

NUMBER OF PERSONS EMPLOYED IN SILVER MINING, 1901 to 1910.

Year.	N S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	No.	No.	No.	No.	No.	No.	No.
1901 ..	6,298	...	40	150	...	2,414†	8,902§
1902 ...	5,382	...	100	150	...	2,893†	8,525§
1903 ...	6,035	...	458	150	...	1,681†	8,324§
1904 ...	7,071	...	45	50	...	1,101	8,267
1905 ...	7,887	...	293	50	...	1,512	9,742
1906 ...	9,414	13	282	50	...	1,745	11,504
1907 ...	10,021	10	785	86	8	1,908	12,818
1908 ...	7,560	3	496	51	5	1,740	9,855
1909 ...	6,207	...	354	40	5	1,516	8,122
1910 ...	7,999	...	590	125*	21	1,173	9,908

* Including 60 miners in Northern Territory. † Including copper miners. § Including copper miners in Tasmania.

As the table shews, the bulk of the employment was in New South Wales and Tasmania, the quantity of silver raised in the other States, excepting Queensland, being unimportant.

§ 5. Copper.

1. **Production of Copper.**—The production of copper in the various States of the Commonwealth has been influenced considerably by the ruling prices, which have undergone extraordinary fluctuations. The quantity and value of the production in earlier years and for 1906 to 1910 is shewn in the following tables:—

PRODUCTION OF COPPER, AUSTRALIA, 1881 to 1910.

State.	1881.	1891.	1901.	1906.	1907.	1908.	1909.	1910.
QUANTITY.								
	Tons.	Tons	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
N.S.W. ... { Copper	*	*	6,087	8,964	8,963	8,679	6,857	8,435
{ Ore			645	791	1,135	392	109	4,455
Victoria... { Copper			...	...	38	983	17	150
{ & Ore	*	*	...	...	...	...	...	...
Q'land ... { Copper	330	85	3,061	10,077	12,756	14,961	14,494	†16,387
{ Copper	3,824	3,551	6,736	8,406	8,763	6,152	5,776	5,199
{ Ore	21,638	13,239	2,353	527	...	1,345	1,345	...
W. Aust. ... { Copper	...	*	...	...	1,602	479	833	1,281
{ Ore	...	...	10,157	7,430	3,727	2,503	6,959	6,309
{ Copper	...	...	9,730	8,613	9,035	8,833	8,638	8,864
{ Ore	...	...	10,029	2,235	...	1,185	1,588	...
C'wealth { Copper	...	...	25,614	36,060	46,019	44,167	36,528	40,166
{ Ore	...	...	23,184	10,983	...	...	10,018	10,914

* Not available. † Including 97 tons of copper, Northern Territory.

VALUE.

	£	£	£	£	£	£	£	£
New South Wales ...	227,667	119,195	412,292	789,527	727,774	502,812	424,737	486,257
Victoria ...	8,186	216	...	...	2,356	3,928	44	450
Queensland ...	19,637	3,554	194,227	916,546	1,028,179	893,535	853,196	932,489
South Australia ...	418,296	235,317	500,077	743,671	705,031	345,968	342,329	*307,316
Western Australia ...	...	4,463	75,246	50,337	203,376	57,091	104,644	95,928
Tasmania ...	...	...	1,026,748	844,663	869,665	609,651	608,038	566,972
Commonwealth ...	673,786	362,745	2,208,590	3,344,744	3,536,382	2,412,985	2,332,988	2,389,412

* Including £1196, Northern Territory.

2. **History.**—(i.) *New South Wales.* It is believed that copper was the first metal mined for in New South Wales, the earliest attempts at working taking place about the year 1844. The deposits at Copper Hill, near Molong, were worked in 1845, as well as those in the neighbourhood of Canowindra. In 1847 mining for copper was commenced at the Summerhill Estate, near Rockley. The Rev. W. B. Clarke reported the discovery of copper ores near Marulan in 1851, and at Quidong, in the Snowy River district, in 1852. The Mount Hope field was opened in 1878, Nymagee in 1880, and Lake George in 1882. The principal seat of the copper-mining industry at the present date is in the Cobar district, the value of the deposits there being first recognised in 1869. The value of the output of the Cobar district in 1910 was £282,348, out of a total for the State of £486,527. Operations at the Great Cobar Mines were to some extent interfered with in the early months of the year by the coal miners' strike, but the shortage in production was more than counterbalanced by the increased output later, the total for 1910 being 6248 tons of copper as compared with 4855 in 1909. Owing chiefly to the low price of copper, and the lack of railway facilities, the Nymagee, Shuttleton, Mount Hope and Burruga Mines remained closed down, while operations were conducted on a limited scale only at Girilambone.

