



OTAGO
PROVINCIAL GOVERNMENT
GAZETTE.

PUBLISHED BY AUTHORITY.

All Public Notifications which appear in this Gazette, with any Official Signature thereunto annexed are to be considered as Official Communications made to those Persons to whom they may relate, and are to be obeyed accordingly.

J. L. C. RICHARDSON, Superintendent.

Vol. V.]

WEDNESDAY, SEPTEMBER 3, 1862.

[No. 205.]

TELEGRAPH.

ARTICLES OF AGREEMENT made and entered into this sixteenth day of April one thousand eight hundred and sixty-two Between RICHARD WOOLLEY and MATHEW MITCHELL of Melbourne in the Colony of Victoria and of Dunedin in the Province of Otago New Zealand contractors and carpenters carrying on business under the style or firm of RICHARD WOOLLEY & COMPANY of the one part and His Honor JOHN LARKINS CHEESE RICHARDSON Superintendent of the Province of Otago of the other part:

WHEREAS the Provincial Government of Otago are desirous of establishing a line of Telegraph between Dunedin Port Chalmers and the Heads And whereas the said parties hereto have mutually agreed with each other that the said Telegraph should be erected and worked by the said parties hereto of the first part on the terms and for the period hereinafter provided Now these presents

witness that in pursuance of the said agreement the said Richard Woolley and Mathew Mitchell for themselves their heirs executors administrators and assigns all hereinafter designated the contractors and the said John Larkins Cheese Richardson for himself and his successors Superintendents of the said Province hereinafter designated the Superintendent do hereby mutually covenant and agree to and with each other in manner following that is to say:

1. The contractors shall within two months from the date hereof at their sole cost and expense erect and construct a line of Telegraph from Dunedin to Port Chalmers to be connected with and worked from suitable rooms or stations at each terminus to be provided by the Superintendent who shall also provide a room or station at the Heads whenever the Telegraph shall be continued to that place

2. The said line of Telegraph shall be carried through the Towns of Dunedin and Port Chalmers on posts sawn or otherwise squared and fixed at the outer edge of the footways of the streets through

which the same shall be carried in the said Towns and between the said Towns on round posts fixed on one side of the main road.

3. None of the said posts shall be less than twenty nor more than twenty-five feet above ground and not less than three feet in the ground the part inserted in the ground to be not less than seven inches in diameter at the bottom nor less than five inches in diameter at the top hooped with wrought iron and charred from the bottom to six inches above the ground And all posts to be painted black to the height of six feet from the ground and the remainder white And the whole to be securely fixed and spurred to the satisfaction of the Provincial Engineer

4. The contractors to be at liberty to fell timber for the said posts on the Government Reserves to remove trees on either side of the line by which the Telegraph wire might be injured and to carry the line along Government Roads and through its Reserves and Lands free of charge

5. The contractors to find all necessary apparatus and instruments of the best quality for working the Telegraph and to procure a certificate from Mr M'Gowan the Telegraph Superintendent of Victoria that such apparatus and instruments are of the most approved description The insulators to be similar to a sample to be deposited with the Superintendent having been first approved by the said Mr M'Gowan And the pins to be equal to a sample approved by the Provincial Engineer

6. The telegraph to be kept in repair and worked at the expense and for the benefit of the contractors for the period of five years from the date hereof upon the terms and conditions hereinafter expressed except during repairs arising from accidents

7. The Manager and all servants to be employed in working the Telegraph to be appointed by the Superintendent who shall have absolute power to discharge them but every such appointment shall be subject to the approval of the contractors

8. The Manager shall have charge of all messages and it shall be his duty to see that they are transmitted in proper order

9. All Government messages to have precedence of contractors or private messages and contractors or private messages to be dispatched and delivered in order of receipt at the office and to be marked alike

10. The contractors not to have access to messages but to be allowed to see that the books are properly kept

11. The following shall be the Scale of Charges for the transmission and delivery of messages within half a mile of the stations

To and from Dunedin and Port Chalmers not exceeding ten words three shillings each additional word two-pence

To and from Dunedin and the Heads not exceeding ten words four shillings each additional word three-pence

To and from Port Chalmers and the Heads not exceeding ten words two shillings each additional word two-pence

For delivering messages on board any ship and beyond half a mile from any station the contractors shall be entitled to charge the actual expenses incurred by them in such delivery

12. A reduction of twenty-five per cent. shall be made in the foregoing charges after the expiration of the first year and a reduction of fifty per cent. after the second year of the said term

13. The salary of the Manager, servants' wages and all working expenses to be paid by the contractors

14. At the end of the said term of five years the Superintendent shall purchase the contractors' interest in the said Telegraph for the cost price thereof and twenty per cent. added thereto And the Superintendent shall be at liberty to purchase the said Telegraph at any time during the said period of five years at the cost price thereof and twenty-five per cent. added thereto

15. In case the contractors and Superintendent shall differ about the cost price of the said Telegraph such difference shall be settled by two arbitrators one to be chosen by the contractors and the other by the Superintendent or by an umpire to be chosen by the said arbitrators and the award of the said arbitrators or umpire shall be final and conclusive

