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COAL IN TASMANIA

by D. BESFORD

The known deposits of coal in Tasmania occur within the Permian, Triassic and Tertiary Systems.

The Carboniferous System is absent in Tasmania. The basal bed of the sedimentary system is a glacial conglomerate which is overlain by a marine formation. This marine formation has been correlated with the Lower Marine Series of New South Wales.

Following these marine beds is a freshwater series which has generally been regarded as correlating with the Greta Coal Measures of New South Wales. Associated with this freshwater series are several thin seams of coal ranging in thickness from about eight inches to 24 inches in the Preolenna area and about 27 inches in the Mersey and Don Valleys near Devonport. Thin seams also occur at Mt. Pelion and Barn Bluff. The coal seam in the Mersey Valley area is only a few feet above sea level while the seams at Barn Bluff and Mount Pelion on the Central Highlands are approximately 4000 feet above sea level, the two areas being about 44 miles apart. Selwyn reported that he visited the Mersey and Don Valleys in 1854. Two seams, one two feet two inches and the other two feet four inches thick, were then being worked by Dean and Denny on the River Don. The seam in the Mersey Valley rarely exceeds two feet in thickness.

Coalification at Preolenna and in the Mersey area has continued into the bituminous grade and the maturity of these coals is almost identical with the coals of the Mainland Greta beds; these coals, however, are fairly high in sulphur content (about 6%) which restricts their use to some extent as gas coals. The coal in the Mersey Valley has a fairly high moisture content, it being in the region of 10%, but the Preolenna coal contains only about 1½%. The heating value of these coals, ranges between 11,200 and 12,200 B.T.U. per lb. as mined, while the ash content varies between 6½ and 13½%.

The coal from this series may be regarded as tending towards the highest quality of Tasmanian coal.

Overlying the freshwater series are formations of mudstones and sandstones and these have generally been regarded as correlating with the Upper Marine Series of New South Wales.

In a few places in Tasmania this Marine Series passes up into freshwater beds which have been correlated with the Tomago or Newcastle Series of New South Wales. Two coal seams occur in this series at Cygnet, one about 12 inches thick and the other up to four feet thick. The Mines Department Report of 1901 states that coal winning was being carried out at that time in a seam four feet thick. A 20-inch seam of coal was worked at Bruny Island and a 30-inch seam including stone bands occurs at Mt. Pelion (24 inches of coal). The greatest production of coal from this series has come from the Cygnet area where the coal produced was classed as sub-anthracite. The coal burnt with a slightly luminous short flame with little smoke. The fuel ratio ranges between six and

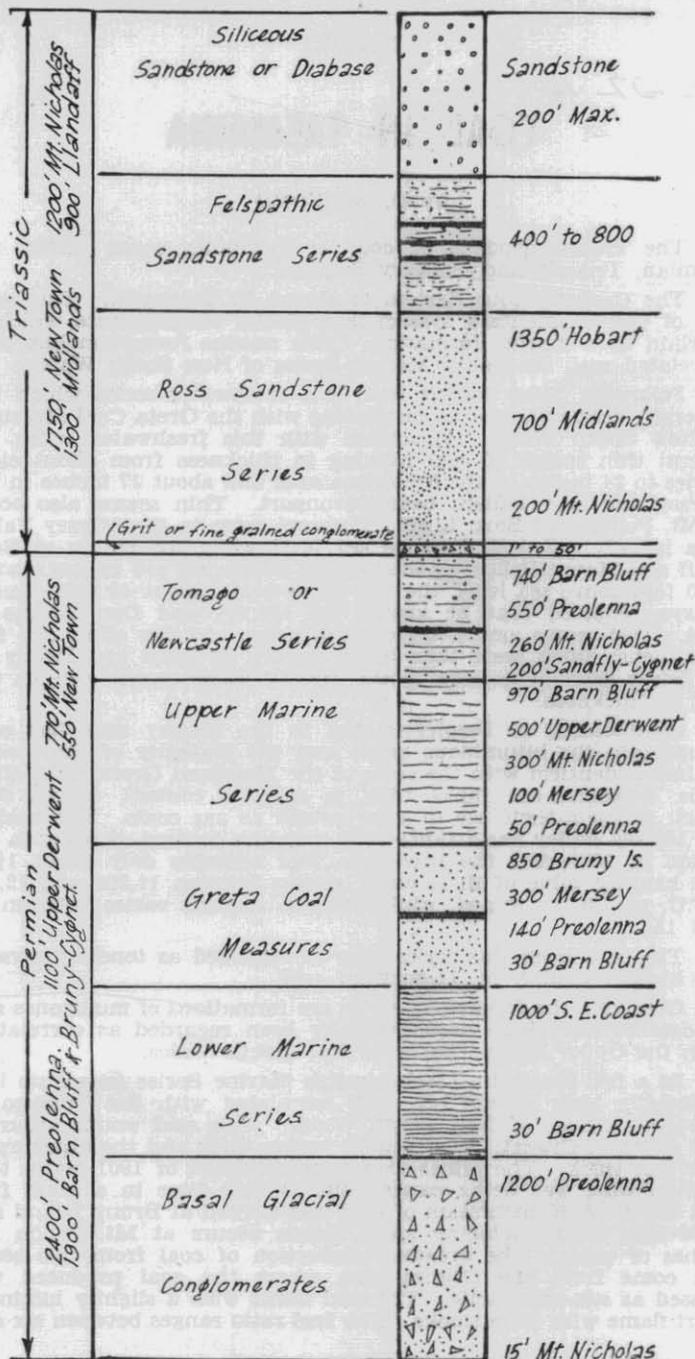
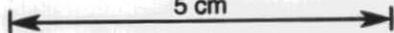


Plate 32

5 cm



eight and this range agrees with the lower ranking semi-anthracites of the A.S.T.M. classification, and also with that of the bulk of the Dawson-Mackenzie semi-anthracites of Queensland.

