twelve heads of stamps and a new water-wheel; but as they have to get them from Melbourne some time must necessarily elapse before they are on the ground. I may mention that the thickness of the reef varies from three and a half to six feet, gradually thickening as it gets deeper."

95. In a subsequent report Mr. Worthington states that the reef has widened to ten feet.

96. From the Waipori Company no returns have yet been received, nor have they yet erected any machinery for crushing the quartz.

97. In the month of January, 1863, two men, named Jenkins and Smith, reported the discovery of a quartz reef in the Waitahuna District, and produced to the Warden some specimens of gold-bearing stone, alleged to have been obtained on the surface. Notwithstanding these promising indications, however, nothing has yet been done to develop the reef.

98. Referring to these reefs, Mr. Mining Surveyor Drummond reports:—

“In laying down the position of the Otago Company's claim (at Waipori) and that of the prospecting company at Waitahuna, I find that the bearing of the reef intersects both, which leads me to imagine that it may be the same reef, and I have drawn on the map an imaginary line of the supposed course. I am informed that the reef has been traced from the Otago Company's claim as far south as the Waitahuna ranges, and to the north as far as the Lammerlaw ranges. Several parties are now out prospecting for reefs, and I make no doubt but that fresh discoveries will be made.”

99. On the 1st August, 1863, Mr. Warden Williamson reported:—

“I have this week granted prospecting claims at Golden Point, Pleasant Creek (Upper Shotover District), to Thomas McHattie and John McIlroy, for two distinct quartz reefs. The specimens are good, gold being distributed through the quartz. The casing also contains fine gold. The thickness of reef on the surface is fourteen inches, widening out to four feet.”

100. The name of “Elgin” has been conferred on these reefs by the prospectors.

101. At various times quartz boulders containing gold have been picked up in the water-courses at Skipper's; whence it is reasonable to suppose that auriferous reefs exist in that locality also. Similar stone has been found at the Woolshed Creek. In the cabinet of the department there is a very fine specimen thickly studded with flaky gold, and which was forwarded in the most obliging manner by Mr. Baird of Glenore.

102. It is unnecessary to insist on the prosperous condition of the Otago gold-fields. Well authenticated facts are of more value than unsupported theories; and the large quantities of gold regularly brought down by the escorts afford indubitable evidence of the richness of the workings. No accumulation of falsified statements can do away with these undeniable proofs of the general well-being of our mining community. But if further argument was required, I need only refer to the fact that out of nearly 23,000 able-bodied male adults, scarcely 150 have yet been induced to leave the gold-fields and volunteer for the Northern Island Militia, notwithstanding the indefatigable exertions of recruiting officers, and the temptation of free grants for fifty acres of excellent land. This alone is sufficient to show that our miners are neither destitute nor miserable, nor particularly desirous of quitting the Province.

103. The condition of the miners is very favorable. Taken as a class a more respectable body of men never followed the vocation of gold-mining. Orderly and peaceable in their habits and general conduct, crime is rare amongst them, and although the police on the gold-fields is necessarily small, life and property are safer in the tented gullies of Otago than in many of the cities of civilized Europe. From the ruffianism which pervades some other colonies, this province is almost free,—a result attributable in part to the efficiency and excellent conduct of the Otago police force, somewhat also, perhaps, to the peculiarities of the country, which afford but slight facilities for concealment or escape to the hunted desperado; but above all to the superior moral character of the miners themselves.

## VI.—CLIMATE.

104. The climate of Otago is extremely salubrious, and so very similar to that of Britain, that the emigrant might imagine himself to be still in the land of his nativity. Not being subject to hot winds and dust storms, gold mining, and all other out-door pursuits, can be carried on with vigour and energy during the greater part of the year. In the low-lying districts, snow is seldom seen on the ground, although heavy drifts occasionally accumulate in the ravines of more elevated regions. The roads, however, are rarely impeded for more than a few days. It was recently reported that 500 men were completely snowed up at Campbell's, but, on enquiry, it was found that the track was only closed for a very short time. Many similar rumours have an equally slight foundation in fact. It is undoubtedly true that human lives were lost in the floods and snow-storms of the season through which we have just passed; but it is no less true that the numbers have been grossly exaggerated. It is to be hoped that our miners, warned by the sad experience of their first winter in the interior, will avoid similar mischances in future years, by adopting more precaution in their movements, and by erecting their dwellings in positions of greater security.

