



PAPER UPON THE MINING INDUSTRY OF TASMANIA.

Read by MR. F. BELSTEAD, *Secretary for Mines, at the Annual Meeting of the Chamber of Commerce, 30th October, 1895.*

I AM asked by this Chamber to give a brief *résumé* of the condition of the mineral industry in this colony, and, quoting from a paper recently written by our able and esteemed Geological Surveyor, Mr. A. Montgomery, B.A., I may say, in his words, that "the mineral industry of Tasmania, though far from being well developed, is one of its most important sources of wealth, and bids fair to increase in importance as the wilder and more inaccessible portions of the country become opened up to prospectors by roads, tramways, railways, and other means of access."

A great extent of mineral country, notably on the West Coast, still remains practically unexplored, and even the best known fields cannot be said to be thoroughly tested, so there is every reason to believe that with progress of time, and with increasing facilities, there will be numerous new mineral discoveries, and a great extension of the mining industry.

TABLE I.

TABLE showing the proportion of the value of the Mineral and Metal Exports to the Total Exports, for the last Seven years.

	Per cent.
1888.....	42·44
1889.....	33·08
1890.....	30·38
1891.....	37·89
1892.....	38·60
1893.....	44·46
1894.....	50·55
Mean	39·63

The value of the industry is well shown by a table which I annex to this paper, giving the proportion of the value of the mineral exports to the total exports, which shows that the proportion for the year 1894, which is the latest that I have at hand, is 50·55 per cent. of the whole exports of the colony.

Gold.—The increased production of this metal has been very marked during the past year. Starting with the year 1867 when 1383 oz. only was produced, we find that during 1894 the yield was 50,059 oz. valued at £225,485; and seeing that the goldfields of the colony are really, as yet, quite in the first stages of their development, and will increase in productiveness as they become more thoroughly and systematically worked, we are justified in expecting a great increase in this branch of the industry in the near future.

Silver and Lead.—Argentiferous ores are found all over Tasmania, in the districts where the older formations occur. But it was only in the year 1888 that any attention began to be paid to its production; in that year 417 tons only were produced, whilst for the year 1894 the export was 21,064 tons, of the value of £293,043.

Copper Ores in small quantities are common in association with those of tin and lead throughout the colony. So far but little has been done by way of working them. To the end of 1894 the total production may be reckoned at 930 tons, of the value of £8000; but the deposits upon which rest the hope of the colony becoming a great producer of this metal are along the West Coast Range in which is situate the Mount Lyell mine, to which I shall refer later on.

Tin.—The tin deposits of Tasmania have been its greatest source of mineral wealth, the value of tin raised being greater than that of all the other minerals put together. It is notable also that Tasmania is the third largest producer of tin in the world, being only exceeded by the Straits Settlements and Cornwall. Tin appeared among our exports first in 1873, when 3 tons were exported. For the year 1894 the export was 3053 tons, valued at £202,494.

Iron.—Although the colony has abundant stores of the ores of iron of good quality, they have not yet been profitably worked.

Other Metals.—Nickel, bismuth, cobalt, manganese, antimony, wolfram, &c., &c., are known to exist in various localities. No export of either in quantity has yet been made.

Coal.—The production of coal for 1894 was 31,681 tons. Most of the coal raised is consumed locally, very little being exported. The coal fields of the colony are capable of great development when the demand for their product shall arise, and are quite sufficient to supply the colony with all the fuel that it will require for all ordinary purposes.

Precious Stones.—Sapphires of small size are very common in the tin drifts in the Ringarooma and Portland districts, and a few very large and fine stones have been found, and with these we have garnets, spinels, zircons, topazes, and occasionally beryls and chrysoberyls, but nothing so far of special commercial value.

Taking a rapid glance around the mineral fields of the colony, starting from Hobart, we find the coal-field at the Sandfly, the outcrops of which are of very superior quality, now being tested by the diamond drill. At Lymington, on the Huon River, sluicing for gold is being done. Passing on to Cox's Bight, on the South-West Coast, a considerable deposit of alluvial tin is being worked. Thence on to the West Coast proper we come to the Mount Lyell mine, as to which the eminent American copper metallurgist, Dr. Ed. Peters, jun., after a careful study of some months, reports the ore in sight at $4\frac{1}{2}$ million tons, which can be worked at a profit of £1 10s. 5d. per ton; and he ends his valuable report with these words, "I will only say, in conclusion, that in the past 20 years I have never seen a mining and metallurgical proposition that promises so certainly to be a great and enduring property as this."