The most important coal seams occur in the Triassic System which appears to conformably overlie the Permian System. The basal beds of this system consist of a grit or fine grained conglomerate which is succeeded by a siliceous sandstone of freshwater origin known as the Ross Sandstone. This sandstone is characterised by the presence of white mica and is white to yellowish-brown in colour.

Overlying this siliceous sandstone is the Felspathic Sandstone Formation which contains the major coal seams. The Formation consists of felspathic sandstones, shales, mudstones, and coal seams. The principal coal seams occur in north-eastern, eastern and south-eastern parts of the State, and a maximum of eight seams is developed ranging from about 1 to 16 feet in thickness including stone bands. The seams at present being mined range between four and a half feet and nine feet thick.

This series of freshwater beds is overlain in some places by siliceous sandstone but in other places by dolerite.

The Tertiary coals occur near the base of the System in the Launceston Basin, the Upper Derwent, on the North-West Coast and at Macquarie Harbour. The coal is a lignite or brown coal occurring in comparatively thin seams from which little coal has been produced.

The first discovery of coal in Tasmania appears to have been made by Labillardiere and his party of explorers early in 1793 when they were on a voyage in search of La Perouse.

The record is contained in Labillardiere's report in which he states that they were anchored in Rocky Bay in the south-west of Recherche Bay. They had apparently spent a month in the area during the previous year but on this occasion they decided to visit the highest of the mountains in that part of New Holland, as it was then known. They estimated that it would take five days to make the journey so they set off on the morning of the 2nd February with a tolerable stock of biscuit, cheese, bacon and brandy, their usual store on distant excursions. When they had proceeded about half way to the South Cape (which is now the South East Cape) they found an opening through the woods which allowed them to travel westward as far as the foot of the hills which they had to cross. Having crossed these hills they entered the thick forest with only the compass to guide them. They proceeded slowly in a northerly direction through the dense forest where travelling was very difficult due to the fallen trees, many of them having been blown down by the gales.

After a very laborious walk they at length reached the summit of a mountain whence they could see the waterway at South Cape to the south and the high mountain to the north-west. This mountain was then covered with snow and it is assumed that it would be the mountain now called La Perouse. Night came upon them so they lit a fire around which they spent the night.

The party resumed their journey at daybreak and continued in a northerly direction. Their difficulties increased more and more due to the huge trees lying one upon another across their path.

They arrived at the top of another mountain late in the day and from this point were able to look across a long valley to the foot of the mountain which had been their objective. Labillardiere stated that the intermediate space appeared to be about 18 miles and it was covered with forests as thick as those through which they had penetrated. It was estimated that it would take at least another two days to reach the mountain assuming that they were not retarded by extensive marshes which they could not see. As the return journey would take nearly as long as the outward journey it was certain they would not have sufficient provisions for the journey to the high mountain. They therefore gave up their original plans.

They decided to travel in a south-easterly direction towards South Cape and spent the night on the skirts of the forest near a rivulet which runs to the foot of the mountain.

Owing to the difficulty in penetrating the forest it was decided to follow the shore and they started out towards the sea. After surmounting the greatest difficulties they penetrated through the thick woods and were able to continue the journey along the seaside.

It is then recorded, "the side of the mountains being exposed for a considerable extent we observed a horizontal vein of coal the greatest thickness of which did not exceed one decimeter (3.9 ins.). We noticed it for a space of more than 300 yards. The stratum beneath it was sandstone and above it a dark schist. From these indications I presume that excellent coal may be found in abundance at a greater depth. It is well known that the richest mines of this fuel are commonly found beneath sandstone".

He goes on, "Cliffs became more and more steep and some of them were perpendicular cliffs more than 200 yards in height above the level of the sea".

The party passed two capes to the west of South Cape (now South East Cape) and returned to the latter where they spent the night being tormented by "moschetos".

The party returned to their ship on the afternoon of the 5th and left Recherche Bay on the 7th February.

The next discovery appears to have been made during the time when Lieut. John Bowen formed a settlement at Risdon Cove, as reported by Governor Collins to Governor King in a letter dated, 26th February, 1805, in which he refers to Pitt Water (which he named after the then Chancellor of the Exchequer).

"At the head of it is a run of water which leads to a Stratum of Coals that was discovered during Mr. Bowen's Command, and which, when more at leisure, I mean to examine". (H.R.A. 111 i. 347).

The first party arrived at Risdon Cove on the 8th September, 1803, and Lieut. Bowen arrived three days later. Collins took over from Bowen in February, 1804, when the new settlement was made at the present site. As coal was apparently discovered during Mr. Bowen's Command, as reported by Collins, it must have been found between September, 1803, and February, 1804, and the place was on the banks of what is now known as the Coal River at the head of Pitt Water.

Again in 1810, Governor Collins reported to Governor Macquarie that "veins of coal are found in various places; in the interior are several salt lagoons and the existence of a rich iron ore has been ascertained". (H.R.A. 111. i. 433).

