1895.
NEW ZEALAND.

MINES STATEMENT.

BY THE HON. A. J. CADMAN, MINISTER OF MINES.

Mr. SPEAKER,—

After the general depression in mining which has existed in several districts for years past, it is gratifying to me to be able to state that the prospects for the future development of our mineral wealth present brighter aspects, and are of a more encouraging nature than have prevailed for a long time past. The cause of this depression may be attributed to the want of sufficient capital to properly prospect and open up quartz-mining properties. Especially has this want been felt where operations have to be undertaken at deep levels, and large quantities of water have to be contended with. On the other hand, in the alluvial drifts the scarcity of water limits the extent to which hydraulic-sluicing operations can be carried on.

In opening out quartz-mines, and in the early stages of working them, comparatively little capital is required to make the enterprise remunerative. The gold which is found near the outcrops of the lodes is generally in a free state, and not so much associated with baser minerals as it is at a greater depth. Moreover, the lodes so far have proved richer near the surface than at the deeper levels. The profits derived from working the mines when they were first opened up were consequently greater than at present, while the cost of prospecting at that time was very much less. Some of the quartz-mines which have been opened for the last eighteen years have now reached such a depth as to require powerful machinery to work them. This involves a considerable outlay, which, together with the cost of carrying on extensive prospecting operations and opening out the mines at deep levels, has been beyond the means of most of the mining companies, which have heretofore principally consisted of local shareholders.

The large demand for properties by English capitalists who are anxious to invest their money in mining, and who are now providing funds for opening up some of the older mines in which operations have been suspended for a considerable time past, will be the means of expanding the quartz-mining industry and giving such an impetus to mining generally as has not been felt since the early days of the Thames and Reefton fields. It is, however, asserted by foreign capitalists that sufficient inducement is not given for investing large sums of money in mining ventures, as the tenure is too limited, and the Legislature does not provide sufficiently large areas of ground in one claim. There can be no doubt that our method of quartz-mining in the past has been of a primitive nature. Experience is teaching us that, with our system of forming numbers of companies with very limited capital, each having a secretary, mine-manager, and, on an average, only from six to ten miners, it is impossible to make dividends for forty or fifty shareholders. It is therefore proposed to introduce legislation to meet the views of capitalists, in the direction of giving them extended areas for their operations. It will be for the House to express its opinion on this subject when the Bill is introduced.

I regret to have to state that gold-mining at the Thames has been greatly depressed for some years past, owing to the want of capital to test the value of the lodes below the 500ft. level. It affords me pleasure, however, to be in a position to inform honourable members that an English company has been formed to sink a shaft on this field to a depth of 2,000ft., and to erect a pumping plant capable of lifting 2,000 gallons of water a minute from that depth.

The discovery of rich auriferous lodes in the Coromandel District, together with the finding of a large lode of auriferous quartz in the Kapanga Company's mine in a bore which was put down from the bottom of the shaft, about 1,000ft. below the surface, has given the shareholders in that company sufficient encouragement to continue the sinking of their shaft. At Reefton new lodes have been discovered during the past year at deeper levels than hitherto worked, containing ore of a highly payable character. This has given an impetus to mining in that locality also. These discoveries at lower depths clearly demonstrate the existence of new lodes of ore in mining properties, some of which were previously deemed valueless.

Dredging as applied to mining is entirely confined to Otago and the West Coast, where it is likely to be greatly used in future for working the beds of rivers and shallow ground where there are large bodies of water to contend with, and where there is no fall for tailings; and also for working the black-sand leads on the ocean-beaches. The recent improvements made in dredges, by which the tailings are lifted and stacked some distance away from the stern, has greatly increased the usefulness of these machines, as it enables ground to be now worked remuneratively that could not be done otherwise. The results of dredging on the beaches on the West Coast have not so far proved a great success, owing to the gold-saving appliances being unsuitable for the character of the gold found; but no doubt improvements will be made to cope with this difficulty, and when this is done it must lead to the use of a very large number of dredges.

The method adopted at Skipper's, in Otago, whereby dredges are worked by electricity, appears to me to be one well worthy of consideration in other parts of Otago, where steam-power is being used. This applies more specially to dredges working on the Clutha River, where there is ample water-power available to generate sufficient electricity as a motive-power for far more dredges than are at the present time working between Roxburgh and the Beaumont Bridge.

Improvements are also being made every year in hydraulic and elevating appliances, enabling ground to be now successfully worked which a few years ago was considered valueless. The extensive areas covered with auriferous gravel which can be worked by means of these appliances will afford profitable employment to a large mining population, where sufficient water can be got to command and work the ground.

The recent discoveries to which I have referred will no doubt give more confidence to men to invest their capital in mining ventures, and will be the means of prospecting operations being more vigorously carried on than heretofore. With competent management many of the mining properties recently taken up are likely to prove remunerative ventures, and, although rich returns can hardly be expected from every mine, it is to be hoped that the majority of them will yield fair interest on the outlay.

Considerable attention is being given to coal-mining, and there is a steady increase in the output. But as the West Coast is the only place where coal has yet been found in the colony suitable for sending to foreign markets, we must not expect a large export to other countries until such time as the West Coast harbour-works are more advanced to admit of large vessels being engaged in the coal trade.

MINERAL PRODUCTION.

The quantity of gold, silver, and other minerals, including kauri-gum, produced for the year ending 31st December last, will be found in Table No. 1 annexed. The production of gold and silver was 275,792oz., representing a value of £894,536, whereas the value for the previous year was £922,881. This shows a decrease in the value last year of £28,345. 720,256 tons of other

minerals were produced, representing a value of £398,139, as against a value of £389,018 for the previous year, and the production of kauri-gum was 8,338 tons, having a value of £404,567, as against 8,317 tons for the former year, which had a value of £510,775.

The quantities and value of the mineral productions for the year were: Gold £221,615oz., value £887,839; silver 54,177oz., value £6,697; antimony ore 44 tons, value £761; manganese ore 534 tons, value £1,156; mixed minerals 25 tons, value £353; colonial coal, exported, including that which was used in coaling direct steamers to England, 75,004 tons, value £73,438; coke, exported, 107 tons, value £160; colonial coal consumed in New Zealand 644,542 tons, value £322,271; and kauri-gum 8,338 tons, value 404,567—making the total value of the production last year £1,697,242, as against £1,822,674 for the previous year.

The total value of gold, silver, and other minerals, including kauri-gum, produced in the colony to the end of 1894, was £62,769,652.

GOLD-MINING.

Notwithstanding the decrease in the yield of gold last year the present state of the mines shows that the gold-mining industry is likely in the future to be greatly extended. The large demand for New Zealand mines as an investment for foreign capital is the means whereby properties, in which mining operations have for several years been suspended, owing to the want of money to develop them, can be again taken up. Fresh ground is also being applied for to carry on more extensive prospecting operations than hitherto, and money is forthcoming to assist to a far greater extent than heretofore in developing our mineral resources. Every encouragement will be afforded those who wish to invest their capital in mining ventures to carry on their operations in a *bonâ fide* manner; but, at the same time, safeguards will be provided to prevent large areas of mineral lands being held for purely speculative purposes.

The recent discoveries of auriferous lodes in the Reefton District at deeper levels than hitherto worked have given an impulse to mining in that locality, as these discoveries have demonstrated the fact that new lodes containing ore of a payable character for working will be found at great depths, to take the place of the lodes carried down from the surface but which have cut out. Many mines which have been given up as valueless will now be tested to far greater depths than heretofore, and by judicious management they will yet be made to yield returns which, I feel confident, will fully recompense the owners for their outlay.

The quantity of gold entered for exportation through the Customs for the year ending the 31st of March last—as shown in Table No. 2 annexed—was 222,981oz., representing a value of £889,545, while the quantity exported for the same period of the previous year was 240,702oz., valued at £970,220. This shows a decrease last year of 17,721oz.; but this does not in reality show the total production, as there is a certain quantity of gold manufactured into jewellery in the colony. Of the quantity exported, Auckland contributed 58,029oz.; Marlborough, 1,911oz.; Nelson, 1,633oz.; West Coast, 85,015oz.; and Otago, 76,393oz. The only district in which there was an increase was Auckland, the export being 5,603oz. more than for the previous year, while in other districts the decreases were as follow: Marlborough, 351oz.; Nelson, 546oz.; West Coast, 13,915oz.; and Otago, 8,512oz. Of the total quantity exported last year Auckland contributed 26·02 per cent.; Marlborough, 0·89 per cent.; Nelson, 0·73 per cent.; West Coast, 38·13 per cent.; and Otago, 34·27 per cent.

Earnings of the Gold-miners.

If we estimate the earnings of the men employed in gold-mining on the same basis of computation as adopted in former years—namely, the value of the gold entered for exportation, divided by the number of miners on the different goldfields as returned by the Mining Registrars, we can but approximately reckon the net receipts of the men. The cost of tools and interest on the

value of the plant must also be taken into consideration, but as this cannot be ascertained the average value of gold for each man employed must be adopted.

The total number of men employed last year was 11,412, as against 11,553 for the former year—a decrease of 141. The decrease was principally in the Westland District, where the number was 613 less than for the previous year. In Otago, also, there was a decrease of 59. In all other districts there has been an increase in the number employed, especially in the Auckland District, where 461 more men were employed than for the previous year. If we divide the value of the gold entered for exportation by the number of men employed in connection with the gold-workings last year we get an average of £77 18s. 11d., as against £83 19s. 7d. for the previous year—a decrease of £6 0s. 8d. If the value of the gold in the different districts be taken, and the number of men employed in each, it will be seen there was £127 1s. obtained for each miner in the Auckland District, £30 2s. 10d. in Marlborough, £30 2s. 10d. in Nelson, £72 1s. 1d. on the West Coast, and £69 5s. 2d. in Otago. In some places, however, the miners do not depend upon gold-mining alone for their living, as they hold land under the occupation system, or have small homesteads on freehold land, and employ portions of their time in cultivation, &c.

QUARTZ-WORKINGS.

This branch of the gold-mining industry is steadily progressing, although the yield of gold from the whole of the mines last year is nearly the same as for the former year. There has been an increase in the North Island, while on the West Coast there has been a considerable decrease. During last year 116,094 tons of quartz and tailings were treated in the Auckland District, which yielded 156,698oz. bullion, representing an estimated value of £261,746, as against bullion to the value of £219,651 for the former year—an increase last year of £42,095. In Marlborough only 25 tons of quartz and tailings were treated for a yield of 14oz. gold, having a value of about £54 12s. In Nelson 3,554 tons of quartz were crushed, yielding 657oz. gold, valued at about £2,562. On the West Coast 38,370 tons of quartz and tailings were treated, which yielded 18,360oz. gold, representing an approximate value of £71,604; and in Otago 13,390 tons of quartz and tailings were treated for a return of 5,713½oz. gold, having an estimated value of £22,283. The greatest decrease in the yield of gold from quartz-workings last year was from the mines on the West Coast. It amounted to 10,193½oz. gold, having an approximate value of £42,610. The total quantity of quartz crushed and tailings treated last year was 171,433 tons, which yielded gold and bullion to the value of about £358,250, as against £359,490 for the previous year. The yield last year from the quartz-workings was equal to 40 per cent. of the total value of the gold entered for exportation.

It may be interesting to honourable members for me to state that 52 per cent. of the total value of the gold and bullion obtained in the North Island last year was extracted by the cyanide process. This is said to give about 26 per cent. more of the gold in the ore and about 17 per cent. more of the silver at the Waihi Company's works than was obtained previously by the most approved systems of amalgamation. Considerable advances have been made in the cyanide treatment since it was first introduced, and no doubt by further experiments the processes will be greatly improved in future. It, however, requires men specially trained to use the cyanide process successfully, as they must have a knowledge of the chemistry of minerals as well as understand the action of alkaline and acid substances on the ore under treatment, and the percentage of the solvent required to give the best results on the different classes of ore.