16. The contractors shall on signing this contract deposit with the Provincial Treasurer the sum of one hundred pounds as security for the due fulfilment of the contract according to the foregoing conditions and on completion thereof to the satisfaction of the Provincial Engineer the same shall be returned to them but in case they shall fail to fulfil the said contract the said sum of one hundred pounds shall be absolutely forfeited

17. Within two months after the Provincial Engineer shall have decided by what route the said Telegraph shall be continued from Port Chalmers to the

Heads and shall have communicated such his decision to the contractors they the contractors shall complete the line of Telegraph from Port Chalmers to the Heads in manner aforesaid or in such other manner as the circumstances of the case may require Provided nevertheless that it shall be at the option of the said contractors to complete the said Telegraph from Port Chalmers to the Heads or not as they shall see fit

18. During the currency of this agreement the Superintendent shall not give permission for the erection of any other line of Telegraph along Government Roads or through its Reserves between Dunedin and Port Chalmers or to the Heads provided the contractors shall continue the line thereto In witness whereof the said parties hereto of the first part have hereunto set their hands and seals and the said John Larkins Cheese Richardson has set his hand and caused the Public Seal of the said Province to be affixed hereto the day and year first above written

RICHARD WOOLLEY
MATHW MITCHELL
J. L. C. RICHARDSON

Signed sealed and delivered
by the said Richard Woolley
and John Larkins
Cheese Richardson in the
presence of

HENRY HOWORTH
Dunedin Gentleman

Signed sealed and delivered
by the said Mathew
Mitchell in the presence
of

RICHARD PERRY JUNR. J.P.

MAIL SERVICE.

MELBOURNE TO OTAGO.

ARTICLES OF AGREEMENT made the eleventh day of January one thousand eight hundred and sixty-two between JAMES M' MEIKAN and JOHN HUTCHESON BLACKWOOD both of the City of Melbourne in the Colony of Victoria Merchants trading under the firm of M' MEIKAN BLACKWOOD & Co. of the one part and His Honor JOHN LARKINS CHEESE RICHARDSON Superintendent of the Province of Otago in the Colony of New Zealand of the other part

WHEREAS the said James M' Meikan and John Hutcheson Blackwood have offered to run a Monthly Mail Service by the steamship Omeo between the Port of Melbourne aforesaid and the Port of Otago aforesaid for the period of one

year from the first day of January one thousand eight hundred and sixty-two for an annual subsidy of one thousand eight hundred pounds and such offer has been accepted by the said Superintendent upon the terms and conditions hereinafter expressed Now these presents witness that in consideration of the annual subsidy of one thousand eight hundred pounds to be paid in manner hereinafter mentioned the said James M' Meikan and John Hutcheson Blackwood for themselves their heirs executors and administrators Do hereby covenant and agree to and with the said John Larkins Cheese Richardson and his successors Superintendents of the said Province that they the said James M' Meikan and John Hutcheson Blackwood and the survivors or survivor of them and the executors and administrators of such survivor shall and will establish and maintain a Monthly Mail Service by means of the first-class steamer Omeo between Melbourne aforesaid and the Port of Otago aforesaid for the said period of one year to be computed from the said first day of January unless the said steamer shall by the perils of the sea or other accident be rendered incapable of performing the said service Provided nevertheless that the said James M' Meikan and John Hutcheson Blackwood may at any time if they shall think fit perform the said service by any other first-class steamer And that the steamer performing the said service shall leave the Port of Melbourne every month within twenty-four hours after the arrival there of the Mail from England Provided that such arrival shall take place within four days after the time appointed for the same beyond which period such steamer shall not be bound to wait for the said Mail And further that the vessel performing the said service shall remain in the said Port of Otago for the period of three days at the least in order to receive the Otago return Mail And further that no vessel when performing the said service shall be liable to pay any harbour or pilot dues at the Port of Otago of a higher rate than those now in force in the said Port And in consideration of the service so to be performed by the said James M' Meikan and John Hutcheson Blackwood in pursuance of these presents he the said John Larkins Cheese Richardson for himself and his successors Superintendents of the said Province Doth hereby covenant and agree by and with the said James M' Meikan and John Hutcheson Blackwood their executors administrators and assigns that he and they shall and will pay to the said James M' Meikan and John Hutcheson Blackwood and the survivors or survivor of them and the executors and administrators of such survivor

the said subsidy of one thousand eight hundred pounds by twelve monthly instalments amounting to one hundred and fifty pounds each commencing from the said first day of January one thousand eight hundred and sixty-two. Provided that in case from any cause whatsoever the said James M'Veikan and John Hutcheson Blackwood shall fail or omit to perform any of the said monthly services the said James M'Veikan and John Hutcheson Blackwood shall not be entitled to receive any subsidy for any month in respect of which no service shall be performed. In witness whereof the said James M'Veikan and John Hutcheson Blackwood have hereunto set their hands and seals by James Rattray their Attorney duly authorised by Power of Attorney dated the nineteenth day of December one thousand eight hundred and sixty-one and the said John Larkins Cheese Richardson as Superintendent of the said Province of Otago hath set his hand and affixed the Seal of the said Province the day and year first above written

JAMES M'VEIKAN
JOHN HUTCHESON BLACKWOOD
By their Attorney
JAMES RATTRAY
JOHN RICHARDSON Superintendent

Signed sealed and delivered
by the above named
James M'Veikan and
John Hutcheson Blackwood
by James Rattray their said Attorney and by
the said John Larkins
Cheese Richardson in the
presence of

HENRY HOWORTH
Dunedin Gentleman.