Governor Macquarie in writing to Lieut.-Governor Davey from Government House, Sydney, on 10th September, 1813, states (p. 20), "The specimens of lime, coals, and hemp of Van Diemens Land which you sent me per Mr. Meehan have come safe to hand and will no doubt in time prove valuable acquisitions to the Colony in general as well as to the settlement of the Derwent in particular. When it is more clearly ascertained that the lime quarry lately discovered by McCoy is really useful and that no trick or imposition has been practised by him, I shall have no objection to grant him an Emancipation as a reward for this important discovery. In the meantime you may indulge him with a Ticket of Leave to go to work with his own hands".

On page 35, Governor Macquarie refuses to grant land to a Major Geils at the Coal River on account of the very proper objection made by Lieut.-Governor Davey that "the Coal Mine must be exclusively reserved for the Crown".

It is evident that there were discoveries of coal in several places prior to 1813 including that at Coal River and it is possible that samples had been collected from the seams at the head of this river. We could therefore say that the third discovery was possibly the seams at the head of the Coal River which was later called Jerusalem.

It should also be noted that Governor Collins states that "veins of coal are found in various places and the existence of a rich iron ore has been ascertained". This could mean that coal had been discovered in Norfolk Bay, and Ironstone Point could have been regarded as an important iron ore.

The Hobart Town Gazette of 15th June, 1816, gives an account under the heading of Mr. Dennis McCarthy who states:—

"To gratify my mind respecting the Harbour and River lately discovered on the West Coast of Van Diemens Land by the name of Macquarie Harbour and the Gordon River, I for the second time sailed in my brig (The Sophia) for that harbour. On the 5th day we came to anchor outside the harbour in seven fathom water to wait for the tide as the current runs at the rate of six or seven knots an hour and there not being one and a half fathom over the bar, &c.

"We then continued our course up the harbour in a whale boat; having advanced about 10 miles further we found on the Northern shore a quantity of Coal. The first we observed was on the beach and washed by salt water, an immense bed, but how deep we could not ascertain. On further inspection we found the bank from the river was nearly all in Coal in strata of 6 ft. thick, then a few feet strata of Clay and then Coal again; we much lamented the impossibility of proceeding with the brig to this place."

He goes on to describe his course up the harbour to the entrance of the Gordon River which he computed to be about 50 miles and states that "there is no doubt but any vessel that can cross the

bar at the entrance may go within half a mile of the falls and lay at anchor within ten yards of the Coal Mine".

The Editor comments "in addition to the above great discovery of an inexhaustible mine of Coal, Coal has been found at various places on the Isle, and more is likely to be discovered on continuing researches. Good Slate has been found and a Limestone quarry has been opened and worked within a mile and a half of Hobart Town. We cannot but applaud the enterprising mind of Mr. D. McCarthy in exploring this harbour. Scarce had the discovery been announced by Mr. Kelly than he resolved to visit them".

Giblin reports that coal had been roughly examined when Commissioner Bigge visited the Colony in 1820, and a map engraved by Chas. Thompson, Edinburgh, from the original survey brought home by Capt. Dixon of the ship Skelton of Whitby in 1824 is marked "Plenty of Coal Here" at the head of the source of the Coal River above Jerusalem. This map also shows coal at the northern shore of Adventure Bay on Bruny Island and at Macquarie Harbour. These discoveries had been made prior to the survey carried out by Capt. Dixon who visited Tasmania in 1823. (The ship Skelton visited Tasmania on the 24.12.21 and again on the 6.6.23 with J. Dixon as Master.)

What has generally been regarded as the first discovery of coal in Tasmania was made by J. Hobbs about eight years after Mr. McCarthy's find at Macquarie Harbour, and must be placed at least fourth of the recorded discoveries, and it is possible that there were other discoveries which were not recorded.

Hobbs left Hobart Town on the 5th February, 1824, on a tour of discovery round Van Diemens Land with two boats and 12 convicts (whose sentences were for life). In his report he writes that he proceeded into the head of the South Cape where he was detained for 10 days due to excessively bad weather and this gave him an opportunity of examining a "substance much like, if not exactly, good coal and slate". Specimens were collected and forwarded for the Governor's inspection. Hobbs stated that there were immense cliffs 50 to 100 feet high which stretched for nearly a mile and he observed three different seams of coal extending in a line perfectly horizontal. All the beds were in sandstone. The first stratum close to the water's edge was about five feet above the water level and probably continued beneath it, then came eight feet of sandstone and two feet of coal. The uppermost of the three seams was about two feet thick and also placed upon sandstone. He suggested that it was not improbable that coal might be inside these cliffs, and should this become an object of public utility which would not be unlikely, because of the scarcity of firewood about Hobart Town, its conveyance could, in a most easy manner be effected by making a road over the range of sandy land for about one and a half miles and then cutting a canal to Recherche Bay where boats of any burthen could with perfect security take the cargoes to Hobart.

This appears to have been the first real description of seams of coal for Hobbs tried to give the thickness and the positions of the seams. They were later inspected by Thos. Scott a surveyor, Hobbs himself, and a practical miner R. A. Roberts who found that the lower seam was three feet four inches thick and consisted of alternate layers of coal and black stone, mostly the latter.

They explored to a depth of about seven feet and reported that the coal appeared to be improving but they stated that the vein would not be worth the expense of working, owing to the rugged nature of the country in which it was situated and the length and difficulty in forming a road to a seaport.

