

THE COAL AN HISTORICAL DISCOVERY AND

WESTLAND'S FORESTS. SPECIES OF TIMBER. THEIR QUALITIES AND USES.

Totara (*Podocarpus totara*) very durable, suitable for building purposes, bridges, etc.

Totara (*Podocarpus hallii*) is similar in nature.

Matai (*Podocarpus spicatus*), similar to totara in properties.

Kawaka (*Libocedrus Bidwillii*), very durable and brittle, with soft surface. Suitable for building purposes, furniture, etc.

Silver pine (*Daerydium colensoi*), very durable, brittle, fine in grain and easily worked. It is popularly esteemed "imperishable," and deserves the name. Suitable for railway sleepers, furniture, bridge-building, fencing, etc.

Yellow pine (*Daerydium intermedium*), suitable for railway sleepers, fencing, etc.

Tooth leaves beech (*Fagus fusca*), suitable for bridge-building, mining, etc.

Entire leaved beech (*Fagus solandrii*), not used by settlers. Used in wet tunnels, and withstands heavy pressure.

Northern rata (*Metrosideros robusta*), durability doubtful, first-class firewood,

makes good mauls, handles for axes, picks, etc.

Southern rata (*Metrosideros lucida*), same uses as northern rata.

Kowhai (*Sophora tetraptera*), chiefly used for fencing purpose.

Rimu (*Daerydium cupressinum*), used for house-building, furniture; heartwood durable in all situations; sap does not last well.

Kahikatea (*Podocarpus daeryiodes*), principally used for butter-boxes. Not suitable for building purposes on account of its liability to attack by what is known as "white pine borer."

Miro (*Podocarpus ferryniensis*), not durable. Used for building purposes, fair firewood. Exudes a gum plentifully which is much used and esteemed by settlers, miners, bushmen, and others for cuts, bruises, and forest cracks.

Tanekaha (*Phyllocladus alpinus*), a good lasting wood, but not much used; makes good tool handles, and the bark is excellent for tanning purposes.

Silver beech (*Fagus menziesii*), poor lasting qualities. Used for rough sheds and as fencing posts and firewood. Wood easily worked.

Mountain beech (*Fagus cliffortioides*), very poor lasting wood, principally used as firewood.

Hinau (*Cladocarpus dentatus*), principally used for tramway rails, and for timbering shafts and tunnels.

Kamahi (*Weinmannia racemosa*), used for props for tunnels in mines and fencing. Good firewood; bark of the redwood extensively used for tanning.

Note.—Kahikatea is popularly known as white pine, rimu as red pine, and matai as black pine.

Coal has had nearly as much influence on the development of Westland as gold. The following brief historical account of the discovery and development of the coal resources of the West Coast up to 1910 is taken from an account of the Geology of the Greymouth Sub-division by Mr P. G. Morgan.

Coal is said to have been discovered in the Greymouth district on July 16th, 1847, by Mr Thomas Brunner, well-known as a surveyor and explorer. The discovery was made on the banks of the Grey River, where the Township of Brunner now stands. In Mr Brunner's diary, however, the date is given as January 26th, 1848.

In 1862 tests of the coal were made at Woolwich Dockyard, with favourable results. Mining on the Brunner seam appears to have begun in August, 1864, when 27 tons of coal, brought down the Grey River in boats, was exported to Nelson by steamer. Mr Matthew Batty, who is still living, held the first right, and mined the first coal, probably on the northern side of the river. In 1865 a concern known as the Ballarat Syndicate or Company acquired a lease of the Brunner coal mine, and worked it for some years. One of the conditions of the lease was that a railway should be made from the mine to Greymouth, but as the lessees continued to transport the coal in boats, causing, it is said, considerable damage to the banks of the river, the Nelson Provincial Government cancelled the lease, and for some time worked the mine as a public concern. On January 1st, 1874, a lease on certain conditions as to royalty and output was granted to Messrs Croaker, Hughes and McCarthy. The area held under the lease was 1280 acres, and the term twenty-one years. In 1875 the lease was transferred to the Brunner Coal Company, and in 1877 to Mr Martin Kennedy.