MAIL SERVICE.

OTAGO TO MELBOURNE.

ARTICLES OF AGREEMENT made the twenty-fifth day of August one thousand eight hundred and sixty-two Between **RICHARD BOWDEN MARTIN** and **ALEXANDER CARRICK** both of Dunedin in the Province of Otago Merchants trading under the firm of **R. B. MARTIN & Co.** of the one part and the Honorable **JOHN HYDE HARRIS** Deputy Superintendent of the said Province of the other part:

WHEREAS pending the adjustment of proposals for an Agreement between the owners of the steamship "City of Hobart" and the Superintendent of the said Province for the conveyance of the Mails from the Port of Otago aforesaid to

the Port of Melbourne in the Colony of Victoria the said **Richard Bowden Martin** and **Alexander Carrick** have offered to perform that service by the steamship **City of Hobart** for the months of September October November and December next following for a monthly subsidy and the said Deputy Superintendent has accepted of the said offer upon the terms and conditions hereinafter expressed. Now these presents Witness that in consideration of a monthly subsidy of Six Hundred Pounds to be paid in manner hereinafter mentioned the said **Richard Bowden Martin** and **Alexander Carrick** for themselves their heirs executors and administrators and the owners of the said steamship Do hereby covenant and agree to and with the said **John Hyde Harris** and the Superintendent of the said Province and his successors in office that they the said **Richard Bowden Martin** and **Alexander Carrick** their executors and administrators respectively and the owners of the said steamship **City of Hobart** shall by means of the said steamship convey the Mails from the Port of Otago to the Port of Melbourne aforesaid for and during the months of September October November and December next following leaving the said Port of Otago upon the Seventeenth day of each of the said months at Four o'clock afternoon unless the said steamship shall by the perils of the sea or other accident be rendered incapable of performing the said service Provided nevertheless that they may perform the said service by any other First-class steamship Provided also that should the Mails from Auckland and other Northern Ports not arrive at Port Chalmers by four o'clock on the Seventeenth of each of the said months the said **City of Hobart** or other steamship carrying the Mail from Otago to Melbourne aforesaid shall remain until the arrival of the Mails from the Northern Ports but not later than four o'clock afternoon of the eighteenth day of the said months respectively and that should a Steamer or Boat come alongside from any of the Southland ports with the Mail of that province the said **City of Hobart** or other steamship conveying the Mails from Otago to Melbourne will stop and receive the Southland Mail and that the English and Foreign portions of the Mails so conveyed to Melbourne will be transhipped by the owners of the said **City of Hobart** or other steamship to the Peninsular and Oriental steamship in **Hobson's Bay** but in the event of no Mail steamship being ready to receive them the said Mails will be handed over to the Melbourne post-office authorities: Provided further that should the **City of Hobart** or other steamship conveying the Mails from Otago to Melbourne as afore-

said not sail as before mentioned the said Richard Bowden Martin and Alexander Carrick their executors and administrators and the owners of the said steamship shall pay to the Superintendent of the said province thirty shillings for every hour such Steamer shall be behind the time of sailing And in consideration of the service so to be performed in pursuance of these presents the said John Hyde Harris for himself and the Superintendent of the said province and the said Superintendent's successors in office Doth and Do hereby covenant and agree that he and they shall and will pay to the said Richard Bowden Martin and Alexander Carrick their executors and administrators respectively for and on behalf of the owners of the said steamship the said monthly subsidy of Six hundred pounds upon the performance of each voyage to Melbourne respectively Provided that in case from any cause the said steamship or other steamship as aforesaid should not proceed upon such voyage no subsidy shall be due or payable and that should the said steamship sail from the Port of Otago with the said Mail and an accident afterwards occur on the voyage whereby the said steamship is unable to perform the said service the said first parties hereto will nevertheless be entitled to the said subsidy Provided such accident occasioning non-performance of the service be not attributable to the culpable neglect or the acts of the owners or their servants in carrying out necessary repairs to the Vessel or otherwise In witness whereof the said parties hereto have hereunto subscribed their names

R. B. MARTIN
A. CARRICK.

Signed by the above named
Richard Bowden Martin
and Alexander Carrick in
the presence of

A. FINDLATER
Clerk to Provincial Solicitor
Dunedin.

GOLD FIELD.

NOTES by DR. HECTOR *relative to the
Geology of the Manuherikia Valley.*

Dunedin, August 27, 1862.

To His Honor the
Deputy-Superintendent.