The report also states that "From coal and limestone being found at Hobart and also at New Norfolk we conceive that the veins of these minerals run all the way to the South Cape".

These men visited Adventure Bay and reported that the coal seam was very thin. They also found evidence of coal in the Huon inlet.

Coal was imported from Sydney in 1826 when the Atlanta landed 24 tons of coal which was sold to Th. Stokes at 45/- a ton on August 15th, 1826.

The first record of mining operations appears to be contained in "The Courier" February 14th, 1834, where the editorial refers to a cargo of coal brought from N.S.W. by the Amity to supply portion of a tender which had been undertaken for the Government to be used instead of firewood. The article criticises the Governor for the additional heavy out-of-pocket balance of trade between the Colony and N.S.W and continues:—"Next to ourselves we wish to see the Colony of N.S.W. prosper. Our interests are and should be mutual but we ought to be sparing in making such unprofitable purchases. In-so-far we consider it fortunate that the Coal Mine now opening at Port Arthur is likely very speedily to be brought into production. The shaft we learn has already been sunk 60 feet and the Director of the Works estimates that 20 feet of depth more will suffice. The stratum of which indications have been found at other parts is of the purest kind, superior to that now dug up at Newcastle. Independent of its use in keeping our means within ourselves the working of it will afford an admirable and safe means of punishing and employing the worst class of offenders that are usually sent to Port Arthur".

Although the editor states that the shaft was down 60 feet it would appear that the first opening was a tunnel or adit into the side of the hill near the waters edge, for the Capt. Commandant at Port Arthur in a letter to the Colonial Secretary on the 7th June, 1834, writes:—

"Sir,

I have the honour to report that the Schooner Kangaroo left Sloping Main for Hobart Town with a cargo of coal on the 3rd instant. An invoice was not sent with her as we have not yet the means of ascertaining the quantity shipped on board. Arrangements to this effect will be made as soon as the mine is in a little more advanced state. The coals forwarded can hardly be expected to burn freely as they are little more than surface coals, but under any circumstances it is of course of infinite satisfaction to me to be enabled to forward a cargo of that description from the peninsula and from information I can obtain I feel little doubt that it will eventually prove of good quality.

Sgd. Capt. Comm."

This is the first record of coal produced and on the 10th June, the Port Officer at Hobart reported the arrival of the coal from

Norfolk Bay per Schooner Kangaroo and asked for instructions on what to do with the cargo. The Governor suggested that the coal might be used in the Kings Yard instead of charcoal which was then used in the forges, but if the coals were not suitable then the Colonial Secretary was to decide what to do with them.

The Director of the Kings Yard then tried out the coal to see if it was suitable and the following report was forwarded to the Colonial Secretary:—

“The coal referred to has been tried out in the forges but being mixed with other substances vitrifies too quickly and is not therefore suitable for smiths' work, but probably when the mine is opened up further, the coals will be unadulterated and will then answer extremely well.

Sgd. James Simmons D.K.Y.”.

It should be noted that right from the beginning of coal mining in Tasmania, there has been the problem of adulteration with other substances.

The Colonial Secretary reported:

“Having tried the coals and found them but indifferent, I however quite agree with the Commandant that the quality will improve lower down in the mine, they are certainly a very good specimen of **Surface Coals**.

Sgd. J. Burnett, Esq., Col. Sec.”

The report (12.6.1834) is also signed by the Governor who states:—“His Excellency has also tried the coals and concurs with the Col. Sec. in thinking them a very good specimen of **Surface Coals**”.

When the coal was found to be unfit for the Kings Yard a problem arose as to how the coal could be disposed of as it could not be supplied to the Military or Convict Establishments without a breach of faith to the contractor, for when the contract for the supply of coal was accepted by the Government it was implied that none was to be furnished through other sources. As a result of this difficulty the vessel lay in the Harbour for nearly three weeks when the Governor ordered that the cargo be sold in small lots and the coal was then sold at from 15s. to 19s. per ton.

The next cargo arrived on the 7th July and the Colonial Secretary asked the Port Authority for a report on the quantity and quality and also asked for a specimen to be forwarded for trial. The Harbour Authority reported that the quantity was about 12 or 13 tons and the quality better than the last. With regard to the specimen forwarded for trial, the Secretary reported:—

“I have tried these coals and do not find them in any respect better than the last, they are mostly slate.

Sgd. Colonial Secretary.”

The Port authority was instructed to sell the coal in small lots.

The next cargo arrived on the 12th September and the Colonial Secretary requested the Port Officer to ascertain the landed cost of these coals to the Government. The Port Officer found difficulty in forming an estimate but stated that if the Tamar could do the trip in three weeks and brought 120 tons per trip the cost would be 9s. 6d. per ton. The Colonial Secretary then instructed the auctioneer to sell the coal for 10s. per ton.

The coal was apparently being stock-piled at the mine, for on the 14th November it was reported that 200 tons of coal were waiting to be shipped and that the coal was being exposed to the weather and was much in the way of the miners. The Colonial Secretary replied that at the end of the present contract the Government would supply fuel for Military, Convict and Colonial purposes and estimated that 1000 tons per year would be required for Hobart and 235 tons for Launceston.

By the end of November something like 400 tons of coal had been raised from the mine and in an estimate of the expenses 42 prisoners were calculated at 1s. per day, so that it would appear that 42 prisoners were employed at the mine during the first year. About 600 tons were raised to the end of the year and the coal was costing 5s. 8d. per ton prior to shipment; the cost being solely for labour.