From the Grafton Company's mine at Cangai a considerably augmented output was supplied, the production for the year being valued at £41,477. The Kyloe mine, in the Cooma division, contributed materially to the increased output, the production from this mine being valued at £83,372, as against £29,996 in 1909. The Electrolytic and Refining and Smelting Company of Australia Limited, established at Port Kembla, had a successful year, and in view of the increasing business it has been decided to double the capacity of the works. During 1910 the output of electrolytic copper was 9952 tons, most of which was made from blister copper produced at Mt. Morgan, Queensland.

(ii.) *Victoria.* In Victoria copper has been found at Bethanga, Sandy Creek, near Bogong, Walhalla on the Thomson River, and on the Snowy River and at Mount Tara near Buchan. The production shown in the table was obtained from the old copper mine at Walhalla, which was reopened in 1910.

(iii.) *Queensland.* The first important discovery of copper in Queensland was made in the year 1862, when a rich lode was found near Clermont, on the Peak Downs. A further discovery was made during the same year at Mount Perry. Copper, tin, silver, and gold were found on the Herberton, Walsh, and Tinaroo mineral fields in 1879. The famous Mount Morgan gold mine, discovered in 1882, also produces a considerable amount of copper, the production therefrom in 1910 exceeding that from any other district. As compared with the previous year, the increase in production in 1910 was due principally to the activity at the Mount Elliot mine, at Cloncurry, and the Einasleigh mine, on the Etheridge field. The production in 1910 from the more important districts was as follows:—Mount Morgan, £364,933; Mount Perry, £55,290; Cloncurry, £185,162; Rockhampton, £89,993; Chillagoe, £106,632; Etheridge, £76,132; Gladstone, £28,874.

(iv.) *South Australia.* Taking the entire period over which production extended, the yield of copper in South Australia easily outstrips that of any other State in the Commonwealth. In recent years, however, Tasmania, Queensland, and New South Wales have come to the front as copper producers, as the table on the preceding page will shew. Deposits of copper ore are found over a large portion of South Australia. The Kapunda mine, discovered in 1842 by Messrs. Dutton and Bagot, is situated fifty miles north of Adelaide, and is the oldest copper mine in the State. Up to the end of 1879 the production amounted to 70,000 tons, the metal possessing such a high standard of purity that it always obtained the highest prices in the world's markets. During the nine years 1870 to 1878 the production was valued at £157,000. The Burra Burra mine, located in 1845 by a shepherd named Pickett, is situated about 100 miles north of Adelaide. The original capital invested in this mine was £12,320 in £5 shares, on which no call was ever made, while dividends to the amount of £800,000 were paid. For many years this mine produced from 10,000 to 13,000 tons of ore, averaging 22 to 23 per cent.

of copper. During the 29½ years in which the mine was worked the production was valued at £4,749,000. In 1859 as many as 1170 persons were employed on it. The mine has lain practically idle for many years, but recently there have been attempts at reworking.

Yorke's Peninsula, between Spencer's Gulf and St. Vincent's Gulf, contains a large area of copper-bearing country. The principal mines at Wallaroo and Moonta are situated a few miles from Port Wallaroo, and date back to 1860. For about thirty years the Moonta mines were worked independently, selling their ores to the Wallaroo company. During its separate existence the Wallaroo field produced about £2,600,000 worth of copper, while Moonta yielded £5,396,000, and was the first Australian mining field to produce £1,000,000 in dividends. The amalgamation took place in 1889, and since that year the united properties have produced about £4,281,000 worth of copper. The entire yield from the date of first working is estimated at about £12,500,000. The mines just enumerated represent a very small proportion only of those opened on the copper-bearing areas of the State. Owing to the depression in the price of copper in 1910 mining operations were considerably restricted, except at the old and well-established mines. The Paramatta and Yelta mines, in the Moonta district, have now been acquired by the Government for the sum of £6000.

Copper is also obtained in the Northern Territory; the actual output of ore for the year, however, was only £1196 in value. This poor result was entirely due to the low prices and high cartage rates from outlying fields from which, in the main, copper is produced.