In 1876 the completion of the railway to Greymouth enabled the output of the Brunner Mine to be considerably increased, and for a number of years it appears to have been worked with a fair measure of success. A fault of some magnitude impeded operations for several years prior to 1885, when coal was found beyond the fault, of good quality, though only 8ft thick, or about half the thickness of the seam in the older workings. The want of a reliable harbour was, as it still is, a considerable drawback, causing loss both to owners and employees. On January 1st, 1887, the old lease having been cancelled, a new lease for sixty-three years was issued. This in its turn was cancelled on December 31st, 1894, and replaced by a new lease issued for fifty-six years from that date.

In August, 1888, the Grey Valley Coal Company (Limited), in which the principal interests were the Westport Coal Company, Kennedy Bros., and the Union Steamship Company, was formed. This concern took over the Brunner lease, together with properties then owned or controlled by the Westport Coal Company, and for some years mined and exported all the coal produced in the Greymouth district. In 1890 foreign competition seems to have been severely felt, and in consequence a lowering of the miners' hewing rates was proposed. This and other causes led to prolonged disputes between the Grey Valley Coal Company and its employees. A "lock-out" was in force from July 3rd, 1890, to August 30th, and was followed three weeks later by a strike lasting from September 20th

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to November 3rd, when work was resumed, though for some time not on the same scale as prior to the strike.

In 1895 the Grey Valley Coal Company's interests in the Brunner lease were transferred to the Greymouth Point Elizabeth Railway and Coal Company (Limited), which has worked the property ever since. The coal beyond the fault already mentioned, was about this time found to thin to an unworkable thickness, and, moreover, to be affected by faulting, so that for many years coal-getting was confined to pillars, and no new development-work undertaken.

On the morning of March 26th, 1896, a disastrous explosion took place in the Brunner mine, whereby all who were underground at the time—sixty-six in number—lost their lives. A Royal Commission that enquired into the cause of this catastrophe, found that it was due to an explosion, or series of explosions, of coal-dust, started by a blown-out shot, aided by the ignition of coal gas evolved from the surrounding coal, and possibly locally intensified by the presence of small quantities of firedamp. In December, 1906, work in the old Brunner mine ceased, the pillars having been extracted as far as possible.

Though in many respects possessing natural advantages for profitable working, it may be doubted whether the Brunner mine has proved a remunerative investment for the majority of its numerous owners. Although other drawbacks have had their influence, it is probable that the many changes in ownership are quite sufficient to account for this comparative failure, continuity in efficient management being perhaps more essential to success in mining than in almost any other industry.

The Coal-pit Heath Company having obtained, on January 1st, 1875, a lease of 777 acres on the western side of the Brunner lease, sank two shafts on the northern bank of the Grey River, and for a number of years, from 1878, maintained a fair output. In September, 1887, the lease was transferred to the Westport Coal Company, and in August, 1888, the right of working the mine was acquired by the Grey Valley Coal Company. On January 1st, 1889, the old lease having been cancelled, the Westport Coal Company took out a new lease for sixty-three years. This lease was cancelled in 1893. For some years the Coal-pit Heath mine was worked in conjunction with the Brunner mine, but in June, 1893, it was abandoned.

The Wallsend mine began with a 21 years' lease for about 1000 acres granted to the Greymouth Coal Company in 1875. This concern met with many difficulties, and its history is difficult to trace. At first, it seems a shaft 98ft deep was sunk on what was later known as the Tyneside property. In or before 1879 a shaft 11ft in diameter had been sunk to a depth of about 670ft. After being transferred to a private syndicate, the lease became the property of the Westport Coal Company, who, in 1886, had completed a second circular shaft, 14ft in diameter, near the first. In 1888 the Grey Valley Coal Company acquired all the rights in connexion with the lease, which at this time consisted of 853 acres, 150 acres of the original area having been converted into a freehold. The mine was closed down after the labour troubles of 1890, and the machinery was dismantled and removed.