In the year 1835 about 2000 tons were shipped and in 1836 about 3000 tons. Between 1st January, 1837, and the end of March, 690 tons were shipped from Coal Point.

Coal was also brought from Slopem Island in 1836 when 420 tons were landed per Eveline on September 9th. Another cargo was landed on 30th September, 1836, so that the convicts apparently worked this mine as well as that at Coal Point.

There are no official records of the mine and information regarding the conditions can only be gained from individual accounts of visits. These accounts record the first attempt to mine and market Tasmanian coal, although coal could have been produced prior to this on a small scale.

In the report which James Lampriere published in 1839, it is stated that two jetties had been constructed to allow vessels to be loaded. Rail and tram roads were laid on both jetties and waggons containing 196 lb. of coals were propelled by labourers. A vessel of 100 tons burthen could be loaded in seven hours.

The military force at the station was then one Officer, 28 N.C.O.'s and Privates. Captain Hill was the officer and he was also a magistrate.

According to the report, the number of prisoners at the mines was 150, distributed as follows:—

Miners not under sentence	27
Miners under sentence	2
Blacksmiths, carpenters, masons, &c.	18
Servants, woodcutters, signalmen	36
Labourers	67

Total 150

Lampriere writes, "The miners work by task which must be completed whether day or night in 24 hours. There are only 11 miners who actually get the coal; their task is 30 waggon loads within the 24 hours or 5880 lb. each. The total quantity of coals produced is about 50 tons per day.

"The coal has improved since the first discovery but shows no symptoms of further improvement. It is inferior in quality but being sold so much cheaper than the coals from N.S.W. (the former selling at 11s. to 12s., the latter at 30s.) it is in great request in Hobart Town. It burns to a white ash and keeps alight for an

incredible length of time. The most disagreeable feature attending the Port Arthur coals is that when first lighted they crack and throw out small pieces in great quantities to the detriment of carpets, furniture, ladies' gowns, &c. There appears to be little bitumen in its composition.

"The works underground occupy a great space. There are two water levels, the lowest of which is 150 feet below the level of the sea. A steam engine pumps out the water. There are two shafts at work at Coal Point and one sinking at Five-Mile Beach where a vein of coal has been discovered, the first seam of which was seven inches thick. The average thickness of the seams at the mine is five feet. There appears to exist serious apprehension that the coal mine will fail. Even at the present time the roads are working backwards, but perhaps when engines are obtained so as to draw off the water, fresh seams may be discovered by sinking deeper. At present the only means of drawing off the water so as to keep the works in actual operation dry, is by buckets worked by two men who upon an average raise 100 gallons per hour".

Lampriere states that a person by the name of Lacey, once a practical miner at home, was appointed to conduct the works. Although an uneducated man, his natural genius enabled him to overcome the many obstacles which obstructed his way so that he succeeded in bringing the mines to the state they were now in, and very deservedly obtained his freedom from the Governor and his services were retained at a moderate salary.

The prisoners considered it a punishment to be sent to the mines, they were however, not exposed to more severe labour than at Port Arthur; they were under the same restrictions and had the same rations. The term "Coal Mine" appeared to inspire them with dread.

According to Lampriere's reports the miners had to get 2 tons 12½ cwt. per shift. Whether this was large coal or total coal is not stated but I would expect it to be large coal so that each miner, working eight hours per day would probably have to extract about three tons of coal per day from the face. They must have only worked two shifts per 24 hours as there were only 29 miners employed at the mines and one shaft was being sunk at that time. They had evidently commenced to extract the pillars, for the report states that the roads were working backwards. The work of bailing water from the face would have to be carried on continuously so that six men would be required on water bailing and about 2000 gallons of water had to be baled per day. Lampriere states that a steam engine was employed to pump out the water, but David Burn who went down the mine in 1842 gives the following description:—

"Next morning I descended the main shaft along with Captain Booth; it is 52 yards deep. The winch was manned by convicts under punishment. One stroke of the knife might sunder the rope and then . . . however it has never been tried, deeds of ferocity being very infrequent. A gang on the surface worked the main pump and another below worked a horizontal or slightly inclined draw pump which threw water into the chief well.

"The seam has been excavated 110 yards from the shaft also several chambers diverging right and left. The height of the bore is four feet. The quality of the coal partakes much more of

anthracite than of bitumen, it flies a good deal but produces intense heat. The mines are esteemed the most irksome punishment the felon encounters because he labours night and day eight hours on a spell. Continuous stooping and close atmosphere caused our party to be bedewed with perspiration. I cannot therefore wonder at the abhorrence of the compulsory miner in loathing what I conceive to be a dreadful vocation, a vocation I should think those who had once been forced to, would in future when relieved, most earnestly avoid".

There is no mention of steam, but the winch was manned by convicts and the main pump was also worked by a gang. Lampriere does not state the depth of the shaft, but says that the water level was 150 feet below the level of the sea and perhaps he meant that the shaft was 150 feet deep. Lampriere gives the average thickness of the seam as five feet while David Burn states that it is four feet. Apparently the method of working was Bord and Pillar as Burn says that chambers were driven to the right and left and that the main heading was 110 yards from the shaft.