105. The climate of the Gold Fields is even superior to that of the sea-coast. Mr. Mining-Surveyor Drummond writes thus from Tuapeka:—

“My experience of the climate since my arrival in New Zealand—a period of eighteen months—leads me to think most highly of it. I consider that the New Zealand miner can follow his avocations for about eleven months in the year.”

Reef widened to ten feet.  
Waipori Company.

Quartz Reef at Waitahuna.

Mr. Drummond's Report on foregoing.

Quartz Reefs at Upper Shotover.

Named “Elgin” by prospectors.  
Quartz Reef at Skipper's.

Evidence of the prosperous condition of the Otago Gold Fields.

Condition of the miners.

Climate of Otago

Climate of the Gold Fields.

Mr. Drummond's Report on the climate at Tuapeka.

Mr. Wright's Report on the Climate of Wakatipu.

106. Mr. Mining-Surveyor Wright says:—

"Nothing could surpass the salubrity of the climate for the first three months after my arrival on this gold-field (Wakatipu), namely, during April, May, and a great part of June. The weather, with the exception of an occasional shower, was exceedingly fine; the sky being for the most part almost cloudless, the days warm and bright, and the nights clear, cold, and frequently frosty. During the latter month, heavy hoar frosts would, at morning, cover the ground. The rains, however, which fell about once a fortnight, although seldom lasting more than a day, were very heavy, frequently swelling the various rivers to a great height. Little snow was seen, except at the summits of the highest ranges."

## VII.—AGRICULTURE.

Neglect of agricultural pursuits.

107. One of the greatest drawbacks to the welfare of the Gold-fields has resulted from the neglect of agricultural pursuits. This has resulted from two causes;—the first being the indisposition of the miners to withdraw from the more attractive pursuit of gold-seeking. The other, and more powerfully operative cause may be found in the state of the law. The entire country being leased for pastoral purposes, the Provincial Government were unable to throw open all the lands for settlement within the boundaries of the Gold-fields. Even when the rights of the pastoral tenant had been extinguished, by the cancellation of his lease, and the payment of compensation, there was no provision in the Gold-fields Act of 1858, for the sale of land either in townships or for agriculture. This has been partially obviated by the Gold-fields Act of 1862. Still it is rendered necessary to withdraw lands that have been resumed by the State, from the operation of that Act before any portion of them can be sold; and thus another injurious effect is produced, for by such withdrawal the land is locked up from gold mining. It is proposed to remedy this defect by a Bill which has been prepared for the better management of the Gold-fields, and to permit the sale of land to take place without interfering with mining operations.

Every holder of Miner's Right entitled to occupy half an acre for residence and cultivation.

108. Much however has been done by the Provincial Government to alleviate this state of affairs. By the provisions of the Gold-fields Regulations every holder of a miner's right is entitled to occupy for residence and cultivation half an acre of ground, on payment of a single fee of five shillings. He is protected in his occupancy against all comers except in the actual event of the ground so occupied being proved to be auriferous; in which case compensation for actual damage and loss must be paid to the occupier by the persons who may be desirous of mining thereon, before they are allowed to take possession. I am glad to be able to report that under this regulation gardens are now rapidly springing up in all parts of the Gold-fields.

Agricultural leases.

109. Another salutary provision has been made by granting agricultural leases of ten acres of land subject to a yearly rental of five shillings per acre. At present this regulation only applies to the Tuapeka Gold-field; but it is in contemplation to take up lands in other districts for the same purpose. Several leases have been granted at Gabriel's and Waitahuna, and a number of blocks have been fenced in and cultivated on the Dunstan and Wakatipu fields, in anticipation of the resumption of the land by the State. Vegetable food—the want of which has been severely felt—will therefore soon be supplied to the mining community, and large profits will no doubt be reaped by the pioneers of this necessary industry.

Character and extent of agricultural land.

110. The character and extent of available agricultural land within the boundaries of the Gold-fields is thus stated by the Mining Surveyor:—

Mr. Wright reports:—

"Wakatipu.—The mountainous character of this district precludes the probability of its ever becoming to any great extent an agricultural country, but there are nevertheless rich tracts of alluvial land about it capable of producing in abundance any English crop that may be placed upon them. In addition to the Frankton and Arrow Flats, there are others of smaller areas around the borders of the Lake, amounting in all to fifty thousand acres or thereabouts. The land on the ranges is in many places both rich and the soil of considerable depth, but so situated, as not to be of any use except for grazing purposes."