SIR,—I have the honor to submit for your information a few notes relative to the Geology of the Manuherikia Valley, as I am aware that any information concerning that district, however imperfect, has a special interest and value at the present time. I visited it for a few days in May last, in the course of a rapid tour which I have now made through most of

the eastern portion of the Province, and of which a short report, with illustrative sections, is in preparation.

The route by which I reached the district in question, was the ordinary dray track by Shag Valley and the Maniototo or Upper Taieri Plains. The furthest point I reached was a little above the junction of the Manuherikia River with the Molyneux, so that, excepting from a distance, I have not seen even that portion of the newly reported auriferous country which lies on this side of the Dunstan Range. The general position of the very appropriately termed "Dunstan Diggings," so far as yet known, will be along the course of the Molyneux River, where it passes the south end of the Dunstan Range by a rugged gorge, to escape from the Valley of the Lindis into that of the Manuherikia, for even with a very partial knowledge of the country, a glance at the map shews that, in a certain sense, the Molyneux River cannot be said to have a proper valley of its own, but rather to follow a rent or fissure across a succession of great valleys which lie nearly at right angles to its main course, and occupied by comparatively insignificant streams. The principal object I have in this communication is to point out this anomaly and to shew reasons why the occurrence of gold detritus should not be too rigidly associated with the action of the river, which at first appears the most natural view of its distribution.

To understand the geology of the lower portion of the Manuherikia Valley, it must be considered in connection with a much larger area of which it forms a natural division. By referring to any of the excellent maps of the country which have been issued by the Survey Department, it will be observed that westward from the head of Shag Valley the country is traversed by a succession of nearly parallel ridges which coalesce at their southern extremities to form the broad, massive, and elevated region of the Lammermuir Mountains, but to the north they gradually die out as they approach the Kakanui Mountains which rise abruptly in a line nearly at right angles to them. These ridges, which are composed of highly altered sedimentary rocks, impregnated with quartz, along with the Kakanui Mountains, which are composed in part of the same altered schists, but overlaid by crystalline limestones and newer schists, thus enclose an extensive depression, having a very irregular boundary, embracing the Upper Taieri Plains, Idaburn Valley, and the Manuherikia Valley. How far this depression may extend to the north-west I cannot at present say, but if not cut off by a mountain ridge extending between Mount St.

Bathan's and Hawkdun Mountain, it may be continuous with the Upper Waitaki country. Leaving out of consideration this possible extension of its limits, we find that this great basin has only two outlets for its drainage—one by the gorge of the Taieri River close to the situation of the Highlay diggings, and the other by the gorge of the Molyneux, which commences just below the point where that river receives the Manuherikia. In both these cases it is important to observe that the drainage escapes by a channel which has been, so to speak, cut through the rocky lip of the basin.

Bearing in mind the now well established fact that the original wearing down of the rocky matrix, and the mechanical liberation of its contained gold, has been effected for the most part by long continued wave and current action, either in the sea or in large inland lakes, and that the comparatively feeble and limited action of streams has merely exerted an ever-recurring sifting and sorting influence on the materials thus prepared, we can at once perceive that in this rock-bound basin the conditions have been most favorable for retaining and assorting the debris formed by the degradation of the surrounding schists during the submergence of the land in Tertiary times. The floor of this basin is now occupied by extensive grassy plains, sometimes presenting a wide expanse of many thousand acres in extent, but always terraced and beautifully moulded towards the margin by the action of the retiring waters, as the drainage channels were slowly cut by the two rivers before mentioned.

The divide or watershed between these two drainage systems lies between the point of Rough Ridge and Mount Ida, and it is deserving of notice how much more efficiently the larger river, constantly supplied from great natural resources, as lately described by M'Kerrow, has done its work in cutting a drainage channel, than has the small and intermittent Taieri River, for the level to which the plain has in this manner been reduced at where the Molyneux breaks out from it is only 600 feet, while the outlet of the Taieri River is 900 feet above the sea.

Round the margin of the basin, resting on the flanks of the schist ranges, remnants of tertiary strata are to be found to the height of 1000 feet above its lowest present level, or 1600 feet above the sea. Did not this agree well with the thickness of the tertiary strata in other parts of the Province, I might have hesitated to ascribe to river and lake action so extensive degradation even of such incoherent materials, as there must have been removed on an average, several hundred feet of thick-

ness from an area of at least 800 square miles.

Within the basin as thus described, from the different class of agencies which have been at work, we have two distinct groups of deposits, which for the present I shall simply designate as the *Older Tertiaries* and the *Newer Tertiaries*.

The older tertiaries are the deposits which gradually filled up the depression as it passed through the successive stages of submergence, from an estuary-like arm of the sea to a deeply excavated submarine valley. The earliest formed of these strata can only be seen in a few localities where they have been preserved from the succeeding denudation round the margin, and in the deep recesses of the ancient valley. They invariably consist at the base, where they rest on the schist, of strata which indicate the neighbourhood of dry land at the period of their formation, supporting a vigorous vegetation, which has been preserved to us as *Brown Coal*, associated with finely assorted beds of clay and gravel, indicative of current action in shallow water. Elsewhere in the Province, though not as yet in the district I am treating of, marine shells have been discovered along with these beds.