(v.) *Western Australia.* The inception of active mining operations in Western Australia dates from the year 1842, when lead and copper mines were discovered in the Northampton district, but working was carried on in a most perfunctory manner in the early days, sinking being discontinued as soon as the lodes shewed signs of contraction. Rich lodes of copper have been located at Whim Creek, in the Pilbara district, about fifty miles eastward of Roeburne, the copper ore being removed by quarrying. Promising lodes have also been struck at the Irwin mines, between Arrino Springs and the Irwin River. The Kimberley district is intersected in places by copper and lead deposits in association with gold, and a rich lode has been located at Mount Barren, about 120 miles to the eastward of Albany, while various quartz reefs in the Wongan Hills contain copper in association with gold and iron. The centres of production in 1910 were the Phillips River field, with 25,872 tons copper ore, valued at £96,745, and the West Pilbara field, which yielded 8480 tons, valued at £64,861.

(vi.) *Tasmania.* For a long time Tasmania was the largest producer of copper in the Commonwealth, but during the last four years Queensland has occupied the premier position. The cupriferosus area in the island State stretches from Mount Lyell, Mount Tyndall, Mount Read, and Mount Murchison, in the western district, to some distance north of the Pieman River. Copper mining has also been started on the north-west coast, notably in the Stowport and Blyth River districts, and some attention has been given to the deposits at Rocky Cape and Boat Harbour. In 1910 the output of the Mount Lyell Mining and Railway Co. Ltd. was 8,193 tons of blister copper, which contained copper valued at £483,806, silver £70,017, and gold £50,367. This company during the year paid £180,000 in dividends. A new copper field at Mount Balfour is attracting considerable attention. A number of sections have been taken up and are being systematically prospected.

The output for the year 1909 was valued at £608,038, which was £1613 less than the previous year, and £261,628 less than that of 1907. Several of the mines which in past years were large producers remained closed down during the whole of 1909, while, taken generally, work at other mines throughout the Commonwealth was, for a variety of reasons, only conducted on a limited scale.

3. Price of Copper.—The great variation in price that the metal has undergone is shewn in the following table, which gives the average price in London and New York

during the last ten years. The figures are given on the authority of "The Mineral Industry." Prices of standard and best selected copper are given in preceding Year Books at various periods since 1897.

FLUCTUATION IN THE VALUE OF COPPER, 1901 to 1910.

Year.	London Price per Ton Standard Copper.	New York. Price in Cents. per lb.	
		* Lake Copper.	Electrolytic Copper.
	£	Cents.	Cents.
1901	66.79	16.55	16.11
1902	52.46	11.89	11.63
1903	57.97	13.42	13.24
1904	58.88	12.99	12.82
1905	69.47	15.70	15.59
1906	87.28	19.62	19.28
1907	87.01	20.66	20.00
1908	59.90	13.42	13.21
1909	58.73	13.34	12.98
1910	57.05	13.04	12.74

* The term "Lake" copper is used to designate all copper sold in the trade as such, regardless of the process by which it is refined.

There is no doubt that the steady rise in the price of copper from the year 1902 onwards caused a large amount of overtrading with consequent unhealthy inflation of values, while the sudden drop in 1908 was directly due to the financial panic in America. It is believed, however, that the increasing demand for the metal in electrical and other industries will, under ordinary circumstances, tend in time to establish prices on a sounder basis, and at higher rates than those quoted for the last twelve months in the table above.

4. **Relationship to World's Production.**—The world's production of copper in 1901 and during the last five years is estimated to have been as follows:—

WORLD'S PRODUCTION OF COPPER, 1901 to 1910.

Year	1901.	1905.	1906.	1907.	1908.	1909.	1910.
World's production— (short tons)	583,517	770,221	788,492	798,205	835,623	922,408	955,037

5. **Employment in Copper Mining.**—The number of persons employed in copper mining during the last nine years was as follows:—

PERSONS ENGAGED IN COPPER MINING, 1901 to 1910.

Year.	N.S.W.	Victoria.	Q'land.	S. Aust.	W. Aust.	Tasmania.	C'wealth.
	No.	No.	No.	No.	No.	No.	No.
1901	2,964	4	814	4,000	321	*	8,103†
1902	1,699	...	666	4,000	113	*	6,478†
1903	1,816	...	1,418	4,000	193	*	7,427†
1904	1,850	...	1,094	4,000	169	925	8,038
1905	2,171	...	1,435	4,500	125	2,269	10,500
1906	3,047	3	2,598	5,000	296	2,391	13,335
1907	3,764	10	3,941	5,254	611	2,614	16,194
1908	2,745	9	3,540	4,558	283	2,076	13,211
1909	2,024	2	3,241	4,504	497	2,038	12,306
1910	2,286	40	2,418	‡4,199	559	2,042	11,544

* Included with silver miners. † Excluding Tasmania.
‡ Including 49 miners in Northern Territory.