COROMANDEL.

Owing to a discovery of very rich ore in the Hauraki Company's ground, which formerly belonged to the Coromandel Company, there has been a great demand for mining properties in this locality, and considerable areas of ground have been purchased by English companies, who are providing money to develop their claims. The discovery of this rich auriferous ore was made by Ross

and party, who were working on the tribute system, and who, while constructing an adit-level to their section of the ground, struck a very rich lode outside the portion of the ground they held, and which belonged to other tributers—Legge and party—who had done no work on their section. Between the beginning of May last year and the 2nd of January of the present year Legge and party got 3,955oz. gold, representing a value of about £11,929, and since the company took the ground over from them to the 24th of August last 694 tons of stone yielding 15,935oz. gold were obtained, equal to about 22oz. 19dwt. 5gr. of gold to the ton. This discovery has led to the taking up of a great deal of ground, where very little work had been done for many years, and to the commencement of active operations there. A large amount of prospecting has been done in the Kapanga Mine, which also belongs to an English company, and recently the returns show a marked improvement. The property known as "Scotty's," as well as the ground on the Tokatea Range, have been purchased by English companies, and are now being worked.

Some of the mines at Kuaotunu give promising returns, as, for instance, the Kapai-Vermont, and this will tend to cause more attention to be given to this field.

During the first year 9,936 tons of quartz and 6,158 tons of tailings were crushed, which yielded 22,632oz. gold, representing a value of £62,996, while 265 men were employed in connection with the mines.

Thames.

There has been a considerable falling-off in the yield of gold from this field during last year. This, however, was fully anticipated, the working in the principal mines being confined to within 500ft. of the surface, below which no prospecting operations can be carried on until more powerful and economical pumping-machinery is erected, and a shaft sunk below the depth of the present level. The upper levels having been worked and well prospected, there is little hope of striking any large bodies of auriferous stone until a greater depth has been reached. On the other hand, the rich discoveries of auriferous lodes in the Ohinemuri District have attracted the attention of mining men, and this being a comparatively new field offers a larger scope for carrying on prospecting operations than the Thames field at the present time. A company with a considerable capital has, I am glad to state, been floated in London to provide a powerful drainage plant to drain the water at the Thames to a depth of 2,000ft., which will admit of the field being opened out afresh. Where so large a quantity of gold has already been obtained, there is a fair probability of rich discoveries being made at deeper levels than hitherto worked; at least, this has been the experience on every other goldfield where rich stone was obtained at shallow depths.

During the past year 25,971 tons of quartz and 11,938 tons of mullock were crushed, which yielded 20,865oz. gold, and 10,555 tons of tailings were treated for a return of 1,945oz. gold, representing an estimated value of £59,340, while 598 men have been employed in the mines.

Ohinemuri.

This goldfield promises to be one of wide extent, and the yield of bullion is steadily increasing. A number of large lodes are known to exist, containing both gold and silver, and comparatively little prospecting has yet been done on any of them with the exception of that carried on in the immediate vicinity of Karangahake, Waitekauri, and Waihi. The great bodies of auriferous and argentiferous ore found at the latter place, which get richer as the depth of the workings increase, gives a value to the Waihi Company's property at the present time of about £1,000,000. The large body of payable ore in this company's mine, and the steady returns of gold obtained, have attracted capitalists' attention to this locality, and a number of special claims have recently been taken up with the view of carrying on extensive prospecting operations in other parts of the field. The demand for mining properties, where considerable sums of money are required as a working capital, is greater at the present time than ever it has been since the goldfields have been opened.

The discoveries at the Golden Cross, Waitekauri, have also given an impetus to mining in this locality. The large auriferous and argentiferous lodes containing rich ore mark this as a place where considerable sums of money will be expended in prospecting for other lodes, and also where a large mining population will find profitable employment.

During the past year 31,221 tons of quartz were crushed, which yielded by amalgamation 16,572oz., and by the cyanide process 76,360oz. bullion, while 19,837 tons of tailings were also treated for a return of 17,665oz., and 31oz. bullion by amalgamation, making a total of 110,628oz. bullion, representing an estimated value of £137,699, which is equal to about £1 3s. 1d. per ounce, as against 68,603oz. bullion, having a value of £107,001 for the former year, which is equal to about £1 11s. 2d. per ounce, while 538 men have been employed in connection with the mines last year. The recent discoveries last year and the good returns from the mines has given a considerable impulse to mining in the adjacent districts, causing extensive areas to be again taken up. It has therefore been considered advisable to extend the boundaries of the goldfields in the Hauraki District.

Waiorongomai.

Very little mining has been carried on during the last year on this field notwithstanding the numerous lodes that are known to exist containing both gold and silver, and which have to a certain extent been proved to contain sufficient bullion to make them remunerative for working if a suitable process were adopted to extract the bullion from the base metals in the ore. Rich patches of auriferous ore have been obtained from the main line of reef traversing the country, and outcropping for some miles along the range. But this main lode has never been tested at any great depth, although this could easily be done by adit-levels.

During the last year only about sixteen men were employed on the field, and 891 tons of quartz crushed, which yielded 572oz. bullion, while 250 tons of tailings were treated for a return of 55oz. bullion, representing a value of £1,711.

West Coast.

The principal quartz district of the West Coast is the Inangahua, but unfortunately there has been depression in mining there for some years past. It is, however, gratifying to state that this cloud of depression is likely to be lifted, and things are assuming brighter aspects than they have done for some time past. Many of the mines have been worked to a considerable depth; but, until last year, nothing was found of any consequence to afford encouragement to prospect the lodes at deep levels. The lodes that had been worked from the surface were found in some of the mines to get broken up and cut out, and, even when they were found to continue to go down, the ore became of too low a grade to prove remunerative for working. This being the case, those who were interested in mining properties became disheartened at paying calls without any likelihood of being again recouped for the outlay.

This state of things existed last year, when a new lode was discovered in the Keep-It-Dark Mine at a depth of about 770ft. below the surface, near where the lode on the upper levels cut out. After sinking on this new lode for 100ft., it was proved to be of a considerable size, from 10ft. to 12ft. in width, and the crushings recently made from this place show the yield to be from 10dwt. to 15dwt. of gold per ton; also on the adjoining mine, the Wealth of Nations, a new lode has been found at a greater depth than hitherto worked, and promises to give good returns. These discoveries have been the means of directing more attention to quartz-mining on this field, and properties are being again taken up which before were considered of little or no value.

There has recently been a considerable demand for mines in the Reefton district. A Mr. Ziman, from South Africa, has lately purchased several mining properties with the view of finding sufficient working capital to open them up at greater depths and to carry on far more extensive operations than heretofore.

At the Lyell an auriferous lode has been cut in the low-level tunnel constructed by the Lyell Creek Extended Company, at deeper levels than hitherto worked, which promises to give fair returns for a time. In the Grey district, at Langdon's, a lode has been discovered from which exceedingly rich ore has been obtained, but sufficient work has not yet been done to ascertain the extent of this shoot of gold-bearing stone. These recent discoveries have given more confidence to men to invest money in opening out the mines on a more extensive scale than heretofore, and to carry on prospecting operations at deeper levels.

During last year there were 41,947 tons of quartz crushed on the West Coast, which yielded 190,315oz. gold, representing a value of £75,301, while about 414 men were employed in connection with the mines.

Otago.

Although there has been a large quantity of alluvial gold found in Otago, this part of the colony has never been to any extent a quartz-reefing district. The richest lode yet opened up is that in the Cromwell Company's mine, at New Bendigo, from which it is stated about £400,000 has been paid in dividends. Notwithstanding this rich find, very little work has been done in this this mine for many years past, with the exception of taking out some of the blocks of stone left in the early days—stone at that time considered of too low grade to pay for working.

The quartz-workings at Skipper's and Macetown are the oldest in Otago, but the mines there have not yielded a very large quantity of gold—indeed, it is questionable if ever the mines in these localities have yielded in the aggregate as much gold as the Cromwell Mine at New Bendigo. Comparatively little gold is obtained from any quartz-workings in other parts of the Otago District.

Great expectations were at one time formed of the gold-bearing qualities of the quartz reefs in the vicinity of Wilson's River, near Preservation Inlet, but these expectations have not yet been realised to any extent. The Golden Site Mine, in which very rich stone was obtained near the north side of Wilson's River, has not been proved to run for any great length. This district is, however, very little prospected, and several fresh discoveries have been made during the past year, which tend to show that both in the alluvial drifts and in the quartz lodes gold will be found remunerative for working when the country is properly opened up.

During the last year 13,390 tons of quartz and tailings were crushed and treated, which yielded 5,713½oz. of gold, representing a value of £22,283, as against a value of £22,015 for the former year, and there were about 355 men employed in connection with the quartz-workings.

Summary of the Quartz-workings.

Taking the whole of the quartz-workings in the colony, it will be found that there were 171,433 tons of quartz crushed and tailings treated last year, which yielded 181,442½oz. gold and bullion, representing a value of £358,250, while 2,191 men were employed in connection with quartz-workings.

ALLUVIAL MINING.

The alluvial gold-workings still continue to supply about 60 per cent. of the gold obtained in the colony. This class of mining is entirely confined to the Middle Island, as only a small quantity, about 67oz., came last year from Stewart Island. The immense areas of ground covered with auriferous gravels, both on the West Coast and Otago, show that the largest percentage of the gold produced will be derived from the alluvial workings for many years to come. The extent to which these workings can be carried on is only limited by the quantity of water that can be obtained to command the ground. It is only in a few localities where the wash-drift is sufficiently rich to pay for mining in the strict sense of the term—that is, by working from shafts and adit-levels. The

principal workings are carried on by hydraulic sluicing and elevating. During recent years, also, much of the gold has been got by using dredging-machines.

The auriferous gravels are divided into five different classes—namely, the recent and more modern deposits; the older gravels found on the West Coast belonging to the Upper Miocene or Lower Pliocene periods; the still older quartz-drifts found in Otago from the denudation of the Silurian quartz-schist formation which covers so large an area in that district; the more concentrated gravel-drifts found in the beds of rivers from the different formations; and the sea-beach leads along the coast-line, together with those formed at the higher levels on the West Coast. All these may be designated littoral, fluvatile, and lacustrine deposits.

The great factor for carrying on alluvial mining operations of every description is water; not only is this essential for hydraulic-sluicing operations, but it is also required as a motive-power for working pumping, winding, and dredging machinery. Wherever water can be utilised as a motive-power, it lessens the cost of mining, and enables men to work ground remuneratively which could not be done if steam had to be used, unless the operations were close to a coal-mine where fuel could be obtained at a cheap rate.

The mining districts in Otago being principally in the interior, where the rainfall is considerably less than elsewhere in the colony, extensive water-races and reservoirs, although they may cost a considerable sum to construct in the first instance, will be a valuable asset, as when they are not required for mining purposes they can be fully utilised for irrigation, and greatly enhance the value of both agricultural and pastoral land.

Provision was made by legislation last year to afford encouragement to those interested in mining to construct large water-supplies, so as to extend the scope of carrying on hydraulic-sluicing operations; but, so far, only two applications have been made for subsidies under the regulations, for the construction of water-races having a carrying-capacity of over twenty sluice-heads. Inquiries are now being instituted as to collateral advantages to be derived by the proposals submitted.