In a report by Rev. H. P. Fry on penal discipline it is stated that the number of men employed during the year 1848 at the coal mines exceeded 400. The Rev. Fry descended the mine with Mr. Skene the Superintendent. They went down in a bucket. The shaft was 303 feet deep. On reaching the bottom they would have been in complete darkness but for the lights borne by some men who descended with them. "We groped our way with difficulty along passages which were said to be five miles in length. The roof in many places was so low that we were obliged to creep along the passage beneath it. The air was so confined that our lamps could with difficulty be kept burning and several of them went out. A few lamps at long intervals were attached to the walls, but seemed only like sparks glimmering in the mist, and not many yards from them the passage was in perfect darkness. There were 83 men at work in the mines when I visited them, the greater number employed in wheeling the coal to the shaft to be hoisted up. They worked without any other clothing than their trousers and perspired profusely. The men in the mine were under the charge of a prisoner-overseer and a prisoner-constable". Rev. Fry states that it was utterly impossible for the one prisoner overseer and the one prisoner-constable, even if willing, to exercise any supervision over the men in the mine. Few free persons had ventured down, and the chaplain, who had resided several years at the mines, had never been down them.

In the year 1947, 728 men at the coal mines were punished by the Superintendent with solitary confinement on bread and water and 672 were flogged, sentenced to chains, or to solitary confinement by the magistrate, a total of 1400 sentences in that year and it employed 400 men according to Hartwell (*The Economic Development of Van Diemens Land, 1820-1850*).

The demand for coal was not great in Hobart where wood was cheap and plentiful, and only the growth of steam navigation prompted interest in the possibilities of coal production. The first steamer in the Island was an imported 14 horsepower ferry which ran between Hobart and Kangaroo Point in 1832. (*Colonial Times*, 10th September and 25th September, 1832.) The second steamer, with the first marine engine built in Australia, was launched in

1834 and a third, a 60 horsepower steam tug from Greenoch, was used for towing ships down the Tamar after 1834 (Colonial Times, 12th September, 1834).

There do not appear to have been any private companies formed for the purpose of coal mining until 1840 when a man named Charles Swanston and eight other gentlemen intimated that they intended forming a company to work mines at Southport, and suggested that the Government sink the shaft, while the company would provide the materials. If the mine proved satisfactory, the company would take it from the Government, the latter to provide sufficient convicts to work the mines which were to be leased to the company for 99 years at a yearly rental of $2\frac{1}{2}\%$ of the profits. Swanston claimed that there was a considerable demand at that time in the market for coal, and he stated that the poor were paying immensely for this article and that it appeared fair and just to afford every assistance to the coal company. (Executive Council Minutes 30th December, 1841 and 11th June, 1842.)

The Hobart Town Gazette (11th February, 1840 and 18th February, 1840) stated that the Southport Coalfield was leased to the company for 99 years, and that convict labour had been allowed, under certain Regulations of Superintendence to sink the shaft so that the Government apparently partly agreed to Swanston's proposals.

The company's shares appreciated quickly during the 1840 boom advancing from 10s. to £10 (Hobart Town Court Files, 1840). This company did bring some coal to the Hobart market in 1842 but the cost of mining and of transport were too great and the demand too small for the company to operate profitably and the mine ceased to function after 1842, so that it can be supposed that the first shareholders lost money on the venture which was a bad start for coal mining.

The Richmond mine appears to have worked prior to 1841 by means of a drift carried from the water's edge into a steep face of the river bank. These workings were flooded and the Government put down a shaft a few yards above the river but the operations were not successful although they did bring some coal to the Hobart market during 1841. Vessels of 20 tons burthen used to load in the estuary of the river about one mile distant. Milligan stated that the coal was an anthracite and only superior to that at Port Arthur in that it did not spit and fly about to the extent of Port Arthur coal when it was first heated. In common with other non-bituminous coals this coal had the property of great durability as a fuel burning without flame and emitting little smoke. He stated that the mineral when newly broken had a shining lustre, and a greyish-black colour and was compact.

Interest was increased in 1848 due to the beginning of smelting operations in South Australia and in Hobart. The Australian Smelting Company was formed (another promotion of Swanston) to smelt South Australian copper ore in Hobart, "taking advantage of the abundance of wood and coal in Van Diemen's Land". In 1849 offers were made in South Australia to take 25,000 tons annually if it could be delivered at Adelaide for 21s. per ton (Dennison to Grey, 18th May, 1849) and as a result a local mining company rented the

Schouten Island mines for seven years on a payment of 2d. per ton royalty to the Government. Milligan in 1848 estimated that there were 30,000 to 40,000 tons available on the Island.

At the same time enquiries were made about coal on the Douglas River and Dennison offered to lease the area on similar terms to the Schouten Island mines, offering also to aid the enterprise with Government labour. However, very little coal was produced from these mines although coal was marketed from Schouten Island as early as 1844.

Commencing from its small beginnings at Port Arthur and elsewhere the coal industry has advanced. The main impetus being given when the Hobart-Launceston Railway Line was opened for traffic in 1876. The Corners (now Conara Junction) to St. Marys Line was opened up in June, 1886, and of course this allowed the coal mines at St. Marys to be developed. After the commencement of hostilities in 1939 many consumers were using imported coal and due to stoppages on the mainland, the difficulties in shipping, shortage of supplies due to war requirements, &c., these consumers were more or less forced to use Tasmanian coal which was available at that time. In some instances modifications were carried out to the existing coal burning plants but in other cases the consumers just carried on with their existing plant. In many cases it was found that the Tasmanian coal could provide the necessary heat to carry on although, of course, the quality of our local coal is different to the N.S.W. product. New installations were designed to burn our own local coal which could be supplied in increasing quantities if necessary. It might be mentioned that the paper-making industry which commenced in 1940 had their plant designed to use local coal and it can be said that they were able to continue operations satisfactorily although not without many problems. The cement works at Railton has been able to operate on Tasmanian coal while other industries have been able to operate also on our own local product.