At the time of Dr. Peters' visit a rich vein of silver-copper glance was struck which assayed from 500 to 6000 oz. of silver with 20 per cent. of copper to the ton. This vein was not taken into Dr. Peters' calculations, but it yielded some 500 tons of ore containing 600,000 oz. of silver and over 120 tons of copper.

A railway from Macquarie Harbour to the mine and extensive reducing works are in course of construction, and already two considerable townships have sprung into existence.

Besides the Mount Lyell mine there are other claims in the immediate vicinity, which, given the means of access, will shortly become exporters of ore.

Mr. Montgomery says that "there can be no doubt that the West Coast Range of Tasmania is destined before long to be a large producer of copper, and it is quite likely that the value of the copper and other precious metals associated therewith will equal at least the total present mineral export of the colony."

Passing west from Mount Lyell, some 16 miles as the crow flies, but in the same belt of country, is the N.E. Dundas field. Here are the Mount Reid and Ring River gold deposits and the mineral claims known as the Rosebery, the Hercules, and Curtin and Davis, in which discoveries of ore similar to the Mount Lyell deposits, and of very high assay value and great extent, have recently been made. It is to this country that the proposed tramway from Zeehan is to extend. When this work is complete it is as near as may be a certainty that vast wealth of minerals will be produced.

The Dundas field contains great stores of silver-lead, tin, and nickel, which are steadily but surely in process of development. The route of the proposed Waratah-Zeehan Railway extends through this field to its junction with the Emu Bay line, some 35 miles, passing through known mineral country, and it is not idle to predict that many extensive and valuable mines will be revealed as the country is opened up thereby.

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The Mount Zeehan field is one vast network of silver-lead deposits, many of which have been satisfactorily opened and are now at work. The premier mine of the district—the Western—has exported to date 17,043 tons of ore of the value of £194,863, and has already paid £57,750 in dividends.

Hitherto, unfortunately, as to this and the Dundas fields, more attention has been paid to scrip-broking than to mining, but now that things have settled down somewhat, a large amount of legitimate mining is in progress, and a bright future is before the field. The export of ore up to date has been 67,182 tons, valued at £798,359.

Going north to the Heemskirk tinfield, it is without doubt that the deposits of lode tin in this region are extensive, and although great sums of money have been expended in machinery (to a great extent useless) the field has not yet had a fair test.

The Corinna goldfield has for many years yielded considerable quantities of alluvial gold, and schemes are now in progress to test the drift deposits by means of hydraulic sluicing. Further northward come the alluvial tin deposits at and near Mount Norfolk, from which a fair quantity of metallic tin has been, and is now being obtained. Turning north-east we come to the Rocky River auriferous country, where the largest nuggets found in the colony, of 243 oz. and 143 oz. respectively, were unearthed. Thence on to the Heazlewood and Whyte River districts, which contain gold, silver, lead, nickel, and bismuth. Some of the deposits have been worked and are working, but the majority are waiting better facilities for transit for their profitable development. Passing on to Waratah, the location of the great Bischoff tin mine, the quantity of tin ore produced from this grand mine has been 31,836 tons, from which, to date, £1,389,000 has been paid in dividends. Passing on to the North-West Coast, we have gold at the Inglis, the Cam, and the Hellyer; iron at the Blythe; galena at the Peuguin; tin and copper at Mount Housatop. Thence on to Bell Mount, Mayday, Middlesex, the Upper Forth, the Minnow River, and Mount Claude, are found, and worked to a greater or less extent, gold, tin, bismuth, and silver-lead. The coalfields of Dulverton and Spreyton also produce considerable quantities of fair coal.

Thence on to Beaconsfield, on the west bank of the Tamar River, there is a large area of auriferous country, which, during the several years it has been worked, has produced a total of 366,664 oz. of gold. It is still the premier goldfield of the colony. Up to the end of last year its percentage to the total gold yield of the colony was 47.72 per cent. The principal mine here—the Tasmania—has, during the 18 years of its existence, produced 334,356 oz. of gold (or nearly 10½ tons), of the value of £1,205,165, and has paid £586,275 in dividends.