In order to allow hydraulic-sluicing operations to be carried on, it was found necessary to proclaim several streams as watercourses into which tailings, mining *débris*, and waste water from mining claims may be allowed to be discharged, and for the past year, and up to the end of July last, £2,982 has been paid as compensation to the owners of land alienated since 1886. The question of any further proclamations will have to be carefully considered, as the claims for compensation in many instances amount to large sums of money.

Marlborough.

The alluvial workings in this district are situated in the Wairau Valley, Wakamarina, and at Mahakipawa. There are, however, only a limited number of men engaged in mining at these places. At Wakamarina another attempt is being made to work the gorge near the junction of Deep Creek with the river, where several companies, after spending a good many thousand pounds, have failed. It is to be hoped that the present company will benefit by the experience of their predecessors, and take better precautions against the floods which heretofore have prevented the bed of the gorge being worked.

At Mahakipawa there are still a number of men employed in mining, although many less than there were two years ago. Rich auriferous wash-drift has been obtained in the King Solomon Mine, on Mr. Cullen's freehold, and the same run of gold is likely to be traced further down the flat. The difficulty experienced is the quantity of water, which requires good-sized pumping machinery to overcome it.

The total number of miners employed in the Marlborough District last year was 253.

West Coast.

The alluvial workings on the West Coast extend from Collingwood to Jackson's Bay, and include mining in the proper sense of the term—namely, sinking and driving as well as hydraulic sluicing and dredging. The latter branch of mining is only yet in its infancy on the West Coast. Although a great many

dredges have been placed on the ocean-beaches to lift and treat the auriferous sand, they have, so far, not proved a success, owing to the washing appliances being defective for the character of gold found; but where dredges have been placed on river-beds to deal with the concentrated material from the recent and more modern gravels, these machines have proved satisfactory.

Upper Buller.

There is a considerable population engaged in mining between the junction of the Inangahua and Buller Rivers and the head of Matakitaki Valley, where the workings are carried on along the banks and terraces fronting the Buller River, and also in the valleys of the Matakitaki and Glenroy Rivers. At the upper Matakitaki there is a great depth of auriferous wash-drifts on many of the terraces, and during the last year the Mammoth Company has expended a considerable amount of money in bringing in a water-supply to work these drifts by hydraulic sluicing. From the trial-tests recently made, a large quantity of ground is likely to be found that will pay for working in this manner.

Higher up than where these auriferous gravels are deposited is a very large area of country covered with quartz conglomerate resembling, to a large extent, that now being worked for gold in South Africa. These conglomerates extend from the Mangles to near the Maruia River. Some parcels have been tested at Reefton from this formation, and as high as 5dwt. of gold to the ton have been obtained, but the area covered with these conglomerates is so large that it would take a considerable time to prospect the deposit, unless by mere chance a rich lead was met with. There is, however, an indication that a field will be opened up in this locality where quartz-crushing machinery will be largely employed.

Westport, Addison's, and Charleston.

There are a considerable number of miners working north of Westport, on the North Beach, North Terrace, and in the bed of the Waimangaroa River. Several nuggets have been recently found at the Waimangaroa, which led to a number of mining claims being taken up.

On the south of the Buller River there are about twenty men engaged in hydraulic sluicing at Bradshaw's Terrace; and there is a considerable mining population at Addison's, and also at Charleston. Addison's Flat comprises a large pakihi, having several leads of gold-bearing gravels running through it parallel with the ocean-beach. There are a considerable number of mining claims on this flat which give remunerative returns for working, and more of the ground would be taken up if a further supply of water could be procured at a reasonable cost, the whole of the water from the local creeks and rivers being at present all utilised.

At Charleston the workings are principally on old sea-beach deposits. Large areas are covered with a dark-brown sand cemented firmly together with oxide of iron, which requires crushing machinery to liberate the gold which the sand contains. Several parties are also carrying on hydraulic-sluicing operations, while others are engaged in washing the sand on the ocean-beach, and making a comfortable livelihood. About 282 men are engaged in mining in the Westport district.

Grey Valley.

The whole of the country in the vicinity of the Grey Valley is more or less auriferous, and some very rich deposits of auriferous gravels have been and are still being worked on the south side of the valley, where there is almost an unbroken line of the old gravels extending from the Inangahua River to Maori Creek. In every gully and creek-bed cutting into these gravels rich auriferous deposits have been found, and in many places bands and layers of these gravels have given good returns for driving out from shafts and adit-levels. In many of the wide valleys, where the auriferous layer has not a great depth of superincumbent material above it, the ground is worked by paddocking.

Slab Hut, Antonio's, Blackwater, Snowy, Waipuna, Duffers, Half Ounce, Orwell, Callaghan, Nelson, Red Jack's, and No Town Creeks, with their various tributaries, have been and are yet the receptable of rich auriferous concentrated

material, which will afford employment to a large mining population for many years to come, while the wash-drift on the whole of the high terrace-land along this line will give remunerative wages with a liberal supply of water with which to work it.

The ground on the north side of the Grey Valley is of a more recent formation; but still there are a number of good claims in the localities of Moonlight and Blackball, where many men are averaging higher wages than anywhere else on the West Coast.

Westland.

This embraces a large field, and one where no less than 2,448 men were employed in connection with mining during the past year. It includes the portion of the West Coast from the Grey and Arnold Rivers to Jackson's Bay. It was in this district that gold was first discovered on the West Coast, by a party of Maoris, on one of their periodical visits to Greenstone Creek in search of the pounamu stone, so highly prized amongst them for making weapons of defence and ornaments.

Kumara.

The largest centre of the alluvial mining population is at Kumara, where a great quantity of gold has been obtained from a comparatively small area of ground. This is still a place capable of supporting a considerable population. The leads of auriferous drifts are some distance back from the Teramakau River. This makes needful the construction of long tail-races to convey the tailings from the mining claims to the bed of the river. Five of these long tail-races have been completed, and a sixth is now being commenced, which will be about 70 chains in length. Where works of such magnitude have to be constructed with boxes and false-bottom blocks, subsidies have been given towards their cost.

The revenue from the Government water-race, which supplies most of the mines on the Kumara field, is dependent on the number of claims that can utilise the water, hence the necessity for giving assistance towards opening up new ground.

Callaghan's, Waimea, and Stafford.

At Callaghan's, Waimea, and Stafford, men continue to get a livelihood working in the terraces. At Callaghan's a good deal of new ground will shortly be opened up, as soon as a branch water-race, which is now in course of construction, is completed; and at Waimea a long tail-race is in course of construction to enable new ground in the middle branch and the upper portion of Waimea Flat to be worked by hydraulic sluicing. Between Waimea and Stafford men are only making small wages, owing to the distance at which the workings are from the creek-bed—which is the only place for the deposit of tailings. Then the small amount of fall for the sluices, together with the fact that the ground is gradually deeper as it gets into the range, prevents the same amount of bed-rock from being laid bare as in former years, and consequently there is a large decrease in the yield of gold.

Humphrey's Gully.

At Humphrey's Gully there is a large area of ground covered with auriferous gravels, which in some places are 300ft. in depth, with plenty of fall. The whole of them may be worked by hydraulic sluicing. A company has been working these gravels for the last seven years with a small supply of water, and gold to the value of about £30,000 has been obtained, but the quantity of water at the command of the company is totally inadequate to work this large deposit on anything like an extensive scale. Recently arrangements have been made for additional capital to extend the company's water-race to the Arahura River, where practically an unlimited supply will be obtained.

Blue Spur.

At the Blue Spur extraordinarily rich ground has been opened up during the last year, the wash-drift containing nearly 3oz. gold to a load. This discovery is due to Mr. Augustus Boys, who, by indomitable perseverance, constructed a

drainage tunnel for nearly a mile in length to test the ground, he having been seven years in completing the tunnel, and now he is likely to be well rewarded for his outlay. Not only has Mr. Boys got on to rich gold-bearing wash-drift, but other claims adjoining him have found the same lead going through their ground. About 40 acres of this ground were applied for as a freehold by Mr. Dwyer, but arrangements have been completed for resuming possession of this ground in order to throw it open for mining.

Kanieri and Rimu.

The Kanieri Diggings are getting pretty well worked out near the township, still there is a considerable population engaged in mining in the district, scattered about in the different gullies. Workings are carried on at the Kanieri Forks, Gentle Annie, and other places near the branches; while at Woodstock, Back Creek, Rimu, and Seddon's Terrace there is a large population employed, some working from shafts and adit-levels, and others, who have small supplies of water, carrying on hydraulic-sluicing operations.

There is a great depth of alluvial-drifts in the vinicity of Back Creek and Seddon's Terrace, with different bands or layers containing gold, but all these layers are lying on a false bottom. In no place has the main bottom in this locality been reached. How far back these gold-bearing layers will be found has not yet been determined; but the best of the ground, that is, the richest of the layers or auriferous bands, does not extend for a long distance back from the face of the terrace fronting the Hokitika River.

Ross.

This is a place where it is known that a rich lead of gold exists in the flat; but, being below water-level, it requires very powerful machinery to drain the ground, which has been lying for many years without anything being done to work it. The best gold-bearing layer on this flat is about 240ft. under sea-level, and is a fluvatile deposit, with gravels and stones highly rounded, and of the same soft brown formation as the "Old-man" bottom, of which the lead on Ross Flat is only a concentration. This lead has been partially worked to near the foot of German Gully; but there is a probability that a rich gold-bearing layer will be found further on towards Donohue's, near the foot of Sailor's and Swiper's Gullies.

No workings can be carried on here unless provision is made to prevent the water from Jones's Creek getting down into the lower workings, and the quantity of water in that creek in time of floods is more than any ordinary pumping machinery could cope with. It is ground which cannot be worked unless by a company with a large capital, as a considerable expenditure will have to be made to cut off all the water to prevent it reaching the flat, and a very large pumping plant will also be required to not only drain the water which is now accumulated in the old workings, but also to cope with the permanent inflow through the different layers of gravel. From what is known of this flat, there is a considerable quantity of gold in the drifts; but a large sum of money will be required before the flat can be successfully worked.

The quantity of gold produced on the West Coast last year, exclusive of that obtained in the Collingwood District, was 85,015oz. representing a value of £339,731. The total quantity produced to the 31st March last, was 5,517,080oz., having a value of £21,921,556.

Otago.

This is a field which has produced a large quantity of gold, and the workings in the early days, being in shallow grounds with remarkably rich deposits of auriferous gravels, were the means of bringing New Zealand prominently before the world as a gold-producing country, and of causing a rapid influx of population. Many of those who were first attracted to our shores have invested their earnings on the goldfields in the purchase of homesteads, and have tended greatly in the permanent settlement of the lands of the colony.

Maerewhenua.

The number of miners employed in this district continue about the same as they have been for some years past. There is a large area covered with auriferous wash-drift, but very little of it is sufficiently rich to pay for driving out, and the quantity of water that can be brought on to command the ground to work it on the hydraulic-sluicing principle at anything like a reasonable cost is very limited. The number of men therefore, who can find profitable employment is controlled by the available water-supply. During my visit to this district last year a deputation waited on me with the view of obtaining assistance towards bringing another water-race on to the field from the Maerewhenua River, and I arranged to find the cost of wrought-iron pipes required for siphons to convey the water across some ravines, on condition that I was satisfied that the water-race which was partially completed was capable of conveying a fair supply of water. But I have not received any further communication from the parties who were engaged in the work, and so am unaware whether their race has been completed in accordance with the conditions or not.

The number of men engaged in mining on this field last year was seventy-five, and the quantity of gold obtained was 1,822oz. representing a value of £7,468.