It is interesting to note that excluding gas and bunker coal which is of necessity N.S.W. coal, we imported only one ton of N.S.W. coal for every eight tons of Tasmanian coal consumed in 1948, and in 1953 this proportion had fallen to approximately 1 in 28. respectively. The proportion was up to 1 in 16 in 1955 but even this figure represents only half the figure for 1948. During that period consumption of Tasmanian coal increased but whereas in 1948 we imported about 19,000 tons for other than gas and bunker coal, the importation was below 8000 tons in 1953. The figure rose to about 19,000 again in 1955, which was chiefly due to imported coal for use at the aluminium works at Bell Bay and the Paper Mill at Burnie. It is expected that this figure of imported coal will again fall.

Coal utilisation has also greatly changed, for whereas the demand for Tasmanian coal at one time was for all large coal, and it was difficult to find a market for small coal, in 1948 the proportion was approximately 45% large coal and 55% small, and in 1955 the consumption was in the proportion of 17% large and 83% small coal. As a consequence, crushing plants have been installed at some mines to meet the increased demand for small coal, as the proportion normally produced in working is generally around 40% slack and 60% large, although this figure varies quite a deal.

CONSUMPTION OF TASMANIAN COAL

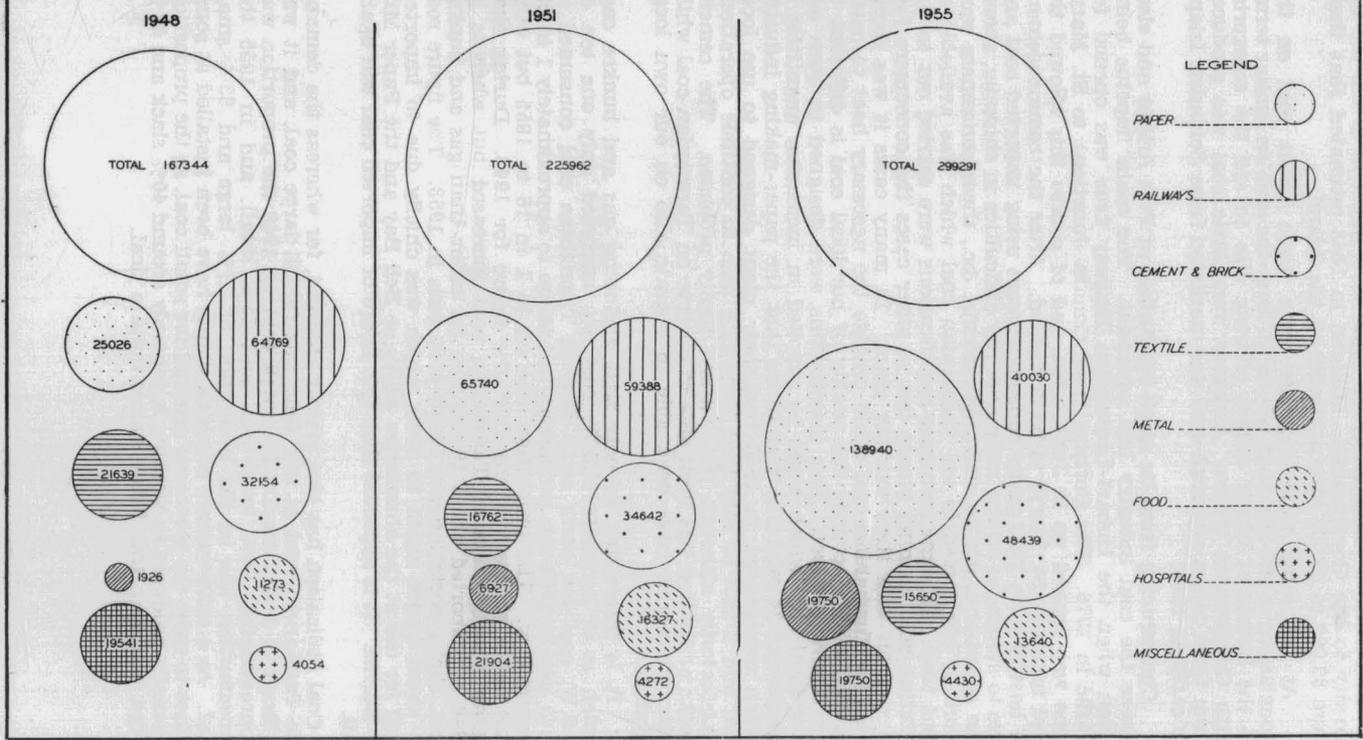


Plate 33

5 cm

Most Tasmanian coal has a comparatively high inherent ash content ranging from about 18% upwards, and most of the seams contain bands of mudstone and also splinty coal which contains a high ash content. As a result of grunching methods, now the general practice, much material from these bands becomes mixed with the coal and so the ash content in the marketed product is usually much higher than the seam sample analyses show. The small particles are of course the worst to pick out during the mining under ground as the miners are generally paid on a contract system so that they are anxious to fill their quota as quickly as possible. It does not appear to me that the problems will be overcome without the use of washing plants either at the mine or by the consumer. One mine has nearly completed the installation of a washing plant, and this should be in operation shortly.