The old Tyneside mine consisted of grounds sub-leased from the Westport Coal Company by Messrs Kilgour and Wickes about 1885 or earlier. Towards the end of 1888 the Grey Valley Coal Company acquired the sub-lessees' interests, the mine was closed down, and the leasehold rights abandoned. On October 15th, 1901, a lease of 108 acres 2 roods 30 perches, which included the old Tyneside mine, was issued to Mr H. Jones for sixty-six years. In 1902 the lease was transferred to the Tyneside Colliery Company (Limited), who reopened the mine, but in 1903 gave place to the Tyneside Proprietary Company (Limited). In May, 1908, owing to an inrush of surface and river water overcoming the pumps, work ceased within the mine.

The Stillwater Creek Coal Company, having acquired a lease of 640 acres near Stillwater for a term of twenty-

one years from January 1st, 1889, conducted prospecting operations for some time. This company found a seam of coal, good in quality, though only 2ft thick, and dipping at an angle of 45 degrees, but were not successful in finding coal workable at a profit, and the lease was ultimately cancelled. At a later date a lease of 232 acres 3 roods 15 perches was taken up by Mr Malcolm Fleming in the same neighbourhood. The South Brunner Coal Company (Limited) was formed to acquire Mr Fleming's rights, but after a prospecting adit had been driven a few hundred feet the company was dissolved.

The Blackball Coal Company began operations by acquiring a lease of 1914 acres in three nearly equal sections, dated for twenty-one years from January 1st, 1886. At a later date the land was granted to the Midland Railway Company, who sold to the late Sir Edwin Dawes, from whose representatives the Blackball Company is understood to hold its present lease of the original area. Active production began in October, 1893, and, though for a number of years the mine was not a profitable undertaking, it has now entered on a period of prosperity. Until recently the coal was transported from the mine to the railway-line at Ngahere by means of an aerial tram nearly four miles in length. This aerial tram, though a very fine piece of work of its kind, was unsatisfactory, owing to its limited capacity (about 50 tons an hour) and not infrequent breakdowns. Since the end of November, 1909, the branch railway from Ngahere to Roa has been available for transportation purposes, and the production of the mine has been considerably increased. Recently a new area of about 600 acres near Smoke-Ho Creek has been prospected by the Blackball Company.

At an early date leases of several areas north of Greymouth, in the valley of Coal Creek, near Point Elizabeth, at the Nine-mile Bluff, near the Ten-mile Creek, and elsewhere, were obtained by various persons and companies. In 1877 a lease of 1036 acres near the head of Coal Creek was held by the Coal Creek Mining Company. The Point Elizabeth Coal-mining Company at this time held a lease of 3840 acres, extending along the coast from a point between the mouth of the Seven-mile Creek and the Nine-mile Bluff to a point near the Twelve-mile Creek, and reaching from a mile to nearly two miles inland.

On January 1st, 1889, Mr William Simson Smith obtained 2783 acres under three leases, two of which were granted for sixty-six years, whilst the third lease, of 223 acres, was for sixty-five years. In 1891 this area seems to have been in the name of the Point Elizabeth Coal Company, which later apparently became merged in the Greymouth-Point Elizabeth Railway and Coal Company. This latter concern, after acquiring the lease, did a good deal of prospecting, and partly constructed a railway from Greymouth to where it was proposed to open out a mine.

In 1902 the New Zealand Government took over the Point Elizabeth property, and reserved a considerable area of adjoining territory, with a view to operating a State mine. Active development was begun, and the railway completed. About June, 1904, the first coal was shipped away. The boundaries of the State coal reserve were subsequently extended so as to include all public lands on the western slope of the Paparoa Range as far north as the Ten-mile Creek. The reserve includes also a small area on the eastern side of the Paparoa Range. For many years the country towards the head of the Seven-mile Creek was steadily prospected, with very satisfactory results, and the work of development proceeded actively. The new mine was known as Point Elizabeth State Coal-mine No. 2.