Mount Ida.

There are a fair number of men engaged in mining in this district, and some very rich ground has been worked, but the general average of the earnings of the miners is not large. The ground lies at so high an elevation as to preclude any mining for about two months during mid-winter, when the ground is frozen, and the water in the race converted into ice.

At Naseby the miners are chiefly dependent on water from the Government water-race to work their claims, and in last season, a particularly dry one, the supply of water was rather limited towards the end of the summer. The water-supply at this elevation is controlled to a great extent by the quantity of snow that lies on the mountains during the winter months, and from the heavy falls of snow during this winter a good supply of water may be expected for the next season.

St. Bathan's and Vinegar Hill.

The St. Bathan's basin contains a large deposit of quartz-drift, in which there are several rich auriferous layers. Over 300ft. vertically of this drift has been washed away in some of the claims, giving large returns of gold, and, deep as the workings have been carried, the quantity of the gold in the drift does not seem to diminish. This line of quartz-drift seems to follow near the foot of the range, and it is said to be a lacustrine deposit, where the shores of the lake were encircled by the present range of mountains. It is near the old shore-line where the rich deposits of gold-bearing drifts are found. The quartz-drifts are in stratified layers, having been greatly tilted since they were laid down, and faults are now found in this deposit, just as in solid rocks. These faults can be seen in Mr. Ewing's claim at Vinegar Hill, where the old lake deposit can be closely observed, containing as it does an immense quantity of the vertebræ of small fishes.

Before leaving St. Bathan's and Vinegar Hill, I cannot speak too highly of the enterprising manner in which Mr. Ewing has carried on hydraulic-sluicing operations. The difficulties he has had to encounter time after time in opening out and working his claims, with all the most modern appliances, are worthy of the highest commendation. It is only by close attention, and adopting improved appliances that poor ground can be made remunerative for working.

Tinker's.

The results of the gold-workings in this locality show it to be one of the richest places of recent years in Otago, and, although the gold returns are less than they were a few years ago, most of the claims where water is available continue to yield very good returns. A similar description of quartz-drift is met with here as at St. Bathan's, with rich auriferous layers through it, but a good deal of the deposit at Tinker's cannot be successfully worked on account of

dipping under the toe of the range, with a great depth of loose material and heavy boulders overlying it. Here there is but very little gold, and the limited fall in the tail-races is not sufficient to convey away a large quantity of coarse wash-drift. This is a field where a considerable mining population will make a livelihood for many years.

Miners are working here and there in different places in the valley of the Manuherikiu River, and in many of its tributaries. Last year some ground was opened at Manorburn, where several claims were said to yield fair returns of gold.

Tuapeka.

It was in this district that gold was first discovered in Otago, and the rich finds in Gabriel's, Munro's, Wetherston's, and Waitahuna Gullies, all made within a few weeks of each other, induced thousands of people from other colonies to come to New Zealand. Even now, notwithstanding that thirty-four years have passed since these places were opened, there are still a number of men obtaining their livelihood by gold-mining in close vicinity to the early workings. It is gratifying to state that the deposit at the head of Gabriel's Gully, where men have been employed since the first opening of the field, is still continuing to yield a fair profit; I refer to the Blue Spur, where the principal workings are carried on by a company, formed with English capital, who got about 3,789oz. gold for the year's work.

It is to be regretted that any dissensions have arisen between the miners at Waipori and the farmers holding land adjacent to the river in the vicinity of the Township of Berwick. Each class is to a certain extent dependent on the other, for the miners require supplies from the farmers, who thus get a ready market for their produce. I trust that the differences at present existing will soon be settled amicably.

Through the whole of the Tuapeka District, which includes Waipori and the lower portion of the Clutha Valley, there were 600 men employed in carrying on mining operations last year, and 22,350oz. of gold was obtained, representing a value of £90,180.

Clutha Valley.

There are several large companies carrying on mining operations in this valley, some by hydraulic sluicing and elevating, and some by dredging. The whole of the drifts in the Clutha Valley are nothing but a deposit of concentrated material, the light sand and mud being carried away by the waters of the Clutha River to the ocean, and leaving the denser materials behind. This river has shifted its channel at different times, and gradually cut down its present bed, where very rich deposits of auriferous wash-drifts are found in many places. Indeed, there are few of the dredging-machines now placed in this river which are not working the bed with success.

Dredges, as applied to mining, have not only been profitably employed in lifting the auriferous gravel from the beds of rivers, but they are also used in working the ground in flats, when the depth does not exceed 35ft., and where the quantity of water to contend with has hitherto prevented the ground being worked by any other means, and they are likely to be largely used in this way in the future.

The bed of every tributary and stream coming into the Clutha Valley contain more or less gold; and on the Old Man Range, fronting the valley, wherever there is any wash-drift containing gold, men are to be found working at different places and making a livelihood whenever a supply of water can be obtained. A few people may still be found working at Bald Hill Flat, Butcher's, and Conroy Gullies, although the ground in these localities has been turned over several times.

Cromwell.

Both on the banks of the Clutha and Kawarau Rivers there are men engaged in sluicing the wash-drifts; and, notwithstanding that Bannockburn is one of the oldest diggings in the locality, there are still a considerable number of miners employed, and a good deal of ground can yet be profitably worked if

fall can be got for tailings. The available ground in the vicinity of the Pipeclay Gully channel is getting yearly less, and the construction of another channel is contemplated to enable the bed and terraces alongside Smith Gully to be worked.

Cardrona and Criffel.

The number of miners and yield of gold from these places have varied very little for many years. As ground was worked out, other discoveries were made, and by this means most of the miners have been kept in the locality. The most recent new discovery made is in the face of Criffel Range, where the gold is found in a very old deposit, and in similar drift to the rich auriferous wash found a few years ago in Robertson Brothers' claim on the flat. The high elevation of this range does not permit sluicing to be carried on for some months in winter, but the miners at work in this locality intend to drive an adit-level into the face of the range below the depth of the present workings to ascertain the value of the deposit where it joins the schist-rock. They cannot do this in an open cutting, as the face of the range keeps slipping forward. The work done here during the last two seasons has proved the ground to be fit for hydraulic sluicing.

At Criffel only a few men were employed last year, the whole of the available water being held by one party. About seventy-five men are employed about Cardrona and Criffel, who obtained about 1,000oz. gold during the past year.

Arrow and Shotover.

There are the same number of men working in these localities as there were during the previous year, but the yield of gold last year showed a decrease from that of the former year. There are, however, large deposits of alluvial drifts, and, where the auriferous wash is not overlain by a great depth of gravel in which there is little or no gold, these drifts are made to pay very well for working on the hydraulic-sluicing principle. The great factor in working these drifts is water, and, although we have large rivers, they cannot, in many instances, be utilised owing to the great cost of lifting the water and constructing water-races; and, further, in many cases the water could not be lifted from some of the principal rivers so as to be carried at a sufficient elevation to command the ground to be worked. Many of the terraces contain great depths of auriferous gravels, which will take years to work with the present supply of water.

Mining works of considerable magnitude have been undertaken in these localities. Miller Brothers have gone to a large expenditure in the construction of works to work the bed of the Arrow River at the Falls, and also in opening out ground and bringing in a water supply to work Burke's and Londonderry Terraces. R. Johnston, and Davis Brothers, have also expended much money in opening out claims on Pleasant and Stoney Creek Terraces, while other large works are to be seen on the Upper Shotover, and also at the Sew Hoy Company's claims at Arthur's Point and the Big Beach.

Round Hill and Orepuki.

There are a number of men engaged in mining in the vicinity of Round Hill and Orepuki, and a fair quantity of gold is being obtained. Formerly there were very few Europeans as compared with the number of Chinese at work at Round Hill; but since an English company has commenced hydraulic sluicing and elevating, the number of Europeans has considerably increased, while the number of Chinese has decreased. The ground in this locality must be very good to pay for working with the very small supplies of water available. Indeed, in many fields the quantity of water used would not enable men to procure sufficient gold to pay for their food. This English company referred to hold most of the water-rights in the place, but have not sufficient water to carry on their own mining operations on an extensive scale. They are getting enough gold, however, to pay for working the ground.

At Orepuki the workings are all on a sea-beach deposit, and some of the men are doing fairly well. Adjacent to the gold-workings is a mining reserve which comprises very good land, and, between mining, keeping a few cattle, and working their gardens, the men seem to make a fair livelihood.

PRESERVATION INLET.

Gold has been got in a good many places in this locality, Wilson's River, Coal Island, Crayfish Island, and on the main land between Preservation and Chalky Inlets. During the last year some prospecting parties were out in the ranges between Chalky Inlet and the head of Dusky Sound, but although gold was found in several places, it was not in sufficient quantities to pay for working. Very little, however, is known about this part of the country, and it has heretofore been looked on as a *terra incognita*. The rough and broken nature of the land, which is as yet unopened by tracks, together with the moist climate, have prevented prospecting being carried on for any great distance back from the different bays of the inlets, where provisions and tools can be taken by boats.

The quantity of gold obtained from the goldfields of Otago last year was 76,393oz., having a value of £308,070, while the total production since the field was opened was 5,130,985oz., representing a value of £20,283,482.

COAL-MINING.

The coal-mining industry is steadily increasing, but, as mentioned in my last statement, the output from the mines depends entirely on the consumption within the colony. No foreign market has yet been found as an outlet for our coal, and until coal can be disposed of outside the colony, we cannot expect a large increase in the output from the mines. Although there are a large number of mines opened up, the class of coal suitable for export is confined to very few of them. The best bituminous coal-mines are restricted to the west coast of the Middle Island. The other mines from which coal can be got suitable for marine purposes are at Hikurangi, Kawakawa, and Ngunguru, in the northern portion of the Auckland Province, but the coal from these mines is decidedly inferior to the bituminous coal found in the Middle Island. The coal from the Waikato mines, and also from the mines in Canterbury and Otago, is only suitable for household purposes and local industrial consumption. The West Coast must, therefore, be looked on as the only place where mines are as yet opened from which coal can be obtained to supply foreign markets.

The total output from the mines of the colony last year was 719,546 tons, while for the former year it was 691,548 tons. This shows an increase in the output last year of 27,998 tons. The coal imported last year amounted to 112,961 tons, as against 117,444 tons for the previous year,—a decrease last year of 4,483 tons. Of the coal imported, 2,079 tons came from the United Kingdom, 110,180 tons from New South Wales, 701 tons from Queensland, and 1 ton from Victoria. The total quantity exported was 79,943 tons, of which 75,004 tons was from New Zealand mines, and the balance from coal imported from other countries. Of the quantity exported, 54,494 tons was used in coaling direct steamers leaving for the United Kingdom, and accordingly may be treated as consumption within the colony, as the employment of these steamers depends entirely on the growth of traffic springing up between New Zealand and the Home-country. Therefore, on this basis, the consumption of coal within the colony last year should be reckoned as 807,058 tons, as against 784,704 tons for the previous year—an increased consumption of 22,354 tons, which, I think, indicates the steady growth of other industries.

Taking the quantity of coal imported last year, the following will show the ports the coal was delivered at—namely: Auckland, 27,798 tons; Wellington, 15,542 tons; Christchurch, 37,172 tons; Dunedin, 6,063 tons; Napier, 5,573 tons; Nelson, 519 tons; Invercargill, 1,245 tons; Wanganui, 1,976 tons; Timaru, 7,996 tons; Oamaru, 2,562 tons; Poverty Bay, 1,144 tons; New Plymouth, 123 tons; Picton, 687 tons; and Kaipara, 1,780 tons.