Mr. Coates reports:—

"Dunstan.—The subject of the adaptability of the soil and climate of this district to agricultural purposes is one which must (considering the exorbitant price and limited supply of agricultural produce) be one amply remunerative to such speculations, and of vital importance to the future settlement of such gold-fields as those under my supervision. My residence in this district has extended over that portion of the year in which every peculiarity of temperature or climate is experienced; which experience, combined with information as to the agricultural capabilities of the soil, deduced from the successful cultivation of small gardens within its boundary, enables me to state that the area of land eminently adapted, both from fertility of soil and mildness of climate, to the growth of root and grain crops, is fully 10,000 (ten thousand) acres, in which area I only include such soil as consists of a rich clay loam, and which I locate as follows:—Kawarau, 2,000 acres; Manuherikia Valley, 1,500 acres; Keri Keri and Wai Puna Valleys, 500 acres; Obelisk Basin, 1,500 acres; and the Mount Benger Gold-field, 4,500 acres.



Mr. Drummond reports :—

“Tuapeka.—I estimate the quantity of land available for agricultural purposes at 22,200 (twenty-two thousand two hundred) acres, situated principally on the flats and spurs of the Tuapeka, Monroe’s, Wetherstone’s, Waitahuna, Waipori, and towards the Tokomairiro and the Molyneux. The soil is generally of a rich black loam with a clay subsoil, and one peculiarity is that it is found equally good on the top of the ranges. As an instance of the fertility of the soil, I may mention that a party has leased from Government four acres for a kitchen garden, situated above Wetherstone’s and at an elevation of, I should imagine, two thousand feet above the sea level, and has cultivated the same with great success.”

111. I have not received any report on this subject from the Mount Ida Gold-field; but as a portion of it was recently selected by the Chief Surveyor for an agricultural “Hundred,” it is no doubt admirably adapted for that purpose. No Report yet received from Mount Ida.

### VIII.—FUEL AND TIMBER.

112. The Gold Fields may now be said to be well supplied with fuel. Extensive seams of brown coal (lignite) have been discovered at Gabriel’s, Waipori, Waitahuna, and the Woolshed in the Tuapeka Field; at Butchers’ Creek, near the Teviot; at Manuherikia; at Clyde Township; at Kawarau Junction, the Bannockburn and Conroy’s, on the Dunstan Field; and at Hogburn and Coal Creek on the Mount Ida Field. The price charged for this coal varies from £1 to £1 10s. per ton, delivered at the pit’s mouth. Scrub for firewood is obtainable in most districts, except at the Dunstan, where it is exceedingly scarce. On the Wakatipu, firewood is plentiful. Waipori is supplied with timber for firewood by excavating in the various gullies and flats, where it is met with at a depth of about three feet from the surface. It appears to be a species of pine, and after a few days’ exposure to the air it burns well. Gold Fields well supplied with fuel.

113. The question of the supply of timber for mining, agricultural, and building purposes, is of much importance. It has been supposed that the Otago Gold Fields are destitute of this essential; but the following reports from the various Mining Surveyors will show that ample supplies are everywhere procurable. Timber for mining, agricultural, and building purposes.

114. Mr. Drummond states that a “large bush exists at the head of the Tuapeka, from which timber for mining or building purposes can be had of almost any size, at a distance of about seven or eight miles from the township. Timber is also supplied from the Waipori Bush, which is of very large extent, being about twelve miles long by about one and a half miles broad. The timber is of a large size, some trees being from five to seven feet in diameter. The description of timber is mostly Totara, Birch, Manuka, and black and white Pine. Waitahuna district is supplied with timber from the bush near Table Hill, which is of large extent, and distant from the main gully about five miles. The Woolshed portion of the Waitahuna district is principally supplied from the bush at the head of the Fallaburn, and from the Canada bush. Bush at the head of Tuapeka.

115. Mr. Coates states :—“The absence of timber is, no doubt, a great want upon the Dunstan and Manuherikia districts, but not to the extent which may be at first imagined, as a systematic rafting of timber is being entered into by some parties, who purpose floating timber from the Wanaka Lake, and selling it upon the Dunstan and Mount Benger gold-fields at such reasonable prices as will place it within the reach of all.” Timber being rafted to the Dunstan.

116. The same officer reports that “In the Mount Benger gold-field, the only timber is to be found in some of the deep gullies upon the east slope of the Benger range. Some trees are found fully sixteen inches in diameter at their base; but as this natural growth is limited in extent, and much in use in that neighbourhood, it will no doubt be soon exhausted. Scrub and smaller wood, however, is pretty generally distributed throughout the entire length of that field, and for fuel or agricultural settlement, will afford a lasting supply. Timber on Mount Benger Field.