Over this group have been deposited strata of sand and conglomerate, formed of materials derived from the schistose rocks. The upper portion of this deposit, which is many hundred feet in thickness, consists purely of fragments of quartz, doubtless from the more enduring quality of that substance enabling it better to survive the long-continued attrition. In some cases these upper quartz pebble beds have been firmly cemented by some process not yet clearly understood into a hard reisting rock, which breaks up into huge cubical fragments, that are to be found scattered over slopes from which the underlying and more yielding strata have been removed, or are found capping hills of these strata, which they have preserved. Such hills are the "White Made Hills" of the gold miner. They are undisturbed outliers of the older tertiaries, and when they rest on a depression in the schistose rocks, and at a considerable altitude, they often prove very rich in gold, having been formed during the period of greater depression, when the the current action would manifestly be most intense.

Indications of "Made Hills" were seen throughout the district, and will doubtless be speedily recognised and tested by the practical miner. The mere prevalence of blocks of "cement," as it is technically termed, upon the flanks of a wide valley, forms no sure indication of the presence of a lead, but if the "cement" be found strewn over a limited tract, round which the bed-

rock crops out on all sides, or in such a manner as to indicate the existence of an ancient valley at a higher level than the present drainage system of the country, it may then be taken as a guide in prospecting.

The period of the greatest depression of the land, which corresponds with the close of what I term the older tertiary epoch, was marked in some districts of the Province by volcanic eruptions, during which basaltic lavas was poured forth from rents in the earth's crust, and flowed over what were then the lowest levels of the sea bottom, but which have now, owing to the preserving influence of the hard, tough, basalt, become elevated to lofty positions. Like the "White made hills," these basalt-capped hills often cover deposits of rich auriferous drift. There is evidence of volcanic ejections during this period in the lower part of the Manuherikia Valley, but none of the characteristic flat-topped hills were observed. These are, however, very prevalent in the district from the gorge of the Taieri, at the head of Shag Valley, southward towards Dunedin. Highlay and Flat-top Hills form very perfect examples.

It was with the first display of volcanic activity that the elevation of the land commenced, and although, as is always the case, this elevatory movement was accompanied by degradation of pre-existing strata, rather than by the formation of new deposits; yet under favorable circumstances this very degradation gives rise to local deposits, which are those I shall provisionally term, the *newer tertiaries*.

During this period, the rock-bound basin afterwards to be drained by the Taieri and Molyneux rivers, became converted into a system of lakes, connected by streams, which slowly excavated terraces, and deposited in a more perfectly assorted form the materials which composed the plateau. In the lakes, the sorting process would be still more perfectly accomplished, the coarser materials being deposited at the inlet, while the finer sediment would only settle in deeper water, or towards the outlet. The Taieri Lake is the last remnant of this once great expanse of fresh water, but the materials which were deposited in this manner still exist, forming terraces and cliffs of shingle, gravel, clay, and fine loam. As the main exit channels of the basin were deepened, the lakes were in time drained, and their materials again assorted by the corrosion of the streams.

This sorting process, which may justly be compared to the action of a sluice in ordinary gold washing, has been continuously in operation during the lapse of vast ages, sifting and separating, according to the specific gravity of its component parts, the debris of the schistose rocks, and pre-

paring the way for the gold miner by concentrating the precious metal in a smaller and smaller quantity of *wash gravel*. Gold being the heaviest material contained in these deposits, must be looked for as a residuum, remaining behind after the lighter parts of the schistose debris has been removed by the action of water. When, therefore, it is found on the bars or in old channels of a stream, we must look to the detritus, or drifts, in the neighbourhood, as its immediate source, and the more they bear signs of having been well sorted, the probability is increased of finding the heavier materials, and among these, the gold, gathered into leads towards their base.

From these considerations it will be perceived, that by simple natural operations similar to those now in progress, we may have a great variety in the mode of occurrence of the gold in these so-called "alluvial drifts." I do not underrate the agency of streams in wearing and cutting the solid rock, and also carrying forward to a lower level immense quantities of detrital matter. But every practical miner knows how inadequate any theory of river action would be to account for the "gold drifts" in all situations where they are found. We must rather, as I have endeavoured to show, look for their origin in a sequence of grand changes in the natural features of the country, dependent upon slow alterations in the relative distribution of sea and land in the first instance, followed by the formation of great inland lakes which were gradually dried up as the existing drainage systems became established. Exactly similar deposits occur in basins upon the western slope of the Rocky Mountains of North America, from an elevation of 5000 feet almost to the sea level, and extending from California northwards into British Columbia. The absence of basalt-topped hills, and the large scale on which the terraces have been developed, give the Manuherikia and Taieri Plains a striking resemblance to the upper valleys of British Columbia. Before arguing from this superficial resemblance, however, any similarity in the richness of their auriferous deposits, it is important to compare the nature of the schistose rocks from which the gold has been derived.