Taking the different classes of coal produced last year, there were 418,895 tons of bituminous coal, 102,389 tons of pitch coal, 170,825 tons of brown coal, and 27,753 tons of lignite. The increased production last year was 37,688 tons of bituminous coal, 14,661 tons of brown coal, and 4,331 tons of lignite, while there was a decrease in the production of pitch coal of 28,682 tons.

The mines with the largest output were: The Westport Colliery, 215,770 tons; Brunner, 121,185 tons; Kaitangata, 67,091 tons; Taupiri Extended,

30,426 tons; Blackball, 27,060 tons; Allandale, 19,442 tons; Walton Park, 19,282 tons; Shag Point, 15,082 tons; Taupiri Reserve, 13,877 tons; Kiripaka, 13,655 tons; Hakanui, 12,690 tons. The output from each of the other mines in the colony being under 12,000 tons.

Two new mines are being opened up: one at Granity Creek, belonging to the Westport Company; and the other at Coal Creek, belonging to the Greymouth–Point Elizabeth Railway and Coal Company. These mines, when opened up, will be capable of supplying a large quantity of coal. The Blackball Mine is now in fair working order, and is capable of a considerable output should the demand for coal increase. The available coal in the Brunner Mine is now ascertained, from the prospecting operations which were carried on last year, to be confined to a semi-circular area. The thinning of the coal takes place at different parts, and the strata overlying the coal at the different points indicate that a considerable disturbance, or crushing action, has at one time taken place, and that a seam of sufficient thickness, if found, must be a considerable distance further back, towards the Coal Creek lease. It is expected that, unless coal is found in other parts of the Brunner lease, any large output from this mine can only be expected to last for about a couple of years.

Earnings of the Coal-miners.

The earnings of the coal-miners cannot be accurately ascertained, for the reason that in the principal mines the employment is intermittent, the output at the mines being dependent on vessels to take away the coal. The storage at the large mines is comparatively small in proportion to the number of men employed. When they can be fully employed the men earn high wages; but sometimes they are off work for two and three days a week. If there was sufficient storage at the mines, a less number of miners would be sufficient to produce coal to supply the demand, but without storage this cannot be done, as vessels coming into the ports of Westport and Greymouth require to be loaded as fast as possible.

In former years the rate of computation has been based on a labour cost of 6s. per ton produced—that is, the cost of hewing, trucking, and haulage; and, taking into consideration the amount of dead-work which has to be done in every mine, this seems a fair basis of computation. The output last year being 719,546 tons, and 1,899 men being employed in connection with the mines, it would make the average earnings of the miners £113 13s. 5d. a man per annum, or about £2 3s. 9d. per week.

Accidents in Coal-mines.

I have to regret to state that, notwithstanding the strict supervision enforced by legislation for the security of the workmen employed in mines, it seems almost impossible to attain an immunity from accidents. Last year five fatal accidents occurred, and in each instance no blame could be attributed to any one. No better system of supervision can be exercised than by the workmen themselves, as they are daily in the different working-faces, and if they see the slightest relaxation of their employers in providing for their health and safety, on their acquainting the Inspector of Mines, it is the duty of that officer to act upon the information given him, and to see that any just cause of complaint in regard to safety is immediately attended to.

METALLIFEROUS MINING.

Although there are a considerable variety of minerals in the colony, very little has been yet done to develop them. Nearly all our attention has been given to gold, silver, and coal. In the northern portion of the Auckland District a small quantity of manganese-ore is shipped every year, but the low price of this mineral will only permit it to be worked at a profit when the deposit is found close to the sea-board, where it can be loaded into vessels direct. During the last year 534 tons were exported, having a value of £1,156, which is equal to about £2 3s. 3d. per ton.

About 44 tons of antimony was exported last year from the Endeavour Inlet Mine, representing a value of £761, but there does not appear to be sufficient inducement to carry on extensive operations. It is only where rich ore is found that mines can at present be worked at a profit, as the price of antimony is very low.

At Ohaeawai an English syndicate has spent a considerable amount of money in prospecting for cinnabar, and some fairly rich ore has been found, but the large emissions of gas which is seen bubbling and hissing out of the surface of the ground in the vicinity of the workings, together with hot springs, will render the working of any lode in this locality a difficult and hazardous undertaking. In digging up the surface, beds of shaly or peaty formation containing petroleum are met with. On the top of this deposit, and, in some places intermixed with it, small globules of quicksilver are found, which have been distilled from the ore by the heat of the earth. No doubt a considerable quantity of quicksilver exists in this locality, but it seems questionable whether it can be profitably worked without plenty of capital.

KAURI-GUM.

The production of this article of commerce seems to increase every year. There was 8,338 tons exported last year as against 8,317 tons for the year previously, but the average value of the product last year was considerably less than for the former year, as the total value was only £404,567, whereas for the year 1893 it was £510,775, showing a falling-off in the value to the extent of £106,208. The average value last year was only £48 10s. 5d. per ton, whereas for the previous year the average value was £61 18s. 3d. per ton.

The number of people engaged in this industry cannot well be ascertained, but it is known to be the means of providing a livelihood for a large population of both Europeans and Maoris. At the same time, their average earnings must be very small. The best class of gum is naturally becoming scarcer every year, or, at least, it requires more work to find it; but, although the kauri-gum must in the course of time become exhausted, many years will yet elapse before this takes place.

ROADS AND TRACKS.

The great necessity for the construction of roads and tracks becomes plainer every year. Fresh discoveries are constantly being made, requiring means of transit of tools, provisions, and machinery. The broken character of the country in which mining, in a great many places, is carried on almost requires a road constructed up every valley or ravine to get supplies brought to mining claims. The more discoveries that are made, the greater the want of roads will be. A considerable sum has already been expended, and still very little is yet done to open out the back country.

The estimated cost of roads and tracks authorised to be constructed last year was £21,595, and the actual expenditure was £15,160 by direct grants, and £2,295 by subsidies; and the liability on works of this character on the 31st March last was £20,687. During the last thirteen years that the votes for this purpose have been under the control of the Mines Department the expenditure by Government has amounted to £155,188 in direct grants, and £77,309 by subsidies to local bodies.

WATER-RACES.

As I have already remarked, a large supply of water is essential to the successful working of the alluvial drifts. Although there are very large areas covered with a great depth of these drifts, it is only in very few localities that the auriferous layers will yield remunerative returns, considering the cost of driving and timbering. Large quantities of material require to be operated on at a minimum cost, and this can only be done with a good water-supply. This necessitates either the construction of large water-races or extensive reservoirs, and in many instances both of these have to be constructed so as to insure a constant supply of water. The whole of the streams in the immediate locality

of the gold-workings are at present utilised, and still they are quite inadequate to supply the demand for water. As water-races of a costly character will have, in the future, to be constructed to bring in water from the main rivers, provision has been made in the regulations under the Mining Act for granting one-third the cost of construction of water-races having a carrying capacity of twenty sluice-heads and upwards, when it is shown that water is required to supply men having mining claims in the locality, and that the price charged for water from such a supply will be reasonable.

The water-races constructed by the Government, and now working entirely under the control of the Mines Department, are the Waimea-Kumara and the Mount Ida Water-races. These have proved a great boon to the mining community, and have been the means of finding profitable employment for a large number of people, many of whom, had these water-races not been constructed, would have left the colony for other fields. During the last sixteen years the average number of men working mining claims by the aid of these water-races has been 517, and, as each of these men has either a family or some one depending on him for support, it may be asserted that these water-races have been the means of providing a livelihood for a population of about 2,585 persons.

The total cost of the construction of the water-races worked under the control of the department was £348,214. The approximate value of gold obtained from claims worked with water from these supplies is £1,274,082, and the net profit on the working, including the amount paid in gold duty before it was abolished in the Middle Island, was £82,150.

The net profit on the working of the Waimea-Kumara Water-race for the last year was £2,596 13s. 5d. Extensions and deviations now require to be constructed to open up new ground, and also to dispense with a long flume on the Waimea portion of the race which is now totally decayed. These works have been undertaken, and during the last year there was an expenditure of £1,049 incurred upon them, and it will yet take about £4,000 to complete them. When these extensions and deviations are completed the cost of maintenance will not only be cheapened, but a considerable area of new ground will be opened up, which will increase the revenue from the races, and very little expenditure will be required for further extensions for a considerable time.

There was no expenditure upon the Mount Ida Water-race last year beyond the ordinary cost of maintenance, and, notwithstanding the extremely dry season, there was a net profit of £15. The Blackstone Hill Water-race, which was purchased two years ago from the Official Assignee for £1,000, continues to give good returns for the money invested. During the last year £37 was expended in making some alterations, which now brings up the cost to £1,037, and the net profit on last year's transactions was over £129; equal to nearly 12½ per cent. on the capital cost. Taking the whole of the water-races controlled by the department last year, there was a net profit of £2,740 19s. 3d.

The total revenue derived from the water-races last year was: Waimea-Kumara £5,635, while the expenditure on maintenance amounted to £3,038; the revenue from Mount Ida was £1,067, and the expenditure £1,052; and from the Blackstone Hill Race the revenue was £136, while the cost of maintenance was only £7.

PROSPECTING.

A considerable amount of prospecting has been carried on during the past year, and I am happy to state that good results have been obtained in some cases. But there are very large areas of ground, both in the North and Middle Islands, where prospecting operations, if carried on extensively, would be likely to open up much larger fields for mining. A remarkably rich lead of auriferous wash-drift has been discovered at the Blue Spur, in the Westland District, which is likely to extend for a considerable distance. There is a good depth of wash-drift, and some of it yields as much as 3oz. gold to the load. At Reefton, in the Keep-It-Dark Mine, and also in the Wealth of Nations Mine, new quartz lodes have been found at deeper levels than hitherto worked, containing good payable ore. In the North Island, an auriferous lode has been struck in

a bore-hole from the bottom of the Kapanga Company's shaft, at 1,000ft. below the surface. At Waihi, richer stone is being got at the lowest level in the mine than was obtained near the surface; and also in the Crown Mine, at Karangahake, the richest ore is being obtained at the deepest level. All these discoveries have given more encouragement to continue prospecting operations. Large prospecting areas in the back country, where scarcely any prospecting has been done, have been applied for, and an offer has been made to deposit a considerable sum of money as an earnest that all conditions with regard to systematic prospecting operations on the areas applied for will be complied with.

Two parties were equipped last year to prospect the south-western portion of the Middle Island, between the Waiau River and Dusky Sound. One of the parties found gold in several of the beds of the creeks flowing into Chalky Inlet, but so far no ground payable for working has been discovered. This part of the country is very difficult of access, and, being devoid of any tracks, prospecting is not carried on to any distance from the shore-line. There is also a difficulty in obtaining regular supplies of provisions. I have deemed it desirable to have pigs, goats, and some deer turned out in the vicinity of the western sounds, so that in a few years men going into the interior can obtain food in the event of flooded streams preventing them getting back to their principal store dépôt on the coast-line. Captain Fairchild has taken considerable interest in this matter, and has already turned out two lots of pigs.

The total amount expended in subsidies last year towards prospecting was £2,379; and the amount of liabilities on authorities issued up to the 31st March last was £3,007.

GEOLOGICAL EXPLORATION.

The geological explorations carried on last year by the Mining Geologist were confined to the West Coast, between the Buller and Teremakau Rivers. About two years ago a geological exploration was made between the Teremakau and the Mikonui Rivers. The great object to be attained is to systematically carry on these explorations so that a complete geological map of the whole colony can be prepared. Instead of making a hurried examination of isolated tracts of country, the explorations in future will be carried on so as to join on to what has already been done, and by this means the different formations can be shown on a map, which will give indications to the miner where to look for the different metals and minerals the colony contains.