On the east bank of Tamar is the Lefroy goldfield, which really may be said to be only beginning to be prospected. During the early days of its existence it produced considerable quantities of gold, which, however, pinched out at a comparatively shallow depth, and the place became nearly abandoned. During the last two and a half years, however, a decided revival set in. Gold has been found to exist or "live down" to lower levels than had hitherto been believed, and to-day there is much activity and several mines profitably at work on the field. The total yield has been 170,000 oz., and the dividends paid during the last two years have exceeded £100,000, besides money spent in machinery and development.

The Lisle alluvial goldfield has in the past been a great producer, and still maintains some 50 miners and their families.

The North-Eastern mining field, embracing Warrentinna and Mount Victoria for gold, and Braxholm, Ruby Flat, Brothers' Home, Moorina, Garibaldi, and Mount Cameron for tin, has for years yielded, and still continues to yield, large quantities of alluvial tin. The shallow deposits in many localities are becoming worked out, still there can be no doubt but that there are many others as rich, and possibly richer, yet to be discovered and worked.

On towards St. Helen's, in the Eastern District, we find the Waverley mine, at Weldborough, and other claims which have been great producers, and from which the output is still considerable; thence on to the Blue Tier, where are situate the Puzzle, the Lottah, the Full Moon, and the Anchor mines. None of these mines have so far been worked with great success, still there is known to be an enormous deposit of payable lode tin which requires much capital to successfully deal with. The capital is stated to be now available, when no doubt the field will give a good account of itself.

The alluvial deposits in the vicinity of St. Helen's are yet far from being worked out. A recent discovery of copper ore of reputed high percentage and considerable extent is in process of being opened up at the Scamander. This leads us on to Mathinna, the locality of the New Golden Gate mine. To this mine belongs the honour of being the deepest in the colony—over 1000 ft. During the seven years of its working it has yielded 63,557 oz. of gold, and has paid

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£91,200 in dividends, and it is reported to have three years' payable work in sight, and has proved satisfactorily the long-doubted question that gold does "live" at a depth in this colony. Besides this mine there are others in the locality which, having now secured the necessary capital, will shortly add to the wealth of the colony. At Mangana, too, considerable development is going on with satisfactory prospects. Coming to the Mount Nicholas range, the two coal mines—the Cornwall and the Mount Nicholas—continue to employ about 45 to 50 miners each, and to supply a fair coal of an annual market value of about £25,000. A few miles further on lie the Ben Lomond and St. Paul's River tin deposits; at present, from various causes, want of capital being the chief, other than the lack of mineral, not much is doing here. Turning south, a little coal is obtained at York Plains and at Colebrook.

I have thus completed the circuit of the colony. I trust I may not have wearied you, but it has seemed to me that the interests are so important, and the outlook so encouraging, that they should be known and understood. I have quoted very largely from Mr. Montgomery's reports, as they are those of an expert, which I make no claim to be. I cannot conclude better than by saying in his words—"The colony is bountifully endowed with great variety and abundance of mineral wealth, with stores of gold, tin, silver, copper, lead, iron, and coal; plentiful supplies of water, excellent timber, a splendid temperate climate, and great natural advantages as a receiving and distributing centre. There are unusually good facilities for the growth and establishment of metallurgical and manufacturing industries. And with the removal of fiscal barriers to the interchange of products among the colonies of Australasia, these natural advantages must in the end make her take a leading part, not only as a producer of raw material, but also as a maker of finished products."

TABLE II.
PRODUCTION OF GOLD IN TASMANIA.

Year.	Quantity.	Value.	Year.	Quantity.	Value.
	Ounces.	£		Ounces.	£
*Previous to 1867.....	843	2708	1881.....	56,693	216,901
1867.....	1363	4382	1882.....	49,122	187,337
1868.....	692	2536	1883.....	46,578	176,442
1869.....	137	514	1884.....	42,340	160,404
1870.....	964	3666	1885.....	41,241	155,309
1871.....	6005	23,467	1886.....	31,015	117,250
1872.....	6969	27,314	1887.....	42,609	158,533
1873.....	4661	18,390	1888.....	39,611	147,154
1874.....	4651	18,491	1889.....	32,333	119,703
1875.....	3010	11,982	1890.....	23,451	87,114
1876.....	11,107	44,923	1891.....	39,203	149,816
1877.....	5777	23,289	1892.....	45,110	174,070
1878.....	25,249	100,000	1893.....	37,230	145,875
1879.....	60,155	230,895	1894†.....	58,059	225,485
1880.....	52,595	201,297			
			TOTAL.....	768,773	2,935,247

* Production previous to 1867 estimated by difference.