The prevailing rock which forms the framework of the Province embraces many varieties of gneiss and mica schist, but generally imperfectly formed, in so far that the evidence of mechanical origin has rarely been obliterated from the intimate particles, while in all cases the original lines of bedding remain distinct, and mark changes in mineral character. As compared with the Lower Silurian auriferous rocks of Victoria, although they are more altered in mineral structure, yet they have been

subjected to much less mechanical disturbance, the flexures and foldings of the strata forming, as a rule, only gentle undulations, while in Victoria, and also in California, they are generally so abrupt that the strata appear to be vertical.

The general trend or direction of these rocks is about N.W. by W., or nearly across the Island. At first sight this appears as if at right angles to the mountain ridges; but if we disregard the minor valleys, it will be found, as I before indicated with reference to the tertiaries, that a broad massive axis of elevated land follows the above direction, with a slope northwards towards the valley along the base of the Kakanui Mountains, and to the south towards that remarkable valley which appears to extend from the Five River Plain to the mouth of the Molyneux, and which is bounded on the south by a range of mountains which, though more broken, have a similar conformation to the Kakanui Range.

It is in the valleys included between the finger-like spurs which branch off to the N. E. and S. W. from this central axis that the tertiary drifts have proved most auriferous, all the present diggings being in such valleys.

The schists towards the central portion of the axis contain much more quartz, and have the laminae more contorted than those either to the south or north, but excepting this, which is only a matter of degree, there is no observable difference.

The quartz always occurs in thin layers, or circumscribed patches, or as concretionary masses, and in all cases has a clear relation to the original composition of the sedimentary rock before it underwent any mineral or structural alteration. Even the largest masses of quartz I have seen, including those at Highlay and Waipori, have to all appearance this limited form, and are what miners term "flat reefs," as distinguished from the vertical veins which occur in Victoria, the sides of which remain nearly parallel at least for great distances, like true mineral lodes.

The absence of granite, and the rarity of ancient volcanic dykes of greenstone or porphyry (of which I have seen as yet none *in situ*, although fragments have been obtained) forms another peculiarity of our schistose rocks. However, if as has been reported, there are lodes of copper in the vicinity of the Dunstan Range, that fact may be taken as a sure indication of the vicinity of granite and of such dykes. The only well marked variety in the schists has been observed at Shag Valley and in Highlay Burn, where they approach more to the character of argillaceous slates, of a deep blue colour, and traversed by small veins both of quartz

and carbonate of lime, the former of which have more of the true character of auriferous quartz veins than elsewhere. As yet I have seen no evidence of what is the exact matrix of the gold in this country. The presumption that it is contained in our schist rocks is only because of the absence of other rocks of a more likely nature so far as is yet known. The schists which bound the lower part of the Manuherikia Valley have exactly the same character as in many other places, as for instance at Moa Flat below the gorge of the Molyneux at Mount Benger, or to take a nearer instance, as are displayed in the sea cliffs below Saddle-hill, about seven miles from Dunedin. It is this sameness in the character of the schist which impresses me with the idea that the intensity and long continuance of the operations which produced the tertiary "drifts" has had more to do with the accumulation of rich deposits of gold in certain localities than any peculiarity in the bed rock in these spots.

If these views be correct, we may expect an extension of auriferous country to the north-west along both sides of the central axis which I have indicated, towards the district occupied by the large lakes, and in which the miners will find the natural agencies working large "claims" for the benefit of future generations.

A sample of black sand with gold has been submitted to me by the Commissioner for the Gold Fields Department, as procured from the Manuherikia country. It consists of—

88.0 magnetic iron ore.
4.5 specular iron ore.
7.5 gold, silica, and insoluble matters.

100.0

There is no trace either of tin in the sample. The large percentage of highly magnetic iron is a very distinctive feature from the black sand found in other parts of the Province, of which there is rarely more than 20 per cent. easily attracted by the magnet. The scales of gold when examined under the microscope are seen to be only moderately water-worn as compared with ordinary samples of gold from river bars, but much more so than with the Waipori or Tuapeka gold.

If this black sand deposit occurs in great quantity, it would seem to indicate that the natural sifting process has been carried out very perfectly, but as in that case we would then expect to have *all* the heavy mineral substances which exist in the original rock, represented in it, unless it can be shown that even the bulk of the gold has been separated from the iron sand, it seems to argue against the rock matrix being auri-

ferous in a high degree. While I confidently expect that gold will be found in fair quantities in the locality of the new diggings, yet I fear that this rush will prove somewhat premature, unless a well-marked lead be soon struck. For a large body of miners to work successfully in one locality requires that the auriferous deposits be very clearly defined, as comparatively few of those who flock there have any other rule to work by than doing as they see others do. What we know as yet of the district, however, would lead us to expect, that the shallow deposits at least, will prove extremely *patchy* and eccentric in their distribution, and perhaps only to be detected by men who have a well practised eye for detecting likely spots.

I have to apologise for the somewhat indefinite nature of the remarks I have ventured upon in this communication, but my object has been merely to make you aware of what I consider to be the general plan upon which the gold drifts, especially of the Manuherikia district, have been formed, and to show what grounds there are for expecting their distribution over a larger area than the immediate vicinity of the Molyneux river.