A great deal of information was obtained last year in a part of the colony hitherto but little explored, between the Ocean Beach and the Inangahua River at Reefton; this includes a block of triangular form, the sides of which are about fifty miles in length. A geological map of this part of the colony, with the portion of Westland previously explored, and also showing the result of the explorations made in the upper Buller district, will be published with the departmental reports for this year.

MINING MACHINERY.

Information has been collected, as in former years, with regard to the improved appliances for carrying on mining operations, and especially in respect to the cyanide process for the treatment of ores containing gold and silver. Any improved method in the pulverisation of ores, gold-saving appliances, hydraulic elevating, and dredging machinery, tends to admit of lower-grade ores and gravels being operated on successfully, thereby extending the sphere of mining operations. No doubt each person who brings out a new improvement in mining machinery and appliances will naturally claim that his improvement is superior to all others. But by giving publicity to the different machines and appliances, as improved from time to time, we may induce further improvements to be made by other people, which will be of ultimate benefit to the colony generally. Plans of different machines, as well as appliances for the extraction of gold and silver, will be found in the Inspecting Engineer's Report on Goldfields, pages 185 to 255.

SCHOOLS OF MINES.

The Schools of Mines continue to do good work, and the students, when they finish their course of study, readily find employment in connection with mining. Some years ago the Cassel Company sent men out from Great Britain to take charge of the different cyanide plants that the company had erected, but latterly the students from the Thames School have been employed, and have given every satisfaction.

The situation of the Thames School, in the immediate heart of a large mining centre, affords opportunities to many students to attend night-classes while they are earning their livelihood in the mines. This they could not do if the school was not where mining operations are carried on. The subjects taught at this school are: General and Mining Geology, Mineralogy, Mathematics, Land and Mining Surveying, Mining, Applied Mechanics, Hydraulics, Assaying, Theoretical and Practical Chemistry, Metallurgy of Gold and Silver, Physics, Practical Astronomy, and Mechanical Drawing. Several of these subjects are also taught at the Reefton School; but the attendance at that school has not warranted a continuous course of instruction. The instructor has been for a portion of the year engaged at the Denniston and Brunner Schools.

The course of instruction at the School of Mines in connection with the Otago University embraces not only the whole of the subjects taught at the Thames School, with the exception of Practical Astronomy, but it also includes subjects not taught at the Thames School—namely, Biology, Petrography, and Palæontology. But as there are no crushing or cyanide plants attached to this school, as at the Thames, the students have not the same opportunity of acquiring a practical knowledge of the working of these plants. It is, however, gratifying to know that steps are now being taken to have crushing and cyanide plants erected at the Otago School of Mines, so that auriferous and argentiferous ores can be thoroughly tested there in order to ascertain their commercial value.

The expenditure on Schools of Mines last year was £1,709, including £500 paid to the school attached to the Otago University. The total expenditure for the last ten years, since the schools were established, has been £18,855.

SUMMARY OF EXPENDITURE ON WORKS.

The total expenditure on the construction of works authorised by the department up to the 31st March last has been £479,554. Of this amount, £348,120 has been paid by Government, and £101,941 by local bodies, prospecting associations, and mining companies. These works consist of: Roads and tracks constructed from direct grants, £173,940; roads constructed on subsidies, £130,906; water-races, £61,649; drainage-channels, £22,923; prospecting works, £63,958; diamond and other drills, £4,955; wharves, £436; Schools of Mines, assistance given towards the treatment of ore, £19,487; artesian-well boring, £800; repairing flood damages, £500. The liabilities on works in progress on the 31st March last were £29,493. A detailed statement of the cost and of the expenditure on these works will be found in the tables annexed to the Inspecting Engineer's Report, pages 274 to 284.

MINING LEGISLATION.

It is proposed to ask the House to pass a measure amending the Mining Act, so as to give greater facilities, and to afford better security, for carrying on prospecting operations on an extensive scale for gold, silver, or other minerals, excepting coal, in order to afford encouragement to persons who wish to invest their money in mining, and at the same time find profitable employment for the working-classes. It is also proposed to limit the time that any person can hold ground, without either complying with the labour conditions or having the ground, protected without being absolutely forfeited. This will prevent the locking-up of large areas for speculative purposes. Provision is also to be made requiring foreign mining companies to have a colonial register, so that the stock can be dealt with in the colony. I also deemed it desirable

to have a few amendments made in the Mining Companies Act. These amendments have been passed by the Legislature.

It is proposed to ask the House to renew the vote of last session, and thus give effect to the legislation passed last year in regard to prospecting deep levels, construction of water-races and storage-reservoirs, and prospecting, as well as for compensation arising from the proclamation of streams as watercourses into which tailings from mining claims may be discharged. A considerable amount will be required this year to meet engagements already entered into.

CONCLUSION.

In concluding my remarks on the mining industry, I would state that the more I see of New Zealand, and the more conversant I become with the extensive mining operations carried on in different parts of the colony, the more I am impressed with the large asset the colony has in its mineral wealth, and the necessity of granting some assistance towards its development. The construction of roads and tracks will have to be proceeded with for many years to come, in order that the back country may be properly opened up. Encouragement will have to be given to capitalists to unite with the individual miner, so that both may combine in developing the mineral resources of the country, each receiving a fair share of the profits. Prospecting will have to be carried on more extensively in the future, and funds must be provided for granting assistance towards this object. Much of the land where mining is carried on is unsuitable for agriculture; but, nevertheless, the land is none the less valuable, as it is capable of supporting a large population, and of finding an outlet for surplus labour.

No. 1.

TABLE showing the COMPARISON in QUANTITY and VALUE of GOLD ENTERED for EXPORTATION, and also the QUANTITY and VALUE of other MINERALS produced, for the Years ending the 31st December, 1893 and 1894, as well as the TOTAL VALUE since January, 1853.

Name of Metal or Mineral.	For Year ending the 31st December, 1894.		For Year ending the 31st December, 1893.		Total from the 1st January, 1853, to the 31st December, 1894.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Precious metals—	Oz.	£	Oz.	£	Oz.	£
Gold	221,615	887,839	226,811	913,138	12,756,722	50,188,838
Silver	54,177	6,697	63,076	9,743	721,939	160,584
Total gold and silver	275,792	894,536	289,887	922,881	13,478,661	50,349,422
Mineral produce, including kauri-gum—	Tons.	£	Tons.	£	Tons.	£
Copper-ore	..	..	..	..	1,394¼	17,866
Chrome-ore	..	..	..	..	5,666	37,367
Antimony-ore	44	761	331	3,467	3,525	50,268
Manganese-ore	534	1,156	319	943	17,830½	57,263
Hæmatite-ore	..	..	..	..	52½	226
Mixed minerals	25	353	37	650	14,214	70,675
Coal exported	75,004	73,438	69,136	72,699	733,415	733,320
Coke exported	107	160	51	53	15,950	23,803
Coal, output of mines in colony	644,542	322,271	622,412	311,206	8,329,538	4,164,679
Kauri-gum	8,338	404,567	8,317	510,775	168,378½	7,264,763
Total quantity and value of minerals	728,594	802,706	700,603	899,793	9,289,964¾	12,420,230
Value of gold and silver, as above ..	..	894,536	..	922,881	..	50,349,422
Total value of minerals produced, including gold and silver	..	1,697,242	..	1,822,674	..	62,769,652

No. 2.

TABLE showing the QUANTITY and VALUE of GOLD ENTERED for EXPORTATION from NEW ZEALAND for the Years ending the 31st March, 1894 and 1895, and the TOTAL QUANTITY and VALUE from 1857 to the 31st March, 1895.

District and County or Borough.	Year ending 31st March, 1895.		Year ending 31st March, 1894.		Increase or Decrease for Year ending 31st March, 1895.		Total Quantity and Value from January, 1857, to 31st March, 1895.	
	Quantity.	Value.	Quantity.	Value.	Increase.	Decrease.		
AUCKLAND—	Oz.	£	Oz.	£	Oz.	Oz.	Oz.	£
County of Coromandel ..	9,137	37,680	6,049	24,548	3,088	..	..	..
County of Thames ..	7,980	33,113	14,082	57,213	..	6,102	..	..
County of Ohinemuri ..	33,872	127,884	24,950	103,614	8,922	..	..	..
County of Piako	397	1,646	479	1,957	..	82	..	..
County of Manukau ..	6	23	..	..	6	..	..	..
Borough of Thames ..	6,637	27,713	6,866	27,680	..	229	..	..
Te Aroha Town District ..	..	..	..	..	..	..	..	..
	58,029	228,059	52,426	215,012	5,603	..	1,847,980	6,959,604
WELLINGTON	..	..	..	..	..	..	188	706
MARLBOROUGH—								
County of Marlborough ..	1,911	7,626	2,262	9,037	..	351	..	..
Blenheim Borough ..	..	..	..	..	..	..	..	..
Picton Borough	..	..	..	..	..	..	..	..
	1,911	7,626	2,262	9,037	..	351	81,029	315,281
NELSON—								
County of Waimea ..	215	798	181	674	34	..	..	..
County of Collingwood ..	1,418	5,261	1,998	7,467	..	580	..	..
	1,633	6,059	2,179	8,141	..	546	246,615	975,602
WEST COAST—								
County of Buller	18,486	73,619	15,642	62,561	2,844	..	..	..
County of Inangahua ..	15,212	60,834	28,015	112,074	..	12,803	..	..
County of Grey	21,387	85,546	21,663	86,650	..	276	..	..
County of Westland ..	24,611	98,447	28,560	114,244	..	3,949	..	..
Brunnerton Borough ..	..	..	..	..	..	..	..	..
Kumara Borough	579	2,319	715	2,861	..	136	..	..
Hokitika Borough ..	1,520	6,098	418	1,670	1,102	..	..	..
Ross Borough	3,220	12,868	3,917	15,668	..	697	..	..
Reefton Borough	..	..	..	..	..	..	..	..
	85,015	339,731	98,930	395,728	..	13,915	5,517,080	21,921,556
CANTERBURY	..	..	..	..	..	..	48	192
OTAGO—								
County of Taieri	489	1,982	952	3,644	..	463	..	..
County of Tuapeka ..	22,350	90,180	26,070	105,233	..	3,720	..	..
County of Vincent ..	17,250	69,722	18,298	73,858	..	1,048	..	..
County of Maniototo ..	10,638	43,211	10,656	43,056	..	18	..	..
County of Waihemo ..	1,315	5,152	1,778	6,917	..	463	..	..
County of Waikouaiti ..	314	1,226	496	1,936	..	182	..	..
County of Waitaki ..	1,822	7,468	2,397	9,849	..	575	..	..
County of Bruce	647	2,591	131	525	516	..	..	..
County of Lake	12,326	49,302	15,175	61,198	..	2,849	..	..
County of Wallace ..	5,038	20,245	4,855	19,629	183	..	..	..
County of Fiord	884	3,565	340	1,363	544	..	..	..
County of Southland ..	3,248	13,138	3,664	14,722	..	416	..	..
County of Stewart Island ..	67	268	85	340	..	18	..	..
County of Clutha	5	20	8	32	..	3	..	..
Unknown	..	..	..	..	..	..	..	..
Borough of Alexandra ..	..	..	..	..	..	..	..	..
Dunedin	..	..	..	..	..	..	..	..
	76,393	308,070	84,905	342,302	..	8,512	5,130,985	20,283,482
Totals	222,981	889,545	240,702	970,220	..	17,721	12,823,925	50,456,423

No. 3.