† Production in last quarter of 1894 estimated.

TABLE III.
PRODUCTION OF SILVER ORE IN TASMANIA.
(Inclusive of Silver-lead Bullion.)

Year.	Quantity (tons of 2240 lbs.)	Value.
		£
1888.....	417	5838
1889.....	415	7044
1890.....	2053	26,487
1891.....	4810	52,284
1892.....	9326	45,502
1893.....	14,302	198,610
1894.....	21,064	293,043
	52,387	£628,802

TABLE IV.
PRODUCTION OF TIN IN TASMANIA.

Year.	Quantity.*	Value.	Year.	Quantity.*	Value.
	Tons.	£		Tons.	£
1873	3	220	1884	3698	301,423
1874	100	7318	1885	4242	357,587
1875	366	31,325	1886	3776	363,364
1876	1453	99,605	1887	3606	407,857
1877	4760	296,941	1888	3775	426,326
1878	5369	316,311	1889	3786	344,941
1879	4378	303,203	1890	3213	296,761
1880	3953	341,736	1891	3277	293,170
1881	4123	375,775	1892	3195	290,794
1882	3647	361,046	1893	3129	266,156
1883	4100	376,446	1894	3053	202,454
			TOTAL.....	71,002	6,060,759

* Metallic tin : ore exports reduced to metal.

TABLE V.
PRODUCTION OF COAL IN TASMANIA.

Year.	Quantity. Tons.	Value at Market.	Year.	Quantity. Tons.	Value at Market.
		£			£
Previous to 1875 ...	100,000	75,000*	1885.....	6654	5989
1875 ...	7719	} 40,000*	1886.....	10,391	9352
1876 ...	6100		1887.....	27,633	24,870
1877 ...	9470		1888.....	41,577	37,420
1878 ...	12,311		1889.....	36,700	33,030
1879 ...	9514		1890.....	50,519	45,467
1880 ...	12,219	10,998	1891.....	43,256	38,930
1881 ...	11,163	10,047	1892.....	36,008	32,407
1882 ...	8803	7923	1893.....	34,693	27,754
1883 ...	8872	7985	1894.....	30,922	24,738
1884 ...	7194	6475			
			TOTAL	511,718	438,385

* Estimated ; no returns.

TABLE VI.
GOLD Produced in the various Mining Districts of Tasmania between 1866 and 1894.

District.	Gold.			Per cent. to Total.
	Alluvial.	Quartz.	Total.	
	oz.	oz.	oz.	
Beaconsfield	35,637	331,017	366,654	47·72
Lefroy and Back Creek.....	9778	148,463	158,241	20·60
Lisle	82,010	...	82,010	10·67
Fingal, Mangana, and Mathinna.....	10,862	72,687	83,549	10·89
West Coast	44,592	3180	47,772	6·21
Mount Victoria	11,960	11,960	1·56
Denison, Golconda	935	3910	4845	·63
Other places, including Gladstone, Hellyer, Minnow, Forth, and Cam Rivers, Bransholm, &c.....	8374	4822	13,19	1·72
	192,188	576,039	768,227	...
Per cent. to Total	25·04	74·96	...	100·10

TABLE VII.

TABLE showing the relation of Area and Population to value of Mineral Production in these Colonies, during the Four Years ended 1894.

	Area, Square Miles.	Relative Size.	Mean Annual Population, 1890-94.	Mean Annual Population per 100 sq. miles, 1890-94.	Mean Annual Value of Mineral Products.	Annual Mineral Production per head of Population.	Annual Mineral Production per 100 sq. miles.
					£	£	£
Tasmania.....	26,215	1	150,377	573	515,473	3.43	1966.5
Victoria	87,884	3½	1,150,716	1309	2,547,447	2.21	2899.5
New Zealand	104,471	4	644,187	617	1,591,747	2.47	2470.5
New South Wales	310,700	12	1,166,001	375	5,301,011	4.55	1709.3
Queensland	668,497	25½	418,757	63	2,484,727	5.98	371.6
South Australia	903,690	34	327,705	36	355,833	1.09	39.3
Western Australia	1,060,000	40	57,618	5	318,944	5.54	30.0