117. Wakatipu.—Most of the main rivers and creeks are plentifully supplied with timber from extensive patches which occur in almost every gully. A large forest exists at the head of the lake, where saw mills have been erected; and there are many smaller patches in the gullies and on the adjacent banks. Sufficient timber exists in the neighbourhood of the lake to supply a considerable population for many years to come. Supply of timber at Lake Wakatipu.

118. Nokomai, Switzer’s, and Campbell’s are all well supplied with timber; and I am informed by one of the prospectors that timber of considerable size is procurable on the Kyeburn at Mount Ida.

### IX. FUTURE PROSPECTS.

119. Of the future of the Otago Gold-fields I am able to speak without reserve or hesitation. Little more than twelve months since, the gold workings were confined to the districts of Gabriel’s, Waitahuna, and Waipori, and little or nothing was known of the geological character of the far interior. A hastily formed idea had taken possession of the public mind, that our Gold Mines were nearly exhausted, and few were sanguine enough, or sufficiently well informed, to believe in the permanence of our auriferous resources. All this is now changed. The discoveries of Future of the Otago Gold Fields.

Hartley and Reilly have effected a complete revolution in the aspect of affairs. Since the 1st August, 1862, five large fields have been proclaimed, and gold has been found throughout an immense extent of country, and under almost every possible variety of circumstances. It has been washed from the sands of the ocean, and gleaned from the river beaches. On the hill tops, as in the valleys,—on snow covered mountains, and in sunless ravines, gold is alike found in abundance. Heavy and valuable deposits are known to be concealed beneath the turbid waters of many an inland stream; and ingenuity, aided by enterprise, is busily devising schemes for their acquirement. The morasses and drift hills are being penetrated, and their treasures brought forth to the light of day. Quartz reefs, heretofore neglected, are being profitably wrought, and beneath the superincumbent strata of auriferous soil, the existence of older tertiaries, rich with heavy gold, has been amply demonstrated on at least one field. From the Taieri River to the West Coast Ranges, and from the Kakanui's to the Mataura, the existence of a geological continent of auriferous rocks has been fully established; and within these limits it would be difficult to find a creek or gully which does not contain gold in greater or less quantity.

Present development trifling compared with the future.

120. All that has yet been effected towards the development of the resources of this extensive area, is trifling in comparison with what may reasonably be expected in the future. Hitherto our miners have been principally occupied in rushing from one new field to another. The surface of the ground has indeed—so to speak—been scratched over; and a few of the richest and most easily available deposits have been partially wrought. But equally rich ground will, without doubt, continue to be opened up for years to come, and more systematic processes of mining than have yet been adopted, will gradually be brought into general operation. Many thousands of acres—the auriferous nature of which has been ascertained—will then be steadily and profitably worked, and will afford remunerative employment to a largely increased population. Already some of our oldest miners, who have attained comparative affluence by well directed industry, are investing their capital to this end. Extensive races are being constructed; and water—the cheapest and most efficient of all agents—is being brought from every available source, to assist in the reduction of the soil and the elimination of its golden spoils. For Hydraulic mining, Otago possesses advantages which are unobtainable elsewhere. The soil is loose and gravelly, and singularly devoid of stiff clays; the supply of water is plentiful, and the necessary elevation is easily attained. The general dissemination of gold throughout large tracts of country, greatly favours the successful prosecution of this branch of mining industry; and its more general adoption will be productive of very satisfactory results. Extraordinary returns may be anticipated from the working of the river beds on a larger scale, by companies of associated claimholders, whilst alluvial mining will certainly be pursued with unabated success for a very extended period of time.

Permanence of the Otago Gold Fields an established fact.

121. The permanence of the Otago Gold-fields is therefore a well established fact; and the future prosperity and rapid progress of the Province is assured. Nothing will so much foster and encourage this great interest as the construction of roads to the various mining localities, and the facilitation of settlement on the public lands. Every mile of road that is formed reduces the cost of supplies, and thereby tends to open up ground that would otherwise remain unworked, and every freehold created on the Gold-fields, by the sale of township allotments or rural land, will afford an additional guarantee for the future well being of the country. Guided by the disastrous experiences of adjacent colonies, the errors which there prevented the early settlement of the people may be avoided; and a happy and contented, because thriving population, may be located in the vallies and on the plains of this newer Britain, so that the extraordinary impetus given to colonization by the discovery of gold, may be rendered productive of permanently beneficial results.

I have, &c.,

VINCENT PYKE,  
Secretary.