TABLE showing the TOTAL QUANTITY and VALUE of GOLD ENTERED for DUTY for EXPORTATION from the 1st January, 1857, to the 31st December, 1894. (This return shows the produce of the various goldfields. Gold entered at Nelson from Hokitika, Greymouth, and Westport is put under the head of "West Coast," and Gold from Invercargill and Riverton under the head of "Otago.")

Year.	Auckland.		Nelson.		Marlborough.		West Coast.		Otago.		Wellington.		Canterbury.		Total.	
	Oz.	Value.	Oz.	Value.	Oz.	Value.	Oz.	Value.	Oz.	Value.	Oz.	Value.	Oz.	Value.	Oz.	Value.
		£		£		£		£		£		£		£		£
1857 ..	..	..	10,437	40,422	..	..	..	..	..	..	..	..	..	..	10,437	40,422
1858 ..	308	1,192	13,226	51,272	..	..	..	..	..	..	..	..	..	..	13,534	52,464
1859 ..	..	..	7,336	28,427	..	..	..	..	..	..	..	..	..	..	7,336	28,427
1860 ..	..	..	4,538	17,585	..	..	..	..	..	..	..	..	..	..	4,538	17,585
1861 ..	..	..	6,335	24,552	..	..	..	..	187,696	727,321	..	..	..	..	194,031	751,873
1862 ..	1,239	4,098	10,422	40,386	..	..	..	..	399,201	1,546,905	..	..	..	..	410,862	1,591,389
1863 ..	4,483	13,853	9,580	37,120	..	..	..	..	614,387	2,380,750	..	..	..	..	628,450	2,431,723
1864 ..	3,448	10,552	14,410	55,841	24,838	95,231	1,463	5,560	436,012	1,689,653	..	..	..	..	480,171	1,856,837
1865 ..	5,449	17,096	12,137	47,030	7,952	30,814	289,897	1,127,370	259,139	1,004,163	..	..	..	..	574,574	2,226,474
1866 ..	5,814	17,463	7,650	29,643	469	1,818	552,572	2,140,946	168,871	654,647	..	..	..	..	735,376	2,844,517
1867 ..	6,637	18,277	9,123	35,918	501	1,978	511,974	2,018,874	158,670	623,815	..	..	..	..	686,905	2,698,862
1868 ..	53,660	168,874	5,999	38,396	404	1,616	405,762	1,608,844	171,649	686,596	..	..	..	..	637,474	2,504,326
1869 ..	132,451	434,687	10,631	42,524	666	2,664	317,169	1,269,664	153,364	613,456	..	..	..	..	614,281	2,362,995
1870 ..	85,534	319,146	12,244	48,692	1,852	7,408	280,068	1,121,525	165,152	660,694	30	120	..	..	544,880	2,157,585
1871 ..	330,326	1,188,708	10,014	40,056	1,867	7,468	232,882	931,528	154,940	619,760	..	..	..	..	730,029	2,787,520
1872 ..	104,890	369,341	8,175	32,700	2,057	8,228	172,574	690,296	157,674	630,696	..	..	..	..	445,370	1,731,261
1873 ..	119,449	437,123	13,697	54,786	1,274	5,050	188,501	756,442	182,416	734,024	..	..	..	..	505,337	1,987,425
1874 ..	76,910	305,068	5,642	22,158	1,198	4,748	157,531	631,203	135,107	542,154	..	..	..	..	376,388	1,505,331
1875 ..	69,485	262,156	4,577	17,866	1,159	4,636	158,678	635,480	121,423	487,632	..	..	..	..	355,322	1,407,770
1876 ..	56,057	221,905	14,018	55,862	450	1,796	133,014	531,274	118,477	473,491	..	..	..	..	322,016	1,284,328
1877 ..	99,081	403,627	5,367	21,092	870	3,197	153,198	612,823	113,169	455,341	..	..	..	..	371,685	1,496,080
1878 ..	55,982	220,454	4,463	17,223	404	1,617	144,634	578,508	105,003	422,277	..	..	..	..	310,486	1,240,079
1879 ..	37,901	154,295	2,993	11,424	879	3,460	142,822	571,061	102,869	407,868	..	..	..	..	287,464	1,148,108
1880 ..	42,720	176,416	3,222	12,223	1,550	5,650	144,090	575,258	113,666	457,705	..	..	..	..	305,248	1,227,252
1881 ..	35,516	141,326	3,453	13,039	1,378	4,531	127,544	509,971	102,670	411,923	..	..	..	..	270,561	1,080,790
1882 ..	33,059	131,007	3,289	12,494	1,352	5,400	130,048	519,978	83,446	333,804	10	37	..	..	251,204	1,002,720
1883 ..	41,291	163,618	2,064	7,724	636	2,524	116,905	467,152	87,478	352,334	..	..	..	..	248,374	993,352
1884 ..	36,087	143,564	2,159	8,002	1,079	4,306	111,686	446,517	78,810	318,932	101	380	24	96	229,946	921,797
1885 ..	42,989	170,416	2,798	10,337	540	2,160	117,861	471,325	73,183	294,378	..	..	..	..	237,371	948,615
1886 ..	32,271	128,140	2,582	9,979	404	1,451	112,671	446,287	79,104	317,543	47	169	..	..	227,079	903,569
1887 ..	30,697	121,564	2,914	10,829	1,041	3,759	98,774	395,430	70,443	279,518	..	..	..	..	203,869	811,100
1888 ..	35,223	139,556	3,027	11,320	699	2,547	100,139	400,405	62,107	247,142	..	..	24	96	201,219	801,066
1889 ..	28,655	113,191	3,252	12,310	5,189	20,167	101,696	406,451	64,419	256,430	..	..	..	..	203,211	808,549
1890 ..	31,745	125,760	2,856	11,049	6,073	24,285	89,096	356,368	63,423	255,976	..	..	..	..	193,193	773,438
1891 ..	45,392	181,185	4,445	16,896	5,649	22,576	109,268	437,126	87,209	349,573	33	132	..	..	251,996	1,007,488
1892 ..	45,555	183,655	2,535	9,604	3,898	15,429	103,106	412,383	82,933	333,467	52	206	..	..	238,079	954,744
1893 ..	45,714	186,553	2,145	8,187	2,165	8,644	99,127	396,516	77,660	313,238	..	..	..	..	226,811	913,138
1894 ..	52,916	211,974	2,860	10,634	2,536	10,123	86,950	347,464	76,353	307,644	..	..	..	..	221,615	887,839
Totals ..	1,828,934	6,885,840	246,615	975,602	81,029	315,281	5,491,700	21,820,029	5,108,123	20,190,850	273	1,044	48	192	12,756,722	50,188,838

No. 4.

TABLE showing the TOTAL QUANTITY and VALUE of MINERAL ORES other than Gold (the Product of New Zealand Mines), COAL, COKE, and KAURI-GUM, EXPORTED from the Colony up to 31st December, 1894.

	Silver.		Copper-ore.		Chrome-ore.		Antimony-ore.		Manganese-ore.		Hæmatite-ore.		Mixed Mineral Ore.		Coal.		Coke.		Kauri-gum.		Totals.		
	Oz.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.	Ounces.	Tons.	Value.
		£		£		£		£		£		£		£		£		£		£			£
1853	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	830	15,972	..	830	15,972
1854	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1,661	28,864	..	1,661	28,864
1855	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	355	4,514	..	355	4,514
1856	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1,440	18,591	..	1,440	18,591
1857	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2,522	35,251	..	2,522	35,251
1858	..	..	351	5,000	3	25	..	..	..	..	..	..	..	..	2	4	..	..	1,811	20,037	..	2,167	25,066
1859	..	..	245	2,605	8	120	..	..	..	..	..	..	..	..	..	..	..	..	2,010	20,776	..	2,263	23,501
1860	..	..	137	1,590	116	1,440	..	..	..	..	..	..	..	..	1	2	..	..	1,046	9,851	..	1,300	12,883
1861	..	..	110	1,300	52	520	..	..	..	..	..	..	..	..	..	..	..	..	856	9,888	..	1,018	11,708
1862	..	..	51	1,024	3,843	24,719	..	..	..	..	..	..	..	..	..	..	..	..	1,103	11,107	..	4,997	36,850
1863	..	..	..	..	595	4,318	..	..	..	..	..	..	..	..	..	..	..	..	1,400	27,026	..	1,995	31,344
1864	..	..	..	..	768	4,910	..	..	..	..	..	..	..	..	..	..	..	..	2,228	60,590	..	2,996	65,500
1865	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1,867	46,060	..	1,867	46,060
1866	..	..	..	..	281	1,315	..	..	..	..	..	..	..	..	261	400	..	..	2,535	70,572	..	3,077	72,287
1867	..	..	246	2,700	..	..	..	..	..	..	..	..	..	..	973	1,228	..	..	2,685	77,491	..	3,904	81,419
1868	..	..	84	977	..	..	..	..	..	..	..	..	..	..	1,027	1,210	..	..	2,690	72,493	..	3,801	74,680
1869	11,063	2,993	..	..	..	..	..	..	..	..	..	..	..	..	750	800	..	..	2,850	111,307	11,063	3,600	115,100
1870	37,123	11,380	7	120	..	..	..	..	..	..	..	..	..	..	1,672	1,508	..	..	4,391	175,074	37,123	6,070	188,082
1871	80,272	23,145	..	..	..	..	..	..	..	..	..	..	..	..	1,696	1,612	..	..	5,054	167,958	80,272	6,750	192,715
1872	37,064	9,910	..	..	..	..	..	..	..	..	..	..	..	..	990	855	21	50	4,811	154,167	37,064	5,822	164,982
1873	36,187	9,850	..	..	..	..	..	..	..	..	..	..	..	..	724	655	..	..	2,834	85,816	36,187	3,558	96,321
1874	40,566	10,380	..	..	..	..	..	..	..	..	..	..	..	..	1,463	1,363	87	228	2,569	79,986	40,566	4,119	91,957
1875	29,085	7,569	..	..	..	..	..	..	..	..	..	..	..	..	3,385	3,129	15	51	3,231	138,523	29,085	6,631	149,272
1876	12,683	3,171	..	..	..	..	..	..	..	..	..	..	3,180	14,824	1,854	1,954	53	189	2,888	109,234	12,683	7,975	129,372
1877	33,893	7,556	..	..	..	..	..	..	..	..	..	..	2,366	9,664	2,658	2,071	25½	72	3,633	118,348	33,893	8,682½	137,711
1878	23,019	5,755	6	115	..	..	4	102	2,516	10,416	..	..	2	8	6,362	5,139	85	177	3,445	132,975	23,019	12,420	154,687
1879	20,645	4,512	55	1,105	..	..	..	..	2,140	8,338	..	..	..	..	7,144	6,187	154	324	3,229	147,535	20,645	12,722	168,001
1880	20,005	4,500	..	..	..	..	60	612	2,611	10,423	..	..	2,674	11,335	7,020	5,977	87	135	4,725	242,817	20,005	17,177	275,799
1881	18,885	4,236	5	36	..	..	2	24	1,271	3,283	..	..	1,955	4,303	6,621	5,610	223	353	5,461	253,778	18,885	15,538	271,633
1882	5,694	1,286	9	41	..	..	30	900	2,181	6,963	..	..	2,784	8,597	3,207	2,380	275	480	5,533	260,369	5,694	14,019	281,016
1883	16,826	3,785	46	678	..	..	31	804	384	1,155	½	12	22	110	6,522	4,879	1,430	2,057	6,518	336,606	16,826	14,953½	350,086
1884	24,914	5,125	20	106	..	..	..	..	318	809	..	..	..	..	6,104	4,461	236	372	6,393	342,151	24,914	13,071	353,024
1885	16,624	3,169	..	..	..	..	666	5,289	602	1,716	50½	208	114	993	43,893	51,257	267	385	5,875¾	299,762	16,624	51,468¼	362,779
1886	12,108	2,946	20	390	..	..	62	1,784	328½	1,316	..	..	445	1,846	46,136	52,133	497	715	4,920¾	257,653	12,108	52,409¼	318,783
1887	20,809	3,453	..	..	..	..	134	3,989	305	895	..	..	144	4,142	44,129	44,650	183½	266	6,791	362,449	20,809	51,686½	419,844
1888	403	71	2	75	..	..	376	6,246	1,085	2,404	..	..	162	2,955	68,087	64,971	953	1,646	8,482	380,933	403	79,147	459,301
1889	24,105	4,043	..	..	..	..	493	5,319	1,080	2,569	..	..	199	9,985	86,405	84,347	2,132	3,407	7,519	329,590	24,105	97,828	439,260
1890	32,637	6,162	..	..	..	..	515	11,121	482	1,004	1½	5	19	273	69,614	67,003	2,218	3,334	7,438	378,563	32,637	80,287½	467,465
1891	28,023	5,151	0¼	4	..	..	413	4,950	1,153	2,634	..	1	2	6	91,664	91,173	2,544	3,658	8,388	437,056	28,023	104,164¼	544,633
1892	22,053	3,996	..	..	..	..	364	4,900	521	1,239	..	..	84	631	78,911	80,225	4,306	5,691	8,705	517,678	22,053	92,891	614,360
1893	63,076	9,743	..	..	..	..	331	3,467	319	943	..	..	37	650	69,136	72,699	51	53	8,317	510,775	63,076	78,191	598,330
1894	54,177	6,697	..	..	..	..	44	761	534	1,156	..	..	25	353	75,004	73,438	107	160	8,338	404,567	54,177	84,052	487,132
Totals	721,939	160,584	1,394¼	17,866	5,666	37,367	3,525	50,268	17,830½	57,263	52½	226	14,204	70,675	733,415	733,320	15,950	23,803	168,378½	1,264,763	721,939	960,525¾	8,416,135