I have the honor to remain,

SIR,

Yours most obediently,

JAMES HECTOR,

M.D., F.G.S., &c.

GOLD FIELD.

The following Report respecting the newly discovered Gold Field, is published for general information:—

Police Department,
Clutha Gold Fields,

August 28th, 1862.

SIR,—I have the honor to report for your information that I arrived at Mr. Shennon's station on the Manuherikia yesterday afternoon, the 27th inst., and that I proceeded this day to the Molyneux to the scene of the new gold workings on that river discovered by Messrs. Hartley and Reilly.

The ground at present occupied by the miners extends from the Leaning Rock Hill, (one extremity of the Dunstan range) to the junction of the Kawarau and the Molyneux. The river throughout all this distance runs through iron-bound precipitous mountains, the banks, and apparently the bed of the river being rocks; the track on the east bank is nearly impassable in many places for horses, on account of the masses of rock which are piled up from the water's edge to the summit of the range. The miners are at present prospecting each bank near the water.

On my arrival at the field this day with Mr. Hartley, I was met by about one hundred miners, who were collected at the entrance to the diggings, (Leaning Rock Hill). They were all dissatisfied, and for the most part declared that no auriferous land to support so great a number as were then on the field, was to be found in the neighborhood, and that they were on the point of returning. Many of them interrogated Mr. Hartley, who throughout the day satisfied all enquiries. Most of these men were apparently from Tuapeka or

from some of the old established fields. From the numbers I saw, and from what I could gather respecting those who had proceeded further up the river than I have time to go to day, I should estimate the number on the field to be at least two thousand. The majority of those I met were certainly dissatisfied, complaining that the spots where gold was to be found were too limited to support one-eighth part of the present population, and also (and I think that this was the chief grievance) that they could not remain on the ground unless supplies should arrive soon from Dunedin. Very few of the miners have brought any provisions whatever, and those who did bring pack-horses did not provide enough. I saw but one cradle at work to-day, and every one acknowledges that with a cradle they could make good wages; but they appear to have arrived here with no other tools than a shovel and a tin dish.

I have further the honor to report that I was not able to proceed further than seven miles above Leaning Rock Hill, the road being so bad, and also because the miners, hearing that one of the discoverers was in my company, beset us at every step to question Mr. Hartley respecting the locality of his workings. I saw several prospects, the results of washing in tin dishes, they ranged from one and two grains, to half an ounce; but I must state that few were so fortunate as to obtain the larger amount. On the whole I am compelled to report that the majority are dissatisfied, but I apprehend that although a great number will, and must leave, from scarcity of provisions and want of proper tools and appliances, still the numbers who have secured payable claims, and who will remain, will do well, and that a payable gold field will be established.

I have further the honor to report that fuel is very scarce, and until timber can be obtained by means of rafts (from the forests higher up the river), the miners will be worse off for firing than at Tuapeka; this want is also a source of great disappointment to the miners, many of whom calculated on being able to construct cradles and sluices from the timber they were led to believe was in the immediate neighbourhood.

I have further the honor to report that to-morrow I intend to visit the whole of the diggings, and to do so will have to camp on the banks of the river, the distance between the Kawarau and the "Leaning Rock" being about fourteen miles, and the rate of travelling, from the nature of the ground, being necessarily very slow. I shall also be detained on my way by miners whose claims are disputed; it appears that most of the earlier arrivals marked out their claims as "River Claims," (No. 4) with 50 feet frontage per man, and, of course, a right to an equal amount on the opposite bank. I perceive, by the "Rules and Regulations," that this size claim only applies to creeks and rivers—the beds of which are intended to be worked—and not to claims, as in this instance, by the side or on the banks of any river. Four or five such cases were reported to me as needing enquiry, and which will receive my attention to-morrow.

I have further the honor to report that Mr. Hartley gave me every assistance and information, when accompanying me to the field, and that he intends leaving to-morrow for Dunedin.

I have the honor to be,

Sir,

Your most obedient servant,

JACKSON KEDDELL,

Sub-Inspector of Constabulary in charge of
the Clutha Gold Fields.

St. John Branigan, Esq., J.P.

Commissioner of Police,
Dunedin.

Province of Otago, New Zealand,
To Wit.

I HEREBY CERTIFY that **JOHN JONES WATERS**, of Dunedin, in the Province of Otago, has this day submitted for my examination his Diploma as a Member of the Royal College of Surgeons, in Ireland, as likewise his Diploma as a Licentiate of Midwifery of the Royal College of Surgeons in Ireland, as also his Diploma as Doctor of Medicine of the University of Edinburgh, and Licentiate of the College of Physicians in Edinburgh, in accordance with the provisions of an Ordinance, passed by the Legislative Council of New Munster, Session I., No. 2, of 1849, intituled "An Ordinance to define the qualifications, and to provide for the remuneration in certain cases of Medical Practitioners."

Dated at the Resident Magistrate's Court, Dunedin, this first day of September, 1862.

A. CHETHAM STRODE,
Resident Magistrate.

OTAGO GOVERNMENT.
TOWN LAND SALES.