In December, 1905, the Paparoa Coal Company was formed to work a lease of 1000 acres (later added to by 197 acres) on the Paparoa Range, near Mount Davy. This area had been prospected by Messrs H. Neilson and F. Cullen, who located a number of coal seams of fine quality correctly stated by them to occur in a horizon below that of the other known coal seams of the district. The Paparoa Company, after making careful surveys, undertook extensive development works, including the construction of a railway (with centre rail) on a grade of 1 in 25 from Blackball to Roa. In November, 1909, the first coal was sent away, and since then the mine has been continuously operated. During 1910 the total output of the mine was 36,596 tons.

In 1904 Mr D. E. Thornton acquired a lease of 1040 acres to the north-east of the Brunner lease. This, in April,

1908, was transferred to the North Brunner Coal Company (Limited), which was actively engaged in developing the area for a considerable time. During 1910 production began on a moderate scale, the output for the year being 10,922 tons.

The output of the various coal-mines in the Greymouth Sub-division to the end of 1910 is shown by the following table:—

	Tons.
Paparoa Mine	43,795
Blackball Mine	1,313,125
South Brunner (closed) ..	130
North Brunner	10,922
Brunner Mine (including St. Kilda section)	2,265,465
Coal-pit Heath (closed 1893)	677,190
Tyneside (closed 1908) ..	295,059
Wallsend (closed 1890) ..	205,539
Greymouth Wallsend (closed)	3,973
Point Elizabeth State Coal-mine No. 1	1,224,571
Total	5,939,769

To the above figures should be added the small amounts of coal produced at Kane's Mine, the Nine-mile Bluff, and one or two other places where a little coal has been mined for some local purpose. The coal sold to mine employees, and possibly some other coal sold locally, are not in all cases included in official returns, nor is the very large amount of slack tipped into the Grey River at Brunner before coke-ovens were built.

The following table shows the progress of the coal-mining industry during the twenty years from 1890 to 1910:—

Year.	Output for Year.	Total Output to Date.
	Tons.	Tons.
1890 ..	118,847	1,380,652
1895 ..	142,124	2,133,335
1900 ..	207,919	2,881,093
1905 ..	275,772	4,017,176
1906 ..	320,840	4,338,016
1907 ..	378,926	4,716,942
1908 ..	375,195	5,092,137
1909 ..	380,971	5,473,108
1910 ..	466,661	5,939,769

MINERAL RESOURCES. A COMPREHENSIVE LIST.

The following list gives some of the many mineral deposits of Westland County:—

- Gold—Throughout the district.
- Coal—Near Lake Kanieri, Koiterangi, Lower Paringa Valley, Bullocky Creek, and near Jackson's Bay.
- Limestone—With the coal deposits.
- Copper—Upper Hokitika Valley, Upper Wanganui Valley, Copper Creek, near Maori River, and on the Red Hills beyond Big Bay.
- Silver-ores—Evans's Creek, Cook River, Mount Argentine, Blue River, Jackson Valley, and Mount Rangitoto.
- Greenstone—Near Kumara.
- Iron—Near Fox Glacier, Lower Paringa Valley, Lower Smoothwater Valley, and in the Upper Cascade Valley, below Jackson's Bay.
- Granite—Teremakau Valley, Island Hill, Mount Tuhua, and Upper Hokitika River.
- Freestone—Oira Valley, Koiterangi, Abbey Rocks, and Smoothwater Valley, near Jackson's Bay.
- Asbestos—Red Hill country, near Cascade River.
- Tremolite occurs in Quartzite at Hokitika, Kanieri, and Milford Sound.
- Actinolite occurs in metamorphic rocks of Westland, and in a light green variety of hornblende. Greenstone is composed of minute densely-matted fibres of actinolite.
- Chromium occurs abundantly in the bright green mica called fuchito, found at Rimu, near Hokitika.