NOTE.—Silver-ore, 37 tons, £1,225.

No. 5.

RETURN showing the QUANTITY and VALUE of COALS IMPORTED into NEW ZEALAND during the Quarter ended the 31st March, 1895.

Country whence imported.	Quantity.	Value.
	Tons.	£
United Kingdom	2,443	2,443
New South Wales	27,342	24,601
Queensland	..	..
Totals	29,785	27,044

No. 6.

TABLE showing the INCREASE or DECREASE in the PRODUCTION of COAL in the Colony, and Imported, Year by Year, during the last Sixteen Years.

Year.	Coal raised in the Colony.		Coal imported		
	Tons.	Yearly Increase	Tons.	Plus or Minus.	Increase and Decrease.
1878	162,218	..	174,148	..	..
1879	231,218	69,000	158,076	−	16,072
1880	299,923	68,705	123,298	−	33,778
1881	337,262	37,339	129,962	+	6,664
1882	378,272	41,010	129,582	−	380
1883	421,764	43,492	123,540	−	6,042
1884	480,831	59,069	148,444	+	24,904
1885	511,063	30,232	130,202	−	18,242
1886	534,353	23,290	119,873	−	10,329
1887	558,620	24,267	107,230	−	12,643
1888	613,895	55,275	101,341	−	5,889
1889	586,445	27,450	128,063	+	26,722
1890	637,397	50,952	110,939	−	17,124
1891	668,794	31,397	125,318	+	14,379
1892	673,315	4,521	125,453	+	135
1893	691,548	18,233	117,444	−	8,009
1894	719,546	27,998	112,961	−	4,483

No. 7.

TABLE showing the OUTPUT of COAL from the various Mining Districts, and the Comparative INCREASE and DECREASE, for the Years 1893 and 1894, together with the TOTAL APPROXIMATE QUANTITY of COAL produced since the Mines were opened.

Name of District.	Output of Coal.		Plus or Minus.	Increase or Decrease.	Approximate Total Output of Coal up to 31st December, 1894.
	1893.	1894.			
	Tons.	Tons.		Tons.	Tons.
Kawakawa	11,307	23,504	+	12,197	822,572
Whangarei, Kamo, Ngunguru and Whauwhau	23,379	16,627	−	6,752	315,790
Waikato	57,251	55,601	−	1,650	767,275
Mokau	781	522	−	259	8,027
Pelorus	..	..	..	..	711
West Wanganui	2,471	2,173	−	298	46,739
Westport	227,178	231,472	+	4,294	1,858,593
Reefton	3,904	3,982	+	78	59,994
Greymouth	138,179	148,245	+	10,066	1,986,698
Malvern	10,700	8,651	−	2,049	304,780
Timaru	1,220	2,105	+	885	10,213
Otago	174,236	185,032	+	10,796	2,735,860
Southland	40,942	41,632	+	690	299,143
Totals	691,548	719,546	+	27,998	9,216,395

No. 8.

TABLE showing the DIFFERENT CLASSES of COAL from the MINES in the COLONY.

Name of Coal.	Output of Coal.		Plus or Minus.	Increase or Decrease.	Approximate Total Output of Coal up to the 31st December, 1894.
	1893.	1894.			
	Tons.	Tons.		Tons.	Tons.
Bituminous	380,901	418,589	+	37,688	4,738,067
Pitch	131,071	102,389	−	28,682	1,435,974
Brown	156,154	170,815	+	14,661	2,751,793
Lignite	23,422	27,753	+	4,331	290,561
Totals	691,548	719,546	+	27,998	9,216,395

No. 9.

TABLE showing the NUMBER of COAL-MINES in OPERATION, the NUMBER of MEN EMPLOYED, and the OUTPUT of COAL per MAN.

Number of Mines working.	Number of Miners employed in each Mine.	Total Number of Men employed.	Output of Coal during 1894.	Average Output per Man.
			Tons.	Tons.
113	1 to 4 men in each	209	50,346	240
12	5 to 10 "	80	27,937	349
4	11 to 20 "	57	19,615	344
19	21 men and upwards	1,553	621,648	400
148		1,899	719,546	378

No. 10.

RETURN showing the QUANTITY and VALUE of COAL IMPORTED INTO and EXPORTED FROM NEW ZEALAND during the Year ended the 31st December, 1894.

Imported.			Exported.		
Countries whence imported.	Quantity.	Value.	Countries to which exported.	Quantity.	Value.
	Tons.	£		Tons.	£
United Kingdom	2,079	2,175	United Kingdom	54,494	56,549
New South Wales	110,180	102,610	Victoria	10	6
Queensland	701	403	New South Wales ..	5,405	6,129
Victoria	1	3	Queensland	200	225
			Tasmania	763	499
			Norfolk Island	48	65
			Fiji Islands	8,214	5,303
			U.S. America, West Coast ..	240	265
			Chili	60	75
			South Sea Islands ..	10,509	10,061
Totals	112,961	105,191	Totals	79,943	79,177

NOTE.—Foreign coal: Included in exportation to—United Kingdom, 447 tons, value £503; New South Wales, 2,018 tons, value £2,512; Fiji, 353 tons, value £441; Chili, 60 tons, value £75; South Sea Islands, 2,061 tons, value £2,208. The remainder is New Zealand produce.

W. T. GLASGOW,
Secretary and Inspector.

Department of Trade and Customs, Wellington, 30th March, 1895.

No. 11.

NUMBER of MINERS EMPLOYED during the Years ending 31st March, 1894 and 1895.

Mining District.	Alluvial Miners.		Quartz-miners.		Totals.		Grand Total.	
	European.	Chinese.	European.	Chinese.	European.	Chinese.	1894.	1895.
AUCKLAND—								
North Hauraki and Coromandel ..	..	..	625	2	625	2	201	627
Thames	..	..	598	..	598	..	650	598
Ohinemuri	..	..	543	..	543	..	454	543
Te Aroha	..	..	16	..	16	..	29	16
Puhipuhi	11	..	..	..	11	..	..	11
	11	..	1,782	2	1,793	2	1,334	1,795
MARLBOROUGH—								
Pelorus	2	..	..	..	2	..	2	2
Wairau	20	..	..	..	20	..	20	20
Cullen's Creek	125	..	..	..	125	..	125	125
Waikakaho	25	..	10	..	35	..	35	35
Wakamarina	60	..	4	..	64	..	60	64
Kaituna and Duncan's Valley ..	7	..	..	..	7	..	7	7
	239	..	14	..	253	..	249	253
NELSON—								
Wangapeka, Baton, and Sherry ..	20	..	..	..	20	..	36	20
Collingwood and Takaka ..	162	2	12	..	174	2	168	176
Motueka	5	..	..	..	5	..	8	5
Inangahua	220	238	293	..	513	238	651	751
Ahaura	587	205	15	..	602	205	819	807
Charleston	137	..	..	..	137	..	150	137
Westport, including Addison's, Northern Terraces, Waimangaroa, North Beach, Mokihinui, Karamea, and Lower Buller Valley	282	..	..	..	282	..	270	282
Lyell	36	16	68	..	104	16	125	120
Murchison	130	40	..	..	130	40	175	170
Owen								
	1,579	501	388	..	1,967	501	2,402	2,468
WESTLAND—								
Ross	150	20	6	..	156	20	170	176
Stafford and Goldsborough ..	420	150	..	..	420	150	570	570
Hokitika and Kanieri	420	45	..	..	420	45	650	465
Kumara	350	100	..	..	350	100	600	450
Greymouth	500	200	6	..	506	200	950	706
Arnold								
Okarito	80	1	..	..	80	1	121	81
	1,920	516	12	..	1,932	516	3,061	2,448
OTAGO—								
Hindon	26	4	18	..	44	4	53	48
Tuapeka	340	260	..	..	340	260	669	600
Clyde and Alexandra	325	130	20	..	345	130	409	475
Cromwell	295	160	25	..	320	160	490	480
Roxburgh	355	75	..	..	355	75	413	430
Black's	135	50	5	..	140	50	176	190
Tapanui	20	20	..	..	20	20	80	40
Waikaia	80	100	12	..	92	100	155	192
Wyndham	18	..	..	..	18	..	40	18
Longwood	220	150	60	..	280	150	470	430
Orepuki								
Roundhill and Wilson's River								
Wakatipu Goldfields—Arrow, Macetown, Cardrona, Kawarau, Bracken's, and Motatapu	300	50	100	..	400	50	450	450
Queenstown	325	50	100	..	425	50	475	475
Naseby, Kyeburn, Clarke's, and Mount Burster								
Hamilton, Sowburn, &c.								
Hyde and Fullerton's ..	355	175	15	..	370	175	550	545
Serpentine								
Macrae's, Strath-Taieri, Shag Valley, Nenthorn, St. Bathan's, and Ida Valley								
Maerewhenua	75	..	..	..	75	..	77	75
	2,869	1,224	355	..	3,224	1,224	4,507	4,448
SUMMARY.								
AUCKLAND	11	..	1,782	2	1,793	2	1,334	1,795
MARLBOROUGH	239	..	14	..	253	..	249	253
NELSON	1,579	501	388	..	1,967	501	2,402	2,468
WESTLAND	1,920	516	12	..	1,932	516	3,061	2,448
OTAGO	2,869	1,224	355	..	3,224	1,224	4,507	4,448
Totals	6,618	2,241	2,551	2	9,169	2,243	11,553	11,412

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