It will be seen from the accompanying plates that consumption has increased and it can also be seen how the various consumers have been affected. It should be noted that whereas in N.S.W. the greatest consumption of coal is for generation of electricity, for iron and steel refining, and for gas and bunker coal these markets do not exist in Tasmania. All our coal is used for heating purposes as most of Tasmania's power requirements are supplied from our hydro-electric sources which would probably be equivalent to a consumption of one and a quarter million tons of Tasmanian coal for the present year.

Dealing with the production side of the industry an accompanying plate shows the relative total production, output per man year, and the average number of men employed. Bi-yearly figures have been chosen generally. The peak production prior to 1940 was in 1930 when 138,714 tons were produced but the table has commenced at the year 1936, the year of second highest production. In 1940 the production reached its lowest level since 1926 (14 years).

To get a better general average for output per man year, the quarterly figures have been calculated and the sum of the four quarters accepted for each year's figures. It is felt that this would be a more representative figure. It will be seen that the output per man year has risen quite considerably since 1940. The steep rise in 1941 was probably due to the fact that consumers were prepared to accept anything and the miner was filling the slack coal which had previously been discarded and left in the mine. Since 1941 the whole product at the face has been sent to the surface.

The Coad Board's Report for 1954-55 publishes the production figures for various groups in N.S.W. The output per man year over the whole of the State was 710 tons. The Tasmanian figure is shown as 794. Various groups are given, some of which do not apply to Tasmania, for instance "All machine loaded with modern haulage facilities" and "All machine loaded without modern haulage facilities" in group B can both be ruled out. As for group C ("partly machine loaded and partly hand loaded"), there are two such mines operating in Tasmania and the N.S.W. figure of 506 tons per man is approximately only half the Tasmanian figure. For the category "All hand loaded employing more than 12 men underground" the figures are 586 tons per man year in N.S.W. and 799 tons in Tasmania.

ANNUAL TOTAL PRODUCTION
 PRODUCTION PER MAN YEAR
 AVERAGE NUMBER OF EMPLOYEES
 PER YEAR

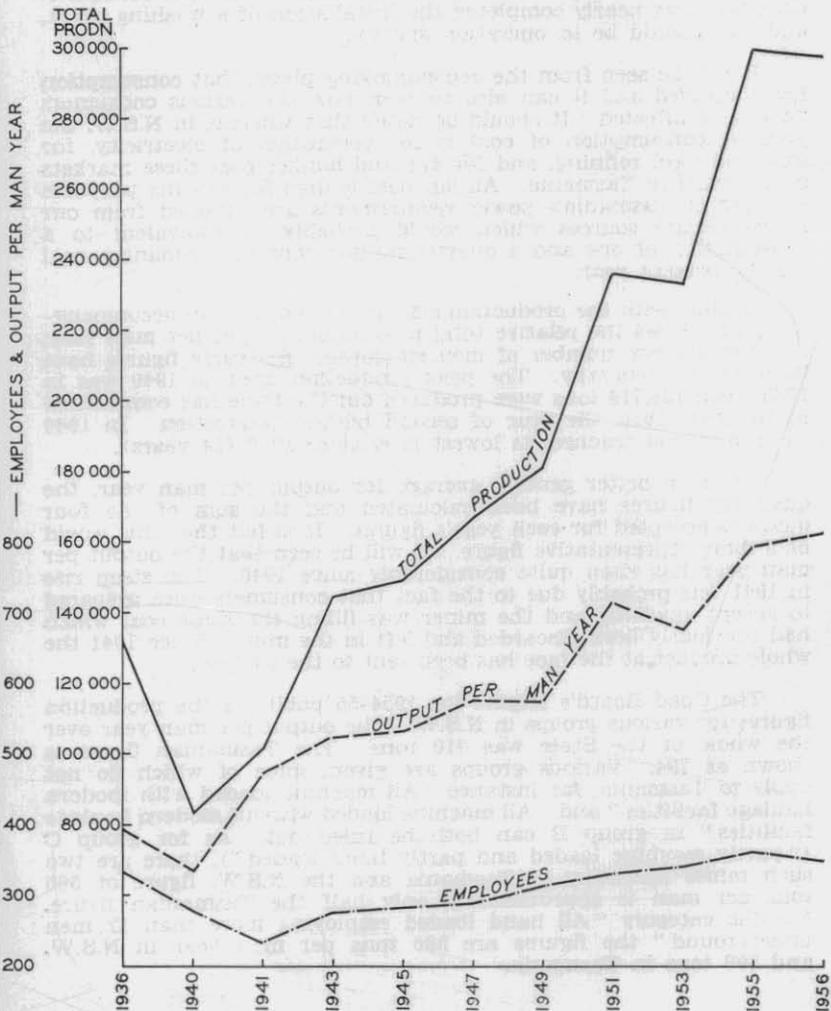


Plate 34

5 cm

For "all hand loaded employing not more than 12 men underground" the N.S.W. figure is 865 whereas the Tasmanian figure is 890 so that the production per man year in Tasmania is higher than that in N.S.W. under comparable conditions. The production from open-cut operations is not included in the figures quoted for output per man year but the production is shown on the total production line. Total production of Tasmanian coal to 31st December, 1956, reached 7,196,638 tons valued at £7,359,105 at the mines. The total value of course may be regarded as much higher than this figure, as freight and handling charges must be added. Other minerals are valued at market value so that coal is placed at a disadvantage when these values at the Pit Mouth are quoted.