WAIHOLA.

AT the School-house there, on **TUESDAY**, the 9th day of September, at 12 o'clock noon.

MOLYNEUX.

At Barr's Store, Clutha Ferry, on **THURSDAY**, the 11th day of September, at 12 o'clock noon.

W. H. CUTTEN,
Chief Commissioner.

Waste Land Board Office,
Dunedin, 18th August 1862.

POMAHAKA DISTRICT,
BLOCKS 1, 2, AND 3.

NOTICE IS HEREBY GIVEN, that Blocks 1, 2, and 3, of the Pomahaka District, will be open for Application on **MONDAY**, the 15th day of September, and the Applications decided on **THURSDAY**, the 25th day of September, 1862.

The land comprised within these three Blocks is situate between the Pomahaka and the Clutha, and is about 20 miles north from the Clutha Ferry. There is a good supply of Bush on the wooded islands of the Clutha, which are in the immediate neighbourhood. There are about 13,000 acres in the three Blocks.

W. H. CUTTEN,
Chief Commissioner.

Waste Land Board Office,
Dunedin, 14th August, 1862.

GENERAL BOARD OF ROAD TRUSTEES
MEETINGS OF DISTRICT BOARDS OF ROAD TRUSTEES.

The first Meetings of the District Boards of Road Trustees, lately elected for the undermentioned Districts, are hereby appointed to be held at the times and places following; said Trustees having failed to meet as formerly advertised.

PORTOBELLO DISTRICT.

At the School-house upon Wednesday the 10th day of September, 1862, at 1 o'clock p.m.

KAITANGATA DISTRICT.

At the premises of James Rolland, Esq., upon Tuesday, the 16th day of September, 1862, at 2 o'clock p.m.

By order,
JAMES A. CHEYNE,
Clerk to General Road Board.

IMMIGRATION TO OTAGO.

ASSISTANCE TO MALES, AND FREE PASSAGES TO FEMALES.

THE Provincial Government of Otago are now prepared to grant assisted passages from Great Britain and Ireland, to parties applied for by electors and *bona fide* settlers in the Colony, on such applications being approved of by the Immigration Agent, and the Agents of the Government in Britain; and on sufficient security being given for the payment of the passage money on the arrival of the Immigrants.

Unmarried females of good moral character suitable as town and country servants, between the ages of 12 and 35 years, and well recommended by electors and *bona fide* settlers in the Province, will receive a Free Passage to Otago, whether they come out individually or as members of families, on their satisfying the British Agents as to character and suitability, and on giving security that they shall remain at least three years in the Colony.

Apply to

COLIN ALLAN,
Immigration Agent, Dunedin.

UPPER (OR WEST) TAIERI FERRY
To be Let for one year.

1. The Upper Taieri Ferry,
2. The Accommodation House at the said Ferry.

ONE tenant to have both, but the tender to state the rent which will be given for each, and when it is proposed that the House will be opened for the public. In the event of a bridge being put across the river before the expiry of the lease, the tenant shall be at liberty to throw up his lease. Tenders to be lodged at the Superintendent's Office, Dunedin, on or before Friday, the 5th day of September, 1862.

The Government reserves to itself the power of accepting any or rejecting all of the offers. The party tendering must satisfy the Government as to character, &c. The usual License Fee for the sale of Spirits must be paid for.

Further information may be obtained at the Superintendent's Office.

By order,

JOHN LOGAN,
Clerk to Superintendent.

TENDERS will be received at the Office of His Honor the Superintendent, until 4 p.m. of Friday, the 5th of September, for the widening and improvements of the Road between Port Chalmers and the North Trunk Road.

Plans, Sections, and Specifications may be seen, and forms of tender obtained, at the office of the Provincial Engineer.—By order, **JOHN LOGAN**, Clerk to Superintendent. August 15, 1862.

TENDERS will be received at the Office of His Honor the Superintendent, until 4 p.m. on Friday, the 5th day of September, for planking the Jetty-street Pier. Tender to state first, the cost if done with three-inch Red Pine. Second, the cost if done with three-inch Blue Gum.

Specifications may be seen, and forms of tender obtained at the Office of the Provincial Engineer. By order, **JOHN LOGAN**, Clerk to Superintendent. 30th August, 1862.

TENDERS will be received at the office of His Honor the Superintendent, till 4 p.m. of Friday, the 5th September, for the Erection of Additions to the First Presbyterian Church, Dunedin. Plans and specifications may be seen, and forms of tender obtained, at the office of the Provincial Engineer. By order, **JOHN LOGAN**, Clerk to Superintendent. 30th August, 1862.

TENDERS will be received at the office of His Honor the Superintendent, Dunedin, till 4 p.m. of Friday, 19th September current, for the erection of Mining Board Offices and Commissioner's Quarters at Tuapeka.

Plans and specifications may be seen, and forms of tender obtained, at the office of the Provincial Engineer, Dunedin, and the Gold Commissioner, Tuapeka. By order, **JOHN LOGAN**, Clerk to Superintendent, 2nd September, 1862.